



RESEARCH CENTER

FIELD

Activity Report 2015

# Section Dissemination

Edition: 2016-03-21



ALGORITHMICS, PROGRAMMING, SOFTWARE AND ARCHITECTURE

1. ALF Project-Team	9
2. ANTIQUE Project-Team	12
3. AOSTE Project-Team	16
4. ARIC Project-Team	19
5. ATEAMS Project-Team	22
6. CAIRN Project-Team	25
7. CAMUS Team	29
8. CARMEL Project-Team	33
9. CARTE Project-Team	38
10. CASCADE Project-Team	43
11. CASSIS Project-Team	46
12. CELTIQUE Project-Team	50
13. COMETE Project-Team	54
14. COMPSYS Project-Team	59
15. CONVECS Project-Team	62
16. CORSE Team	67
17. CRYPT Team	72
18. DECENTRALISE Team	73
19. DEDUCTEAM Team	74
20. DICE Team	76
21. DREAMPAL Project-Team	78
22. ESTASYS Team	80
23. GALAAD2 Team	81
24. GALLIUM Project-Team	83
25. GEOMETRICA Project-Team	86
26. GRACE Project-Team	88
27. HYCOMES Team	93
28. LFANT Project-Team	95
29. MARELLE Project-Team	99
30. MEXICO Project-Team	101
31. MUTANT Project-Team	105
32. PARKAS Project-Team	107
33. PARSIFAL Project-Team	111
34. PI.R2 Project-Team	115
35. POLSYS Project-Team	119
36. POSET Team	124
37. POSTALE Team	128
38. PRIVATICS Project-Team	130
39. PROSECCO Project-Team	133
40. SECRET Project-Team	135

41. SPADES Project-Team .....	139
42. SPECFUN Project-Team .....	142
43. SUMO Project-Team .....	145
44. TASC Project-Team .....	148
45. TEA Project-Team .....	152
46. TOCCATA Project-Team .....	154
47. VEGAS Project-Team .....	160
48. VERIDIS Project-Team .....	163

APPLIED MATHEMATICS, COMPUTATION AND SIMULATION

49. ACUMES Team .....	169
50. APICS Project-Team .....	172
51. ASPI Project-Team .....	174
52. BIPOP Project-Team .....	176
53. CAGIRE Team .....	179
54. CARDAMOM Team .....	182
55. COMMANDS Project-Team .....	186
56. CQFD Project-Team .....	188
57. DEFI Project-Team .....	191
58. DISCO Project-Team .....	194
59. DOLPHIN Project-Team .....	198
60. ECUADOR Project-Team .....	204
61. GAMMA3 Project-Team (section vide) .....	205
62. GECO Project-Team .....	206
63. GEOSTAT Project-Team .....	208
64. I4S Project-Team .....	210
65. INOCS Team .....	213
66. IPSO Project-Team .....	214
67. MATHERIALS Project-Team .....	217
68. MATHRISK Project-Team .....	224
69. Maxplus Team .....	229
70. MCTAO Project-Team .....	234
71. MEMPHIS Team .....	235
72. MEPHYSTO Team .....	238
73. MISTIS Project-Team .....	241
74. MODAL Project-Team .....	245
75. MOKAPLAN Project-Team .....	250
76. NACHOS Project-Team .....	253
77. NANO-D Project-Team .....	255
78. NECS Project-Team .....	257
79. NON-A Project-Team .....	260
80. POEMS Project-Team .....	262

81. QUANTIC Project-Team	266
82. RAPSODI Team	269
83. REALOPT Project-Team	271
84. SELECT Project-Team	275
85. SEQUEL Project-Team	277
86. SIERRA Project-Team	282
87. SPHINX Team	285
88. TAO Project-Team	287
89. TOSCA Project-Team	291

DIGITAL HEALTH, BIOLOGY AND EARTH

90. ABS Project-Team	297
91. AIRSEA Team	300
92. AMIB Project-Team	304
93. ANGE Project-Team	307
94. ARAMIS Project-Team	311
95. ASCLEPIOS Project-Team	315
96. ATHENA Project-Team	319
97. BEAGLE Project-Team	323
98. BIGS Project-Team	326
99. BIOCORE Project-Team	331
100. BONSAI Project-Team	335
101. CAPSID Project-Team	339
102. CARMEN Team	341
103. CASTOR Project-Team	342
104. CLIME Project-Team	345
105. COFFEE Project-Team	347
106. DEMAR Project-Team	348
107. DRACULA Project-Team	351
108. DYLISS Project-Team	354
109. ERABLE Project-Team	359
110. FLUMINANCE Project-Team	364
111. GALEN Project-Team	366
112. GENSCALE Project-Team	369
113. IBIS Project-Team	372
114. LEMON Team	379
115. LIFEWARE Project-Team	381
116. M3DISIM Team	385
117. MAGIQUE-3D Project-Team	387
118. MAMBA Project-Team	390
119. MIMESIS Team	394
120. MNEMOSYNE Project-Team	400

121. MODEMIC Project-Team	403
122. Monc Team	406
123. MORPHEME Project-Team	409
124. MYCENAE Project-Team	412
125. NEUROMATHCOMP Project-Team	415
126. NEUROSYS Project-Team	417
127. NUMED Project-Team	420
128. PARIETAL Project-Team	422
129. PLEIADE Team	426
130. POPIX Team	427
131. REO Project-Team	428
132. SAGE Project-Team	436
133. SERENA Team	438
134. SERPICO Project-Team	441
135. SISTM Project-Team	445
136. STEEP Project-Team	448
137. TONUS Team	451
138. VIRTUAL PLANTS Project-Team	454
139. VISAGES Project-Team	457

NETWORKS, SYSTEMS AND SERVICES, DISTRIBUTED COMPUTING

140. ALPINES Project-Team	460
141. ASAP Project-Team	463
142. ASCOLA Project-Team	467
143. ATLANMODELS Team	470
144. AVALON Project-Team	472
145. CIDRE Project-Team	476
146. COAST Project-Team	486
147. COATI Project-Team	489
148. CTRL-A Team	495
149. DANTE Project-Team	497
150. DIANA Project-Team	501
151. DIONYSOS Project-Team	504
152. DIVERSE Project-Team	511
153. DYOGENE Project-Team	517
154. EVA Team	519
155. FOCUS Project-Team	525
156. FUN Project-Team	530
157. GANG Project-Team	534
158. HIEPACS Project-Team	539
159. INDES Project-Team	543
160. INFINE Team	546

161. KERDATA Project-Team	548
162. MADYNES Project-Team	552
163. MAESTRO Project-Team	559
164. MESCAL Project-Team	565
165. MIMOVE Team	567
166. MOAIS Project-Team	569
167. MUSE Team	572
168. MYRIADS Project-Team	574
169. PHOENIX Project-Team	581
170. RAP Project-Team	583
171. REGAL Project-Team	584
172. RMOD Project-Team	589
173. ROMA Project-Team	593
174. SCALE Team	597
175. SOCRATE Project-Team	600
176. SPIRALS Project-Team	604
177. STORM Team	610
178. TACOMA Team	614
179. TADAAM Team	616
180. URBANET Team	620
181. WHISPER Project-Team	625

PERCEPTION, COGNITION AND INTERACTION

182. ALICE Project-Team	628
183. ALPAGE Project-Team	631
184. AVIZ Project-Team	637
185. AYIN Team	642
186. Chroma Team	646
187. DAHU Project-Team	649
188. DEFROST Team	652
189. DREAM Project-Team	655
190. EX-SITU Team	657
191. EXMO Project-Team	663
192. FLOWERS Project-Team	666
193. GRAPHDECO Project-Team	672
194. GRAPHIK Project-Team	674
195. HEPHAISTOS Project-Team	678
196. HYBRID Project-Team	680
197. ILDA Team	684
198. IMAGINE Project-Team	687
199. LAGADIC Project-Team	692
200. LARSEN Team	697

201. LEAR Project-Team .....	701
202. LINKMEDIA Project-Team .....	704
203. LINKS Team .....	708
204. MAGNET Team .....	710
205. MAGRIT Project-Team .....	714
206. MANAO Project-Team .....	716
207. MAVERICK Project-Team .....	719
208. MIMETIC Project-Team .....	721
209. MINT Project-Team .....	727
210. Mjolnir Team .....	730
211. MORPHEO Project-Team .....	734
212. MULTISPEECH Project-Team .....	737
213. OAK Project-Team .....	742
214. ORPAILLEUR Project-Team .....	744
215. PANAMA Project-Team .....	745
216. PERCEPTION Project-Team .....	747
217. POTIOC Project-Team .....	748
218. PRIMA Project-Team .....	754
219. RITS Project-Team .....	758
220. SEMAGRAMME Project-Team .....	763
221. SIROCCO Project-Team .....	766
222. SMIS Project-Team .....	769
223. STARS Project-Team .....	772
224. TITANE Project-Team .....	775
225. TYREX Project-Team .....	778
226. WILLOW Project-Team .....	780
227. WIMMICS Project-Team .....	783
228. ZENITH Project-Team .....	789



## ALF Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- André Seznec is the PC chair for ISCA 2016.
- Isabelle Puaut and Damien Hardy have organized the Ecole d'été Temps Réel in Rennes in August 2015.
- Isabelle Puaut is the chair of the RTNS steering committee.

#### 10.1.1.2. Member of the organizing committees

- Isabelle Puaut is a member of the Executive committee of IEEE Technical Committee on Real-Time Systems
- Isabelle Puaut is member of the Steering committees of ECRTS and WCET conferences.
- Sylvain Collange was a member of the organization committee of Rencontres Arithmétiques de l'Informatique Mathématique (RAIM) 2015 in Rennes.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- André Seznec is the PC chair for ISCA 2016.

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

- Isabelle Puaut was a member of ECRTS 2015, RTAS 2015, RTCSA 2015 RTNS 2015 and WCET 2015 program committees. She is a member of the ECRTS 2016 program committee.
- Damien Hardy was a member of RTNS 2015 and WCET 2015 program committees
- André Seznec was a member of the MICRO 2015 and the SAMOS 2015 program committees.
- Pierre Michaud was a member of the program committee of the OMHI 2015 workshop.
- Erven Rohou was a member of the program committee of DITAM-PARMA and ISPA 2015.
- Sylvain Collange is a member of the ISCA 2016 program committee.

#### 10.1.2.3. Reviewer

ALF members have been reviewers for many conferences and journals.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- André Seznec is a member of the editorial board of IEEE Micro and an associate editor of ACM TACO.

#### 10.1.3.2. Reviewer - Reviewing activities

ALF members have been reviewers for many conferences and journals.

#### 10.1.4. Invited talks

- Isabelle Puaut. "Multicore timing verification: towards more integrated WCET and schedulability analysis. TACLe COST action Focussed meeting on timing analysis of parallel programs in many-core architectures". Porto, Portugal, Nov. 2015.
- André Seznec. "Skewed Compressed Cache", AMD, Sunnyvale, Aug. 2015
- Arthur Perais. "Cost-Effective Speculative Scheduling in High Performance Processors" Intel, Hillsboro June 2015
- Damien Hardy . "Worst Case Execution Time Estimation and Permanent Faults" at "9ièmes rencontres de la communauté française de compilation", Jan. 2015.
- Erven Rohou. "Branch Prediction and the Performance of Interpreters: Don't Trust Folklore", at Dixièmes rencontres de la communauté française de compilation, Sep 2015.
- Erven Rohou. "Traceability of Flow Information: Reconciling Compiler Optimizations and WCET Estimation", at Neuvièmes rencontres de la communauté française de compilation, Jan 2015.

#### 10.1.5. Scientific expertise

André Seznec was member of the ERC Advanced grants panel.

#### 10.1.6. Research administration

- Erven Rohou is a member of the Inria CDT (Commission du Développement Technologique)
- As "correspondant scientifique des relations internationales" for Inria Rennes Bretagne Atlantique, Erven Rohou is a member of the Inria COST GTRI (Groupe de Travail "Relations Internationales" du Comité d'Orientation Scientifique et Technologique).
- A. Seznec is an elected member of the administration board of Inria since November 2014.
- Erven Rohou was a member of the Inria CR2 recruitment committee.
- Erven Rohou was a member of the recruitment committee of an assistant professor at Uppsala University (Sweden).
- Isabelle Puaut is member of the ISTIC council.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master research : A. Seznec, E.Rohou, I. Puaut, Performance et Microarchitecture, 24 hours, M2, Université de Rennes I, France

Master research: I. Puaut, E. Rohou, Rédaction d'articles scientifiques, 18 hours, M2, Université de Rennes I, France

Master: I. Puaut, D. Hardy, Operating systems, 130 hours, M1, Université de Rennes I, France

Master: I. Puaut, D. Hardy, Systèmes temps-réel, 69 hours, M1, Université de Rennes I, France

Licence: D. Hardy, Informatique temps-réel, 40 hours, L3, Université de Rennes I, France

Master: D. Hardy Systèmes d'exploitation, 40 hours, M1, Université de Rennes I, France

Master: D. Hardy Systèmes d'exploitation, 60 hours, M2 CCI, Université de Rennes I, France

Master: S. Collange, Programmation parallèle, 22 hours, M1, Université de Rennes I, France

Master/PhD: S. Collange, GPU programming, 30 hours, MSc/PhD programs, Universidade Federal de Minas Gerais, Brazil

### 10.2.2. Supervision

HdR: Erven Rohou, Infrastructures and Compilation Strategies for the Performance of Computing Systems, Université Rennes 1, Nov 2015

PhD : Hanbing Li, Extraction and Traceability of Annotations for WCET Estimation, Université Rennes 1, Oct 2015, co-advisors E. Rohou and I. Puaut

PhD : Arthur Perais, "Increasing the performance of superscalar processors through value prediction", Université Rennes 1, Sept 2015, advisor A. Seznec

PhD : Surya Khizakanchery Natarajan, "Modeling performance of serial and parallel sections of multi-threaded programs in manycore era", Université Rennes 1, June 2016, advisor A. Seznec

PhD : Bharath Narasimha Swamy, "Exploiting heterogeneous manycores on sequential code", Université Rennes 1, March 2015, advisor A. Seznec

PhD in progress: Nabil Hallou, Université Rennes 1, Feb 2013, co-advisors E. Rohou and P. Clauss (EPI Camus Inria Strasbourg)

PhD in progress: Sajith Kalathingal, Université Rennes 1, Dec 2012, co-advisors S. Collange and A. Seznec

PhD in progress: Andrea Mondelli, Université Rennes 1, Oct 2013, co-advisors P. Michaud and A. Seznec

PhD in progress: Aswinkumar Sridharan, Université Rennes 1, Oct 2013, advisor A. Seznec

PhD in progress: Arjun Suresh , Université Rennes 1, Dec 2012, co-advisors E. Rohou and A. Seznec

PhD in progress : Rabab Bouziane, Université Rennes 1, Nov 2015, advisor E. Rohou

PhD in progress : Arif Ali Ana-Pparakkal, Université Rennes 1, Feb 2015, advisor E. Rohou

PhD in progress : Simon Rokicki, Université Rennes 1, Sep 2015, co-advisors E. Rohou and Steven Derrien (CAIRN)

PhD in progress: Benjamin Rouxel, Université Rennes 1, Oct 2015, co-advisors I. Puaut and S. Derrien

PhD in progress: Viet Anh Nguyen, Université Rennes 1, Jan 2015, co-advisors D. Hardy and I. Puaut

### **10.2.3. Juries**

The member of ALF have participated to many PhD defense juries in France and abroad.

## ANTIQUÉ Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

#### 8.1.1.1. Member of steering committees

Jérôme Feret is member of the Steering Committee of the international Workshop on Static Analysis and Systems Biology (SASB). Xavier Rival is member of the Steering Committee of the international workshop on Tools for Automatic Program Analysis (TAPAS).

### 8.1.2. Scientific events selection

#### 8.1.2.1. Chair of conference program committees

Xavier Rival is Co-Chair of the Program Committee of the Workshop on State Of the Art Program Analysis (SOAP'16), to be held in Santa Barbara (USA), June 2016. Xavier Rival is the Chair of the Program Committee of the 23rd Static Analysis Symposium (SAS'16), to be held in Edinburgh (UK), September 8–10, 2016.

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

Jérôme Feret was member of the Program Committee of the 2nd workshop on Verification of Engineered Molecular Devices and Programs (VEMDP'15), of the Program Committee of the 7th International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies (BIOTECHNO'15), of the Program Committee of the 6th International Workshop on Static Analysis and Systems Biology (SASB'15), of the Program Committee of the 25th International Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR'15), and of the Program Committee of the 11th International Workshop on Developments in Computational Models (DCM'15). Jérôme Feret is a member of the Program Committee of the 8th International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies (BIOTECHNO'16), of the Program Committee of the 23rd Static Analysis Symposium (SAS'16), and of the Program Committee of the 14th International Conference on Computational Methods in Systems Biology (CMSB'16).

Xavier Rival was member of the Extended Review Committee (ERC) of the 41st ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2015 PC), and of the Program Committee of the 13th Asian Programming Languages And Systems (APLAS'15), Pohang, Korea, November 30–December 2, 2015. Xavier Rival is a member of the Program Committee of the 1st International Conference on Functional Structures and Computational Deduction (FSCD'16), to be held in Porto, Portugal, June 2016, and of the Program Committee of the European Symposium On Programming (ESOP'17), 2017.

Cezara Drăgoi was a member of 15th International Conference on Application of Concurrency to System Design (ACSD'15), 41st International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM'15), and 17th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNACS'15).

Vincent Danos was a member of the Program Committee of workshop on Integrative Cell Models, Lorentz Workshop, Leiden, and of the 7th Conference on Reversible Computation (RC'15), Grenoble.

#### 8.1.2.3. Reviewer

Jérôme Feret was a reviewer for the 41st ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2015), the 18th International Conference on Foundations of Software Science and Computation Structures (FoSSaCS'15), POPL 2015, the 27th International Conference on Computer Aided Verification (CAV'15), for the 26th International Conference on Concurrency Theory (CONCUR 2015), the International Conference on Embedded Software (EMSOFT'15).

Cezara Drăgoi was a reviewer for 27th International Conference on Computer Aided Verification (CAV'15), 22nd International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS'16), and 30th Annual ACM/IEEE Symposium on Logic In Computer Science (LICS'15).

### 8.1.3. Journal

#### 8.1.3.1. Member of the editorial boards

Jérôme Feret is a member of the editorial board of the [Frontiers in Genetics](#) journal and the [Open Journal of Modeling and Simulation](#).

Vincent Danos is a member of the editorial board of [Mathematical Structures in Computer Science](#) journal (MSCS) and [Logical Methods in Computer Science](#) journal (LMCS).

#### 8.1.3.2. Reviewer - Reviewing activities

Jérôme Feret was a reviewer for Information and Computation, Theoretical Computer Science, and Science of Computer Programming.

Xavier Rival was a reviewer for ACM TOPLAS (Transactions On Programming Languages and Systems).

### 8.1.4. Invited talks

Jérôme Feret was invited to give a talk on “the ANASTASEC project” at a joint meeting between Inria and CISCO, on “Model reduction of differential systems” at the working group “Model Reduction of Discrete models” (GDT BIOSS), at “La demi-heure de science” (Inria Paris-Rocquencourt), and at the Seminar of the Computer Science Department of the École normale supérieure, on “An algebraic approach for inferring and using symmetries in rule-based models” at the Seminar of the team PLUME (ENS Lyon).

Jérôme Feret was invited to give a speed talk on the ÁSTRÉE analyzer at the joint workshop between École normale supérieure and SAGEM, a speed talk on rule-based modeling in the international workshop on “Integrative Cell Models” (Leiden, Netherlands) and at the joint seminar between École normale supérieure and Pasteur Institute, and a speed talk on “An algebraic approach for inferring and using symmetries in rule-based models” at the first meeting of the Working group on Symbolic Systems Biology (GDT BIOSS).

Xavier Rival was invited to give a talk on “Modular design of static analyzers for program verification” at the KAIST Colloquium (KAIST, Daejeon, Korea), on May 4th, 2015.

Xavier Rival participated to the 56th Meeting of the IFIP Working Group 2.4 in Bopphard (Germany), and gave a talk on “Non contiguous array abstraction”.

Xavier Rival was invited to give a talk on “Construction of abstract domains for heterogeneous memory properties” in October 2015.

Cezara Drăgoi gave an invited talk on “PSync: A partially synchronous language for fault-tolerant distributed algorithms” at Dagstuhl Seminar 15191, “Compositional Verification Methods for Next-Generation Concurrency”, in May 2015, at LIAFA, University Paris 7 in the Verification seminar, and at the workshop on “The Chemistry of Concurrent and Distributed Programming II”, in June 2015.

Cezara Drăgoi gave an invited talk on “A Logic-based Framework for Verifying Consensus Algorithms” at Dagstuhl Seminar 15451 “Verification of Evolving Graph Structures”.

Cezara Drăgoi gave a tutorial on “Static analysis for data structures” at DACS in July 2015, and an invited talk at “La demi-heure de la science” on “Logic-based static analysis for the verification of programs with dynamically allocated data structures”.

Vincent Danos was invited to talk about “Computational Systems Biology” at Alan Turing Institute Scoping Workshop on networks, London, on Dec 14th, 2015.

Vincent Danos was invited to talk about “Design, optimization, and control in systems and synthetic biology” at Paris, ENS, on Nov 12th 2015.

Vincent Danos was invited to talk about “Models of growth” and the challenge of modelling processes which are embedded in a bigger adaptive system, keynote at the 16th International Workshop on Static Analysis and Systems Biology (SASB’15).

Vincent Danos was invited to talk about “Moment Semantics for Reversible Rule-Based Systems”, keynote at 7th Conference on Reversible Computation (RC’15), Grenoble.

### **8.1.5. Leadership within the scientific community**

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

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

### **8.2.1. Teaching**

Licence:

- Jérôme Feret, and Cezara Drăgoi, Mathematics, 40h, L1, FDV Bachelor program (Frontiers in Life Sciences (FdV)), Université Paris-Descartes, France.
- Antoine Miné and Xavier Rival, Semantics and applications to verification, 48h ETD, L3, École Normale Supérieure, Paris, France.
- Xavier Rival, Introduction to static analysis, 8h, L3, École des Mines de Paris, Paris, France.
- Xavier Rival, Introduction to algorithmics, 40h ETD, L3, École Polytechnique, Palaiseau, France.

Master:

- Vincent Danos and Jérôme Feret (with Jean Krivine), Computational Biology, 24h, M1. Interdisciplinary Approaches to Life Science (AIV), Master Program, Université Paris-Descartes, France.
- Cezara Drăgoi, Jérôme Feret, Antoine Miné, and Xavier Rival, Abstract Interpretation: application to verification and static analysis, 72h ETD, M2. Parisian Master of Research in Computer Science (MPRI). École normale supérieure. France.
- Xavier Rival, Introduction to abstract interpretation, 8h, M1-M2, KAIST, Daejeon, Korea.
- Xavier Rival, Experimental Course on “Program Verification”, 20h ETD, M1, École Polytechnique, Palaiseau, France.
- Xavier Rival, Protocol safety and verification 20h ETD, M2 program in Advanced Communications and Network (École Polytechnique and Telecom Paris), France.
- Jérôme Feret has been invited to give a session (2h) in the Master M2IF (ÉNS Lyon) in the context of Russ Harmer’s course on Rule-based modelling.

### **8.2.2. Supervision**

PhD:

- Arlen Cox, Parametric heap abstraction for dynamic languages libraries, École Normale Supérieure, 13th of April 2015, supervised jointly by Bor-Yuh Evan Chang (University of Colorado), Xavier Rival (Inria / École Normale Supérieure) and Sriram Sankaranarayanan (University of Colorado).
- Caterina Urban, Static analysis by abstract interpretation of functional temporal properties of programs, École Normale Supérieure, 29th of July 2015, supervised by Antoine Miné (CNRS / École Normale Supérieure) and Radhia Cousot (CNRS / École Normale Supérieure).
- Tie Cheng, Static analysis of spreadsheet applications, École Normale Supérieure, 23rd of September 2015, supervised by Xavier Rival (Inria / École Normale Supérieure).

PhD in progress:

- Mehdi Bouaziz, Static analysis of security properties by abstract interpretation, November 2011, Patrick Cousot and Jérôme Feret, École Normale Supérieure.
- Ferdinanda Camporesi, Abstraction of Quantitative Semantics of Rule-based models, January 2009, Radhia Cousot and Jérôme Feret (co-directed thesis with Maurizio Gabrielli, University of Bologna).
- Hugo Illous, Verification of memory properties by abstract interpretation, October 2015, Xavier Rival (co-directed thesis with Mathieu Lemerre, CEA Saclay).
- Huisong Li, Static Analysis of Data-Structures with Sharing, November 2014, Xavier Rival, École Normale Supérieure
- Jiangchao Liu, Verification of the memory safety of a micro-kernel, December 2013, Xavier Rival, École Normale Supérieure
- Antoine Toubhans, Combination of shape abstract domains, October 2011, Xavier Rival, École Doctorale de Paris Centre
- Thibault Suzanne, Thread-modular static analysis of concurrent programs in the presence of weak memory models, October 2014, Antoine Miné, École Normale Supérieure.
- Guillaume Terradot, "Modeles de croissance bacterienne/determinants de la taille", started in 2015, Vincent Danos, École Normale Supérieure.
- William Waites, "Strategie evolutionnaire dans des tissus avec interactions mecaniques" started in 2015, Vincent Danos, École Normale Supérieure.
- Andreea Beica, "Approximations max-paralleles de modeles stochastiques", started in 2015, Vincent Danos, École Normale Supérieure.

Internships:

- Eleonore Bellot did an internship at ENS with Vincent Danos on "Modeles energetiques de la cellule".
- Xavier Zaoui did an internship at ENS with Vincent Danos on "Croissance bacterienne et interferences entre antibiotiques".
- Danae David did an internship at ENS with Vincent Danos on "Representation des connaissances en biochimie des voies de signalisation".
- Ihab Boulas did an internship at ENS with Vincent Danos on "Modeles de transmission de plasmides "editeurs".

### **8.2.3. Juries**

Jérôme Feret was reviewer of the PhD thesis of Peter Kreyßig (Friedrich-Schiller-Universität Jena, Germany, March 2015).

Jérôme Feret was examiner of the PhD thesis of Mounir Assaf (Irisa, France, May 2015).

Vincent Danos was referee on the phd thesis of Erwan Bigan, Universite Paris-Diderot, and referee on the phd thesis of Vincent Picard, Universite de Rennes 2.

### **8.2.4. Selection committees**

Jérôme Feret was a member of the recruiting jury for junior research scientists (CR2) at Inria Paris-Rocquencourt in 2015; Jérôme Feret is a member of the recruitment committee for an assistant professor in Paris-Diderot University 2016.

## **AOSTE Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific events organisation***

#### *10.1.1.1. Member of the organizing committees*

- Liliana Cucu: Dagstuhl seminar on Mixed Criticality Systems
- Robert Davis: Dagstuhl seminar on Mixed Criticality Systems

### ***10.1.2. Scientific events selection***

#### *10.1.2.1. Chair of conference program committees*

- Liliana Cucu: RTNS2015, WMC2015
- Robert Davis: RTAS2016, WMC2015

#### *10.1.2.2. Member of the conference program committees*

- Robert de Simone: EmSoft'2015, FDL'2015, Memocode'2015.
- Yves Sorel: RTNS 2015, DASIP 2015, EMSOFT 2015.
- Frédéric Mallet: DATE'2015, MoDELS'2015, MSR'2015, ESLsyn'2015, ICTERI'2015, FDL'2015
- Julien Deantoni: DAC'2015, MiSE'2015, GEMOC'2015
- Liliana Cucu: RTAS2015, ETFA2015, SIES2015, MISTA2015, DATE2015 and MAPSP2015
- Dumitru Potop Butucaru: RTNS 2015, LCTES 2015, ESLSyn 2015
- Adriana Gogonel: ACM RACS2015, RTNS2015 and WMC2015
- Dorin Maxim: DATE2015 and RTNS2015

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

#### *10.1.3.1. Member of the editorial boards*

- Yves Sorel: Traitement du Signal Journal, Real-Time System Journal

### ***10.1.4. Invited talks***

- Frédéric Mallet: International Summer School on Methods and Tools for the Design of Digital Systems, Bremen
- Liliana Cucu: VECOS2015

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

- Yves Sorel: Steering Committees of the System Design and Development Tools Group of Systematic Paris-Region Cluster, and of the Technologies and Tools Program of SystemX Institute for Technological Research
- Robert de Simone: Board of Administrators of CIM-France Design Platform.

### ***10.1.6. Research administration***

- Robert de Simone is member of the Board of the UNS Doctoral School EDSTIC.
- Liliana Cucu is member of Inria Evaluation Commission.



## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Robert de Simone, Models of Computation for Networks-on-Chips (MoCs for NoCs), 36h, M2 International, UNS.

Master: Robert de Simone, Functional and Temporal Correctness, 36h, M1 International, UNS.

Master: Optimization of distributed real-time embedded systems, 24H, M2, University of Paris Sud

Master: Distributed real-time systems, 26H, M2, University of Paris Est

Master: Specification and formal models for embedded systems, 28H, M2, ENSTA Engineering School Paris

Master: Correct by construction design of reactive systems, 18H, M2, ESIEE Engineering School, Noisy-Le-Grand

Master : Julien Deantoni, Systèmes embarqués et Ambient, 10h, M2, Polytech'Nice, France.

Master : Julien Deantoni, Langage C++, 88h, M1, Polytech'Nice, France.

Master : Julien Deantoni, Ingénierie Dirigée par les modèles par la pratique, 24h, M2, Polytech'Nice, France.

Master: Dumitru Potop Butucaru, Une approche synchrone des systèmes embarqués temps réel, 12h, M1, EPITA Paris

Master: Dumitru Potop Butucaru and Thomas Carle, L'approche synchrone de la construction des systèmes embarqués temps réel, 12h, M2, Polytech Paris UPMC.

Licence: Laurent George, Java and Shell programming 48h, L1, IUT RT UPEC, France

Master: Laurent George, Distributed Real-Time Systems, 24h, M2, UPEC, France

Licence : Marie-Agnes Peraldi-Frati, Algorithms and programming 60h, L1, UNS Institute of technology.

Licence : Marie-Agnes Peraldi-Frati, System and Networks administration 80h, L2, UNS Institute of technology .

Licence : Marie-Agnes Peraldi-Frati, Web Programming 50 h, L2, UNS Institute of technology.

Licence: Frédéric Mallet, Conception Orientée Objet, 45h, L3, UNS.

Licence: Frédéric Mallet, Programmation Orientée Objet, 45h, L3, UNS.

Master: Frédéric Mallet, Programmation Avancée et Design Patterns, 45h, M1, UNS.

Master: Frédéric Mallet, Vérification temporelle et fonctionnelle, 24h, M1, UNS.

Master: Frédéric Mallet, Model-Driven Engineering, 24h, M1, UNS.

Master: Liliana Cucu, Distributed Databases, 56h, U. Dunarea de Jos, Romania

Master: Dumitru Potop Butucaru, Une approche synchrone des systèmes embarqués temps réel, 12h, M1, EPITA Paris

### 10.2.2. Supervision

PhD: Mohamed Bergach, *Adaptation of the Fast Fourier Transform processing on hybrid integrated CPU/GPU architecture*, UNS, defended October 2015.

PhD in progress: Matias Vara-Larsen, *Toward a formal and hierarchical timed model for concurrent heterogeneous model*, UNS, started November 2012, supervised by Frédéric Mallet, co-supervised by Julien Deantoni.

PhD in progress: Ameni Khecharem, *High-Level modeling of hierarchical power management policies in SoCs*, UNS, started October 2012, supervised by Robert de Simone.

PhD in progress: Emilien Kofman, *Conception Haut Niveau Low Power d'objets mobiles communicants*, UNS, started Oct 2013, supervised by Robert de Simone, co-supervised by François Verdier (UMR CNRS/UNS LEAT).

PhD in progress: Amin Oueslati, *Modélisation conjointe d'applications et d'architectures parallèles embarqués en pratique*, UNS, started Jan 2014, supervised by Robert de Simone

PhD in progress: Yuanrui Zhang, ECNU-SEI/China, started Sep 2015, co-supervised by Frederic Mallet (joint supervision with Pr. Chen Yixiang(ECNU).

PhD in progress: Cristian Maxim, *End to end constraints using probabilistic approaches*, UPMC, started on March 2014, supervised by Liliana Cucu

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

PhD in progress: Salah Edinne Saidi, *Distributed real-time scheduling for the co-simulation of several control models*, University of UMPC-Paris-Sorbonne, started December 2014, co-supervised by Nicolas Pernet (IFPEN) and Yves Sorel.

PhD in progress: Keryan Didier, *Formal certification of real-time implementations*, Université Pierre et Marie Curie/EDITE, started November 2015, supervised by Dumitru Potop Butucaru.

### **10.2.3. Juries**

Robert de Simone: reviewer of Adrien Guatto (ENS Ulm), examiner of Andrea Enrici (Mines-Telecom Paris).

Frederic Mallet: reviewer of Judith Peters (U. Bremen, Germany), examiner (president) of Damian Vicino (Carleton University/U. Nice Sophia Antipolis).

Julien Deantoni: reviewer of Erwan Bousse (IRISA, University of Rennes)

Liliana Cucu: reviewer of Antoine Bertout (LIFL, November 2015)

Dumitru Potop Butucaru: examiner of José Echeveste (Université Pierre et Marie Curie/EDITE).

## ARIC Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Jean-Michel Muller was the General Chair of ARITH'22, Lyon.

#### 10.1.1.2. Member of the organizing committees

Bruno Salvy is a co-organizer with Alin Bostan of Alea'2016, Luminy.

### 10.1.2. Scientific events selection

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

Fabien Laguillaumie was a member of the program committee of WCC'15.

Benoît Libert was a member of the program committees of ACM-CCS'15, Eurocrypt'15, PKC'15 and '16, Africacrypt'16.

Jean-Michel Muller was a member of the program committee of ASAP'2015.

Nathalie Revol was a member of the program committee of NRE1 at SuperComputing'15.

Bruno Salvy is a member of program committee of AofA'2016, Warsaw, Poland.

Damien Stehlé was member of the program committees of Latincrypt'15, Asiacrypt'15, PQCrypto'16, PKC'15 and '16. He is a member of the program committee of ANTS'16 and SCN'16.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Jean-Michel Muller is a member of the editorial board of the *IEEE Transactions on Computers*. He is a member of the board of foundation editors of the *Journal for Universal Computer Science*.

Bruno Salvy is a member of the editorial boards of the *Journal of Symbolic Computation*, of the *Journal of Algebra* (section Computational Algebra) and of the collections *Texts and Monographs in Symbolic Computation* (Springer) and *Mathématiques et Applications* (SMAI-Springer).

Gilles Villard is a member of the editorial board of the *Journal of Symbolic Computation*.

### 10.1.4. Invited talks

Claude-Pierre Jeannerod was an invited speaker at the MACIS conference (Sixth International Conference on Mathematical Aspects of Computer and Information Sciences, Berlin, November 2015).

Damien Stehlé gave two invited talks at the HEAT workshop on fully homomorphic encryption and multilinear maps, held in Paris in October. He gave an invited talk at a Sloan Foundation workshop on the mathematics of modern cryptography, which was held in Berkeley in July. He gave two invited talks at the summer school on real-world crypto and privacy that was held in Sibenik in June.

### 10.1.5. Leadership within the scientific community

Damien Stehlé is a member of the steering committee of the PQCrypto conference series. He is also a member of the steering committee of the Cryptography and Coding French research grouping (C2).

Claude-Pierre Jeannerod is a member of the scientific committee of JNCF (Journées Nationales de Calcul Formel).

Nathalie Revol is the chair of the IEEE 1788 group for the standardization of interval arithmetic: the general standard has been published in July 2015 (IEEE 1788-2015) and the work now addresses the set-based model (IEEE P1788.1). She was a member of a hiring committee at U. Montpellier 2 (MCF position). She is a member of the Equality-Parity Committee at Inria.

### 10.1.6. Scientific expertise

Jean-Michel Muller is a member of the Scientific Council of CERFACS (Toulouse). He was a member of the Scientific Council of the “La Recherche” prize for 2015.

### 10.1.7. Research administration

Guillaume Hanrot is director of the LIP laboratory (Laboratoire de l’Informatique du Parallélisme).

Jean-Michel Muller is co-director of the Groupement de Recherche (GDR) *Informatique Mathématique* of CNRS.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Nicolas Brisebarre, *Introduction to Effective Approximation Theory* (24h), Hanoi Institute of Mathematics (Vietnam).

Master: Claude-Pierre Jeannerod, Nathalie Revol, *Algorithmique numérique et fiabilité des calculs en arithmétique flottante* (24h), M2 ISFA (Institut de Science Financière et d’Assurances), Université Claude Bernard Lyon 1.

Master: Fabien Laguillaumie, Cryptography, Error Correcting Codes, 150h, Université Claude Bernard Lyon 1.

Master: Vincent Lefèvre, *Arithmétique des ordinateurs* (20h), M2 ISFA (Institut de Science Financière et d’Assurances), Université Claude Bernard Lyon 1.

Master: Benoît Libert, Advanced cryptographic protocols, 24h, ENS de Lyon; Computer science and privacy, 12h, ENS de Lyon; Cryptography, 12h, ENS de Lyon; Public-key cryptology, (21h), M2 ISFA (Institut de Science Financière et d’Assurances), Université Claude Bernard Lyon 1.

Master: Bruno Salvy, Calcul Formel (9h), MPRI.

Master: Bruno Salvy, Mathématiques expérimentales (44h), École polytechnique.

Master: Bruno Salvy, Logique et complexité (32h), École polytechnique.

Master: Damien Stehlé, Cryptography, 24h, ENS de Lyon.

Master: Nicolas Louvet, *Compilation* (24h), Lyon 1.

Bachelor: Nicolas Louvet, *Algorithmique, Architecture des ordinateurs, Unix, ...*, (170h), Lyon 1.

Professional teaching: Nathalie Revol, *Contrôler et améliorer la qualité numérique d’un code de calcul industriel* (2h30), Collège de Polytechnique.

Divers: Bruno Salvy, Introduction à la D-finitude (2h), *Leçons de mathématiques d’aujourd’hui*, Bordeaux.

### 10.2.2. Supervision

- PhD in progress: Louis Dumont, *Algorithmique efficace pour les diagonales, applications en combinatoire, physique et théorie des nombres*, since September 2013, co-supervised by Alin Bostan (SpecFun team) and Bruno Salvy.
- PhD in progress: Silviu Filip, *Filtroptim : tools for an optimal synthesis of numerical filters*, since September 2013, co-supervised by Nicolas Brisebarre and Guillaume Hanrot.
- PhD in progress: Stephen Melczer, *Effective analytic combinatorics in one and several variables*, since September 2014, co-supervised by George Labahn (U. Waterloo, Canada) and Bruno Salvy.

- PhD in progress: Fabrice Mouhartem, *Privacy-preserving protocols from lattices and bilinear maps*, since September 2015, co-supervised by Benoît Libert (95%) and Damien Stehlé (5%).
- PhD in progress: Vincent Neiger, *Multivariate interpolation in computer algebra: efficient algorithms and applications*, since September 2013, co-supervised by Claude-Pierre Jeannerod and Gilles Villard (together with Éric Schost (Western University, London, Canada)).
- PhD in progress: Marie Paindavoine, *Méthodes de calculs sur des données chiffrées*, since October 2013 (Orange Labs - UCBL), co-supervised by Fabien Laguillaumie (together with Sébastien Canard).
- PhD in progress : Antoine Plet, *Contribution à l'analyse d'algorithmes en arithmétique virgule flottante*, since September 2014, co-supervised by Nicolas Louvet and Jean-Michel Muller.
- PhD in progress : Valentina Popescu, *Vers des bibliothèques multi-précision certifiées et performantes*, since September 2014, co-supervised by Mioara Joldes (LAAS) and Jean-Michel Muller.
- PhD in progress : Serge Torres, *Some tools for the design of efficient and reliable function evaluation libraries*, since September 2010, co-supervised by Nicolas Brisebarre and Jean-Michel Muller.
- PhD in progress: Weiqiang Wen, *Hard problems on lattices*, since September 2015, supervised by Damien Stehlé.

### 10.2.3. Juries

Nicolas Brisebarre was in the PhD committee of Catherine Lelay (LRI, Inria Saclay, Université Paris-Sud) and Esteban Segura Ugalde (XLIM, Université de Limoges).

Fabien Laguillaumie was in the PhD committee of Oliver Sanders (DI, ENS Paris, Orange Labs).

Benoît Libert was a reviewer and a member of the PhD committee for the PhD thesis of Olivier Sanders (DI, ENS Paris, Orange Labs).

Nathalie Revol was in the PhD committee of Qiaochu Li (Université de Technologie de Compiègne).

Bruno Salvy was a reviewer for the PhD thesis of Amaury Pouly (LIX, École polytechnique). He was in the PhD committees of Simone Naldi (LAAS, Toulouse) and Romain Serra (LAAS, Toulouse).

Damien Stehlé was a reviewer for the PhD theses of Thomas Prest (DI, ENS Paris), Zheng Wang (Imperial College, UK), Rina Zeitoun (LIP6, UPMC) and Cheng Shantian (NTU, Singapore). He is in the PhD committee of Thijs Laarhoven (TU Eindhoven, The Netherlands) and in the Habilitation thesis of Ludovic Perret (LIP6, UPMC).

## 10.3. Popularization

Nicolas Brisebarre co-organizes scientific conferences, called «Éclats de sciences», at Maison du Livre, de l'Image et du Son in Villeurbanne. Around three conferences take place per year.

Nathalie Revol is a member of the steering committee of the MMI: Maison des Mathématiques et de l'Informatique. She led a "Coding morning" for Inria assistants at Montbonnot (February 2015). She gave two conferences for high-school teachers (Montbonnot, February and Grenoble, May 2015). As an incentive for high-school pupils, and especially girls, to choose scientific careers, she gave talks at Lycée Simone Veil (Châtillon d'Azergues) and Mondial des Métiers (both in March 2015). She gave conferences for Rallye des Maths (May 2015) and during the Science Fair (2 high-school classes, October 2015). During the Science Fair, she was also present one afternoon at Médiathèque du Bachut - Lyon 8e. She presented computer science unplugged for primary school pupils (CM1, École Guilloux, St-Genis-Laval: 8 lectures of 45mn each) and computer science plugged (CM2, École Guilloux, St-Genis-Laval: 10 lectures of 1h in 2015-2016, 2 classes). She presented this work during Forum Maths Vivantes (October 2015). She also met people from Ébulliscience and FERS (Fondation Entreprise Réussite Scolaire) to give advice on their projects of popularization of computer science towards primary schools and high school pupils.

## ATEAMS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Tijs van der Storm: co-organizer of the 3rd Workshop on Domain-Specific Language Design and Implementation (DSLDI'15).

#### 9.1.1.2. Member of the organizing committees

- Tijs van der Storm: Publicity co-chair SPLASH and track organizer SPLASH-I
- Jurgen Vinju: co-organizer Bits & Chips Software Event (Legacy Software Track), Eindhoven, The Netherlands

### 9.1.2. Scientific events selection

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

- Paul Klint: International Conference on Software Language Engineering (SLE'15), 14th edition of the BELgian-NEtherlands software eVOLution seminar (BENEVOL 2015), 22nd IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER'15)
- Tijs van der Storm: International Conference on Model Transformation (ICMT'15), International Conference on Software Language Engineering (SLE'15), Transformation Tool Context (TTC'15), Future Programming Workshop (FPW'15).
- Jurgen Vinju: 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE'15), 3rd International Workshop on The Globalization of Modeling Languages Workshop (GEMOC'15), 5th Summer School on Grand Timely Topics in Software Engineering (GTTSE'15), IEEE International Conference on Software Comprehension (ICPC'15), 14th edition of the BELgian-NEtherlands software eVOLution seminar (BENEVOL 2015).

#### 9.1.2.2. Reviewer

##### 9.1.2.2.1. Journal

- Member of the editorial boards:
  - Paul Klint: editor of Science of Computer Programming (Elsevier SCP)
- Reviewer - Reviewing activities:
  - Paul Klint: Science of Computer Programming
  - Tijs van der Storm: Science of Computer Programming (SCP), Computer Languages and Systems (COMLAN)
  - Jurgen Vinju: Science of Computer Programming (SCP), Computer Languages and Systems (COMLAN), Journal on Empirical Software Engineering (ESE), Journal of Software Maintenance and Evolution (JSME)

### 9.1.3. Invited talks

- Textual and projectional language workbenches. Tijs van der Storm, Dagstuhl on “Domain-Specific Languages”.
- “Software Engineering: The War Against Complexity”, Jurgen Vinju. CHA-Q Open Tool Demonstrations Event (keynote), February 24, Antwerpen, Belgium.

- “Program Analysis and Transformation with Rascal” tutorial at the 36th annual ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI) in Portland, USA. Mark Hills, Jurgen Vinju, Paul Klint.

### 9.1.4. Leadership within the scientific community

#### 9.1.4.1. Member of steering committees

- Jurgen Vinju: International Conference on Software Language Engineering (ACM SLE) (*chair*)
- Jurgen Vinju: International Working Conference on Source Analysis and Manipulation (IEEE SCAM)

#### 9.1.4.2. Member of other groups

- Jurgen Vinju: Member of IFIP WG 2.3 — Working Group on Software Implementation Technology
- Tijs van der Storm: Member of IFIP WG 2.16 — Working Group on Language Design
- Tijs van der Storm: Member of the board of European Association for Programming Languages and Systems (EAPLS)

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Tijs van der Storm, “Software Construction”, Masters, Universiteit van Amsterdam

Jurgen J. Vinju, “Software Evolution”, Masters, Universiteit van Amsterdam

### 9.2.2. Supervision

PhD : Atze van der Ploeg, “Efficient Abstractions for Visualization and Interaction”, Universiteit van Amsterdam, April, 8th, 2015 [48] (advisors: Tijs van der Storm and Paul Klint)

PhD in progress : Ali Afroozeh, “Closing the Book on Parsing”, 2017 (advisors: Jurgen Vinju and Paul Klint)

PhD in progress : Pablo Inostroza Valdera, “Modular Language Implementation with Object Algebras”, 2018 (advisors: Tijs van der Storm and Paul Klint)

PhD in progress : Anastasia Izmaylova, “Parser Combinators Revisited”, 2017 (advisors: Jurgen Vinju and Paul Klint)

PhD in progress : Davy Landman, “Source Code Complexity in Context”, 2016 (advisors: Jurgen Vinju and Paul Klint)

PhD in progress : Riemer van Rozen, “Domain-Specific Languages for Game Development”, 2017 (advisors: Paul Klint and Tijs van der Storm)

PhD in progress : Michael Steindorfer, “Fast and Lean Immutable Data Structures”, 2017 (advisors: Jurgen Vinju and Paul Klint)

PhD in progress : Jouke Stoel, “Solving the Bank”, 2019 (advisors: Jurgen Vinju and Tijs van der Storm)

Msc : Zisimopolous, P.: “A Grid Scheduling infrastructure for SmartConnect’s performance monitoring calculations”, Universiteit van Amsterdam, The Netherlands

Msc : Zhelyazkov, A.T.: “Form controls in WebGL. A stepping stone to a WebGL library for developing commercial interactive 3D websites”, Universiteit van Amsterdam, The Netherlands

Msc : Valencia Vargas, S.: “Begelman vs. FolkRank. The Comparison of Two Algorithms in the Tag Recommendation Context: An Exploratory Study”, Universiteit van Amsterdam, The Netherlands

Msc : Heimensen, M.: “JavaScript language extension with language workbenches”, Universiteit van Amsterdam, The Netherlands

Msc : Harezlak, H.: “Geographically-aware scaling for real-time persistent WebSocket applications”, Universiteit van Amsterdam, The Netherlands

Msc: Chow, K.: “Performance of Face Recognition Algorithms on Mobile Devices”, Universiteit van Amsterdam, The Netherlands

Msc: Iwan Flaming: “An automatic CSRF protection tool”, Universiteit van Amsterdam, The Netherlands

Msc: Omar Pakker: “Graph-Based Querying On top of the Entity Framework”, Universiteit van Amsterdam, The Netherlands

### 9.2.3. *Juries*

- Jurgen Vinju:
  - Phd Reza Yazdanshenas, A. — Universitet i Oslo, Norway
  - Phd Hafeez Osman, M. — Universiteit Leiden, The Netherlands

## 9.3. Popularization

- Ali Afroozeh and Anastasia Izmaylova: “Meerkat parsers: a general parser combinator library for real programming languages”, Scala Days 2015, Amsterdam, The Netherlands.
- Paul Klint: “Paul Klint in RTL Nieuws over het nieuwe betalingssysteem van het pgb” (radio interview).
- Paul Klint: “De evolutie van codetaal”, media appearance, NRC Handelsblad
- Paul Klint: “Première internetfilm over Nederlands informatica erfgoed”, media appearance, Automatisering Gids.
- Paul Klint: “Remembering Arra: a pioneer in Dutch computing”, media appearance, <http://www.engineersonline.nl/>.
- Davy Landman: “Let’s talk about complexity”, Devnology software development community talk, Amsterdam, The Netherlands.
- Tijs van der Storm: “Opportunities and Risks of MDSE: experience with Derric, a DSL for Digital Forensics”, Bits&Chips industry conference.
- Jouke Stoel and Tijs van der Storm: “Hack Your Language with Rascal”, workshop at Joy of Coding conference, Rotterdam, The Netherlands.
- Tijs van der Storm, “Live Little Languages”, JBI Colloquium, Groningen, The Netherlands.
- Jurgen Vinju: “Public/Private Collaboration {in,for,with} Software Engineering”, 21st Annual Conference of the European Association of Research Managers and Administrators, Leiden, The Netherlands
- Jurgen Vinju: OSSMETER Pitch EU Concertation Meeting - Turning cloud research into innovative software & services, March 25th 2015, Brussels, Belgium.
- Jurgen Vinju: Challenges and Opportunities of Big Software-based Innovation NWO Big Software Match Making Day, July 1st, 2015, Utrecht, The Netherlands.



## CAIRN Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events selection

#### 9.1.1.1. Chair of conference program committees

A. Tisserand was program co-chair of the 22nd IEEE Symposium on Computer Arithmetic (Lyon, 22-24 June 2015) [65].

O. Sentieys was Track Chair at IEEE NEWCAS.

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

D. Chillet was member of the technical program committee of HiPEAC RAPIDO, HiPEAC WRC, MCSoC, DCIS, ComPAS, DASIP, LP-EMS, ARC.

A. Tisserand was a member of technical program committee of the following conferences: IEEE ARITH 2015, DASIP 2015, IEEE NEWCAS 2015, IEEE PATMOS 2015 and IEEE Reconfig 2015.

S. Derrien was a member of technical program committee of IEEE FPL.

O. Sentieys was a member of technical program committee of IEEE FPL, ACM ENSSys, FSP, FPGA4GPC.

### 9.1.2. Journal

#### 9.1.2.1. Member of the editorial boards

D. Chillet is member of the Editor Board of Journal of Real-Time Image Processing (JRTIP).

O. Sentieys is member of the editorial board of Journal of Low Power Electronics, Advances in Computer Engineering, and International Journal of Distributed Sensor Networks.

A. Tisserand is Associate Editor of IEEE Transactions on Computers. He is a member of the editorial board of the International Journal of High Performance Systems Architecture, Inderscience.

### 9.1.3. Invited talks

O. Sentieys gave an invited lecture at FETCH (École d'hiver Francophone sur les Technologies de Conception des Systèmes embarqués Hétérogènes), Louvain, Belgium, in January 2015 on "Domain-Specific Computing Platforms: the Ultimate Energy-Efficiency of Hardware Accelerators".

O. Sentieys gave an invited lecture at The 1st International Workshop on Optical/Photonic Interconnects for Computing Systems (OPTICS Workshop), co-located with IEEE/ACM Design Automation and Test in Europe (DATE'15), in March 2015 on "Bandwidth Requirements in Manycore Architectures: What Can 3D Bring?".

A. Tisserand has been invited speaker at the international conference on elliptic curve cryptography (ECC) [29].

A. Tisserand gave an invited lecture at the CNRS ARCHI 2015 summer school on "Processor Extensions for Security".

### 9.1.4. Leadership within the scientific community

D. Chillet is member of the Board of Directors of GretsI Association.

F. Charot, O. Sentieys and A. Tisserand are members of the steering committee of a CNRS spring school for graduate students on embedded systems architectures and associated design tools (ARCHI).

O. Sentieys and A. Tisserand are members of the steering committee of a CNRS spring school for graduate students on low-power design (ECOFAC).

A. Tisserand is co-organizer and president of scientific council of Seminar on Security of Embedded Electronic Systems (IRISA-DGA).

O. Sentieys is a member of the steering committee of the GDR SOC-SIP.

### 9.1.5. Scientific expertise

D. Chillet was member of the French National University Council since 2009 in signal processing and electronics (Conseil National des Universités en 61e section).

D. Chillet was member of the Permanent Committee of the French National University Council since November 2011 in signal processing and electronics (Commission Permanente du Conseil National des Universités en 61e section).

A. Tisserand was member of the French National University Council since 2011 in computer science (Conseil National des Universités en 27e section).

O. Sentieys was responsible for some scientific evaluations (HCERES).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- E. Casseau: signal processing, 16h, ENSSAT (L3)
- E. Casseau: low power design, 6h, ENSSAT (M1)
- E. Casseau: real time design methodology, 24h, ENSSAT (M1)
- E. Casseau: computer architecture, 36h, ENSSAT (M1)
- E. Casseau: system on chip and verification, 10h, Master by Research (SISEA) and ENSSAT (M2)
- E. Casseau: high level synthesis, 12h, Master by Research (SISEA) and ENSSAT (M2)
- E. Casseau: advanced processor architectures, 25h, University of Science and Technology of Hanoi (M2)
- S. Derrien: component and system synthesis, 20h, Master by Research (MRI ISTIC) (M2)
- S. Derrien: computer architecture, 12h, ENS Rennes (L3)
- S. Derrien: computer architecture, 24h, ISTIC(L3)
- S. Derrien: introduction to operating systems, 8h, ISTIC(M1)
- S. Derrien: embedded architectures, 48h, ISTIC(M1)
- S. Derrien: high-level synthesis, 6h, ISTIC(M1)
- S. Derrien: software engineering project, 40h, ISTIC(M1)
- F. Charot: processor architecture, 25h University of Science and Technology of Hanoi (M1)
- D. Chillet: embedded processor architecture, 20h, ENSSAT (M1)
- D. Chillet: VHDL, 10h, ENSSAT (M1)
- D. Chillet: multimedia processor architectures, 24h, ENSSAT (M2)
- D. Chillet: advanced processor architectures, 24h, Master by Research (SISEA) and ENSSAT (M2)
- D. Chillet: low-power digital CMOS circuits, 6h, Telecom Bretagne and University of Occidental Brittany (UBO) (M2)
- C. Killian: digital electronics, 62h, IUT Lannion (L1)
- C. Killian: signal processing, 36h, IUT Lannion (L2)
- C. Killian: automated measurements, 56h, IUT Lannion (L2)
- C. Killian: measurement chain, 35h, IUT Lannion (L2)
- C. Killian: embedded systems programming, 12h, IUT Lannion (L2)
- A. Kritikakou: computer architecture, 50h, ISTIC, Univ. Rennes 1 (L3)

- A. Kritikakou: operating systems, 24h, ISTIC, Univ. Rennes 1 (L3)
- A. Kritikakou: multitasking operating systems, 45h, ISTIC, Univ. Rennes 1 (M1)
- O. Sentieys: digital signal processing, 40h, ENSSAT (M1)
- O. Sentieys: VLSI integrated circuit design, 40h, ENSSAT(M1)
- A. Tisserand: multiprocessor architectures and programming, 20h, ENSSAT and Master by Research (SISEA) (M2)
- C. Wolinski: computer architectures, 92h, ESIR (L3)
- C. Wolinski: design of embedded systems, 48h, ESIR (M1)
- C. Wolinski: signal, image, architecture, 26h, ESIR (M1)
- C. Wolinski: programmable architectures, 10h, ESIR (M1)
- C. Wolinski: component and system synthesis, 10h, Master by Research (MRI ISTIC) (M2)

### 9.2.2. Teaching Responsibilities

- C. Wolinski is the Director of ESIR.
- P. Quinton was the director of Ecole Normale Supérieure de Rennes until end Aug. 2015.
- D. Chillet was the Director of Academic Studies of ENSSAT until end Aug. 2015.
- S. Derrien is the responsible of the first year of the Master of Computer Science at ISTIC since Sep. 2012.
- O. Sentieys is responsible of the "Embedded Systems" branch of the SISEA Master by Research.
- D. Chillet is the responsible of the ICT Master of University of Science and Technology of Hanoi and also co-responsible of the "Embedded Systems" speciality of this master.
- C. Killian is the responsible of the second year of the Physical Measurement DUT at IUT of Lannion.

ENSSAT stands for "*École Nationale Supérieure des Sciences Appliquées et de Technologie*" and is an "*École d'Ingénieurs*" of the University of Rennes 1, located in Lannion.

ISTIC is the Electrical Engineering and Computer Science Department of the University of Rennes 1.

ESIR stands for "*École supérieure d'ingénieur de Rennes*" and is an "*École d'Ingénieurs*" of the University of Rennes 1, located in Rennes.

### 9.2.3. Supervision

- PhD: Christophe Huriaux, Embedded reconfigurable hardware accelerators with efficient dynamic reconfiguration management, Dec. 2015, O. Sentieys, A. Courtaud.
- PhD: Quang-Hai Khuat, Real-Time Spatio-Temporal Task Scheduling on 3D Architectures, Feb. 2015, D. Chillet.
- PhD in progress: Benjamin Barrois, Approximate Computing: a New Paradigm for Energy-Efficient Computing Architectures, Oct. 2014, O. Sentieys.
- PhD in progress: Florent Berthier, Study and Design of an Ultra Low Power Asynchronous Core for Sensor Networks, Oct. 2013, O. Sentieys, P. Vivet, E. Beigne.
- PhD in progress: Franck Bucheron, Secure Virtualization for Embedded Systems, Oct. 2011, A. Tisserand.
- PhD in progress: Gaël Deest, Computing with Errors: Error-Tolerant Machine Code Generation for Unreliable Embedded Hardware, Oct. 2013, S. Derrien, O. Sentieys.
- PhD in progress: Ali Hassan El-Moussawi, Performance/Accuracy Trade-Off in Automatic Parallelization for Embedded Many-Core Platforms, Nov. 2012, S. Derrien.
- PhD in progress: Gabriel Gallin, Hardware Arithmetic Units and Crypto-Processor for Hyperelliptic Curves Cryptography, Oct. 2014, A. Tisserand, N. Veyrat-Charvillon.
- PhD in progress: Xuan Chien Le, Indirect Monitoring in Self-Powered Wireless Sensor Networks for Smart Grid and Building Automation, Oct. 2013, O. Sentieys, B. Vrigneau.

PhD in progress: Audrey Lucas, Software support resistant to passive and active attacks for asymmetric cryptography on (very) small computation cores, Dec. 2015, A. Tisserand.

PhD in progress: Jiating, Luo, Communication protocol exploration in the context of 3D integration of multiprocessors interconnected by Optical Network-on-Chip with energy constraints, Nov. 2014, D. Chillet, C. Killian, S. Le-Beux.

PhD in progress: Jérémie Métairie, Reconfigurable Arithmetic Units for Secure Cryptoprocessors, Oct. 2012, A. Tisserand, E. Casseau.

PhD in progress: Van Dung Pham, Design space exploration in the context of 3D integration of multiprocessors interconnected by Optical Network-on-Chip, Dec 2014, O. Sentieys, D. Chillet, C. Killian, S. Le-Beux.

PhD in progress: Rafail Psiakis, A Self-Healing Reconfigurable Accelerator Structure for Fault-Tolerant Multi-Cores, Oct. 2015, A. Kritikakou, O. Sentieys.

PhD in progress: Rengarajan Ragavan, Ultra-Low Power Reconfigurable Architectures for Computing and Control in Wireless Sensor Networks, Oct. 2013, O. Sentieys, C. Killian.

PhD in progress: Simon Rokicki, Hybrid Hardware/Software Dynamic Compilation for Adaptive Embedded Systems, Oct. 2015, S. Derrien.

PhD in progress: Baptiste Roux, Architectural Exploration of a Low-Power Flexible Radio Embedded on Drones, Oct. 2014, O. Sentieys, M. Gautier.

PhD in progress: Mai-Thanh Tran, Hardware Synthesis of Flexible and Reconfigurable Radio from High-Level Language Dedicated to Physical Layer of Wireless Systems, Oct. 2013, E. Casseau, M. Gautier.

## CAMUS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Cédric Bastoul has been co-organizing the HIP3ES 2015 workshop (High Performance Energy Efficient Embedded Systems) held in conjunction with the international conference HiPEAC 2015. He is also currently organizing the next HIP3ES event, to be held in conjunction with the international conference HiPEAC 2016.

### 10.1.2. Scientific events selection

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

Philippe Clauss and Vincent Loechner have been part of the program committee of IMPACT 2015 (International Workshop on Polyhedral Compilation Techniques), held in conjunction with the international conferences HiPEAC 2015.

Philippe Clauss has been part of the program committee of the third workshop on Energy Efficient Super Computing (E2SC), held in conjunction with SC15.

Alain Ketterlin has been part of the program committee of CGO 2016 (International Symposium on Code Generation and Optimization, [cgo.org/cgo2016](http://cgo.org/cgo2016)).

Cédric Bastoul and Vincent Loechner have been part of the program committee of both HIP3ES 2015 and HIP3ES 2016 (International Workshop on High Performance Energy Efficient Embedded Systems), held in conjunction with the international conferences HiPEAC 2015 (resp. HiPEAC 2016).

Cédric Bastoul has been part of the program committee of IMPACT 2016 (International Workshop on Polyhedral Compilation Techniques), held in conjunction with the international conferences HiPEAC 2016.

Cédric Bastoul has been part of the program committee of PARMA+DITAM 2015 and PARMA+DITAM 2016 (Workshop on Parallel Programming and Run-Time Management Techniques for Many-core Architectures + Workshop on Design Tools and Architectures for Multicore Embedded Computing Platforms), held in conjunction with HiPEAC 2015 (resp. HiPEAC 2016).

#### 10.1.2.2. Reviewer

Cédric Bastoul has been reviewer for the following conferences and workshops: PARMA 2015 and 2016 (International Workshop on Parallel Programming and Run-Time Management Techniques for Many-core Architectures), IMPACT 2016 (International Workshop on Polyhedral Compilation Techniques), HIP3ES 2015 and 2016 (International Workshop on High Performance Energy Efficient Embedded Systems).

### 10.1.3. Journal

#### 10.1.3.1. Editorial board membership

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

In 2014, the [episcience](#) platform for open access journals has been created in a joint effort by Inria and CNRS. In 2015, DMTCS, as one of the first journals, has moved to this platform presenting a new [server interface](#) which lives on top of the national scientific archive [HAL](#). We have been a driving force in the definition and debugging of the new platform, see [1].

### 10.1.3.2. Reviewer - Reviewing activities

Jens Gustedt has served as a reviewer for *Theory of Computing Systems* and *IEEE Transactions on Parallel and Distributed Systems*.

Philippe Clauss has served as a reviewer for the following journals: *ACM Transactions on Architecture and Code Optimization*, *ACM Transactions on Programming Languages and Systems*.

Alain Ketterlin has served as a reviewer for the following journals: *Parallel Computing*, and *International Journal of Parallel Programming*. He has also served as sub-reviewer for the PACT 2015 conference.

Cédric Bastoul has been reviewer for the *Parallel Computing international journal* (ParCo).

### 10.1.4. Scientific expertise

Cédric Bastoul has been an expert for the European Commission for the call FETHPC of the H2020 programme. He also has been an expert for the French research ministry and the French finance ministry for the research tax credit programme.

### 10.1.5. Standardization

Since Nov. 2014, Jens Gustedt is a member of the ISO working group SC22-WG14 for the standardization of the C programming language. He participates actively in the **defect report** processing, the planning of future versions of the standard, and publishes an ongoing document to track inconsistencies and improvements of the C threads interface, see [27].

This work on the C programming language also gave rise to the proposal of a language extension, **Modular C**, see [25].

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Alain Ketterlin, Algorithmique et Structures de Données (Licence de Mathématique), 40h, L3, Université de Strasbourg, France

Licence : Alain Ketterlin, Réseaux et Protocoles (Licence d'Informatique), 64h, L3, Université de Strasbourg, France

Master : Alain Ketterlin, Ingénierie de la preuve, 21h, M1, Université de Strasbourg, France.

Licence : Alain Ketterlin, Architecture et Programmation des mécanismes de base d'un système informatique, 68h, L1 (IUT), Université de Strasbourg, France.

Licence : Alain Ketterlin, Modèles de calcul, 14h, L1, Université de Strasbourg, France.

2nd year engineering school: Jens Gustedt, programmation avancée, 20h, ENSIIE Strasbourg, France

Licence : Jens Gustedt, systèmes concurrents, 20h, Université de Strasbourg, France

Licence : Philippe Clauss, Architecture des ordinateurs, 45h, Université de Strasbourg, France

Licence : Philippe Clauss, Systèmes d'exploitation, 40h, Université de Strasbourg, France

Master : Philippe Clauss, Compilation, 78h, Université de Strasbourg, France

Master : Philippe Clauss, Système et programmation temps-réel, 25h, Université de Strasbourg, France

Master : Philippe Clauss, Compilation avancée, 30h, Université de Strasbourg, France

Licence : Vincent Loechner, Systèmes d'exploitation, 38h, L2, Université de Strasbourg, France

Master : Vincent Loechner, parallélisme, 14h, M1, Université de Strasbourg, France

Master : Vincent Loechner, calcul parallèle, 32h, M1, Université de Strasbourg, France

Master : Vincent Loechner, langages interprétés, 37h, M1, Université de Strasbourg, France

Master : Vincent Loechner, OS embarqués, 31h, M2, Université de Strasbourg, France  
 Telecom Physique Strasbourg : Vincent Loechner, calcul parallèle, 20h, M2, Université de Strasbourg, France  
 Licence : Eric Violard, Programmation Fonctionnelle, 21h, L2, Université de Strasbourg, France  
 Licence : Eric Violard, Architecture des Ordinateurs, 16h, L2, Université de Strasbourg, France  
 Licence : Eric Violard, Logique et Programmation Logique, 26h, L2, Université de Strasbourg, France  
 Licence : Eric Violard, Algorithmique et Structure de Données, 35h, L3, Université de Strasbourg, France  
 Licence : Cédric Bastoul, Architecture, 68h, L1 (IUT), Strasbourg University, France  
 Licence : Cédric Bastoul, Operating Systems, 16h, L2, Strasbourg University, France  
 Licence : Cédric Bastoul, Concurrent Systems, 19h, L3, Strasbourg University, France  
 Master : Cédric Bastoul, Compiler Design, 48h, M1, Strasbourg University, France  
 Master : Cédric Bastoul, Advanced Compilation, 23h, M1, Strasbourg University, France  
 Master : Cédric Bastoul, Parallelism, 16h, M1, Strasbourg University, France  
 Master : Cédric Bastoul, Introduction to Research, 7h, L3+M1, Strasbourg University, France

### 10.2.2. Supervision

PhD in progress: Yann Barsamian, *Space-Filling Curves and their Application to the Numerical Resolution of Vlasov Equations*, since Oct 2014, Eric Violard

PhD in progress: Tomasz Buchert, Madynes team, *Orchestration of experiments on distributed systems*, since Oct 2011, defended on Jan 6 2016, Jens Gustedt & Lucas Nussbaum.

PhD in progress: Mariem Saied, *Ordered Read-Write Locks for Multicores and Accelerators*, since Nov 2013, Jens Gustedt & Gilles Muller.

PhD in progress: Daniel Salas, *integration of the ORWL model into parallel applications for medical research*, since Mar 2015, Jens Gustedt & Isabelle Perseil.

PhD in progress: Juan Manuel Martinez Caamaño, *Dynamic and flexible generation of parallel loops using a dedicated intermediate representation*, since November 2013, Philippe Clauss and Philippe Helluy (IRMA lab., University of Strasbourg)

PhD in progress: Nabil Hallou, *Dynamic binary optimizations*, since January 2013, Erven Rohou (ALF team) and Philippe Clauss

PhD in progress: Luis Esteban Campostrini, *Virtual linear data layout*, since January 2015, Philippe Clauss

PhD in progress : Lénaïc Bagnères, Automatic parallelization and optimization for manycore architectures, November 2012, Christine Eisenbeis and Cédric Bastoul

PhD in progress : Alexander Zinenko, Interactive program manipulation, September 2013, Stéphane Huot and Cédric Bastoul

PhD: Aravind Sukumaran-Rajam, *Beyond the Realm of the Polyhedral Model: Combining Speculative Program Parallelization with Polyhedral Compilation*, University of Strasbourg, November the 5th, 2015, Philippe Clauss

PhD: Imen Fassi, *XFOR (Multifor): A New Programming Structure to Ease the Formulation of Efficient Loop Optimizations*, University of Strasbourg, November the 27th, 2015, Philippe Clauss

PhD: Jean-François Dollinger, *A framework for efficient execution on GPU and CPU+GPU systems*, University of Strasbourg, July the 1st, 2015, Vincent Loechner and Philippe Clauss

### 10.2.3. Juries

Jens Gustedt participated to the following PhD jury in 2015:

Date	Candidate	Place	Role
July 8	Florian David	Univ. Pierre et Marie Curie, Paris	Examiner

Philippe Clauss participated to the following PhD juries in 2015:

Date	Candidate	Place	Role
Oct. 9	Hangbing Li	Univ. Rennes 1	Reviewer
Sept. 18	Nicolas Triquenaux	Univ. Versailles Saint-Quentin-en-Yvelines	Reviewer

Alain Ketterlin was a member of the following PhD juries in 2015:

Date	Candidate	Place	Role
Mar. 5	Bharath Narasimha-Swamy (Adv.: André Seznec)	Univ. Rennes 1	Examiner
Nov. 5	Fabien Rozar (Adv.: Jean Roman & Guillaume Latu)	Univ. Bordeaux	Examiner

Cédric Bastoul participated to the following HDR jury in 2015:

Date	Candidate	Place	Role
May 18	Corinne Ancourt	École des Mines de Paris	President
Nov. 2	Erven Rohou	Université de Rennes 1	Examiner

Cédric Bastoul participated to the following PhD juries in 2015:

Date	Candidate	Place	Role
September 25	Riyadh Badhdadi	Pierre et Marie Curie University	Reviewer

### 10.3. Popularization

Jens Gustedt is regularly blogging about efficient programming, in particular about the **C programming language**. He also is an active member of the **stackoverflow community** a technical Q&A site for programming and related subjects. A book about **modern C** is in preparation.

Cédric Bastoul presented lectures and activities at the *Kids University* event at the University of Strasbourg in November 2015

Cédric Bastoul prepared activities for *Fête de la Science* at University of Paris-Sud in October 2015



## CAMEL Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

Maike Massierer and Pierre-Jean Spaenlehauer organized a minisymposium on “Applications of polynomial system solving in cryptology”<sup>0</sup> within the SIAM conference on applied algebraic geometry conference, held in Daejeon (Corea) on August 3-7, 2015.

### 10.1.2. Scientific events selection

#### 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

- Jérémie Detrey was a member of the program committee of
  - the *Conférence d’informatique en Parallélisme, Architecture et Système* (Compas 2015);
  - the Fourth International Conference on Cryptology and Information Security in Latin America (Latincrypt 2015).
- Pierrick Gaudry was a member of the program committee of
  - the 9th International Workshop on Coding and Cryptography (WCC 2015);
  - the 7th International Workshop on Parallel Symbolic Computation (PASCO 2015).
- Emmanuel Thomé was a member of the program committee for
  - the 19th Workshop on Elliptic Curve Cryptography (ECC 2015);
  - the 8th International Symposium on Foundations & Practice of Security (FPS 2015);
  - the 35th Annual International Conference on the Theory and Applications of Cryptographic Techniques (Eurocrypt 2016).
- Marion Videau was a member of the program committee of
  - the Symposium sur la sécurité des technologies de l’information et des communications, SSTIC 2015;
  - the International Conference on Information Security and Cryptology, ICISC 2015;
  - the GreHack, 2015.

#### 10.1.2.3. Reviewing activities

- Jérémie Detrey reviewed submissions to
  - the 22nd IEEE Symposium on Computer Arithmetic (ARITH 22);
  - the *Conférence d’informatique en Parallélisme, Architecture et Système* (Compas 2015);
  - the Fourth International Conference on Cryptology and Information Security in Latin America (Latincrypt 2015);
  - the 19th International Conference on the Theory and Practice of Public-Key Cryptography (PKC 2016).
- Pierre-Jean Spaenlehauer reviewed submissions to

<sup>0</sup>[http://wiki.siam.org/siag-ag/index.php/Applications\\_of\\_Polynomial\\_System\\_Solving\\_in\\_Cryptography](http://wiki.siam.org/siag-ag/index.php/Applications_of_Polynomial_System_Solving_in_Cryptography)

- the 40th International Symposium on Symbolic and Algebraic Computations (ISSAC 2015);
- the 21st Annual Conference on the Theory and Application of Cryptology and Information Security (Asiacrypt 2015);
- 6th International Conference on Mathematical Aspects of Computer and Information Sciences (MACIS 2015);
- The 28th International Conference of the Jangjeon Mathematical Society (ICJMS 2015).
- Maïke Massierer reviewed a submission to the IACR International Conference on Practice and Theory of Public-Key Cryptography (PKC 2015).
- Pierrick Gaudry reviewed submissions to
  - the 30th ACM/SIGAPP Symposium On Applied Computing (SAC 2015);
  - the 22nd IEEE Symposium on Computer Arithmetic (ARITH 22);

### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

- Pierrick Gaudry is a member of the editorial board of *Applicable Algebra in Engineering, Communication and Computing* (AAECC).

#### *10.1.3.2. Reviewing activities*

- Jérémie Detrey reviewed submissions to
  - the IEEE Transactions on Dependable and Secure Computing (TDSC);
  - the ACM Transactions on Mathematical Software (TOMS).
- Pierre-Jean Spaenlehauer reviewed submissions to
  - the Journal of Symbolic Computation (JSC);
  - *Commentationes Mathematicae Universitatis Carolinae* (CMUC);
  - *Mathematical Modeling and Numerical Analysis* (ESAIM-M2AN);
  - the Journal of Cryptographic Engineering (JCEN).
- Maïke Massierer reviewed submissions to
  - *Finite Fields and Applications* (FFA);
  - *Applicable Algebra in Engineering, Communication and Computing* (AAECC).
- Pierrick Gaudry reviewed submissions to
  - *Applicable Algebra in Engineering, Communication and Computing* (AAECC).
  - *Journal of Cryptology*;

### **10.1.4. Invited talks**

- Jérémie Detrey gave invited talks at
  - the tutorial session of the 22nd IEEE Symposium on Computer Arithmetic (ARITH 22, June, Lyon, France);
  - the summer school of the 19th Workshop on Elliptic Curve Cryptography (ECC 2015, September, Bordeaux, France).
- Pierre-Jean Spaenlehauer gave invited talks at
  - the Workshop on Structured Low-Rank Approximation (June, Grenoble, France);
  - the SIAM conference on Applied Algebraic Geometry, Minisymposium on Algorithms and Complexity in Polynomial System Solving (August, Daejeon, Korea);
  - the SIAM conference on Applied Algebraic Geometry, Minisymposium on ML Degree and Critical Points (August, Daejeon, Korea);

- the Third Workshop on Hybrid Methodologies for Symbolic-Numeric Computations (August, Beijing, China);
- the Workshop on Algebra, Geometry and Proofs in Symbolic Computation (December, Toronto, Canada).
- Pierrick Gaudry gave invited talks at
  - the CATREL Workshop: Advances in Discrete Logarithms (October, Palaiseau, France);
  - the Colloquium Jacques Morgenstern (Nice-Sophia).
- Emmanuel Thomé gave an invited talk at the CATREL Workshop: Advances in Discrete Logarithms (October, Palaiseau, France).

### **10.1.5. Other committees**

- Jérémie Detrey is chairing the *Commission des Utilisateurs des Moyens Informatiques* (CUMI) of the Inria Nancy – Grand Est research center.
- Pierre-Jean Spaenlehauer is a member of the *Commission des développements technologiques* (CDT) of the Inria Nancy – Grand Est research center.
- Pierrick Gaudry was a member in 2015 of
  - the *Commission de mention Informatique* of the *École doctorale IAEM* of the University of Lorraine;
  - the hiring committee for an associate professor position Univ. Montpellier;
  - the committee for the HCERES evaluation of the LITIS laboratory in Rouen;
  - the evaluation committee for the *Algorithmics, Computer Algebra and Cryptology* Inria theme, acting as *coordinator*.
- Emmanuel Thomé is a member of
  - the management committee for the research project “CPER Cyberentreprises” (co-chair).
  - the *Comité Local Hygiène, Sécurité, et Conditions de Travail* of the Inria Nancy – Grand Est research center.
- Marion Videau was a member of the hiring committee for the 2015 junior research positions (CR2) at Inria Saclay.
- Laurent Grémy is a member of the *Conseil de laboratoire* of the Loria.

### **10.1.6. Seminar organisation**

#### *10.1.6.1. CAMEL seminar*

Five speakers were invited in our seminar in 2015: Matthieu Rambaud, Roland Wen, Jan Tuitman, Frédéric Bihan, Chenqi Mou.

#### *10.1.6.2. Joint security seminar with the university master in computer science*

The team is involved with other teams and the university master in computer science in the organization of the security seminar which started in 2013. Fifteen speakers were invited in 2015: Graham Steel, Nicolas Fischbach, Georges Bossert, Jean-Philippe Aumasson, Khartik Bhargavan, Kenny Paterson, Bertrand Wallrich, Cédric Lauradoux, Nora Cuppens, Christian Grothoff, Éric Freyssinet, Maxime Clementz, Kostas Chatzikokolakis, Emmanuel Thomé, Olivier Levillain.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### Licence

Jérémy Detrey, *Security of websites*, 2 hours (lecture), L1, Université de Lorraine, IUT Charlemagne, Nancy, France.

Jérémy Detrey, *Introduction to Cryptology and Information Security*, 10 hours (lectures) + 10 hours (tutorial sessions) + 10 hours (practical sessions), L3, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

Pierrick Gaudry, *Algorithmique et Programmation*, 16 hours (practical sessions), L1, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

Pierrick Gaudry, *Méthodologie*, 24 hours (practical sessions), L1, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

#### Master

Pierre-Jean Spaenlehauer, *Introduction to Cryptography*, 12 hours (lectures), M1, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

Emmanuel Thomé, *Introduction to Cryptography*, 12 hours (lectures), M1, Télécom Nancy, Vandœuvre-les-Nancy, France.

Emmanuel Thomé, *Cryptography and Security*, 20 hours (lectures + exercices), M2, Télécom Nancy and École des Mines de Nancy, France.

Marion Videau and Stéphane Glondu supervised the semestrial project of all the students of M2, SSSR-SAW, Université de Lorraine, département d'informatique, France.

#### Other

Emmanuel Thomé, *Discrete logarithms in Finite Fields*, advanced course for the ECC 2015 summer school, Bordeaux, France.

### 10.2.2. Supervision

- **Ph.D. in progress**

Simon Abelard, *Comptage de points de courbes algébriques sur les corps finis et interactions avec les systèmes polynomiaux*, since Sep. 2015, Pierrick Gaudry & Pierre-Jean Spaenlehauer.

Svyatoslav Covanov, *Algorithmes de multiplication : complexité bilinéaire et méthodes asymptotiquement rapides*, since Sep 2014, Jérémy Detrey & Emmanuel Thomé.

Laurent Grémy, *Analyse et optimisation d'algorithmes de cribles arithmétiques*, since Oct. 2013, Pierrick Gaudry & Marion Videau.

Hugo Labrande, *Calcul effectif d'isogénies entre jacobiniennes de courbes algébriques par une méthode d'analyse complexe*, since Sep 2013, Emmanuel Thomé & Michael J. Jacobson, Jr. (Univ. Calgary, Canada).

- **Ph.D. defended in 2015**

Cyril Bouvier, *Algorithmes pour la factorisation d'entiers et le calcul de logarithme discret*, supervised by Paul Zimmermann, defended in June.

Hamza Jeljeli, *Accélérateurs logiciels et matériels pour l'algèbre linéaire creuse sur les corps finis*, supervised by Jérémy Detrey & Emmanuel Thomé, defended in July.

### 10.2.3. Juries

- Jérémy Detrey was a member of the jury of the ÉNS competitive entrance exam.

- Pierrick Gaudry was a reviewer and member of the jury for the PhD thesis of Enea Milio (Univ. Bordeaux); he was in the jury for the PhD thesis of Florent Rovetta (Univ. Aix-Marseille).
- Emmanuel Thomé was a reviewer and member of the jury for the PhD thesis of Bastien Vialla (Montpellier).
- Marion Videau was a reviewer and member of the jury for the PhD thesis of Stéphanie Riaud (Rennes).

### **10.3. Popularization**

- Jérémie Detrey gave a presentation on the Enigma machine and its cryptanalysis to high-school teachers as part as the *journée EPI-ISN*.
- Laurent Grémy has given in April an introductory course about the Diffie-Hellman protocol for high school students during a discovery day of the Université de Lorraine.
- Pierre-Jean Spaenlehauer has participated in a session “activités débranchées” organized by Marie Dufлот-Kremer (MCF Univ. Lorraine) during the event MathC2+ which was held in CRI Nancy – Grand Est. The aim of this session was to provide junior high school students with an initiation to computer science through a set of algorithmic games.
- Pierre-Jean Spaenlehauer has animated a stand in the “Village des Sciences du Loria” in April 2015.

## CARTE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

- Guillaume Bonfante and Jean-Yves Marion participated to the organisation of the partnership meeting between JAIST and LORIA in Nancy, October 2015
- Simon Perdrix has been member of the organizing committee of the Workshop of the Groupe de Travail informatique Quantique in Grenoble 26-27 November 2015.
- Simon Perdrix has been member of the organizing committee of the Workshop of the Groupe de Travail GeoCal-LAC-LTP in Nancy 12-14 October 2015.

### 9.1.2. Scientific events selection

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

- Guillaume Bonfante was co-chair of the 8th international symposium on foundation and practice of security 2015.
- Guillaume Bonfante was in the Program Committee of Protection and Reverse Engineering Workshop 2015.
- Guillaume Bonfante was in the Program Committee of the workshop on Logic and Computational Complexity (LCC) 2015.
- Emmanuel Jeandel was in the Program Committee of Computability in Europe (CiE) 2015.
- Jean-Yves Marion was in the Program Committee of the 8th international symposium on foundation and practice of security 2015.
- Jean-Yves Marion was in the Program Committee of Protection and Reverse Engineering Workshop 2015.
- Romain Péchoux was in the Program Committee of FOundational and Practical Aspects of Resource Analysis (FOPARA) 2015.
- Simon Perdrix was in the Program Committee of Asian Quantum Information Science Conference (AQIS) 2015.
- Simon Perdrix is in the Program Committee of Quantum Physics and Logic (QPL), forthcoming: QPL'16 in Glasgow in June 2016.

#### 9.1.2.2. Reviewer

Mathieu Hoyrup reviewed articles for:

- MFCS 2015
- STACS 2015

Emmanuel Jeandel reviewed articles for:

- MFCS 2015
- STACS 2015

Romain Péchoux reviewed articles for:

- FOPARA 2015
- ISMVL 2015
- FOSSACS 2016

Simon Perdrix reviewed articles for:

- AQIS 2015
- ICALP 2015
- LICS 2015
- QPL 2016

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing activities

Emmanuel Hainry reviewed articles for:

- *Theoretical Computer Science*
- *Applicable Analysis and Discrete Mathematics*

Mathieu Hoyrup reviewed articles for:

- *Journal of Symbolic Logic*
- *Information and Computation*
- *Mathematical Structures in Computer Sciences*
- *Logical Methods in Computer Science*
- *Theory of Computing Systems*

Emmanuel Jeandel reviewed articles for:

- *Discrete Mathematics and Theoretical Computer Science*
- *Ergodic Theory and Dynamical Systems*

Romain Péchoux reviewed articles for:

- *Computability - Journal of the association Computability In Europe*
- *Information and Computation*

Simon Perdrix reviewed articles for:

- *Quantum Information and Computation*

#### 9.1.4. Invited talks

- Guillaume Bonfante was invited to give a talk on implicit complexity within NC at the Shonan Meeting on Low Level Code Analysis and Application to Computer Security.
- Mathieu Hoyrup was invited to give a talk at the annual workshop Continuity, Computability, Constructivity (CCC 2015) in Kochel am See, Germany, September 2015.
- Simon Perdrix was invited to give a talk:
  - “The ZX Calculus is incomplete for Clifford+T quantum mechanics”, at "Quantum Theory: from foundations to technologies – QTFT", Vaxjo, Sweden, June 2015,
  - “Supplementary of Interacting Frobenius Algebras” at the Workshop on “Higher topological quantum field theory and categorical quantum mechanics” Erwin Schrödinger International Institute, Vienna, October 2015
  - “Informatique quantique et théorie des graphes” at Journées Graphes et Algorithmes 2015, Orléans, Novembre 2015.

#### 9.1.5. Scientific expertise

Romain Péchoux is external expert for the European commission Horizon 2020 program.

#### 9.1.6. Research administration

Isabelle Gnaedig is:

- vice-leader of the team Carte.

Emmanuel Hainry is:

- member of the CNU (Conseil National des Universités), Section 27.
- organizer of the Carte Seminar.

Mathieu Hoyrup is:

- principal investigator of a PHC Imhotep with Walid Gomaa (Alexandria E-Just University).
- organizer of the Formal Methods Seminar at Loria.

Romain Pécoux is:

- responsible of the Project-team Carte activity report 2015.
- principal investigator of the Inria associate team Acra proposal.

Simon Perdrix is:

- responsible of GT IQ (groupe de travail Informatique quantique) at the CNRS GdR IM (groupe de recherche Informatique Mathématique).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Unless explicitly stated, the teachings below are given at Université de Lorraine.

Licence:

- Guillaume Bonfante
  - Java, L3, Mines Nancy
- 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, 12h, L2, IUT Nancy Brabois
  - Complexity, 30h, L2, IUT Nancy Brabois
- Mathieu Hoyrup
  - Programmation C, 15h, L1 PACES
  - Programmation JAVA, 56h, L1, IUT Charlemagne
- Emmanuel Jeandel
  - Algorithmics and Programming 1, 60h, L1 Maths-Info
  - Algorithmics and Programming 4, 30h, L3 Informatique
  - Modelling Using Graph Theory, 30h, L3 Informatique
  - Networking, 15h, L3 Informatique
  - Data Compression, 45h, L2 Informatique
- Romain Pécoux
  - 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 Casablanca, Morocco.
- Simon Perdrix



- Structure de données, 72h, L1, IUT Charlemagne
- Licence : Modelling Using Graph Theory, 15h, L3 Informatique

Master:

- Guillaume Bonfante
  - Modelling and UML, M1, Mines Nancy
  - Video Games, M1, Mines Nancy
  - Semantics, M1, Mines Nancy
  - Safety of Software, M2, Mines Nancy
- Isabelle Gnaedig
  - Design of Safe Software, Coordination of the module, M2, Telecom-Nancy
  - Rule-based Programming, 20h, M2, Telecom-Nancy
- Emmanuel Hainry
  - Implicit Complexity, 15h, M2 Informatique
- Emmanuel Jeandel
  - Algorithmics and Complexity, 30h, M1 Informatique
  - Combinatorial Optimization, 36h, M1 Informatique
- Romain Péchoux
  - Mathematics for computer science, 30h, M1 SCA
  - Advanced Java, 52,5h, M1 MIAGE
  - Implicit Complexity, 15h, M2 Informatique

### 9.2.2. Supervision

PhD in progress: Hubert Godfroy, Semantics of Self-modifying Programs, Jean-Yves Marion (director).

PhD in progress: David Cattaneo, Combinatorial Modelization in Quantum Computation and Generalized Cover Problems, Pablo Arrighi (director), Simon Perdrix (co-advisor).

PhD: Thanh Dinh Ta, 11 May 2015, Malware Algebraic Modeling and Detection, started Sept. 2010, Jean-Yves Marion (director) and Guillaume Bonfante (co-advisor).

PhD: Aurélien Thierry, 11 March 2015, Morphological Analysis of Malware, Jean-Yves Marion (director).

PhD in progress: Paul Bakouche, Mesure de complexité en topologie de petites dimensions, Florian Deloup (co-advisor) and Guillaume Bonfante (director).

### 9.2.3. Juries

Isabelle Gnaedig was:

- member of the Inria hiring committee for young researchers,
- member of the Telecom-Nancy engineering school admission committee.

Emmanuel Jeandel was:

- Reviewer and Examiner of Simon Martiel's PhD Defense on "Approches informatique et mathématique des dynamiques causales de graphes", defended in Université de Nice Sophia Antipolis, July 6th 2015
- Reviewer of Ilkka Törmä's PhD on "Structural and Computational Existence Results for Multidimensional Subshifts", defended in Turku (Finland), July 31st 2015
- Reviewer of Rodrigo Torres' PhD on "Some Dynamical Properties of Turing Machines Dynamical Models", to be defended in January 2016, Santiago de Chile (Chile)

### **9.3. Popularization**

- Isabelle Gnaedig is member of the scientific vulgarization committee of Inria Nancy - Grand Est. This committee is a choice and guidance instance helping the direction of the center and the person in charge of popularization events to elaborate a strategy, to realize events and to help researchers to get involved in various actions aiming at popularizing our research themes, and more generally computer science and mathematics.
- Mathieu Hoyrup wrote an article on his recent work for Images des Mathématiques.

## **CASCADE Project-Team**

# **8. Dissemination**

## **8.1. Promoting Scientific Activities**

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

#### *8.1.1.1. Organisation of Events*

- a weekly seminar is organized: <http://www.di.ens.fr/CryptoSeminaire.html>
- monthly working group on lattices, joint with ENS Lyon
- Organization of the *Summer School on Mathematical and Practical Aspects of Fully Homomorphic Encryption and Multi-Linear Maps* at IHP, Paris, in October 2015 (supported by CryptoAction, SAFEcrypto, CryptoCloud, and aSCEND)

#### *8.1.1.2. Steering Committees of International Conferences*

- steering committee of CANS: David Pointcheval
- steering committee of PKC: David Pointcheval, David Naccache
- steering committee of FDTC: David Naccache (chair)
- steering committee of PROOFS: David Naccache
- steering committee of LATINCRYPT: Michel Abdalla (chair)
- steering committee of PAIRING: Michel Abdalla

#### *8.1.1.3. Other Steering Committees*

- steering committee of the Coding and Cryptography working group (GT-C2 - <https://crypto.di.ens.fr/c2:main>) of the *Groupe de Recherche Informatique Mathématique* (GDR-IM): Damien Vergnaud serves on the committee and has even been elected as the Head of this steering committee

#### *8.1.1.4. Board of International Organisations*

- Board of the *International Association for Cryptologic Research* (IACR): Michel Abdalla (2013 – 2018), David Pointcheval (2008–2016)

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

#### *8.1.2.1. Program Committee Member*

- PKC 2015 – March 30 - April 1 (Maryland, USA): Michel Abdalla
- CT-RSA – 20-25 April (San Francisco, California, USA): David Pointcheval
- Eurocrypt – 26-30 April (Sofia, Bulgaria): David Pointcheval
- ACNS – 2-5 June (New-York, USA): David Pointcheval
- CRYPTO – 16-20 Aug (Santa Barbara, California, USA): Michel Abdalla
- LATINCRYPT – 23-26 Aug (Guadalajara, Mexico): Michel Abdalla
- IWSEC – 26-28 Aug (Nara, Japan): Damien Vergnaud
- FOCS – 18-20 Oct (Berkeley, California, USA): Hoeteck Wee
- ProvSec – 24-26 Nov (Kanazawa, Japan): Michel Abdalla, Damien Vergnaud

#### *8.1.2.2. Funding Panel and Committee Member*

- ANR – Scientific Evaluation Panel « Global Security and Cybersecurity »: Damien Vergnaud

### **8.1.3. Editorial Boards of Journals**

Editor-in-Chief

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

Associate Editor

- of *Security and Communication Networks*: David Naccache (editor)
- of *Journal of Cryptographic Engineering*: David Naccache (editor)
- of *Computers & Security* – Elsevier: David Naccache
- of *IEEE Transactions on Information Forensics and Security*: Michel Abdalla
- of *IET Information Security*: Michel Abdalla
- of *ETRI Journal*: Michel Abdalla

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

- Master: David Pointcheval, Jacques Stern, Damien Vergnaud, Introduction to Cryptology, M1, ENS
- Master: Michel Abdalla, David Pointcheval, Vadim Lyubashevsky, Cryptography, M2, MPRI
- Master: Damien Vergnaud, Advanced Algebra and Applications to Cryptography, Ecole Centrale Paris
- Master: David Pointcheval, Cryptography, M2, ESIEA

### 8.2.2. Supervision

- PhD: Sylvain Ruhault, Security Analysis of Pseudo Random Generators, ENS, June 30th, 2015, David Pointcheval & Damien Vergnaud
- PhD: Olivier Sanders, Conception et Optimisation de Mécanismes Cryptographiques Anonymes, ENS, September 24th, 2015, David Pointcheval
- PhD: Sonia Belaïd, Security of Cryptosystems Against Power-Analysis Attacks, ENS, October 22nd, 2015, Michel Abdalla
- PhD: Thomas Prest, Gaussian Sampling in Lattice-Based Cryptography, ENS, December 8th, 2015, Vadim Lyubashevsky
- PhD: Diana Maimut\*, Authentication and Encryption Protocols: Design, Attacks and Algorithmic Improvements, ENS, December 11th, 2015, David Naccache
- PhD in progress: Fabrice Ben Hamouda, Leakage of information in cryptography, from 2012, Michel Abdalla & David Pointcheval
- PhD in progress: Jérémie Clément\*, Lightweight cryptography, from 2013, David Naccache
- PhD in progress: Simon Cogliani\*, Authenticated Encryption, from 2013, David Naccache
- PhD in progress: Mario Cornejo, Security for the cloud, from 2013, Michel Abdalla
- PhD in progress: Houda Ferradi\*, Biometric protocols and mobile security, from 2013, David Naccache
- PhD in progress: Alain Passelègue, Security against related-key attacks, from 2013, Michel Abdalla
- PhD in progress: Adrian Thillard, Counter-measures against side-channel attacks and secure multi-party computation, from 2013, Damien Vergnaud
- PhD in progress: Raphael Bost, Symmetric Searchable Encryption, from 2014, David Pointcheval
- PhD in progress: Florian Bourse, Encryption Schemes for the Cloud, from 2014, Michel Abdalla & David Pointcheval
- PhD in progress: Geoffroy Couteau, Efficient secure two-party computation for the Cloud, from 2014, David Pointcheval & Hoeteck Wee

- PhD in progress: Rafael Del Pino, Lattice-Based Cryptography – Complexity and Ideal-Lattices, from 2014, Vadim Lyubashevsky
- PhD in progress: Rémi Géraud\*, Provable security in public-key cryptography, from 2014, David Naccache
- PhD in progress: Pierrick Meaux, Lattice-Based Cryptography – Advanced Features, from 2014, Vadim Lyubashevsky
- PhD in progress: Thierry Mefenza Nountu, Number-Theoretic Study of Pseudorandom Cryptographic Primitives, from 2014, Damien Vergnaud
- PhD in progress: Pierre-Alain Dupont, Secure Communications, from 2015, David Pointcheval
- PhD in progress: Romain Gay, Functional Encryption, from 2015, Michel Abdalla & Hoeteck Wee
- PhD in progress: Dahmun Gourdazi, Secure and Fast Cryptographic Implementation for Embedded Devices, from 2015, Damien Vergnaud
- PhD in progress: Louiza Khati, Disk Encryption Modes, from 2015, Damien Vergnaud
- PhD in progress: Michele Minelli, Increased efficiency and functionality through lattice-based cryptography, from 2015, Michel Abdalla & Hoeteck Wee
- PhD in progress: Anca Nitulescu, Verifiable Outsourced Computations, from 2015, David Pointcheval
- PhD in progress: Razvan Rosie, Practical Functional Encryption Schemes For the Cloud, from 2015, Michel Abdalla & Hoeteck Wee
- PhD in progress: Quentin Santos, Advanced Cryptography from a Blockchain, from 2015, David Pointcheval

\* Since David Naccache left the team, these students also moved in his new Security team.

### 8.2.3. *Juries*

- HdR Benoît Libert. *Applications of Structure-Preserving Cryptography and Pairing-Based NIZK Proofs* – ENS Lyon – France, April 29th, 2015: David Pointcheval (reviewer)
- PhD Sylvain Ruhault. *Security Analysis of Pseudo Random Generators* – ENS – France, June 30th, 2015: David Pointcheval & Damien Vergnaud (supervisors)
- PhD Olivier Sanders. *Conception et Optimisation de Mécanismes Cryptographiques Anonymes* – ENS – France, September 24th, 2015: David Pointcheval (supervisor), Michel Abdalla
- PhD Sonia Belaïd. *Security of Cryptosystems Against Power-Analysis Attacks* – ENS – France, October 22nd, 2015: Michel Abdalla (supervisor)
- PhD Thomas Prest. *Gaussian Sampling in Lattice-Based Cryptography* – ENS – France, December 8th, 2015: Vadim Lyubashevsky (supervisor), David Pointcheval
- PhD Diana Maimut. *Authentication and Encryption Protocols: Design, Attacks and Algorithmic Improvements* – ENS – France, December 11th, 2015: David Naccache (supervisor), David Pointcheval
- PhD Bastien Vialla. *Contributions to Exact Linear Algebra over Finite Fields and Homomorphic Encryption* – Montpellier – France, December 14th, 2015: Damien Vergnaud (reviewer)

## CASSIS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

The CNIL (Commission Nationale Informatique et Liberté) has official recommendations in terms of electronic voting<sup>0</sup>. These recommendations influence the design of e-voting systems that are deployed in France. However, some of the recommendations seem a bit outdated and dedicated to particular classes of systems. Even more importantly, the CNIL recommendations focus on vote privacy but do not say much about verifiability. Véronique Cortier, David Galindo, and Stéphane Glondu have formulated new recommendations, submitted to the CNIL. They have met some CNIL members to discuss how to integrate some of the propositions to the new version of the CNIL recommendations that should appear in 2016.

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Program Committee Chair

- Véronique Cortier: HotSpot 2016
- Frédéric Dadeau: AFADL 2015
- Steve Kremer: GRSRD 2015, GRSRD 2016
- Michaël Rusinowitch: IWSPA 2016

#### 10.1.1.2. Program Committee Member

- Véronique Cortier: Concur 2015, LICS 2015, POST 2015, EuroS&P 2016, SAC 2016, MFCS 2016, E-VoteID 2016, Concur 2016.
- Christophe Ringeissen: CADE-25, FroCoS 2015, WRLA 2016, UNIF 2016, IJCAR 2016.
- Frédéric Dadeau : AMOST 2015, AFADL 2015, QSR 2015
- Abdessamad Imine : DEXA 2015, ICEIS 2015, DASFAA 2015, DEXA 2016, ICEIS 2016
- Steve Kremer : CSF 2016, AsiaCCS 2016, ACISP 2016, AsiaCCS 2015, ESORICS 2015, FCS 2015, TGC 2015.
- Michaël Rusinowitch: TGC 2015, LPAR 2015, CRISIS 2015, PAS 2015, POST 2016.
- Fabrice Bouquet : AMOST 2015, MODEVVA 2015

### 10.1.2. Journal

#### 10.1.2.1. Editorial Board Member

- Véronique Cortier: Information & Computation, Journal of Computer Security, ACM Transactions on Information and System Security (TISSEC), Foundations and Trends (FnT) in Security and Privacy.
- Olga Kouchnarenko: Modelling and Analysis of Information Systems (Russian Academy of Science and Springer partnership).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

---

<sup>0</sup><http://www.cnil.fr/documentation/deliberations/deliberation/accessible/non/delib/249/>

- Summer School:
  - Véronique Cortier, Summer School École Jeunes Chercheurs en Programmation (EJCP 2015), Nancy, France, June 2015 and Summer School Marktoberdorf 2015, Marktoberdorf, Germany, August 2015.
  - Frédéric Dadeau, Summer School École Jeunes Chercheurs en Programmation (EJCP 2015), Nancy, France, June 2015
- Continuing Education: Fabrice Bouquet, How to Realize Test (audience: CNRS / Inria employees), Marseille, France, 8 october and 1 december 2015
- Master:
  - Fabrice Bouquet, Functional Testing, 18 hours, M2 Computer science, Franche-Comté University, France.
  - Fabrice Bouquet, Artificial Intelligence, 42 hours, M1 Computer science, Franche-Comté University, France.
  - Véronique Cortier, Security of flows, 20 hours, M2 Computer Science, Telecom Nancy and Mines Nancy, France.
  - Frédéric Dadeau, Structural testing, 9 hours (ETD), M2 Computer science, Franche-Comté University, France.
  - Alain Giorgetti, Program Proofs, 58 hours, M1 Computer science, Franche-Comté University, France.
  - Alain Giorgetti, Decision Procedures, 13 hours, M2 Computer science, Franche-Comté University, France.
  - Olga Kouchnarenko, Specification, Verification and Validation, 12 hours (ETD), M2 Computer science, Franche-Comté University, France.
  - Olga Kouchnarenko, Security and Components, 10.5 hours (ETD), M2 Computer science, Franche-Comté University, France.
  - Steve Kremer, Security Theory, 24 hours (ETD), M2 Computer science, Lorraine University, France.
  - Abdessamad Imine, Security for XML Documents, 12 hours (ETD), M1, Lorraine University, France.
  - Christophe Ringeissen, Decision Procedures for Software Verification, 24 hours (ETD), M2 Computer science, Lorraine University, France.
  - Laurent Vigneron, Security of information systems, 22.5 hours (ETD), M2 Computer science, Lorraine University, France.
  - Laurent Vigneron, Security of information systems, 24 hours (ETD), M2 MIAGE – Distributed Information Systems, Lorraine University, France.
- Licence:
  - Alain Giorgetti, Logics and Deduction, 52 hours, L2 Computer science, Franche-Comté University, France.
  - Olga Kouchnarenko, Formal Languages, 60 hours (ETD), L3 Computer science, Franche-Comté University, France.
- E-Learning:
  - Fabrice Bouquet, Artificial Intelligence, 78 hours (ETD), M1 Computer science, Franche-Comté University, France.
  - Fabrice Bouquet, Specification Validation and Test, 39 hours (ETD), M2 Computer science, Franche-Comté University, France.

Alain Giorgetti, Formal Methods, 81 hours, L3 computer science, Franche-Comté University, France.

Olga Kouchnarenko, Languages, Specification and Proof, 25 hours (ETD), L3 Computer science, Franche-Comté University, France.

Olga Kouchnarenko, Compositional approaches in verification, 18 hours (ETD), M2 Computer science, Franche-Comté University, France.

### 10.2.2. Supervision

- PhD (defended in 2015):
  - Guillaume Scerri, Proof of security protocols revisited, January 29, Hubert Comon-Lundh and Véronique Cortier
  - Bao Thien Hoang, On the Polling Problem for Decentralized Social Networks, February 3, Abdessamad Imine and Christophe Ringeissen
  - Alexandre Vernotte, A pattern-driven and model-based vulnerability testing for Web applications, October 29.
  - Guillaume Petiot, *Contribution à la vérification de programmes C par combinaison de tests et de preuves*, November 4, Jacques Julliand, Nikolai Kosmatov and Alain Giorgetti
  - Jean-Marie Gauthier, Method for validation and simulation of SysML model: Applied on micro-systems, November 19, Fabrice Bouquet, Fabien Peureux and Ahmed Hammad
- PhD in progress: Younes Abid, Privacy control for social networks, started in March 2015. Abdessamad Imine, Michaël Rusinowitch and Orpailleur co-advising.
  - Hadrien Bride, Validation and Reconfiguration of Modal Petri Nets within Constraint Logic Programming, started in October 2013, Olga Kouchnarenko and Fabien Peureux
  - Rémy Chrétien, Decision procedures of equivalence properties, started in October 2012, Véronique Cortier and Stéphanie Delaune
  - Alicia Filipiak, Design and validation of security services for mobile platforms: smartphones and tablets, started in March 2015, Véronique Cortier
  - Richard Genestier, Formal specification and verification of programs generating structured data, started in October 2012, Alain Giorgetti and Olga Kouchnarenko
  - Jean-Luc Joly, Randomized approaches for validation and verification procedures, started in December 2011, Pierre-Cyrille Héam
  - Éric Le Morvan, Secure composition of cryptographic protocols, started in October 2013, Véronique Cortier
  - Huu Hiep Nguyen, Secure Collaboration in Mobile Social Networks, started in November 2013, Abdessamad Imine and Michaël Rusinowitch
  - Ludovic Robin, Verification of cryptographic protocols using weak secrets, started in October 2014, Stéphanie Delaune and Steve Kremer

### 10.2.3. Juries

- Inria evaluation committee (Steve Kremer, Michaël Rusinowitch)
- Jury Junior Research Position Bordeaux (Véronique Cortier)
- Jury Junior Research Position Inria Paris-Rocquencourt (Véronique Cortier)
- Jury Junior Research Position Inria Saclay-IdF (Michaël Rusinowitch)
- Jury Junior Research Position Inria Rennes-Bretagne Atlantique (Steve Kremer)
- Jury Junior Research Position Inria Grenoble-Rhône Alpes (Steve Kremer)



Jury Chair in Computer Security of CNAM Paris (Michaël Rusinowitch)  
Jury Prix Région Lorraine for Thesis, Researcher, Science and Society (Michaël Rusinowitch)  
Jury Maitre de conférences U. Lorraine (Véronique Cortier)  
Reviewer for Henning Schnoor Habilitation, Kiel U., Germany (Véronique Cortier)  
Reviewer for Mathilde Duclos PhD, Grenoble (Véronique Cortier)  
Reviewer and Chair of the jury for Elio Goettelmann PhD, U. Lorraine (Laurent Vigneron)  
Examiner for Edouard Cuvelier PhD, Louvain-la-Neuve, Belgium (Steve Kremer)  
Examiner and Chair of the jury for Ali Kassem PhD, Grenoble (Steve Kremer)  
Reviewer for Alessandro Bruni PhD, Lingby, Denmark (Steve Kremer)  
Examiner for Mathilde Duclos PhD, Grenoble (Steve Kremer)  
Reviewer for Kim Pecina PhD, Saarbruecken, Germany (Steve Kremer)  
Reviewer for Amira Amira Henaïen PhD, U. Lorraine (Olga Kouchnarenko)  
Examiner and Chair of the jury for Alexandre Vernotte PhD, Besançon (Olga Kouchnarenko)  
Reviewer for Anis Bkakria PhD, Telecom Bretagne (Michaël Rusinowitch)  
Reviewer for Mohammed Bekkouche PhD, U. Nice-Sophia Antipolis (Fabrice Bouquet)

### **10.3. Popularization**

- Vote électronique : un scrutin à sécuriser. Véronique Cortier. *La Recherche*, 504:70-73, October 2015.
- Blog entries for Blog Binaire (*Le Monde*): Attaque à l'italienne (Véronique Cortier), Les bonnes propriétés d'un système de vote électronique (Véronique Cortier and Steve Kremer), Le vote papier est-il réellement plus sûr que l'électronique ? (Véronique Cortier), Qu'est-ce qu'un bon système de vote ? (Véronique Cortier).
- Pour vivre heureux, vivons anonymes. Abdessamad Imine. *MAIF Magazine*, Novembre 2015.

## **CELTIQUE Project-Team**

# **8. Dissemination**

## **8.1. Promoting Scientific Activities**

### **8.1.1. Scientific events organisation**

Static Analysis Symposium 2015, Saint-Malo, September 2015.

### **8.1.2. Scientific events selection**

#### *8.1.2.1. Chair of conference program committees*

SAS 2015 (Static Analysis Symposium) was chaired by Sandrine Blazy and Thomas Jensen

#### *8.1.2.2. Member of the conference program committees*

- FORTE 2015 (International Conference on Formal Techniques for Distributed Objects, Components and Systems): Alan Schmitt
- CoqPL 2016 (International Workshop on Coq for PL): Alan Schmitt
- POPL 2015 (Symposium on Principles of Programming Languages): David Pichardie (Program Committee) and Delphine Demange (External Review Committee)
- ESOP 2015 (European Symposium on Programming) : Delphine Demange
- JFLA 2015 (Journées Francophones des Langages Applicatifs) : Delphine Demange
- OCaml workshop 2015: Sandrine Blazy
- AFADL 2015 (Approches Formelles dans l'Assistance au Développement de Logiciels) : Sandrine Blazy
- ITP 2015 (Interactive Theorem Proving): Sandrine Blazy
- CPP 2016 (Certified Proofs and Programs): Sandrine Blazy
- IFIP SEC 2015: Thomas Jensen

#### *8.1.2.3. Reviewer*

- CONCUR 2015 (International Conference on Concurrency Theory): Alan Schmitt
- FOSSACS 2016 (International Conference on Foundations of Software Science and Computation Structures): Alan Schmitt
- ITP 2015 (International Conference on Interactive Theorem Proving) : Delphine Demange
- ATVA 2015 (13th International Symposium on Automated Technology for Verification and Analysis) : Sandrine Blazy
- ESOP 2015 (European Symposium on Programming): Thomas Jensen.

### **8.1.3. Journal**

#### *8.1.3.1. Reviewer - Reviewing activities*

- Applied Mathematics & Information Sciences: Alan Schmitt
- Formal Aspects of Computing: Alan Schmitt, Thomas Jensen
- International Journal of Computer Mathematics: Alan Schmitt
- Journal of Automated Reasoning: Sandrine Blazy, David Pichardie
- Journal of Computer Security : Sandrine Blazy

#### **8.1.4. Invited talks**

- Sandrine Blazy: Formal verification of compilers and static analyzers, PLMW@POPL 2015 (Programming Languages Mentoring Workshop)
- Thomas Jensen: Integrating formal verification within programming languages. Seminar Collège de France, October 2015.

### **8.1.5. Scientific expertise**

- Sandrine Blazy: expertise of 2 projects for FNR (Luxemburg)
- Thomas Jensen, expertise of ANR AAP general, short proposals

### **8.1.6. Research administration**

- Thomas Jensen is head of the NUMERIC department at University of Bretagne-Loire
- Thomas Jensen is managing the “Security” track of ANR Comin Labs.

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

### **8.2.1. Teaching**

Licence: Thomas Genet, Software Engineering, 58h, L2, Université de Rennes 1 / Istic, France  
Licence: Delphine Demange, Software Engineering, 40h, L2, Université de Rennes 1 / Istic, France  
Licence: Delphine Demange, Functional Programming, 70h, L1, Université de Rennes 1 / Istic, France  
Licence : Alan Schmitt, Programmation Fonctionnelle, 39h, L3, Insa Rennes, France  
Licence : David Pichardie, Algorithms, 36h, L3, ENS Rennes, France  
Licence : David Cachera, Logic, 36h, L3, ENS Rennes, France  
Licence : Sandrine Blazy, Functional programming, 30h, L3, Université Rennes 1 France  
Master : Thomas Genet, Formal Design and Verification, 108h, M1, Université de Rennes 1 / Istic, France  
Master : Thomas Genet, Cryptographic Protocols, 24h, M2, Université de Rennes 1 / Istic, France  
Master : David Cachera, Semantics of Programming Languages, 36h, M1, Université Rennes 1, France  
Master : Frédéric Besson, Compilation, 50h, M1, Insa Rennes, France  
Master : Sandrine Blazy, Méthodes Formelles pour le développement de logiciels sûrs, 53h, M1, Rennes 1, France  
Master : Alan Schmitt, Méthodes Formelles pour le développement de logiciels sûrs, 25h, M1, Rennes 1, France  
Master : David Pichardie, Mechanized Semantics, 15h, M2, Université Rennes 1, France  
Master : Sandrine Blazy, Mechanized Semantics, 15h, M2, Université Rennes 1, France  
Master : Sandrine Blazy, Software vulnerabilities, 38h, M2, Université Rennes 1, France  
Master : Delphine Demange, Software Security, 9h, M2, Université Rennes 1, France  
Master : Thomas Jensen, Program Analysis and Software Security, 39h, M2, Université Rennes 1, France

### **8.2.2. Supervision**

PhD in progress : Martin Bodin, Certified Analyses of JavaScript, 1st september 2012, Thomas Jensen and Alan Schmitt

PhD in progress : Gurvan Cabon, Analyse non locale certifiée en JavaScript grâce à une sémantique annotée, 1st september 2015, Alan Schmitt

PhD in progress : Yon Fernandez De Retana, Verified Optimising Compiler for high-level languages, 1st september 2015, Delphine Demange and David Pichardie

PhD in progress : Yannick Zakowski, Programs Logics for Concurrency, 1st september 2014, David Pichardie and David Cachera

PhD in progress : Florent Saudel, Vulnerability discovery, November 2015, Sandrine Blazy, Frédéric Besson and Frédéric Guihéry (Amossys)

PhD in progress: David Bühler, Communication between analyses by deductive verification and abstract interpretation, November 2013, Sandrine Blazy and Boris Yakobowski (CEA)

PhD in progress: Pierre Wilke, Low-level memory models for compilers and static analysers, 1st august 2013, Sandrine Blazy and Frédéric Besson

PhD in progress: Oana Andreescu, Static analysis and automated program proving, 1st September 2013, Thomas Jensen

PhD in progress: Pauline Bolignano, Modeling and abstraction of system software, 1st November 2013, Thomas Jensen

PhD: Yann Salmon, Reachability for Term Rewriting Systems under Strategies, defended Dec 2015, Thomas Genet

PhD: Vincent Laporte, Verified static analyses for low-level languages, defended Nov 2015, Sandrine Blazy and David Pichardie

PhD: Stéphanie Riaud, Data obfuscation for protecting programs against dynamic analysis, defended Dec 2015, Sandrine Blazy

### **8.2.3. Juries**

Alan Schmitt, jury member (reviewer) for the PhD defense of Burak Ekici, December 2015, Université Grenoble Alpes

David Pichardie, jury member (chair) for the PhD defense of Mounir Assaf, May 2015, University Rennes 1, France.

David Pichardie, jury member (reviewer) for the PhD defense of Bogdan Mihaila, January 2015, Technische Universität München, Germany.

Sandrine Blazy, jury member for the PhD defense of Alexis Fouilhé, October 2015, Grenoble University, France

Sandrine Blazy, jury member for the PhD defense of Zakaria Chihani, November 2015, Ecole Polytechnique, France.

Sandrine Blazy, jury member for the PhD defense of Lourdes del Carmen Gonzalez Huesca, November 2015, Paris Diderot University, France.

Thomas Jensen, jury member for the PhD defense of Magnus Madsen, May 2015, Aarhus University, Denmark.

Thomas Jensen, jury member for the PhD defense of Clémentine Maurice, EURECOM, France.

Alan Schmitt, jury member for the selection of Inria CR (researcher) candidates, March and April 2015, Inria, Rennes, France.

Delphine Demange, jury member for the selection of a Maître de Conférences at University Paris Diderot (Paris 7) / LIAFA+PPS, May 2015, Paris, France.

Sandrine Blazy, jury member for the selection of a Maître de Conférences at University of Nancy, May 2015, Nancy, France.

Sandrine Blazy, jury member for the selection of a Maître de Conférences at University of Rennes 1, May 2015, Rennes, France.

Sandrine Blazy, jury member for the selection of a professor at University of Brest, May 2015, Brest, France.

Delphine Demange, jury member of the Gilles Kahn PhD award committee, December 2015, Inria Paris - Rocquencourt

### **8.3. Popularization**

- IRISA 40th anniversary Open House - Recreational workshop (interactive demonstration) on the problem of functional correctness of programs, its importance in the field of critical software, and formal proof of correctness : Thomas Genet, Delphine Demange, Pauline Bolignano, Yannick Zakowski. Inria Convention centre, Inria Rennes - Bretagne Atlantique. Rennes, France. December 2015.
- Talk “Bug, Virus, Intrusion, Pirates... So many threats and no defense? Yes... maths.”, Thomas Genet, given two times in high schools close to Rennes.
- Two short tutorials. One for Isabelle/HOL [41] and one for SPAN+AVISPA [42].

## COMETE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

Note: In this section we include only the activities of the permanent internal members of Comète.

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committee

Catuscia Palamidessi is member of:

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

The Organizing Committee of **LICS**, the ACM/IEEE Symposium on Logic in Computer Science. Since 2010.

The Council of **EATCS**, the European Association for Theoretical Computer Science. Since 2005.

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

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

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

**The IFIP Working Group 2.2** – Formal Description of Programming Concepts. Since 2001.

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

Frank D. Valencia is member of:

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

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committee

Catuscia Palamidessi:

has served as PC chair of **LICS 2015**. 30th Annual ACM/IEEE Symposium on Logic in Computer Science. Kyoto, Japan, 6-10 July 2015.

Frank Valencia:

has served as PC chair (with Camilo Rueda and Martin Leucker as co-chairs) of **ICTAC 2015**: The 12th International Colloquium on Theoretical Aspects of Computing. Cali, Colombia Oct 29-31 2015. Co-located with **11th International Workshop on Developments in Computational Models DCM 2015**.

as general chair of **ICTAC 2015**: The 12th International Colloquium on Theoretical Aspects of Computing. Cali, Colombia Oct 29-31 2015.

*9.1.2.2. Member of the conference program committee*

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

**ICTAC 2016.** 13th International Colloquium on Theoretical Aspects of Computing Taipei, Taiwan, 24-31 October 2016.

**CONCUR 2016.** The 27th International Conference on Concurrency Theory. Québec City, Canada, 23-26 August 2016.

**TASE 2016.** The 10th International Symposium on Theoretical Aspects of Software Engineering. Shanghai, China, 17-19 July 2016.

**FCS 2016.** The Workshop on Foundations of Computer Security. Lisbon, Portugal, 27 June 2016.

**MFPS XXXII.** The Thirty-second Conference on the Mathematical Foundations of Programming Semantics. Carnegie Mellon University, Pittsburgh, USA, 23-26 May 2016.

**PhDs in Logic VIII.** Darmstadt, Germany, 9-11 May 2016.

**UEOP 2016.** The 1st Workshop on Understanding and Enhancing Online Privacy. San Diego, USA, 21 February 2016.

**ATVA 2015.** The 13th International Symposium on Automated Technology for Verification and Analysis. Shanghai, China, 12-15 October 2015.

**WPES 2015.** The Workshop on Privacy in the Electronic Society. Denver, Colorado, USA, 12 October 2015.

**QEST 2015.** The 12th International Conference on Quantitative Evaluation of SysTems. Madrid, Spain, 1-3 September 2015.

**LOPSTR 2015.** The 25th International Symposium on Logic-Based Program Synthesis and Transformation. Siena, Italy, 13-15 July 2015.

**FORTE 2015.** The 35th IFIP International Conference on Formal Techniques for Distributed Objects, Components and Systems. Inria Grenoble, France, 2-4 June 2015.

**TPDP 2015.** Theory and Practice of Differential Privacy London, UK, 18 April 2015.

Konstantinos Chatzikokolakis is/has been a member of the program committees of the following conferences and workshops:

**PETS 2016:** The 16th Privacy Enhancing Technologies Symposium

**WWW 2016:** 25th World Wide Web conference

**ICISSP 2015:** 1st International Conference on Information Systems Security and Privacy

**PETS 2015:** The 15th Privacy Enhancing Technologies Symposium

**FCS 2015:** Workshop on Foundations of Computer Security

**TPDP 2015:** 1st workshop on the Theory and Practice of Differential Privacy

**QAPL 2015:** 13th Workshop on Quantitative Aspects of Programming Languages

**APVP 2015:** 6ème Atelier sur la Protection de la Vie Privée

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

**PPDP 2016.** The 18th International Symposium on Principles and Practice of Declarative Programming (PPDP 2016).

**ICTAC 2016.** The 13th International Colloquium on Theoretical Aspects of Computing (ICTAC 2016).

**PPDP 2015.** The 17th International Symposium on Principles and Practice of Declarative Programming (PPDP 2014). Siena, Italy, July 14-16, 2015.

**ICLP DC 2015.** 11th ICLP Doctoral Consortium.

### 9.1.2.3. Reviewer

The members of the team reviewed several papers for international conferences and workshops.

## 9.1.3. Journal

### 9.1.3.1. Member of the editorial board

Catuscia Palamidessi is:

Member of the Editorial Board of **Mathematical Structures in Computer Science**, published by the Cambridge University Press.

Member of the Editorial Board of **Acta Informatica**, published by the Springer.

Member of the Editorial Board of the **Electronic Notes of Theoretical Computer Science**, Elsevier Science.

Member of the Editorial Board of **LIPICs: Leibniz International Proceedings in Informatics**, Schloss Dagstuhl –Leibniz Center for Informatics.

Konstantinos Chatzikokolakis is:

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

### 9.1.3.2. Reviewer

The members of the team reviewed several papers for international journals.

## 9.1.4. Other Editorial Activities

Catuscia Palamidessi is/has been:

Co-editor of the special issue on Quantitative Information Flow on **Mathematical Structures in Computer Science**. 2015.

Frank D. Valencia has been:

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

## 9.1.5. Other Activities

### 9.1.5.1. Invited talks

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

**ETAPS 2015** (Unifying speaker). The European Joint Conferences on Theory and Practice of Software. London, UK, 11-18 April 2015.

**QAPL 2015** (Invited speaker). Thirteenth International Workshop on Quantitative Aspects of Programming Languages and Systems. London, UK, 11-12 April 2015.

**ICTAC 2015** (Keynote speaker). The 12th International Colloquium on Theoretical Aspects of Computing. Cali, Colombia, 29-31 October 2015.

### 9.1.5.2. Participation in other committees

Catuscia Palamidessi has been serving in the following committees:

Member of the **Alonzo Church Award** Committee. Since 2014. This award is for an outstanding contribution to Logic and Computation within the past 25 years.

Member of the Swedish Research Council Committee for Computer Science, 2015. The main duty of this committee is to evaluate and select the grant applications.

President of the selection committee for the **EATCS Best Paper Award** at the ETAPS conferences. Since 2006.

Member of the **EAPLS PhD Award** committee. Since 2010.



### 9.1.5.3. Service

Catuscia Palamidessi serves as:

Member of the Comité d'Orientation Scientifique et Technique, Groupe de travail Relation Internationales (COST-GTRI). Since November 2007.

Directrice adjointe du LIX, le Laboratoire d'Informatique de l'Ecole Polytechnique. April 2010 - December 2015.

Member of the Comité de These for Mathematics and Computer Science at the École Polytechnique. October 2007 - September 2015.

Reviewer for the projects proposal for the program PRIN, sponsored by the Italian MIUR ("Ministero dell'Istruzione, dell'Università e della Ricerca"). Since 2004.

Member of the comité de selection for two full professor positions at l'Université de Paris VII (Paris Diderot). Spring 2015.

Member of the comité de selection for a position for Maitre de Conférences à l'Université de Lorraine.

Frank Valencia served as:

President of the Selection Committee for the LIX Postdoctoral Fellowship. May - July 2014.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

PhD : Catuscia Palamidessi has been teaching a course for PhD students, on Protection of sensitive information, at the **BISS 2015**, the Bertinoro International Spring School. Bertinoro, Italy. March 2015. Total 13 hours.

PhD: Konstantinos Chatzikokolakis has been teaching a course for PhD students, on Security and Information Flow, at the **ICTAC 2015** Summer School. Cali, Colombia. Oct 2015. Total 5 hours.

Master : Frank D. Valencia has been teaching the masters course "Computability Theory", 60 hours, at the Pontificia Universidad Javeriana de Cali, Colombia. July 27 - Nov 1, 2015.

Master: Konstantinos Chatzikokolakis and Catuscia Palamidessi have been teaching a course on the Foundations of Privacy at the **MPRI**, the Master Parisien pour la Recherche en Informatique. University of Paris VII. A.Y. 2015-16. Total: 24 hours plus 6 hours for the exam and the exercise session is preparation to the exam.

### 9.2.2. Supervision

PhD in progress (2015-) **Joris Lamare**. Ecole Polytechnique. Grant MSR Center. Co-supervised by Catuscia Palamidessi and Konstantinos Chatzikokolakis.

PhD in progress (2014-) **Michel Guzman**. Ecole Polytechnique. Grant Inria CORDI-S. Co-supervised by Catuscia Palamidessi and Frank D. Valencia.

PhD in progress (2013-) **Salim Percy**. Ecole Polytechnique. Grant Digiteo-Digicosme. Co-supervised by Frank D. Valencia and Stefan Haar.

PhD in progress (2012-15) **Marco Stronati**. Ecole Polytechnique. Grant EDX Monge. Co-supervised by Catuscia Palamidessi and Konstantinos Chatzikokolakis.

PhD in progress (2011-15) **Lili Xu**. Ecole Polytechnique and Chinese academy of Science, Beijing, China. Co-supervised by Catuscia Palamidessi and Huimin Li.

### 9.2.3. Juries

Catuscia Palamidessi has been reviewer for the thesis of the following PhD students:

Hamid Ebadi, PhD student supervised by David Sands, Chalmers University, Sweden. June 2015. The thesis is still in progress, Catuscia Palamidessi was reviewer and member of the committee for the half-way thesis defense, that in Sweden is called Licentiate.

Frank Valencia has been a member of the committee board for the following PhD students:

Thierry Martinez, Title of the thesis: *Execution models for Constraint Programming: kernel language design through semantics equivalence..* Advised by Francois Fages. University Paris-Diderot. Defended in Dec 2015.

Jaime Arias, Title of the thesis: *Formal Semantics and Automatic Verification of Hierarchical Multimedia Scenarios with Inter- active Choice..* Advised by Myriam Desainte-Catherine. University of Bordeaux. Defended in Nov 2015.

#### **9.2.4. Other didactical duties**

Catuscia Palamidessi is:

Co-responsible of the Master 2 course on Concurrency since 2003, first at the DEA in Theoretical Computer Science (Paris) and then at the MPRI.

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

Member of the Committee d'Encadrement de Thèse of Jun Wang (PhD student supervised by Qiang Tang and Peter Ryan), University of Luxembourg. Since December 2014.

Member of the advising committee for the PhD of Andrea Margheri (PhD student supervised by Rosario Pugliese), University of Florence, Italy. Since 2014.

Konstantinos Chatzikokolakis and Catuscia Palamidessi have designed, and coordinate, a course on the Foundations of Privacy at the **MPRI**, the Master Parisien pour la Recherche en Informatique. University of Paris VII. A.Y. 2015-16.

## COMPSYS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organization

#### 10.1.1.1. General Chair, Scientific Chair

Laure Gonnord is co-chair of the “french compilation community”, with Florian Brandner (ENSTA, then Telecom ParisTech) and Fabrice Rastello (Inria Corse).

Alain Darté is general chair of the steering committee of CPC (International Workshop on Compilers for Parallel Computing), which regroups in Europe, every 18 months, a large community of researchers interested in compilers for HPC. Also, Alain Darté and Alexandre Isoard participated to CPC’15 in London (Jan. 15).

#### 10.1.1.2. Member of Organizing Committees

Alain Darté was co-organizer of IMPACT’15 (International Workshop on Polyhedral Compilation Techniques) and Tomofumi Yuki is co-organizer of IMPACT’16.

Tomofumi Yuki was publicity co-chair of GPCE 2015 (15th International Conference on Generative Programming: Concepts & Experience).

Alain Darté and Tomofumi Yuki are currently organizing a second polyhedral spring school in 2016, with connections with HPC users from numerical analysis.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

Alain Darté was program co-chair of IMPACT’15, with Alexandra Jimborean (Uppsala University). Tomofumi Yuki is program co-chair of IMPACT’16, with Michelle Strout (University of Arizona).

Alain Darté was program chair of the topic E2 “Compilers for Embedded Systems” of DATE’15 (International Conference on Design, Automation, and Test in Europe), with Rodric Rabbah (IBM).

#### 10.1.2.2. Member of Conference Program Committees

Tomofumi Yuki was a program committee member for the RST Track (Reliable Software Technologies and Communication Middleware) of SAC’16 (31st ACM Symposium on Applied Computing).

Paul Feautrier was a member of the program committees of IMPACT’15, IMPACT’16, and PECCS’15 (5th International Conference on Pervasive and Embedded Computing and Communication Systems).

Christophe Alias was a member of the program committee of IMPACT’16.

Alain Darté was a member of the program committees of PACT’15 (International Conference on Parallel Architectures and Compilation Techniques) and X10’15 (international workshop on X10, part of PLDI’15).

#### 10.1.2.3. Reviewer

Paul Feautrier was a reviewer for IMPACT’15, IMPACT’16, PARCO’15, and PACT’15.

Tomofumi Yuki was a reviewer for PACT’15 and X10’15.

Christophe Alias was a reviewer for DATE’15.

Laure Gonnord was a reviewer for VMCAI’15, CGO’15, and PARCO’15.

Alain Darté was a reviewer for DATE’15, IMPACT’15, X10’15, and PACT’15.

### **10.1.3. Journal**

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

Paul Feautrier is a member of the editorial board of IJPP, the “International Journal of Parallel Programming”.

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

Paul Feautrier was reviewer for “Information and Computation”, ACM TODAES, ACM TOPLAS, and IJPP.

Tomofumi Yuki was reviewer for the PARCO journal.

Alain Darté was reviewer for the ACM TACO journal and the “Software Practice and Experience” journal.

Christophe Alias was reviewer for Parallel Computing and IEEE TVLSI.

### **10.1.4. Invited Talks**

Paul Feautrier was invited to give a talk on “The Numerical Solution of the Transfer Equation”, at a workshop in honor of Roger Cayrel, Paris Observatory, Dec. 2015.

In June 2015, Laure Gonnord was invited at Google, Mountain View and SRI, to give talks about her research about static analyses for compilers.

### **10.1.5. Scientific Expertise**

Alain Darté was invited to be part of the scientific committee of the CPU (“certification numérique et fiabilité”) cluster of excellence (from Bordeaux Idex), and its internal evaluation in Sep. 2015.

In 2015, Maroua Maleej has produced 7 Research Tax Credit documents for Accenture group France as a scientific consultant. The goal is to expertise research done by Accenture project-teams and suggest further ideas by evaluating the state of the art.

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

### **10.2.1. Teaching**

Licence:

- Laure Gonnord: Architecture des ordinateurs (TD+TP=40h), L2, Université Lyon 1 Claude Bernard: Spring 2015.
- Maroua Maleej: Algorithmique et Programmation Fonctionnelle et Récursive (TP=28h), L1, Université Lyon 1 Claude Bernard: Fall 2015.
- Christophe Alias: Introduction à la compilation (CM+TD=24h), L3, INSA Centre-Val-de-Loire: Spring 2015.
- Christophe Alias: Concours E3A—épreuve informatique MPSI (correcteur): Spring 2015.

Master:

- Laure Gonnord, Program Analysis and Verification (CM 24h), M1, Ecole Normale Supérieure de Lyon. With David Monniaux.
- Laure Gonnord, Compilation (TP 28h), M1, Ecole Normale Supérieure de Lyon.
- Laure Gonnord, Introduction aux systèmes et réseaux (CM/TP 52h), M2 Pro, Université Lyon 1.
- Laure Gonnord, Compilation (TD/TP 24h), M1, Université Lyon 1 Claude Bernard.
- Laure Gonnord, Complexité (TD 15h), M1, Université Lyon 1 Claude Bernard.
- Laure Gonnord, Temps Réel (TP 24h), M1, Université Lyon 1 Claude Bernard.
- Christophe Alias, Optimisation d’applications embarquées (CM+TD=18h), M1, INSA Centre-Val-de-Loire.

- Christophe Alias, Advanced Compilers: Loop Transformations and High-Level Synthesis (CM 8h), M2, Ecole Normale Supérieure de Lyon.
- Christophe Alias, Compilation (CM 16h), M1, Ecole Normale Supérieure de Lyon.
- Tomofumi Yuki and Christophe Alias, Advanced Compilers: Loop Transformations and High-Level Synthesis, 24h, M2, ENS Lyon.

Master school:

- Laure Gonnord organized in Jan. 2015 a research school entitled “Static analyses in the state-of-the-art compilers” (invited speaker: Fernando Pereira). See [http://laure.gonnord.org/pro/research/compil\\_research\\_school.html](http://laure.gonnord.org/pro/research/compil_research_school.html)

EJCP:

Tomofumi Yuki has given a one-day lecture at the École Jeunes Chercheurs en Programmation 2015. See <http://ejcp2015.inria.fr/>.

### 10.2.2. Supervision

PhD in progress: Guillaume Iooss, “Semantic tiling”, started in September 2011, joint PhD ENS-Lyon/Colorado State University, advisors: Christophe Alias and Alain Darté (ENS-Lyon) / Sanjay Rajopadhye (Colorado State University).

PhD in progress: Alexandre Isoard, “Streaming-related code optimizations”, started in September 2012, advisor: Alain Darté.

PhD in progress: Maroua Maleej, “Low cost static analyses for compilers”, started in October 2014, advisors : Laure Gonnord and Alain Darté, then Laure Gonnord and Frédéric Vivien (Roma team).

### 10.2.3. Juries

Paul Feautrier was a member of the defense committee of the PhD of Alexis Foulhié (Grenoble, Oct. 2015), entitled “Revisiting the abstract domain of polyhedra: constraints-only representation and formal proof”, and was a reviewer for the HDR thesis of Corinne Ancourt (UPMC, May 2015), entitled “Sûreté: de l’analyse à l’instrumentation et à la synthèse de code”.

Laure Gonnord was a member of the doctoral committee for the evaluation of the first year of the PhD of F. Maurica, Université de la Réunion, in Dec. 2015.

Alain Darté was the reviewer of the PhD of Gergö Barany (Technische Universität Wien, Austria, March 2015), entitled “Integrated Code Motion and Register Allocation”.

## 10.3. Popularization

Compsys was involved in the proposal of the inter-disciplinary project EMI, with the maison des mathématiques et de l’informatique (MMI), and the Grame laboratory (computer music). See Section 9.1.3 .

Tomofumi Yuki has given a one-day lecture at the École Jeunes Chercheurs en Programmation 2015 (<http://ejcp2015.inria.fr/>), entitled “Research in Compilers and How it Relates to Software Engineering”.

## CONVECS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

- H. Garavel is a member of the model board of MCC'2015 (*Model Checking Contest*). In 2015, he verified the forms describing the benchmark models and enhanced the format of these forms by adding new model properties. He contributed to the formalization of the contest's rules and to the writing of the two contest calls (call for models and call for tools). He also participated in migrating the PetriWeb model base (developed at the Technical University of Eindhoven) to the format and conventions of the contest. A journal article describing the achievements of the 5th Model Checking Contest has been written and submitted for publication.
- G. Salaün was a member of the organizing committee of SEFM'2015 (*13th International Conference on Software Engineering and Formal Methods*), York, United Kingdom, September 7–11, 2015.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

- G. Salaün was programme committee co-chair of SVT-SAC'2015 (the *Software Verification Track of the Symposium on Applied Computing*), Salamanca, Spain, April 13–17, 2015.

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

- H. Garavel was program committee member of TACAS'2015 (*21th International Conference on Tools and Algorithms for the Construction and Analysis of Systems*), London, United Kingdom, April 11–19, 2015.
- G. Salaün and W. Serwe were program committee members of FSEN'2015 (*6th International Conference on Fundamentals of Software Engineering*), Tehran, Iran, April 22–24, 2015.
- H. Garavel was program committee member of DCDS'2015 (*5th International Workshop on Dependable Control of Discrete Systems*), Cancun, Mexico, May 27–29, 2015.
- G. Salaün was program committee member of ICE'2015 (*8th Interaction and Concurrency Experience*), Grenoble, France, June 4-5, 2015.
- F. Lang, R. Mateescu, and W. Serwe were program committee members of FMICS'2015 (*20th International Workshop on Formal Methods for Industrial Critical Systems*), Oslo, Norway, June 22–23, 2015.
- G. Salaün was program committee member of WWV'2015 (*11th International Workshop on Automated Specification and Verification of Web Systems*), Oslo, Norway, June 23, 2015.
- F. Lang was program committee member of ETR'2015 (*École d'été Temps Réel*), Rennes, France, August 24–28, 2015.
- H. Garavel and G. Salaün were program committee members of SEFM'2015 (*13th International Conference on Software Engineering and Formal Methods*), York, United Kingdom, September 7–11, 2015.
- G. Salaün was program committee member of SCART'2015 (*1st International Workshop on the ART of Software Composition*), York, United Kingdom, September 8, 2015.
- G. Salaün was program committee member of FACS'2015 (*12th International conference on Formal Aspects of Component Software*), Rio de Janeiro, Brazil, October 14–16, 2015.

- H. Garavel was program committee member of MARS'2015 (*Workshop on Models for Formal Analysis of Real Systems*), Suva, Fiji, November 23, 2015.

#### 9.1.2.3. Reviewer

- H. Garavel was a reviewer for CONCUR'2015 (*26th Conference on Concurrency Theory*), Madrid, Spain, September 1–4, 2015.
- R. Mateescu was a reviewer for FORTE'2015 (*35th IFIP International Conference on Formal Techniques for Distributed Objects, Components and Systems*), Grenoble, France, June 2–5, 2015.
- G. Salaün was a reviewer for SOCA'2015 (*8th IEEE International Conference on Service Oriented Computing and Applications*), Rome, Italy, October 19–21, 2015.
- W. Serwe was a reviewer for ATVA'2015 (*13th International Symposium on Automated Technology for Verification and Analysis*, October 12–15, 2015, Shanghai, China), MARS'2015, and TACAS'2016.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- H. Garavel is an editorial board member of STTT (*Springer International Journal on Software Tools for Technology Transfer*).
- G. Salaün is an editorial board member of SOCA (*Springer International Journal on Service Oriented Computing and Applications*).

#### 9.1.3.2. Reviewer - Reviewing activities

- H. Garavel was a reviewer for the Mathematical Reviews (MathSciNet) of the American Mathematical Society.
- F. Lang was a reviewer for SOSYM (*International Journal on Software and Systems Modeling*).
- R. Mateescu was a reviewer for JISA (*Journal of Internet Services and Applications*), IEEE TSE (*Transactions on Software Engineering*), JLAMP (*Journal of Logical and Algebraic Methods in Programming*), FAoC (*Formal Aspects of Computing*), and STTT.
- G. Salaün was a reviewer for FAoC, JLAMP, JSS (*Journal of Systems and Software*), and MPE (*Mathematical Problems in Engineering*).

### 9.1.4. Software Dissemination and Internet Visibility

The CONVECS project-team distributes several software tools: the CADP toolbox (see § 5.1), the TRAIAN compiler, the PIC2LNT translator, and the PMC model checker (see § 5.2).

In 2015, the main facts are the following:

- We prepared and distributed twelve successive versions (2015-a to 2015-l) of CADP.
- We were requested to grant CADP licenses for 434 different computers in the world.

The CONVECS Web site<sup>0</sup> was updated with scientific contents, announcements, publications, etc. Following a request from the computer staff of Inria Grenoble, we worked on the migration of the former Web site “<http://www.inrialpes.fr/vasy>” to a more recent web infrastructure. This former site was split into three new, distinct Web sites “<http://vasy.inria.fr>”, “<http://cadp.inria.fr>”, and “<http://fmics.inria.fr>”. Dedicated effort was made to properly redirect all former URLs so as not to create dead links.

By the end of December 2015, the CADP forum<sup>0</sup>, opened in 2007 for discussions regarding the CADP toolbox, had over 350 registered users and over 1600 messages had been exchanged.

Also, for the 2015 edition of the Model Checking Contest, we provided two families of models (totalling 15 Nested-Unit Petri Nets) derived from our LNT models.

<sup>0</sup><http://convecs.inria.fr>

<sup>0</sup><http://cadp.inria.fr/forum.html>



Other research teams took advantage of the software components provided by CADP (e.g., the BCG and OPEN/CAESAR environments) to build their own research software. We can mention the following developments:

- The Ocarina tool for analysing AADL descriptions [58]
- The MIstRAL tool for middleware reconfiguration based on formal methods [61]
- The DFTCalc tool for analysing dynamic fault trees [49]
- The Vercors integrated environment for verifying and running distributed components [52]
- The IMCReo tool for Interactive Markov Chains in Stochastic Reo [60]
- The GROOVE tool for verification based on graph rewriting [54]

Other teams also used the CADP toolbox for various case studies:

- Improving design patterns finder precision using model checking [34]
- Applying automata learning to embedded control software [62]
- Testing autonomous systems using communicating extended finite-state machines [32]
- Assisting refinement in system-on-chip design [59]
- Formal verification of plastic user interfaces exploiting domain ontologies [37]
- Action-based verification of a fire alarm system [35]

### 9.1.5. Awards and Distinctions

H. Garavel is an invited professor at Saarland University (Germany) as a holder of the Gay-Lussac Humboldt Prize.

### 9.1.6. Invited talks

- G. Salaün gave a talk entitled “*Reliable Deployment, Reconfiguration, and Control of Cloud Applications*” on February 12, 2015 at the University of Málaga, Spain.
- H. Garavel gave a talk entitled “*Nested-Unit Petri Nets: A Useful Concept for PseuCo?*” on March 9, 2015 at Saarland University, Saarbrücken, Germany.
- W. Serwe gave a talk entitled “*Using a Formal Model to Improve Verification of a Cache-Coherent System-on-Chip*” on March 19, 2015 at the Cadence Club Formal, Grenoble, France.
- R. Mateescu gave a talk entitled “*Overview of MCL, a Data-Based Model Checking Language*” on March 31, 2015 at Inria Grenoble — Rhône-Alpes, Montbonnot, France.
- G. Salaün gave a talk entitled “*Reliable Deployment, Reconfiguration, and Control of Cloud Applications*” on March 26, 2015 at LIRMM, Montpellier, France.
- G. Salaün gave a talk entitled “*Reliable Deployment, Reconfiguration, and Control of Cloud Applications*” on April 2, 2015 at LABRI, Bordeaux, France.
- G. Salaün gave a talk entitled “*Verification of Asynchronously Communicating Systems*” on April 9, 2015 at IRISA, Rennes, France.
- H. Garavel gave a talk entitled “*Nested-Unit Petri Nets: Combining Hierarchy with Concurrency*” on May 6, 2015 at LIP6, Université Pierre et Marie Curie, Paris, France.
- G. Salaün gave a talk entitled “*Formal Modelling and Analysis of BPMN Processes*” on July 9, 2015 at XEROX, Meylan, France.
- F. Lang gave two talks entitled “*Vérification de systèmes concurrents asynchrones par des méthodes compositionnelles*” and “*CADP : une boîte à outils pour la construction et l’analyse de processus distribués*” on August 25, 2015 at ETR (*Ecole d’Été Temps Réel*), Rennes, France. He also held a lab session on CADP.
- G. Salaün gave a talk entitled “*Formal Modelling and Analysis of BPMN Processes*” on October 27, 2015 at the University of Málaga, Spain.



- H. Garavel gave a talk entitled “*Les aspects probabilistes dans CADP*” on December 8, 2015 at the “*Journées Inria*” held at LIP6, Université Pierre et Marie Curie, Paris, France.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

CONVECS is a host team for the computer science master entitled “*Mathématiques, Informatique, spécialité : Systèmes et Logiciels*”, common to Grenoble INP and University Joseph Fourier.

In 2015, we carried out the following teaching activities:

- G. Salaün is co-responsible of the ISI (*Ingénierie des Systèmes d’Information*) department of ENSIMAG since September 1, 2011.
- F. Lang gave a lecture on formal methods (6 hours) in the framework of the software engineering course given to the first year students of the MOSIG (Master of Science in Informatics at Grenoble).
- G. Salaün gave lectures (192 hours “*équivalent TD*”) to computer science engineering students of ENSIMAG (“*École Nationale Supérieure d’Informatique et de Mathématiques Appliquées*”, Grenoble INP) on “*Théorie des langages*” (first year), “*Programmation orientée objet*” (second year), and “*Modélisation et vérification de systèmes concurrents*” (third year). He also organized a series of “*Conférences technologiques*” (third year).
- H. Garavel, together with Laurence Pierre (TIMA, Grenoble), created a new curriculum “*High-confidence Embedded and Cyberphysical Systems*” of the international masters programme.

### 9.2.2. Supervision

- PhD: Hugues Evrard, “*Génération automatique d’implémentation distribuée à partir de modèles formels de processus concurrents asynchrones*”, Université Grenoble-Alpes, July 10, 2015, G. Salaün, F. Lang
- PhD: Abderahman Kriouile, “*Formal Methods for Functional Verification of Cache-Coherent System-on-Chip*”, Université Grenoble-Alpes, September 17, 2015, R. Mateescu, W. Serwe, M. Zendri
- PhD: Raquel Oliveira, “*Formal Specification and Verification of Interactive Systems with Plasticity: Applications to Nuclear-Plant Supervision*”, Université Grenoble-Alpes, December 3, 2015, H. Garavel, S. Dupuy-Chessa, G. Calvary, F. Lang
- PhD: Rim Sakka Abid, “*Coordination et Reconfiguration des Applications Distribuées Cloud*”, Université Grenoble-Alpes, December 16, 2015, G. Salaün, N. de Palma
- PhD in progress: Fatma Jebali, “*A Framework for the Formal Specification and Verification of Globally Asynchronous Locally Synchronous Systems*”, since December 2012, F. Lang, R. Mateescu
- PhD in progress: Gianluca Barbon, “*Debugging Concurrent Programs using Model Checking and Mining Techniques*”, since October 2015, G. Salaün

### 9.2.3. Juries

- H. Garavel was member of the jury for David Lugato’s habilitation thesis, entitled “*Formaliser par la modélisation : Applications au calcul haute performance et à la génération de tests par exécution symbolique*”, defended at Université de Bordeaux, France, on March 5, 2015.
- W. Serwe was PhD committee member for Zhen Zhang’s PhD thesis, entitled “*Verification Methodologies for Fault-Tolerant Network-on-Chip Systems*”, defended at University of Utah, Salt Lake City, USA, on October 26, 2015.

## 9.3. Popularization

H. Garavel participates to the committee in charge of organizing the Aerospace Valley series of industrial conferences on formal methods.

The fifth conference <sup>0</sup>, devoted to testing, held on June 16 in Toulouse and retransmitted by video-conference in Grenoble and Saclay, attracted participants from industry and academia. W. Serwe gave a talk (with Thierry Jérón, Inria Rennes), entitled “*TGV: Génération de tests de conformité à partir de modèles formels*”, and a talk (with Massimo Zendri, STMicroelectronics), entitled “*Génération de tests basés sur les modèles pour des systèmes sur puce avec cohérence de caches*”.

The sixth conference <sup>0</sup>, devoted to safety, is to be held on January 26, 2016.

## 9.4. Miscellaneous Activities

H. Evrard is a member of the council of the MSTII doctoral school.

H. Evrard and G. Salaün are members of the council of the LIG laboratory.

H. Garavel is a member of the LIG commission in charge of preparing candidates selected for recruitment interviews at CNRS.

H. Garavel is an expert evaluator for Minalogic “*pôle de compétitivité mondial*”.

H. Garavel was a reviewer for various ongoing ANR (*Agence Nationale de la Recherche*) pre-propositions and projects evaluated in 2015.

F. Lang is chair of the “*Commission du développement technologique*”, which is in charge of selecting R&D projects for Inria Grenoble – Rhône-Alpes.

F. Lang is (together with Laurent Lefèvre from the AVALON Inria project-team) correspondent in charge of the 2014 and 2015 Inria activity reports at Inria Grenoble Rhône-Alpes.

E. Léo and W. Serwe are members of the “*Comité de centre*” of Inria Grenoble – Rhône-Alpes.

R. Mateescu is the correspondent of the “*Département des Partenariats Européens*” for Inria Grenoble – Rhône-Alpes.

R. Mateescu is a member of the “*Comité d’orientation scientifique*” for Inria Grenoble – Rhône-Alpes.

R. Mateescu is a member of the “*Bureau*” of the LIG laboratory.

G. Salaün is a member of the scientific council of Grenoble INP (*Conseil scientifique de l’institut*).

W. Serwe is “*chargé de mission*” for the scientific axis *Formal Methods, Models, and Languages* of the LIG laboratory.

---

<sup>0</sup><http://projects.laas.fr/IFSE/FMF/J5/index.html>

<sup>0</sup><http://projects.laas.fr/IFSE/FMF/J5/index.html>

## **CORSE Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### ***9.1.1. Scientific events organisation***

#### *9.1.1.1. Member of the organizing committees*

- Fabrice Rastello: Publication Chair ACM/IEEE CGO 2015
- Fabrice Rastello: Steering Committee Journées française de la compilation
- Fabrice Rastello: Steering Committee ACM/IEEE CGO
- Frédéric Desprez: Steering committee for the ISC Cloud & Big Data conference 2015
- Frédéric Desprez: General chair of VTDC 2015 (workshop within HPDC 2015)
- Ylies Falcone: Chair of the second international competition on Runtime Verification (CRV 15)

### ***9.1.2. Scientific events selection***

#### *9.1.2.1. Chair of conference program committees*

- Fabrice Rastello: Program Chair ACM/IEEE CGO 2016
- Frédéric Desprez: Program co-chair BigDataCloud'2015 (workshop within EuroPAR 2015)
- Frédéric Desprez: Global chair of topic "Grid, Cluster and Cloud Computing" within EuroPAR 2015

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

- Fabrice Rastello: ACM/IEEE CGO 2016
- Fabrice Rastello: CRI 2015
- Alain Ketterlin: ACM/IEEE CGO 2016
- Frédéric Desprez: ACM/IEEE CCGrid 2015
- Frédéric Desprez: CLOSER 2015
- Frédéric Desprez: Workshop Committee at the 2015 ACM/IEEE Supercomputing Conference 2015
- Frédéric Desprez: IEEE CAC 2015
- Frédéric Desprez: IEEE Cluster 2015
- Ylies Falcone SAC-SVT 2015
- Ylies Falcone IPAC 2015
- Ylies Falcone CRI 2015
- Ylies Falcone MSR 2015
- Ylies Falcone PCODA 2015

#### *9.1.2.3. Reviewer*

- François Broquedis: EUROPAR 2015, SAC 2015
- Brice Videau: EUROPAR 2015, SAC 2015, IPDPS 2015, COMPASS 2015
- Ylies Falcone MSR 2015, RV 2015, ASE 2015, OOPSLA 2015, FM 2015, CAV 2015, DAC2015, DATE 2015

### ***9.1.3. Journal***

#### *9.1.3.1. Reviewer - Reviewing activities*

- Fabrice Rastello: ACM TACO, ACM TOCS

- François Broquedis: ACM TACO
- Brice Videau: ACM TACO, PARCO, JPDC
- Kevin Pouget: ACM TACO
- Frédéric Desprez: JPDC
- Frédéric Desprez: Journal of Supercomputing
- Ylies Falcone Formal Methods in System Design, International Journal of Information and Computer Security, Science of Computer Programming, Software Tools for Technology Transfer, Journal of Systems and Software, ACM Transaction on Aspect-Oriented Development, The Computer Journal, ACM Transactions on Information and System Security, Elsevier Computer Review, Software Testing, Verification and Reliability.

#### **9.1.4. Invited talks**

- HiPEAC ACACES Summer School 2015 (teacher): “SSA-based Compiler Design”
- Fabrice Rastello: LLNL, Apple Dec 2015: “Toward Automatic Characterisation of the Data Access Complexity of Programs”
- Frédéric Desprez: Inria/EPFL Workshop, Jan. 2015: “Grid’5000: Running a Large Instrument for Parallel and Distributed Computing Experiments”
- Jean-François Méhaut, Maison de la simulation, Saclay, France, March 2015: “BOAST: Un environnement de metaprogrammation pour une génération de code portable et efficace des noyaux de calcul HPC”
- Jean-François Méhaut, Laboratoire Jacques-Louis Lions, Paris, France, Journées inaugurales de la machine de calcul, June 2015: “BOAST: Programmation des noyaux de calcul pour les projets européens Mont-Blanc”
- Jean-François Méhaut, Federal University of Santa Catarina, Florianopolis, Brazil, October 2015: “CORSE: Compiler Optimizations and Runtime Systems”

#### **9.1.5. Scientific expertise**

- Frédéric Desprez: Referee for the Research Council of Norway
- Frédéric Desprez: ANR
- Frédéric Desprez: Reviewer for a project within the FET Initiatives in FP7 of the European Commission
- Ylies Falcone Representative of France in the COST Action ARVI
- Ylies Falcone COST Action ARVI, co-leader of Working Group on Core Runtime Verification
- Jean-François Méhaut Eurolab-4-HPC EU action, member of the panel

#### **9.1.6. Research administration**

- Frédéric Desprez: Deputy Scientific Director at Inria
- Frédéric Desprez: Director of the GIS GRID5000

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

### **9.2.1. Teaching**

Master : Fabrice Rastello (external intervention), Programming Languages and Compiler Design, 3 hours, M1 of international MoSIG, UJF, Grenoble, France

Master and PhD: Jean-François Méhaut, Parallel Programming, 40 hours, University of Yaoundé 1, LIRIMA, CETIC, February 2015

Master I: Jean-François Méhaut, Operating System Design, 50 hours, Polytech Grenoble

L3, Jean-François Méhaut, Numerical Methods, 50 hours, Polytech Grenoble,  
M1, Jean-François Méhaut, Operating System Project, 20 hours, UFR IM2AG  
L3, Jean-François Méhaut, Advanced Algorithm, 50 hours, UFR IM2AG  
L3, François Broquedis, Introduction to algorithms and programming, 80 hours, Grenoble Institute of Technology (ENSIMAG)  
L3, François Broquedis, Introduction to UNIX, 20 hours, Grenoble Institute of Technology (ENSIMAG)  
L3, François Broquedis, C programming, 50 hours, Grenoble Institute of Technology (ENSIMAG)  
M1, François Broquedis, Operating Systems and Parallel Programming, 20 hours, Grenoble Institute of Technology (ENSIMAG)  
M1, François Broquedis, Operating Systems Project, 20 hours, Grenoble Institute of Technology (ENSIMAG)  
M2, François Broquedis, Parallel and Distributed Programming, Grenoble Institute of Technology (ENSIMAG)  
Master, Florent Bouchez Tichadou, Compilation project, 15.5 hours, M1 Info & M1 MoSig, UFR IM2AG  
Licence, Florent Bouchez Tichadou, C programming, 33 hours, L3, Grenoble Institute of Technology (ENSIMAG)  
Master, Florent Bouchez Tichadou, Algorithms and Program Design, 33 hours, M1 MoSIG, UFR IM2AG  
Licence, Florent Bouchez Tichadou, Algorithms languages and programming, 71 hours, L2, UFR IM2AG  
Master, Florent Bouchez Tichadou, Operating Systems, 28.5 hours, M1 Info, UFR IM2AG  
Master, Ylies Falcone Programming Language Semantics and Compiler Design, MoSIG, 66 hours  
License, Ylies Falcone Languages and Automata, UJF, 105 hours  
Master, Ylies Falcone is co-responsible of the first year of the International Master of Computer Science (Univ. Grenoble Alpes and INP ENSIMAG)

## 9.2.2. Supervision

### 9.2.2.1. Fabrice Rastello

PhD in progress: Duco van Amstel, Scheduling and optimization for memory locality of dataflow programs on many-core processors, April 1st 2013, advised by Fabrice Rastello and Benoit Dupont-de-Dinechin

PhD in progress: Diogo Sampaio, Profiling Guided Hybrid Compilation, October 8 2013, advised by Fabrice Rastello

PhD in progress: François Gindraud, Semantics and compilation for a data-flow model with a global address space and software cache coherency, January 1st 2013, advised by Fabrice Rastello and Albert Cohen.

PhD in progress: Venmugil Elango, Dynamic Analysis for Characterization of Data Locality Potential, September 2010, advised by Fabrice Rastello and P. Sadayappan.

### 9.2.2.2. Jean-François Méhaut

PhD in progress: Serge Emteu, CIFRE ST Microelectronics, advised by Miguel Santan (STM), Alexandre Termier (Dream/Irisa), Jean-François Méhaut

PhD in progress: Oleg Iegorov, advised by Alexandre Termier (Dream/Irisa) and Jean-François Méhaut

PhD in progress: Nassim Halli, CIFRE with Asselta, advised by Henri-Pierre Charles (CEA/DRT List, CRI PILSI), Jean-François Méhaut

PhD in progress: Naweiluo Zhou, advised by Eric Rutten (Inria, CtrlA), Gwenael Delaval (UGA, CtrlA), Jean-François Méhaut

PhD in progress: Thomas Messi Nguelé, advised by Maurice Tchuenté (Yaoundé I, LIRIMA) and Jean-François Méhaut

PhD in progress: Thomas Goncalves, advised by Marc Perache (CEA/DAM), Frédéric Desprez, Jean-François Méhaut

PhD in progress: Vanessa Vargas, advised by Raoul Velzco (CNRS, TIMA) and Jean-François Méhaut

#### 9.2.2.3. Frédéric Desprez

PhD in progress: Jonathan Pastor, advised by Frédéric Desprez, Adrien Lèbre (EMN Nantes, Ascola team)

PhD in progress: Pedro Silva, advised by Frédéric Desprez, C. Perez (Inria, Avalon team)

PhD in progress: Georgios Christodoulis, advised by Frederic Desprez, Olivier Muller (TIMA/SLS) and François Broquedis

PhD in progress: Thomas Goncalves, advised by Marc Perache (CEA/DAM), Frédéric Desprez, Jean-François Méhaut

#### 9.2.2.4. François Broquedis

PhD in progress: Georgios Christodoulis, *Adaptation of a heterogeneous runtime system to efficiently exploit FPGA* advised by Frederic Desprez, Olivier Muller (TIMA/SLS) and François Broquedis

PhD in progress: Philippe Virouleau, *Improving the performance of task-based runtime systems on large scale NUMA machines*, co-advised by Thierry Gautier (Inria/AVALON), Raymond Namyst (Inria/STORM), Bruno Raffin (Inria/MOAIS), François Broquedis

Engineer internship: Olivier Soldano, *Efficient execution of OpenMP applications: a compiler/runtime cooperation*, co-advised by Jean-François Méhaut and François Broquedis

#### 9.2.2.5. Ylies Falcone

PhD in progress: Antoine El-Hokayem, *Decentralised and Distributed Monitoring of Cyber-Physical Systems*

PhD defended: Abdurrahman Pektas, *Behavior based malware classification using online machine learning*, co-advised by Jean-Claude Fernandez (Vérimag)

### 9.2.3. Juries

#### 9.2.3.1. Fabrice Rastello

Emmanuelle Saillard, Reviewer, *Static/Dynamic Analyses for Validation and Improvement of Multi-models HPC Applications*, PhD of the University of Bordeaux, 24/05/15

#### 9.2.3.2. Jean-François Méhaut

PhD: Ashraf Elantably, *Study of task migration in a multi-tiles architecture: Automatic generation of an agent based solution*, Université de Grenoble, TIMA, 16/12/2015

PhD: Pei Li, *Système Unifié de transformation de code et d'exécution pour un passage aux architectures multi-coeurs hétérogènes*, Université de Bordeaux, Inria/Storm, Telecom SudParis, 17/12/2015

PhD: Anastasia Butko, *Fast Cycle-approximate Simulation Techniques for Manycore Architecture Exploration*, Université de Montpellier, LIRMM, 10/12/2015

PhD: Fabien Rozar, *Contributions à l'amélioration de l'extensibilité de simulations parallèles de plasmas turbulents*, Université de Bordeaux, CEA Cadarache, Maison de la simulation Saclay, 5/11/2015

PhD: Mohamed Bergach, *Adaptation de la Transformée de Fourier rapide sur une architecture mixte CPU/GPU intégrée*, Université de Nice Sophia Antipolis, 2/10/2015

PhD: Andi Drebes, *Dynamic Optimization of Data-flow task-parallel applications for large scale NUMA systems*, Université Pierre et Marie Curie, 25/6/2015

PhD: Corentin Rossignon, *Un modèle de programmation à grain fin pour la parallélisation de solveurs linéaires creux*, Université de Bordeaux, Inria/Storm, Total, 17/07/2015

PhD: Abal Cheick Ahamed, *Méthodes Numériques pour la résolution accélérée des systèmes linéaires de grandes tailles sur architectures hybrides massivement parallèles*, Ecole Centrale de Paris, 7/7/2015

HDR: Patrick Carribault, *Compiler/Runtime Cooperation for Multi-Paradigm Parallelism*, Université de Versailles Saint Quentin en Yveline, CEA Bruyères, 8/7/2015

HDR: Marc Perache, *Vers des supports exécutifs et des outils de profilage adaptés aux architectures many/multi coeurs dans le cadre du calcul hautes performances*, Université de Versailles Saint-Quentin en Yvelines, CEA Bruyères, 3/11/2015

#### 9.2.3.3. Frédéric Desprez

PhD: Xavier Lacoste, Reviewer, *Scheduling and memory optimizations for sparse direct solver on multi-core/multi-gpu cluster systems*, Université de Bordeaux, 18/02/15

PhD: Sylvain Gault, *Improving MapReduce Performance on Clusters*, Ecole normale supérieure de Lyon, 23/03/15

HDR: Philippe Merle, Reviewer, *Intergiciel d'intergiciels adaptable à base de Services, Composants et Aspects*, Université de Lille3, 24/09/15

PhD: Emmanuel Cieren, Reviewer, *Molecular Dynamics for Exascale Supercomputers*, Université de Bordeaux, 09/10/15

PhD: Astrid Casadei, *Optimisations des solveurs linéaires creux hybrides basés sur une approche par complément de Schur et décomposition de domaine*, Université de Bordeaux, 19/10/15

HDR: Sébastien Monnet, *Contributions à la réplique de données dans les systèmes distribués à grande échelle*, Université Pierre et Marie Curie, 03/11/15

HDR: Georges Da Costa, *Évaluation et optimisation de performance énergétique des centres de calcul*, Université de Toulouse 3 Paul Sabatier, 12/11/15

HDR: Patricia Stolf, Reviewer, *La gestion des ressources pour des infrastructures vertes par la reconfiguration*, Université de Toulouse 3 Paul Sabatier, 13/12/15

PhD: Florent Lopez, *Solveur multifrontal QR à base de tâches pour architectures hétérogènes*, Université de Toulouse 3 Paul Sabatier, 11/12/15

#### 9.2.3.4. Ylies Falcone

PhD: reviewer of the thesis of Eric Lupaud Ngoupé (University of Québec at Chicoutimi).

PhD: examiner of the thesis of Srinivas Pinisetty (Inria Rennes) on *Runtime Enforcement of Timed Properties*

## CRYPT Team

## 6. Dissemination

### 6.1. Promoting Scientific Activities

#### 6.1.1. Scientific events selection

##### 6.1.1.1. Reviewer

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

#### 6.1.2. Journal

##### 6.1.2.1. Member of the editorial boards

- Advances in Mathematics of Communications: Xiaoyun Wang
- Journal of Cryptology: Phong Nguyen and Xiaoyun Wang
- Journal of Mathematical Cryptology: Phong Nguyen
- Natural Science Review: Xiaoyun Wang

##### 6.1.2.2. Reviewer - Reviewing activities

The members of the team reviewed numerous papers for numerous journals.

#### 6.1.3. Invited talks

Phong Nguyen gave several invited talks:

- [13] at the Workshop on the Mathematics of Lattices and Cybersecurity, at ICERM in the USA.
- at the Workshop on cryptography based on elliptic curves and lattices, organized by Beijing University in China.

#### 6.1.4. Research administration

Phong Nguyen was the European director of LIAMA until Oct. 2015, and is now the French director of JFLI (Japanese-French Laboratory for Informatics).

## 6.2. Teaching - Supervision - Juries

### 6.2.1. Teaching

PhD: Phong Nguyen, Advanced Lattice Algorithms, 12h, CAS, China.

### 6.2.2. Supervision

PhD: Jiangwei Li, Several Computational Problems in Lattice Theory, Tsinghua, June 2015, Xiaoyun Wang

PhD: Dan Ding,  $y$ -Sparse Representations of Short Lattice Vectors and Algorithms for the Shortest Vector Problem (SVP) in Lattices, Tsinghua, June 2015, Xiaoyun Wang

PhD: Gengran Hu, On Lattice Theory and Complexity of SVP, CAS, Summer 2015, Yanbin Pan

PhD: Chang Lv, Primality tests, ring class fields and Diophantine equations, CAS, Summer 2015, Yingpu Deng

PhD: Dandan Huang, primality tests for numbers and ideals, CAS, Summer 2015, Yingpu Deng

### 6.2.3. Juries

PhD: Rina Zeitoun, Algebraic Methods for the Security Analysis of Cryptographic Algorithms Implementations, University Paris 6 (UPMC), July 2015, Phong Nguyen (Jury member)



## DECENTRALISE Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Invited talks

- 19th Workshop on Elliptic Curve Cryptography, on “Cryptography in GUNet: Protocols for a Future Internet for Libre Societies”

### 8.1.2. Scientific expertise

- IETF 93, on “Special Use Domain Names of P2P Systems”
- IETF 93, on “Knocking down the HACIENDA with TCP Stealth”
- Invited expert for the high-level conference on “Protecting on-line privacy by enhancing IT security and EU IT autonomy” organized by the Civil Liberties Justice and Home Affairs Committee (LIBE) and the Science and Technology Options Assessment Panel (STOA) of the European Parliament, in association with the Luxemburg Presidency of the European Council

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Supervision

PhD : Matthias Wachs, “A Secure Communication Infrastructure for Decentralized Networking Applications”, TU Munich, 2015, Christian Grothoff (advisor)

PhD in progress : Bart Polot, “Practical Routing in Overlays”, 2011-, Christian Grothoff (advisor)

PhD in progress : Florian Dold, “Secure payment systems and applications”, 2015-, Christian Grothoff (encadrant), Jean-Louis Lanet (encadrant)

PhD in progress : Alvaro Garcia-Recuero, “Privacy for the Trolls”, 2014-, Christian Grothoff (encadrant)

### 8.2.2. Juries

- PhD : Michael Kiperberg, “Preventing Reverse Engineering of Native and Managed Programs”, University of JYVÄSKYLÄ, 2015, Pekka Neittaanmäki (supervisor), Nezer Zaidenberg (supervisor), Christian Grothoff (opponent)

## 8.3. Popularization

- ACTUX Meeting, on “Résistance des GNUs”
- Security in Times of Surveillance (TU Eindhoven), on “Knocking down the HACIENDA with TCP Stealth”
- Linux User Group (LUG) Camp, on “Résistance des GNUs”
- Studentenforum im Tönissteiner Kreis e.V., on “State Surveillance: Benefits and Risks”
- Invest in Cyber Convention, on “La protection de la vie privée et sécurité des objets connectés” (Panel)
- Post Snowden Cryptography, on “The GUNet: 45 Subsystems in 45 Minutes”
- Organizing YBTI workshop at 32c3 in Hamburg (December 29th)

## **DEDUCTEAM Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events selection**

#### *9.1.1.1. Chair of conference program committees*

Gilles Dowek was PC chair of TLCA-RTA.

#### *9.1.1.2. Member of the conference program committees*

Gilles Dowek was PC member of CADE, ICTAC and eMoocs.

Guillaume Burel was PC member of PxTP'15 and IWIL'15.

#### *9.1.1.3. Reviewer*

Frédéric Blanqui has reviewed papers for TYPES'14 post-proceedings and LICS'15.

Guillaume Burel has reviewed a paper for Tableaux'15.

Olivier Hermant has reviewed papers for Tableaux'15 and CADE-25, a project for ANR (second phase) and pre-projects for ANR (first phase).

### **9.1.2. Journal**

#### *9.1.2.1. Member of the editorial boards*

Gilles Dowek is an editor of TCS.

#### *9.1.2.2. Reviewer - Reviewing activities*

Frédéric Blanqui reviewed a paper for TCS.

Guillaume Burek reviewed a paper for Formal Aspects of Computing.

Olivier Hermant reviewed a paper for TCS.

### **9.1.3. Invited talks**

Gilles Dowek was invited to DCM and Tools for teaching logic.

### **9.1.4. Scientific expertise**

Gilles Dowek has been a consultant for the Conseil Scientifique des Programmes.

Gilles Dowek is the President of the Scientific board of the Société Informatique de France.

Gilles Dowek is a member of the Commission de réflexion sur l'éthique de la recherche en sciences et technologies du numérique d'Allistène (CERNA).

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

### **9.2.1. Teaching**

Master: Pierre Halmagrand, Initiation à la Méthode B, 54 HETD, M2, CNAM.

License: Frédéric Gilbert, Les principes des langages de programmation, 40, L3, Ecole Polytechnique.

License: Raphaël Cauderlier, Introduction aux Bases de Données Relationnelles, 21, L2, UPMC.

License: Raphaël Cauderlier, Projet (Application) : Android, 42, L2, UPMC.

License: Raphaël Cauderlier, Eléments de programmation 1, 58, L1, UPMC.

Licence: Guillaume Burel, Programmation avancée, 25.5 HETD, L3, ENSIIE.

Licence: Guillaume Burel, Logique, 10.5 HETD, L3, ENSIIE.

Licence: Guillaume Burel, Projet informatique, 22.75 HETD, L3, ENSIIE.

Master: Guillaume Burel, Systèmes et langages formels, 8.75 HETD, M1, ENSIIE.

Master: Guillaume Burel, Compilation, 24.5 HETD, M1, ENSIIE.

Master: Guillaume Burel, Preuve, Analyse statique, Vérification run-time, 13 HETD, M2 CILS, Paris-Saclay.

Licence: Guillaume Burel is in charge of the 4th and 5th semesters of the engineering degree at ENSIIE, and was responsible for the final engineer internship until September, 2015.

Gilles Dowek has given a course at the MPRI.

Gilles Dowek has been teaching at ENS-Cachan.

Gilles Dowek has given various talks about teaching informatics in primary and secondary education.

Gilles Dowek has participated to several training sessions for high school teachers with La Main à la Pâte.

Licence: Olivier Hermant, Introduction to Programming in Python, 100 HETD, L1-L3, Wesleyan University, USA.

### 9.2.2. Supervision

PhD: Simon Cruanes, Extending Superposition with Integer Arithmetic, Structural Induction, and Beyond [13], defended at École polytechnique on September the 10th, supervised by Guillaume Burel and Gilles Dowek.

PhD: Bruno Bernardo, An implicit Calculus of Constructions with dependent sums and decidable type inference [12], defended at École polytechnique on September the 18th, supervised by Bruno Barras and Gilles Dowek.

PhD: Ali Assaf, A framework for defining computational higher-order logics [11], defended at École polytechnique on September 28, 2015, supervised by Gilles Dowek and Guillaume Burel.

PhD: Kailiang Ji, Model Checking and Theorem Proving [14], defended at Paris Diderot on September 25, 2015, supervised by Gilles Dowek.

PhD: Ronan Saillard, Typechecking in the  $\lambda\Pi$ -Calculus Modulo: Theory and Practice [55], defended at MINES ParisTech on September 25, 2015, supervised by Olivier Hermant and Pierre Jouvelot.

PhD in progress: Guillaume Bury, Deduction Modulo Theory, started October 1st, 2015, supervised by David Delahaye and Gilles Dowek.

PhD in progress: Raphaël Cauderlier, Object-oriented mechanisms for interoperability of proof systems, started September 1st, 2013, supervised by Catherine Dubois.

### 9.2.3. Juries

Gilles Dowek is a member of the prix Le Monde de la Recherche Universitaire.

## 9.3. Popularization

Gilles Dowek has given various popular science talks.

Gilles Dowek writes a monthly chronicle in Pour la Science.

Gilles Dowek is a member of the Scientific board of La Main à la Pâte.

## DICE Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

- Stéphane Frénot, French Tech, représentant de la COMUE de Lyon
- Stéphane Grumbach, ANR, Comité de Pilotage Scientifique du Défi 8 « Sociétés innovantes »
- Stéphane Grumbach, scientific committee Global Forum
- Stéphane Grumbach, scientific committee Collège des Bernardins, Journalisme et bien commun à l'heure des algorithmes,
- Stéphane Grumbach, scientific committee BlendWebMix, annual conference, Lyon

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

- Stéphane Grumbach, co-chair Seminar Intermediation and Smartness, Anthropocene Curriculum, The Technosphere Issue, Haus der Kulturen der Welt, Berlin, 15-23 April 2016
- Stéphane Grumbach, co-chair Working group on digital sovereignty with UC Berkeley, Chaire Castex, Les Houches 8-10 december 2015.

### 9.1.3. Invited talks

- Stéphane Frénot, Plateformes d'intermédiations : Le Web, le temps et ... javascript Inforsid, mai 2015

Stéphane Grumbach has given the following invited talks:

- Political challenges of intermediation platforms, Lunch Lecture at TU Delft - Faculty of Technology, Policy and Management, Delft, 16 December 2015
- Libérer les données dans la ville intelligente : de la défiance à la confiance ? Panel Entretiens Jacques Cartier Smart cities, quelles réponses aux aspirations des citoyens ? Lyon, 2 décembre 2015
- Enjeux stratégiques et économiques des données personnelles, Entretiens Jacques Cartier, La vie privée à travers les cultures. Convergences et divergences dans un monde globalisé, Lyon, 30 novembre 2015
- Géopolitique dans l'espace numérique: la place de la Chine, Séminaire de l'Institut d'Asie Orientale, Lyon, 19 novembre 2015
- Challenges of algorithmic intermediation, ECNU, Shanghai, 21 october 2015
- Panel on New Innovation Strategies in a Challenging Global Environment Global Forum, Digitalization, From Disruption to Sustainability, Oulu, 28-29 september 2015
- Des masses de données aux services de masse globalisés, Assemblée Générale constitutive du GdR MaDICS, Groupement de Recherche Masses de Données, Informations et Connaissances en Sciences, Lyon, 24-25 juin 2015
- Place du numérique, le big data, les réseaux et l'intermédiation : une (r)évolution ? Assises scientifiques, département Environnement et Agronomie INRA, Pont Royal en Provence, 3 juin 2015
- Panel on Public data & Private Interests, Who Owns the Data?, An International Conference on Digital Assets, Data Philanthropy and Public Benefit", BIS 2015, Berkeley, May 14th, 2015
- Les bouleversements politiques et économiques dans la société numérique, Conférence de l'Institut des Sciences du Numérique, Hôtel Potocki, Paris, 9, 10 avril 2015 video
- Maître de la Donnée, Maître du monde, avec Gilles Babinet, Congrès Big Data, CNIT, Paris, 10 mars 2015
- Privacy and Big Data, Byte session, Computers Privacy and Data Protection Conference CPDP2015, Brussels, 22 January 2015

Aurélien Faravelon has given the following talk:

- Education in the age of platforms, ECNU, Shanghai, 21 october 2015

#### 9.1.4. Scientific expertise

Stéphane Grumbach has been involved in public hearing in the political sphere

- Stéphane Grumbach, Big Data : création de valeur, enjeux et stratégies de régulation, Cycle "Mutations technologiques, mutations sociales", France Stratégie, Paris, 12 novembre 2015
- Stéphane Grumbach, La place du traitement massif des données (Big data) dans l'agriculture, audition publique de l'OPECST, Assemblée nationale, Paris, 2 juillet 2015
- Stéphane Grumbach, Des données aux plateformes d'intermédiation : une disruption en profondeur, Journée numérique au Sénat, Paris, 11 février 2015

#### 9.1.5. Research administration

Stéphane Grumbach is director of IXXI, the complex Systems Institute.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Stéphane Frénot, Stéphane Grumbach: Twitter, Facebook et le Web2.0, Module INSA Lyon,

INSA, Stéphane Frénot, Agility: A 32 hours optional course on agile software development presenting both iterative (SCRUM) and stream based approaches (LEAN IT). M1. (since 2011)

INSA, Stéphane Frénot, Innovating Project: Supervising 250 hours student project aim at managing innovating projects. Each student group leads its own subject during one semester. All projects and organizational details are publicly available here: <http://tc-pi.fr> M1 (Since 2006)

INSA, Stéphane Frénot, Learn Other Languages: The aim of the course is to improve one's skills in current state-of-the-art programing and discover different ways to develop using mainly web-oriented programming languages. M1 (Since 2013)

Licence : Robert Riemann, INSA, Algorithmique et programmation 1, 27HETD, L1, INSA Lyon, France

Master : Aurélien Faravelon, Réseaux informatiques et recomposition des frontières sociales, 3HETD, M2, EHESS, France

Master : Aurélien Faravelon, Master Biosciences, 3HETD, M1, ENS Lyon, France

Master : Stéphane Grumbach, Le pouvoir aux algorithmes, introduction du Mooc "Villes intelligentes : défis technologiques et sociétaux", MOOC IPL Citylab, 2016

Master : Stéphane Grumbach, Des masses de données à l'intermédiation algorithmique, les grandes plateformes numériques, une disruption politique, Réseaux complexes: une approche interdisciplinaire, ENS Lyon, mars 2015

### 9.2.2. Supervision

PhD in progress : Etienne Brodu, DataFlow compilation from JavaScript, Jan 2013, Stéphane Frénot

PhD in progress : Robert Riemann, systemes de vote decentralisés, sept 2014, Stéphane Grumbach

## 9.3. Popularization

- Stéphane Grumbach, Big Data : quel impact sur la relation aux citoyens ? Journée #ComDemainIDF de la Région Ile de France, Paris, 13 octobre 2015
- Stéphane Grumbach, Comment le numérique change-t-il la société ? Cycle de conférences Homo numericus, Fête de la science, Bourg-en-Bresse, 10 octobre 2015
- Stéphane Grumbach, Les données numériques : une nouvelle matière première ? Pint of Science, Lyon, 20 mai 2015
- Stéphane Grumbach, A qui profitent les Big Data? Soirée-débat Et si on en parlait, "La Révolution Big Data : chance ou menace?" Grand Amphithéâtre, Université de Lyon, 28 avril 2015

## **DREAMPAL Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. member of the organizing committee*

F. Guyomarch, P. Marquet and S. Meftali were members of the ComPAS 2015 organizing committee (Lille, 2015).

F. Guyomarch and S. Meftali were members of the Archi summer school organizing committee (Lille, 2015).

### **9.1.2. Scientific events selection**

#### *9.1.2.1. responsable of the conference program committee*

S. Meftali was responsible of the ComPAS 2015 conference program committee.

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

J.-L. Dekeyser was member of the ComPAS 2015 conference program committee and is member in the Reconfig 2016 and ReCoSoc 2016 program committees.

F. Guyomarch is member of the ComPAS 2016 program committee, which will take place in Lorient (<http://compas2016.sciencesconf.org>).

V. Rusu is member of the WRLA 2016 program committee, which will take place in Eindhoven (<https://fmse.info.uaic.ro/events/WRLA2016/>).

### **9.1.3. Research administration**

V. Rusu is elected member of the Inria evaluation committee.

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

### **9.2.1. Teaching**

Licence : Philippe Marquet, Introduction to Computer Science, 15h, Secondary Education Teacher Training, Université Lille 1, France

Licence : Philippe Marquet, System Programming, 60h, L3, Université Lille 1, France

Master: Philippe Marquet, Design of Operating System, 60h, M1, Université Lille 1, France

Master: Philippe Marquet, Web of Things: Embedded System Programming, 20h, M1, Université Lille 1, France

Master: Philippe Marquet, Parallel and Distributed Programming, 24h, M1, Université Lille 1, France

Master: Philippe Marquet, Introduction to Innovation and Research, 15h, M2, Université Lille 1, France

Licence : Samy Meftali, Architecture des ordinateurs, 75h, L2, UFR IEEA, Université Lille 1, France

Licence : Samy Meftali, Programmation du matériel, 40h, L3, UFR IEEA, Université Lille 1, France

Master: Samy Meftali, Architectures évoluées des ordinateurs, 80h, M1, UFR IEEA, Université Lille 1, France

Master: Samy Meftali, Vérification des SoC, 16h, M2, UFR IEEA, Université Lille 1, France

Licence : Jean-Luc Dekeyser, Architecture des ordinateurs, 80h, L2, UFR IEEA, Université Lille 1, France

Master: Jean-Luc Dekeyser, Architectures évoluées des ordinateurs, 105h, M1, UFR IEEA, Université Lille 1, France

Licence : F. Guyomarch, Algorithmique et programmation, 72h, L1, IUT-A (Univ. Lille 1)

Licence : F. Guyomarch, Conception de sites web, 8h, L1, IUT-A (Univ. Lille 1)

Licence : F. Guyomarch, Modélisation et théorie des langages, 64h, L2, IUT-A (Univ. Lille 1)

Licence : F. Guyomarch, Algorithmique avancée, 44h, L2, IUT-A (Univ. Lille 1)

Licence : F. Guyomarch, Modélisation mathématique, 28h, L2, IUT-A (Univ. Lille 1)

Licence : Rabie Ben Atitallah, Introduction to Computer Architecture and Operating System, 36h, L2, Université de Valenciennes et du Hainaut-Cambrésis, France

Licence : Rabie Ben Atitallah, Algorithms and Language C Programming, 48h, L2, Université de Valenciennes et du Hainaut-Cambrésis, France

Master: Rabie Ben Atitallah, Tools for Embedded System Design, 32h, M2, Université de Valenciennes et du Hainaut-Cambrésis, France

Master: Rabie Ben Atitallah, Development and Compilation of Embedded Application, 32h, M2, Université de Valenciennes et du Hainaut-Cambrésis, France

Licence : V. Rusu, Logique , 30h, M1, UFR IEEA, (Univ. Lille 1)

Master : V. Rusu, Architecture avancée des ordinateurs, 36h, M1, UFR IEEA, (Univ. Lille 1)

### 9.2.2. Supervision

PhD : H. Krichene, SCAC : *Modèle d'exécution générique faiblement couplé pour les architectures massivement parallèle sur puce*, March 2011, Philippe Marque & Jean-Luc Dekeyser

PhD : V. Viswanathan, *Parallel and Dynamic reconfigurable computing system*, 01/02/2012, Jean-Luc Dekeyser and Rabie Ben Atitallah

PhD in progress : W. Chouchene, *Partial reconfiguration model for dynamic and massively parallel architecture : towards 3D FPGAs*, 01/10/2013, Jean-Luc Dekeyser, Rabie Ben Atitallah and Samy Meftali

PhD in progress : K. Ali, *Massively parallel dynamically reconfigurable architecture for real-time vidéo processing applications*, 01/10/2013, Jean-Luc Dekeyser, Rabie Ben Atitallah

### 9.3. Popularization

Philippe Marquet is vice-president of the *Société informatique de France*, the French learned society in computer science.

Philippe Marquet is involved in scientific popularization and co-animates the group of people interested in science popularization within the Inria Lille - Nord Europe Research Center. He is also a member of the group for networking about computer science popularization inside Inria.

He organizes and participates to the visit of classrooms on the Inria Plateau at EuraTechnologies, promoting interactions between the scientific community and secondary school students and their teachers. He organizes and/or animates events with children and/or adults in order to initiate them to code via Scratch or to computer science via unplugged activities, and more generally promoting computer science education.

Philippe Marquet is a member of the editorial board of 1024, the bulletin of the *Société informatique de France* that aims at showing informatics, science and technology, in all its dimensions. 1024 targets a wide audience, from high school students to researcher, including anyone interested in computer science.

## ESTASYS Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events selection

- Axel Legay was PC member of MEMOCODE, FORMATS, FORMALIZE, SPLC, ASE, FACS, FORTE.
- Louis-Marie Traonouez was PC member of FORMATS
- Rudolf Fahrenberg was PC member of TACAS

### 8.1.2. Journal

#### 8.1.2.1. Member of the editorial boards

Axel Legay is a member of the editorial board of the newly created journal for masterminding changes (FOMACS).

#### 8.1.2.2. Reviewer - Reviewing activities

Axel Legay has been reviewer for TCS, FMSD, IandC.

### 8.1.3. Invited talks

- Axel Legay has been invited at the first EMSIG school, Copenhagen 2015.
- Uli Fahrenberg has been invited at Automatha 2015.

### 8.1.4. Leadership within the scientific community

Together with the University of Vannes and IRIT Toulouse, the team has initiated the first GT on systems of systems.

### 8.1.5. Scientific expertise

Axel Legay has been an evaluator for the National Science fund in Belgium. He is also a member of Inria evaluation committee.

### 8.1.6. Research administration

The members of the team reviewed numerous papers for numerous international conferences

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

#### Software Verification

Axel Legay: Software Verification, 40 hours, Royal Holloway, University of London

Axel Legay: Modélisation et Vérification Formelle par Automates, 12 hours, University of Rennes 1.

Axel Legay: Méthodes d'analyse de risques, 28 hours, ENSIBS2 (Vannes)

Jean Quilbeuf: Modélisation et Vérification Formelle par Automates, TP 12 hours, University of Rennes 1.

### 8.2.2. Supervision

PhD: Mounir Chadli: Scheduling for Systems of Systems, Started on December 2014, Axel Legay

[1] HdR: Axel Legay, Contribution to Statistical Model Checking, November 2015

### 8.2.3. Juries

Axel Legay has been a member of the PhD jury of Raphael Michel (Namur).

## 8.3. Popularization

Together with Vannes University, the team has published three high-level description articles on systems of systems [5], [6], [7].



## **GALAAD2 Team**

# **8. Dissemination**

## **8.1. Promoting Scientific Activities**

### **8.1.1. Scientific events selection**

#### *8.1.1.1. Member of the conference program committees*

Evelyne Hubert, André Galligo and Bernard Mourrain were part of the selection committee for the conference MEGA that took place in Trento (Italy) in June.

#### *8.1.1.2. Reviewer*

Laurent Busé wrote reviews for the conference ISSAC (International Symposium in Symbolic and Algebraic Computation), Bath, UK, July.

Bernard Mourrain was reviewer for the conferences MEGA (Effective Methods in Algebraic Geometry), Trento, Italy, June, ISSAC (International Symposium in Symbolic and Algebraic Computation), Bath, UK, July.

### **8.1.2. Journal**

#### *8.1.2.1. Member of the editorial boards*

Evelyne Hubert and Bernard Mourrain are associate editors of the Journal of Symbolic Computation (since 2007).

#### *8.1.2.2. Reviewer - Reviewing activities*

Laurent Busé wrote reviews for the following journals: Graphical Models, IEEE Transactions on Visualization and Computer Graphics, Computer Aided Geometric Design, Journal of Algebra, Journal of Symbolic Computation, Math. Zeitschrift, Mathematical Problems in Engineering, Applicable Algebra in Engineering Communication and Computing, Applied Mathematics and Computation. He also reviewed a research proposal for the Austrian Science Fund (FWF).

Evelyne Hubert reviewed articles for the Journal of Symbolic Computation, Mathematics of Computation, Acta Applicandae Mathematicae, and the Journal of Mathematical Analysis and Applications.

Bernard Mourrain reviewed articles for Applied Numerical Mathematics journal, Computer Aided Geometric Design journal, Computing Surveys, Journal of Symbolic Computation, Journal of Pure and Applied Algebra, Reliable Computing, SIAM Journal on Matrix Analysis and Applications, SIAM Journal on Optimization, Transactions on Mathematical Software.

### **8.1.3. Invited talks**

Evelyne Hubert was invited to give colloquium talks at the Aalto Science Institute (Finland) in April and at the department of mathematics of the University of Western Ontario (Canada) in november. She was also invited to give a talk at the *Workshop on Symbolic Combinatorics and Computational Differential Algebra* that took place in September at the Fields institute in Toronto (Canada).

Bernard Mourrain was an invited speaker of the Algebra and Geometry Meeting, Universitat de Barcelona, 2-5 December.

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

### **8.2.1. Teaching**

Master: Laurent Busé, Curves and Surfaces, 66h ETD, M1, EPU of the university of Nice-Sophia Antipolis.

Master: Bernard Mourrain, Real effective algebraic geometry, 30h, M2 Mathématiques, Univ. Nice Sophia Antipolis,

### **8.2.2. Supervision**

PhD in progress: Elisa Berrini, Parametric modeling for ship hull deformation and optimization. CIFRE with MyCFD, started in January 2014, supervised by Bernard Mourrain.

PhD in progress: Mathieu Collowald, Integral representation of shapes for feature conservation or extraction, started in 2011, supervised by Evelyne Hubert.

### **8.2.3. Juries**

Laurent Busé was part of the PhD jury of José Naéilton da Silva (residual intersections and annihilators of Koszul homologies) at IMPA, Rio de Janeiro, April 13.

Evelyne Hubert was part of the PhD juries of Romain Casati (modélisation numérique de structures élançées pour l'informatique graphique) from University of Grenoble, of Romain Basson (Arithmétique des espaces de modules des courbes hyperelliptiques de genre 3 en caractéristique positive) from University of Rennes, of Mathieu Collowald (Multivariate moment problems: applications of the reconstruction of linear forms on the polynomial ring) Inria, Sophia Antipolis, defended in December.

Bernard Mourrain was member of the PhD juries of Esteban Segura Ugalde (Computation of Invariant Pairs and Matrix Solvents) University of Limoges, defended in June; of Simone Naldi (Exact algorithms for determinantal varieties and semidefinite programming) LAAS, Toulouse, defended in September; of Mathieu Collowald (Multivariate moment problems: applications of the reconstruction of linear forms on the polynomial ring) Inria, Sophia Antipolis, defended in December.

Bernard Mourrain was member of the Jury for Inria CR2 positions at the center of Inria Rhône-Alpes, Grenoble.

## **GALLIUM Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific events organisation***

#### *10.1.1.1. Member of organizing committees*

Didier Rémy is a member of the steering committees of the OCaml workshop and the ML Family workshop.

### ***10.1.2. Scientific events selection***

#### *10.1.2.1. Chair of conference program committees*

Arthur Charguéraud served as program committee chair for for the second International Workshop on Coq for Programming Languages (CoqPL 2016).

Damien Doligez served as program committee chair for the OCaml Users and Developers workshop (OUD 2015).

#### *10.1.2.2. Member of conference program committees*

Umut Acar was a member of the program committees of the 30th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2016) and of the workshop on Algorithms and Systems for MapReduce and Beyond (BeyondMR 2016). He was also a member of the External Review Committee of the 43rd ACM Symposium on Principles of Programming Languages (POPL 2016).

Xavier Leroy was a member of the program committees of the 1st Summit on Advances in Programming Languages (SNAPL 2015) and of the Compiler Construction conference (CC 2016).

Xavier Leroy was a member of the award committee for the 2015 ACM SIGPLAN Software System award.

Mike Rainey was a member of the program committee of the International Conference on Functional Programming (ICFP 2015).

Arthur Charguéraud and Didier Rémy were members of the program committee of the European Symposium on Programming Languages (ESOP 2016).

#### *10.1.2.3. Reviewer*

In 2015, the members of Gallium reviewed at least 80 conference submissions.

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

#### *10.1.3.1. Member of editorial boards*

Xavier Leroy is area editor (programming languages) for the Journal of the ACM. He is on the editorial board for the Research Highlights column of Communications of the ACM. He is a member of the editorial board of the Journal of Automated Reasoning.

François Pottier is a member of the editorial board of the Journal of Functional Programming.

#### *10.1.3.2. Reviewer*

In 2015, the members of Gallium reviewed at least 4 journal submissions and 10 grant proposals.

### ***10.1.4. Leadership within the scientific community***

Pierre Courtieu and Xavier Leroy are members of the Coq steering committee.

### 10.1.5. Research administration

Xavier Leroy is *délégué scientifique adjoint* of Inria Paris-Rocquencourt and an appointed member of Inria's *Commission d'Évaluation*. In 2015, he participated in the following Inria hiring and promotion committees: *jury d'admissibilité CR2 Paris-Rocquencourt* (vice-chair); *jury d'admissibilité CR2 Nancy*; and *promotions CRI*. He was a member of the hiring committee for a professor position at ENS Rennes.

Luc Maranget is an elected member of the *Comité Technique Inria*.

Luc Maranget chairs the *Commission des utilisateurs des moyens informatiques – Recherche* of Inria Paris-Rocquencourt.

François Pottier is a member of the *Commission de Développement Technologique* and (as of January 2016) chairs the *Comité de Suivi Doctoral* of Inria Paris.

Didier Rémy represents Inria in the *commission des études* of the MPRI master, co-organized by U. Paris Diderot, ENS Cachan, ENS Paris, and École Polytechnique.

Didier Rémy is Inria's *Deputy Scientific Director* (ADS) in charge of *Algorithmics, Programming, Software and Architecture*.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Xavier Leroy and Didier Rémy, “Functional programming languages”, 45h, M2 (MPRI), Université Paris Diderot, France.

Master: Luc Maranget, “Semantics, languages and algorithms for multi-core programming”, 13.5h, M2 (MPRI), Université Paris Diderot, France.

Licence: François Pottier, “Programmation avancée” (INF441), 20h, L3, École Polytechnique, France.

Master: François Pottier, “Compilation” (INF564), 20h, M1, École Polytechnique, France.

Master: François Pottier, “Programming with permissions in Mezzo”, 4.5h, M2, 15th SFM summer school, Bertinoro, Italy.

Licence: Mike Rainey and Umut Acar, “Theory and practice of parallel computing” (part of a longer course entitled 15-210, “Parallel and Sequential Data Structures and Algorithms”), 9h, L3, Carnegie Mellon University, USA.

### 10.2.2. Supervision

M2 (Master Pro): Keryan Didier, Université Denis Diderot, supervised by Luc Maranget.

M2 (MPRI): Benjamin Farinier, Université Paris Diderot, supervised by François Pottier.

M2 (MPRI): Armaël Guéneau, ENS Lyon, supervised by Arthur Charguéraud and François Pottier.

PhD in progress: Vitalii Aksenov, “Parallel Dynamic Algorithms”, Université Paris Diderot, since September 2015, supervised by Umut Acar (co-advised with Anatoly Shalyto, ITMO University of Saint Petersburg, Russia).

PhD in progress: Jacques-Henri Jourdan, “Verasco: a formally verified C static analyzer”, Université Paris Diderot, since September 2012, supervised by Xavier Leroy.

PhD in progress: Gabriel Scherer, “Which types have a unique inhabitant?”, Université Paris Diderot, since October 2011, supervised by Didier Rémy.

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

### 10.2.3. Juries

Pierre Courtieu was a member of the Ph.D. jury of Sylvain Dailier, Université d'Orléans, December 2015.

Xavier Leroy was a member of the PhD juries of Tie Cheng, ENS Paris, September 2015; Vincent Laporte, Université Rennes 1, November 2015; and Robbert Krebbers, Radboud University, December 2015.

François Pottier was president of the Ph.D. jury of Bruno Bernardo, École Polytechnique, September 2015.

### **10.3. Popularization**

Jacques-Henri Jourdan is involved in the organization of the Junior Seminar of Inria Paris-Rocquencourt.

Jacques-Henri Jourdan and Fabrice Le Fessant manned a stand at “Salon Culture & Jeux Mathématiques” in Paris.

Fabrice Le Fessant is one of the main organizers of the OCaml Meetup in Paris.

Xavier Leroy gave a popularization talk on critical software and its formal verification at the computer science colloquium of University Pierre et Marie Curie.

Since 2012, the Gallium team has published a research blog at <http://gallium.inria.fr/blog/>, edited by Gabriel Scherer. This blog continued its activity in 2015, with 10 posts from 8 different authors.

## GEOMETRICA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Jean-Daniel Boissonnat and Frédéric Chazal co-organized the joint GUDHI-TOPDATA workshop in Porquerolles, October 20-24.
- Frédéric Chazal co-organised the Focused program on “Functoriality in Geometric Data” at the Institute for Advanced Study, HKUST Hong-Kong, April 2015.

### 10.1.2. Scientific events selection

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

Frédéric Chazal: Geometric Science of Information 2015 (GSI 2015).

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

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

Frédéric Chazal is a member of the Editorial Board of *SIAM Journal on Imaging Sciences, Discrete and Computational Geometry, Graphical Models*.

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

### 10.1.4. Invited talks

Frédéric Chazal, Focused program on “Functoriality in Geometric Data”, Institute for Advanced Study, HKUST Hong-Kong, April 2015.

Frédéric Chazal, Geometry and Data Analysis conference, Stevanovich Center for financial mathematics, University of Chicago, June 2015.

Frédéric Chazal, Mini-conference on Topological Data Analysis, Oxford University, June 2015.

Frédéric Chazal, European Meeting of Statisticians (EMS 2015), Amsterdam, July 2015.

Frédéric Chazal, 2nda Escuela/Conferencia de Análisis Topológico de Datos, Queretaro, Mexico, December 2015

Steve Oudot, *GETCO (Applications of Algebraic Topology in Computer Science and Data Analysis)*, Aalborg, April 2015.

### 10.1.5. Scientific expertise

Frédéric Chazal was a member of the ANR committee, CES 40 (Mathematics and Computer Science).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : S. Oudot, *Computational Geometry: from Theory to Applications*, 18h, École polytechnique.

Master : S. Oudot, *Topological Data Analysis*, 36h, École polytechnique.

Master : S. Oudot, *Geometric Methods for Data Analysis*, 12h, École Centrale Paris.

Master : J.D. Boissonnat, *Winter School : "Algorithmic Geometry of Triangulations"*, January 2015.

Master : S. Oudot, *Summer School BioMed : "Topological Descriptors for Geometric Data Comparison"*, July 2015.

Master : S. Oudot, *Young Researchers School at the Journées de l'AFIG: "Topological Methods for 3D Processing"*, November 2015.

Doctorat : Frédéric Chazal, *Topology and Geometry of Data Analysis*, 9h eq-TD, nd EATCS Young Researchers School and TopDrim School "Understanding Complexity and Concurrency through Topology and Data", Camerino, Italy, July 2015.

### 10.2.2. Supervision

PhD in progress : Mael Rouxel-Labbé, *Anisotropic Mesh Generation*, started October 1st, 2013, Jean-Daniel Boissonnat and Mariette Yvinec.

PhD in progress : Alba Chiara de Vitis, *Computational Geometry in High Dimensions*, started February 2014. Jean-Daniel Boissonnat and David Cohen-Steiner.

PhD in progress : Siargey Kachanovich : *Manifold Learning*, started October 2015. Jean-Daniel Boissonnat

PhD in progress: Thomas Bonis, *Statistical Learning Algorithms for Geometric and Topological Data Analysis*, started December 1st, 2013, Frédéric Chazal.

PhD in progress: Ruqi Huang, *Algorithms for topological inference in metric spaces*, started December 1st, 2013, Frédéric Chazal.

PhD in progress: Eddie Aamari, *A Statistical Approach of Topological Data Analysis*, started September 1st, 2014, Frédéric Chazal (co-advised by Pascal Massart).

PhD in progress: Claire Brécheteau, *Statistical aspects of distance-like functions*, started September 1st, 2015, Frédéric Chazal (co-advised by Pascal Massart).

PhD in progress: Jérémy Cochoy, *Zigzag persistence: stability and applications to Topological Data Analysis*, started September 1st, 2015, Steve Oudot (co-advised by F. Chazal).

PhD in progress: Mathieu Carrière, *Signatures for Geometric Shapes*, started September 1st, 2014, Steve Oudot.

### 10.2.3. Juries

Jean-Daniel Boissonnat was a member of the HDR defense committee of Quentin Mérigot (Université de Grenoble).

Frédéric Chazal was a member of the HDR defense committee of Bertrand Michel (Université Pierre et Marie Curie).

Frédéric Chazal was a member (and reviewer) of the PhD defense committee of Julien André (Université Grenoble).

Frédéric Chazal was a member of the PhD defense committee of Stéphane Calderon (Telecom Paris).

Frédéric Chazal was a member of the PhD defense committee of Fabrizio Lecci (Carnegie Mellon University).

## GRACE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- D. Augot is member of the committee of the **CCA** seminar on coding and cryptology. This seminar regularly attracts around 30 participants.
- A. Couvreur organized with David Kohel (I2M, Marseille) and Alp Bassa (Bogazici University, Turkey) the conference **AGC<sup>2</sup>T 15** (Arithmetic Geometry, Cryptography, and Coding Theory) at CIRM (Marseille). This 15th edition of this international conference happened from May 18 to 22, 2015.
- F. Morain, B. Smith and A. Guillevic were the organizers of **Advances in Discrete Logarithms**, an international workshop on discrete logarithms to conclude the CATREL project, at École polytechnique from October 1 to 2, 2015.
- P. Lebacque and B. Smith organized **Arithmetic Geometry: Explicit Methods and Applications** with C. Ritzenthaler and A. Zykin. This was an international number theory conference, held in Moscow from December 7 to 11, 2015.
- A. Guillevic and P. Karpman were members of the local organizing team of CHES 2015 (Cryptographic Hardware and Embedded Systems), at Saint-Malo, France, in September.

### 10.1.2. Scientific events selection

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

- A. Couvreur was member of the program committee of *Journées Codes et Cryptographie 2015*, La Londe les Maures. October 2015.
- A. Couvreur was member of the program committee of WCC (Workshop on Codes and Cryptology) 2015. Paris, May 2015.
- A. Couvreur was member of the scientific committee of the *École Mathématique Africaine: Théorie des nombres et Cryptologie, Équations aux dérivées partielles, analyse numérique et calcul scientifique*. March 2015, Franceville (Gabon).

#### 10.1.2.2. Reviewer

- D. Augot was reviewer for
  - ISIT 2015 (International Symposium on Information Theory)
  - CAI 2015 (6th International Conference on Algebraic Informatics)
  - SODA 2016 (Symposium on Discrete Algorithms)
- A. Couvreur was reviewer for
  - PQCrypto 2016.
- P. Karpman was reviewer for
  - ACNS 2015
  - CRYPTO 2015
  - ASIACRYPT 2015
  - INDOCRYPT 2015
  - EUROCRYPT 2016



- FSE 2016
- B. Smith was a reviewer for
  - MEGA 2015
  - PKC 2015
  - EUROCRYPT 2016

### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

- D. Augot is member of the editorial board of the *RAIRO - Theoretical Informatics and Applications*, a Cambridge journal published by EDP Sciences.
- D. Augot is member of the editorial board of the *International Journal of Information and Coding Theory*, InderScience publishers.

#### *10.1.3.2. Reviewer - Reviewing activities*

- D. Augot was a reviewer for
  - Designs, Codes and Cryptography
  - IEEE Transactions on Information Theory
  - Discrete Mathematics
  - Transactions on Computers
  - Applicable Algebra in Engineering, Communication and Computing
  - Advances in Mathematics of Communications
  - Ars Comb
- A. Couvreur was reviewer for
  - Finite Fields Appl.
  - Des. Codes Cryptogr.
  - Mosc. Math. J.
  - J. Numbers.
- B. Smith was a reviewer for
  - Journal of Cryptology
  - SICOMP (SIAM Journal on Computing)

### **10.1.4. Invited talks**

- D. Augot was invited to the colloquium of IRMAR, Rennes
- D. Augot was invited to the workshop "Codage et cryptographie", USTHB, Algiers, November 2-5.
- A. Couvreur was invited at the seminar of number theory of University of Oxford.
- A. Couvreur was invited speaker at the conference *Arithmetic Geometry: explicit methods and applications*, Moscow, december 2015.
- A. Guillevic was invited at the Workshop in Elliptic Curve Cryptography (ECC), Bordeaux, September 2015.
- A. Guillevic was invited at the CATREL Workshop on Discrete Logarithms organized by the GRACE team at Palaiseau, October 2015.
- P. Karpman was invited at the RISC seminar of CWI, Amsterdam.
- B. Smith was an invited speaker in the LFANT seminar, Bordeaux, February 2015
- B. Smith was an invited speaker in the security seminar at University College London, UK, May 2015

- B. Smith was an invited speaker at the Colóquio de Geometria e Aritmética (Geometry and Arithmetic Colloquium) at IMPA, Rio de Janeiro, Brazil, October 2015
- B. Smith gave an invited Tech Talk at Cisco France, Paris, November 2015
- B. Smith gave an invited talk in the cryptography and security seminar at Radboud University Nijmegen, Netherlands, December 2015

#### 10.1.5. Leadership within the scientific community

Together with Inria Nancy Caramel team, we are leader on records discrete logarithms, thanks to the CATREL project, which delivered the CADO-NFS software, and to our experience to run hard computational projects to achieve these records. We have also proposed the best curves for cryptographic computations.

#### 10.1.6. Scientific expertise

- D. Augot explained the fundamental concepts underlying bitcoin to the “Direction de la prospective de la Poste”

#### 10.1.7. Research administration

##### Committees

- A. Couvreur is an elected member of Saclay’s *comité de centre*.
- A. Couvreur is an elected member of Saclay’s *Comité local Hygiène, Sécurité et Conditions de Travail*.
- A. Couvreur is the *jeune chercheur référent* for the *commission de suivi doctoral* of Inria Saclay.
- D. Augot is a member of LIX’s *conseil de direction*.
- D. Augot is the vice-head of Inria’s *comité de suivi doctoral*
- D. Augot is a member of LIX’s *conseil de laboratoire*
- D. Augot is elected member of the *conseil académique consultatif* of Paris-Saclay University.
- B. Smith was a reviewer for ANRT CIFRE funding.
- F. Morain and B. Smith are elected members of the *Conseil de Laboratoire* of the LIX.
- F. Morain is vice-head of the Département d’informatique of Ecole Polytechnique.
- F. Morain represents École polytechnique in the committee in charge of *Mention HPC* in the *Master de l’université Paris Saclay*.
- F. Morain is member of the Board of Master Parisien de Recherche en Informatique (MPRI).
- B. Smith is a *Correspondant* for International Relations at Saclay.
- B. Smith is a member of the COST-GTRI.
- B. Smith is a member of the teaching committee of the Department of Computer Science of the École polytechnique.

##### Juries

- D. Augot was in committee assessing candidates for Institut Mines-Télécom.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### Licence

A. Couvreur, INF311: “Introduction à l’informatique”, 40h (equiv TD), L3, École polytechnique, France

A. Couvreur INF411: “Les bases de la programmation et de l’algorithmique”, 32h (equiv TD), M1, École polytechnique, France

F. Levy-dit-Vehel, “Cours de Cryptographie”, 30h. (equiv TD), 3rd year (M1), ENSTA ParisTech, France.

F. Levy-dit-Vehel, “Mathématiques discrètes pour la protection de l’information”, 24h (equiv TD), 2nd year (L3), ENSTA ParisTech, France.

F. Morain, Lectures for INF311: “Introduction à l’informatique”, 15h (equiv TD), 1st year (L3), École polytechnique. Coordinator of this module (350 students).

B. Smith, INF442: “Traitement des données massives”, 32h (equiv TD), L4, École polytechnique, France

#### Master

A. Couvreur, “Error-correcting codes and applications to cryptography”, 12h (equiv TD), M2, MPRI, France.

F. Morain, “Algorithmes arithmétiques pour la cryptologie”, 9h (equiv TD), M2, MPRI, France.

F. Morain, Lectures for INF568: “Cryptology”, 13.5h (equiv TD), 3rd year (M1), École polytechnique, France.

B. Smith, “Algorithmes arithmétiques pour la cryptologie”, 13.5h (equiv TD), M2, MPRI, France.

B. Smith, Cryptologie, 18h (equiv TD), M1, École polytechnique, France

### 10.2.2. Supervision

- PhD: G. Robert defended his thesis on December 4th, 2015 [12].
- PhD in progress. J. Lavauzelle has began his Ph.D. on locally decodable codes and cryptogra[hi]c applications, on October 1st, 2015, under the supervision of D. Augot and F. Levy-dit-Vehel.
- PhD in progress. E. Barelli has begun his PhD on Algebraic-Geometry codes for code-based crypto on October 1st, 2015, under the supervision of D. Augot and A. Couvreur.
- PhD in progress. N. Duhamel has begun his PhD on genus 2 curves for cryptography, under the supervision of B. Smith and F. Morain.
- PhD in progress. P. Karpman, starting in 2013, will defend in 2016 his PhD on security of symmetric cryptographic primitives.

### 10.2.3. Juries

- D. Augot was reviewer of
  - J. Roué PhD thesis, “Analyse de la résistance des chiffrements par blocs aux attaques linéaires et différentielles”, Université Pierre et Marie Curie
  - F. de Portzamparc PhD thesis, “Algebraic and Physical Security in Code-Based Cryptography”, Université Pierre et Marie Curie
- A. Couvreur
  - was reviewer of F. de Portzamparc PhD thesis, “Algebraic and Physical Security in Code-Based Cryptography”, Université Pierre et Marie Curie
  - is member of the Jury of Agrégation de Mathématiques and in charge of option C (*Algèbre et calcul formel*)

- B. Smith
  - was an examiner for L. Xu’s PhD thesis, “Vérification formelle de la vie privée dans les systèmes concurrents”, École polytechnique, 4/5/2015.

### **10.3. Popularization**

- D. Augot gave a lecture about bits, exclusive-or, coding and digital pictures, at Lycée de la vallée de Chevreuse (Jan 22)
- D. Augot, N. Duhamel, A. Guillevic, J. Lavauzelle, D. Lucas, and B. Smith participated in the Fête la Science at École polytechnique (Oct 12)
- A. Couvreur gave a conference “Les mathématiques pour protéger l’information” for the pupils of Collège Moreau in Monthléry (91).

### **10.4. Institutional commitment**

- F. Levy-dit-Vehel is member of ENSTA ParisTech working group “compétences et validation des acquis de l’expérience”.
- B. Smith was “responsable des bureaux” (responsible for allocating desks and offices) at LIX.

## HYCOMES Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

#### 8.1.1.1. Member of the organizing committees

Benoît Caillaud has served on the program and organizing committees of LMCS 2015 (<http://www.acsysteme.com/fr/lmcs-2015>), a national workshop on mathematical modeling and scientific computing.

### 8.1.2. Scientific events selection

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

Benoît Caillaud has served on the program committee of ACSD 2015 (<http://www.ulb.ac.be/di/verif/pn2015acsd2015/>), a conference on the applications of concurrency in system design. He is a member of the steering committee of ACSD since 2006.

Albert Benveniste has served on the program committee of MODELICA 2015 (<https://www.modelica.org/events/modelica2015>), the conference on the Modelica mathematical modeling language.

#### 8.1.2.2. Reviewer

Benoît Caillaud has reviewed papers submitted to the EMSOFT 2015, TACAS 2015 and ACC 2016 conferences.

### 8.1.3. Journal

#### 8.1.3.1. Reviewer - Reviewing activities

Benoît Caillaud has reviewed papers submitted to Acta Informatica.

### 8.1.4. Invited talks

Benoît Caillaud has given an invited talk on *Time Domains in Hybrid Systems Modeling* at the LCCC-ACCESS workshop on Model-Based Engineering (<http://www.lccc.lth.se/index.php?page=LCCC-ACCESS-2015-05>). He has given an invited talk on *Contracts and Interfaces in System Engineering* at the CNRIA 2015 national conference (<http://cnria.cci.ucad.sn/>), Thiès, Sénégal.

Albert Benveniste has given invited talks at the Modelica 2015 conference (<https://www.modelica.org/events/modelica2015>) and at the GretsI 2015 colloquium (<http://www.gretsI.fr/colloque2015/>). He has given an invited talk at the LCCC-Access workshop on Model-Based Engineering (<http://www.lccc.lth.se/index.php?page=LCCC-ACCESS-2015-05>).

### 8.1.5. Research administration

Benoît Caillaud is head of the *Languages and Software Engineering* department of IRISA (<http://www.irisa.fr/en/departments/d4-language-and-software-engineering>). He has been in charge of editing the synthesis documents, regarding this department, used for the evaluation of IRISA by HCERES in January 2016.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master : Benoît Caillaud is teaching with Marc Pouzet a first year master degree course on *hybrid systems modeling*. The course is open to the students registered to the computer science research and innovation curriculum of the university of Rennes 1 and ENS Rennes.

### 8.2.2. Supervision

PhD in progress : Ayman Aljarbough, *Accelerated Simulation of Hybrid Systems*, started january 2014, supervised by Benoît Caillaud

### 8.2.3. Juries

Albert Benveniste has participated to the HdR jury of Axel Legay (University of Rennes 1, november 2015).

## 8.3. Popularization

Albert Benveniste, as a member of the French Academy of Technology, has participated to an inquiry of the French Ministry of Education on the teaching of computer science in the secondary school curriculum.

## LFANT Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

The team has organised the international conference ECC 2015 — 19th Workshop on Elliptic Curve Cryptography in Bordeaux from September 28 to September 30 and a Summer School on elliptic curves the week before from September 23 to September 25.

The three day conference with 170 participants comprised about fifteen invited lectures by world-renowned scientist, presenting the major advances of the previous year. Topics ranged widely from new mathematical and algorithmic results on elliptic curves and abelian varieties, over implementations and attacks of cryptosystems up to practical studies on real-world use of curve based cryptography. This year, a panel discussion on the standardisation of elliptic curves for cryptographic use was also organised.

The preceding summer school with about 70 participants included four invited lectures of three hours each (one of which was given by Damien Robert), and a software tutorial on Sage and Pari/GP. The tutorial on Pari/GP was done by Bill Allombert and Karim Belabas. The school concluded with an afternoon of computer exercises.

#### 8.1.1.1. General chair, scientific chair

Andreas Enge and Damien Robert were scientific chairs, Andreas Enge was the general chair.

#### 8.1.1.2. Member of the organizing committees

Andreas Enge, Anne-Laure Gautier and Damien Robert were members of the organizing committee.

### 8.1.2. Scientific events selection

#### 8.1.2.1. Chair of conference program committees

- Andreas Enge was the programme chair of ECC 2015 (Bordeaux)

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

- Damien Robert was a member of the ECC 2015 (Bordeaux), Asiacrypt 2015 (Auckland) and CRI 2015 (Yaoundé) program committees.
- Sorina Ionica was a member of the Latincrypt 2015 (Guadalajara, Mexico) program committee.

### 8.1.3. Journal

#### 8.1.3.1. Member of the editorial boards

K. Belabas acts on the editorial board of *Journal de Théorie des Nombres de Bordeaux* since 2005 and of *Archiv der Mathematik* since 2006.

H. Cohen is an editorial board member of *Journal de Théorie des Nombres de Bordeaux*; he is an editor for the Springer book series *Algorithms and Computations in Mathematics (ACM)*.

J.-M. Couveignes is a member of the editorial board of the *Publications mathématiques de Besançon* since 2010.

A. Enge is an editor of *Designs, Codes and Cryptography* since 2004.

### 8.1.4. Invited talks

- F. Johansson gave an invited talk on "Fast arbitrary-precision evaluation of special functions in the Arb library" at The 13th International Symposium on Orthogonal Polynomials, Special Functions and Applications (OPSFA-13), National Institute of Standards and Technology, Gaithersburg, MD, USA (June 2015)
- S. Ionica gave an invited talk on "Fast scalar multiplication in pairing groups" at the "Pairings in cryptography" Minisymposium, SIAM AG15 Conference, Daejeon, South Korea (August 2015)
- A. Enge gave an invited talk on "Computing with theta functions on abelian surfaces" at the 11th Symposium on Algebra and Computation (AC2015), Tokyo Metropolitan University (December 2015)
- E. Milio gave an invited talk on "Computation of modular polynomials in dimension 2" at the Elliptic Curve Cryptography 2015 Conference in Bordeaux (September 2015). He also gave a similar talk at the Journées codage et cryptographie at la Londe-les-Maures (October 2015).
- D. Robert gave two invited talks on "Isogenies, Polarizations and Real Multiplication", one for the Modular Forms and Curves of Low Genus: Computational Aspects conference at Providence (September 2015) and one for the Journées codage et cryptographie at la Londe-les-Maures (October 2015).

### 8.1.5. Scientific expertise

J.-M. Couveignes is a member of the scientific council of the labex "Fondation Sciences Mathématiques de Paris", FSMP, Paris.

J.-M. Couveignes is a member of the 'conseil d'orientation' of the labex "Institut de Recherche en Mathématiques, Interactions et Applications", IRMIA, Strasbourg.

### 8.1.6. Research administration

Since January 2015, K. Belabas is vice-head of the Math Institute (IMB). He also leads the computer science support service ("cellule informatique") of IMB and coordinates the participation of the institute in the regional computation cluster PlaFRIM.

He is an elected member of "commission de la recherche" in the academic senate of Bordeaux University.

He is a member of the "Conseil National des Universités" (25th section, pure mathematics).

J.-P. Cerri is an elected member of the scientific council of the Mathematics Institute of Bordeaux (IMB) and responsible for the bachelor programme in mathematics and informatics.

Since January 2015, J.-M. Couveignes is the head of the Math Institute (IMB).

A. Enge is the head of the COST-GTRI, the Inria body responsible for the scientific evaluation of the international partnerships of the institute.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Licence: Enea Milio, Analyse, 12h, L1, Université de Bordeaux, France;

Licence: Enea Milio, Mise à niveau Maths, 12h, L1, Université de Bordeaux, France;

Licence: G. Castagnos, *Algorithmique algébrique 1*, 34.67h, L3, University of Bordeaux, France

Master: G. Castagnos, *Cryptanalyse*, 60h, M2, University of Bordeaux, France;

Master: G. Castagnos, *Cryptologie avancée*, 30h, M2, University of Bordeaux, France;

Master: G. Castagnos, *Courbes elliptiques*, 30h, M2, University of Bordeaux, France;

Master: K. Belabas, *Computational number theory*, 70h, M2, University of Bordeaux, France;



Master: K. Belabas, *Computer Algebra*, 90h, M2, University of Bordeaux, France;

Master: K. Belabas, *Algorithms for Public Key Cryptography*, 30h, M2, University of Bordeaux, France;

Summer School: F. Johansson gave three invited lectures on "High-precision methods for zeta functions" at the UNCG Summer School in Computational Number Theory, Greensboro, NC, USA in May 2015;

Summer School: J.-M. Couveignes and D. Robert gave a one week course on *Algorithmic number theory and cryptology* for the École Mathématique Africaine, organised with support from the Centre International de Mathématiques Pures et Appliquées (CIMPA) in March 2015 at Franceville, Gabon.

Summer School: D. Robert gave a talk on *The group structure of rational points of elliptic curves over a finite field* (including practical exercises on Sage or Pari/GP) for the Elliptic Curves Cryptography (ECC 2015) Summer School in September 2015 at Bordeaux.

Summer School: D. Robert gave a one week course on *Introduction to cryptology* as part of the seminar on security at Yaoundé I University preceding the Colloque de Recherche en Informatique in December 2015.

Summer School: S. Ionica gave a two lecture course on *Introduction to elliptic curve cryptography* at the ASCrypto 2015, the summer school organised at the Latincrypt 2015 conference, in Guadalajara, Mexico.

Summer School: A. Enge gave eight lectures at the SEAMS school on *Algebras and their applications (Quantum Physics, Cryptography and Statistics)* at Universiti Putra Malaysia in November 2015, entitled *Elliptic curves* (two lectures), *Hyperelliptic curves* (two lectures), *Kummer varieties*, *Exponential and subexponential algorithms for the discrete logarithm problem* (two lectures), *Pairings on elliptic curves*.

### 8.2.2. Supervision

PhD: Athanasios Angelakis, *Universal Adelic Groups for Imaginary Quadratic Number Fields and Elliptic Curves*, University of Bordeaux / University of Leiden, supervised by K. Belabas and P. Stevenhagen, defended 09/2015.

PhD: Julio Brau, *Galois representations of elliptic curves and abelian entanglements*, University of Bordeaux / University of Leiden, supervised by K. Belabas and P. Stevenhagen, defended 12/2015.

PhD: Enea Milio, *Computing modular polynomials in dimension 2*, University Bordeaux, supervised by A. Enge and D. Robert, defended 12/2015.

PhD in progress: Iuliana Ciocanea, *The module isomorphism problem*, supervised by K. Belabas and H. Lenstra.

PhD in progress: Emmanouil Tzortzakis *Algorithms for  $\mathbb{Q}$ -curves*, supervised by K. Belabas and P. Bruin

PhD in progress: Pinar Kılıçer, *Topics in complex multiplication*, Universities Bordeaux and Leiden, supervised by A. Enge and M. Streng

PhD in progress: Chloë Martindale, *Isogeny graphs*, Universities Bordeaux and Leiden, supervised by A. Enge, P. Stevenhagen, M. Streng

F. Johansson was a mentor in Google Summer of Code for Anubhav Srivastava (undergraduate student at IIIT Hyderabad) who did a successful GSoC project on "BLAS wrappers for linear algebra in FLINT"

S. Ionica supervised P. Bert's Master 1 thesis "Index calculus algorithms for small genus hyperelliptic curves". P. Bert is a student of the CSI master (Univ. of Bordeaux) and was an intern with LFANT from the 10th of May 2015 to the 31th of July 2015.

### 8.2.3. Juries

K. Belabas was a member of the jury of Olga Balkanova's PhD defense in Bordeaux (supervised by G. Molteni and G. Ricotta)

K. Belabas was a member (as supervisor) of the juries of Athanasios Angelakis and Julio Brau.

J.-M. Couveignes was a member of the jury, as a referee, for François Arnaud's HDR defense.

J.-M. Couveignes was a member of the jury, for Cyril Bouvier's PhD defense.

J.-M. Couveignes was a member of the jury, for Tristan Vaccon's PhD defense.

J.-M. Couveignes was a member of the jury, for Kevin Atighehchi's PhD defense.

A. Enge and D. Robert were members (as supervisors) of the jury for Enea Milio's PhD defense.

### **8.3. Popularization**

Damien Robert participated in a CinémaScience event to discuss with the public after a projection of the film "Imitation Game" on Alan Turing. The theme of the intervention was "The contributions of Alan Turing from computer science to cryptography".

## **MARELLE Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. Member of the organizing committees*

Yves Bertot is member of the organizing committee for the UITP (User-Interfaces for Theorem Provers) series of workshops.

Enrico Tassi organized a Coq coding Sprint in Sophia Antipolis, June 22-25, in Sophia Antipolis. There were 39 attendants.

Yves Bertot organized a Coq workshop in Sophia Antipolis on June 26. There were around 40 attendants.

### **9.1.2. Scientific events selection**

#### *9.1.2.1. Member of the conference program committees*

Yves Bertot was a member of the conference program committee for ITP'15 (Interactive Theorem Proving).

Cyril Cohen was a member of the conference program committee for JFLA'16 (Journées Francophones des Langages Applicatifs).

Laurent Théry was a member of the program committee for PxTP'15 (Proof exchange for Theorem Provers).

#### *9.1.2.2. Reviewer*

Members of the project reviewed papers for the conferences CPP'16 (Certified Programs and Proofs), ESOP'15 (European Symposium on Programming), Types, LICS'15 (Logic in Computer Science), Cade'15 (Conference on Automated Deduction), ITP'15 (Interactive Theorem Proving), JFLA'16 (Journées Francophones des langages applicatifs).

### **9.1.3. Journal**

#### *9.1.3.1. Reviewer - Reviewing activities*

Members of the project-team reviewed papers for the journals *Journal of Functional Programming*, *Journal of Formal Reasoning*, *Journal of Automated Reasoning*.

### **9.1.4. Invited talks**

Laurence Rideau gave an invited talk at the conference TFP'15 (Trends in Functional Programming).

Cyril Cohen and Yves Bertot gave invited talks at the workshop on Algebra, Geometry, and Proofs in Symbolic Computation in Toronto in December.

Cyril Cohen and Enrico Tassi gave lectures at the tutorial on Coq organized as satellite event to ITP'15 in Nanjing, China, in August.

### **9.1.5. Research administration**

- Members of the project-team evaluated project for the French national agency for research funding (ANR).
- José Grimm is a member of the local committee for Hygiene and Work Safety.
- Cyril Cohen regularly serves as secretary for the local committee of project-team leaders.
- Yves Bertot is the chairman of the *Coq Steering committee*, Enrico Tassi is a member of this committee.

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

### **9.2.1. Teaching**

Licence : Laurence Rideau, "programming and algorithms", 50 hours, Lycée Masséna, Nice, France.

Licence : Cyril Cohen, "paradigms of programming languages", 12 hours, University of Nice, France.

Master : Yves Bertot and Enrico Tassi, "software verification and computer proof", 21 hours, Université de Nice, France.

Master : Laurent Théry, "introduction to Coq", 3 hours, Ecole des Mines de Paris, France.

### **9.2.2. Supervision**

PhD in progress : Boris Djalal, starting in October 2015, supervised by Yves Bertot and Cyril Cohen

### **9.2.3. Juries**

Yves Bertot was examiner with written report duty for the thesis of Catherine Lelay (University of Paris-south) and examiner for the thesis of Robbert Krebbers (Radboud University Nijmegen).

## MEXICO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. LIA INFORMEL

The Indo-French Formal Methods Lab is an International Associated Laboratory (LIA) fostering the scientific collaboration between India and France in the domain of formal methods and applications to the verification of complex systems. Our research focuses on theoretical foundations of games, automata, and logics, three important tools in formal methods. We study applications to the verification of safety-critical systems, with an emphasis on quantitative aspects (time, cost, energy, etc.), concurrency, control, and security protocols. The Laboratory was founded in 2012 by a consortium of researchers from the French Centre for Scientific Research (CNRS), Ecole Normale Supérieure de Cachan (ENS Cachan), Université Bordeaux 1, the Institute of Mathematical Sciences Chennai (IMSc), the Chennai Mathematical Institute (CMI), and the Indian Institute of Science Bangalore (IISc). It is directed by Paul Gastin (ENS Cachan, MEXICO team) and Madhavan Mukund (CMI). The LIA has been scientifically extremely active and productive since its creation. The LIA has supported numerous scientific exchanges and joint research papers, see <http://projects.lsv.ens-cachan.fr/informel/>. Among many other activities, the LIA organised another edition of the ACTS workshop, see [here](#).

The renewal beyond 2015 has been approved by CNRS' national committee, the FSD's approval is pending.

### 10.1.2. Scientific events organisation

#### 10.1.2.1. General chair, scientific chair

Serge Haddad is a member of the steering committee for ICATPN.

### 10.1.3. Scientific events selection

#### 10.1.3.1. Chair of conference program committees

- Stefan Haar was co-chair of the program committee of the conference Application of Concurrency to System Design (ACSD) 2015 [38].

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

- Thomas Chatain was a member of the program committee of the conference Application of Concurrency to System Design (ACSD) 2015 [38].
- Paul Gastin was a member of the program committee of the workshop ACTS 2015.
- Stefan Haar was a member of the program committees of the ETFA 2015 workshop, the CHIA 2015 workshop, and of the SAFEPROCESS 2015 Symposium and the ICTAC 2015 conference.
- Stefan Schwoon was a member of the PCs for ICATPN 2015 and SPIN 2015.
- Serge Haddad was a member of the PCs of the workshops
  - FOR-MOVES, associated with ICSOC 2015, Goa, India;
  - VECOS 2015, Bejaia, Algeria;
  - ADECS and PNSE, both associated with ICATPN 2015, Brussels, Belgium.

#### 10.1.3.3. Reviewer

- Stefan Haar was a reviewer for CSL 2015, ACC 2015
- Stefan Schwoon was a reviewer for the 2015 editions of SODA, TAMC, POPL, and TACAS.
- Paul Gastin, Benedikt Bollig and Serge Haddad are regularly reviewers for many international conferences.

### 10.1.4. Journal

#### 10.1.4.1. Member of the editorial boards

- Paul Gastin is on the advisory boards of *Journal of Automata, Languages and Combinatorics* and of the EATCS Springer Book series *Monographs in Theoretical Computer Science* and *Texts in Theoretical Computer Science*.
- Serge Haddad was Editor of one edition of the TOPNOC journal (LNCS 8910).
- Stefan Haar is an associate editor for the *Journal of Discrete Event Dynamic systems*.

#### 10.1.4.2. Reviewer - Reviewing activities

- Stefan Haar was a reviewer for *Automatica*, *Journal of Computer and System Sciences*, *IEEE Transactions on Automatic Control*, *Computer Journal* and *TOPNOC*. He is also a regular reviewer for *AMS Mathematical Reviews*.
- Thomas Chatain was a reviewer for reviewer for *ACM Transactions on Embedded Computing Systems*.
- Stefan Schwoon acted as reviewer for the journals TCS, Fundamenta, STTT, FAOC (Formal Aspects of Computing), and ToPNoC.
- Paul Gastin, Benedikt Bollig and Serge Haddad are regularly reviewers for many international journals.

### 10.1.5. Invited talks

- Serge Haddad gave invited talks
  - on 'Active Diagnosis', July 7, 2015, Turin University;
  - on 'Time and Stochastic Petri Nets', June 22, during the Petri Nets tutorials at ICATPN 2015, Brussels, Belgium;
  - on 'Polynomial Interrupt Timed Automata' at Inria Rennes, Sept. 17,
  - on 'probabilistic automata' at *Ecole Jeunes Chercheurs EJCIM 2015*, April 1st, 2015, Orléans, France.
- Paul Gastin was an invited speaker for
  - 'Formal methods for the verification of distributed algorithms' Invited talk at **INFINITY 2015**, Bangalore (India), December 15, 2015.
  - 'Weighted Automata: Highlighted Excerpts.' Tutorial at **HIGHLIGHTS'15**, Prague, September 15, 2015.
  - Gossip: Maintening latest information beyond channel bounds.<br> Invited talk at **ALFA'15**, Bordeaux (France), June 15 - 17, 2015, and talk at **FRIDA'15**, Grenoble (France,) June 5, 2015.
  - '10 years of weighted logics for weighted automata.' Invited talk at **AutoMathA**, Leipzig (Germany), May 6 - 9, 2015.
- Benedikt Bollig was an invited speaker
  - at the 22nd International Symposium on Temporal Representation and Reasoning (TIME 2015), Kassel, Germany
  - at the 20th International Conference on Implementation and Application of Automata (CIAA 2015), Umeå, Sweden
  - at the 2nd Workshop on Parameterized Verification, Madrid, Spain
  - at ALFA 15: Automata, Logic, Formal languages, Algebra, Bordeaux, France
  - at Automata, Concurrency and Timed Systems (ACTS 2015), Chennai, India
- Stefan Schwoon gave a talk in the CASSTING workshop in Brussels on May 18th, 2015.

### 10.1.6. Scientific expertise

- Serge Haddad was member of a selection committee for a professor's position at U. Paris 6, and an external expert for the evaluation of ONERA's DCPS department in November 2015.

### 10.1.7. Research administration

- Paul Gastin is director of the LIA **INFORMEL**.
- Stefan Haar is the Saclay Inria center's correspondent for european partnerships. He also was a member of DIGITEO's project selection committee, and will be directing the *SCILEX* axis of the *LABEXDIGICOSME*.

All members of the team reviewed numerous papers for numerous international conferences.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Note: We only list here the teaching activities of researchers, not the courses of full-time teachers in the team.

Licence : Stefan Haar, *Théorie des Langages*, 22.3 h (EQT D) L2, Université Paris-René Descartes, France

Master : Benedikt Bollig, *Non-Sequential Theory of Distributed Systems*, 22.5 h (EQT D), M2, Parisian Master of Research in Computer Science (MPRI), France

We further note that as of September 2015, Serge Haddad is no longer the coordinator of the M1 level but has become the director of the computer science department of ENS Cachan, as the successor of Paul Gastin in this position; and Stefan Schwoon has become the coordinator of the L3 level.

### 10.2.2. Supervision

- PhD in progress :
  - Engel Lefauchaux, *controlling information in probabilistic systems*, Co-supervisors Serge Haddad and Nathalie Bertrand (Inria Rennes, SUMO team);
  - Yann Duploux, *application of formal methods to the development of embedded systems for autonomous vehicles*, since Sept. 2015, Supervisor Serge Haddad (with Béatrice Berard, UPMC).
  - Simon Theissing, *Supervision for Multi-Modal Transport Systems*, since September 2013, Supervisor Stefan Haar
  - Salim Perchy (Ecole Polytechnique), *D-spaces*, since November 2013, co-supervisor Stefan Haar, Supervisor Franck Valencia (Note : S. Perchy belongs to the COMETE team, not MEXICO).

### 10.2.3. Juries

- Benedikt Bollig was a member of the PhD committee of Mathieu Caralp, "Problèmes de bornes pour les automates et les transducteurs à pile visible", December 18, 2015 at Université Marseille.
- Paul Gastin was
  - President of the PhD committee for Jad Hamza at University Paris-Diderot, on November 27, 2015;
  - Reviewer for the theses of Roy Mennicke, Universität Ilmenau (Germany), and of Vitaly Perevoshchikov, Universität Leipzig (Germany);
  - a member of the HdR committees of Nathalie Bertrand, Rennes, November 16 and of Benedikt Bollig, ENS Cachan, June 2, 2015;
  - reviewer of the HDR of Olivier Serre, University Paris-Diderot, March 10, 2015

- Serge Haddad was a member of the PhD committees of M. Amziani at Telecom SudParis in June 2015, and of D. Paquereau at INSA Lyon in March 2015.
- On May 27, 2015, *Thomas Chatain* was a member of the jury in the competition for recruitment of Master's level students at ENS Rennes.
- *Stefan Haar* was a reviewer of the thesis by Kari Kähkönen on *Automated Systematic Testing Methods for Multithreaded Programs*, defended on February 2, 2015, at Aalto University, Finland.
- *Stefan Haar* was a member of the PhD examination board of the Thesis of Houssame-Eddine Gougam on *Analyse de l'impact du temps sur la diagnosticabilité des systèmes à événements discrets*, defended on Sep 28, INSA Toulouse.



## MUTANT Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

MuTant team organized the **First Antescofo user Symposium** during **Ircam Forum Workshops** in November 2015 with 6 contributions and over 30 participants.

### 9.1.2. Scientific events selection

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

Florent Jacquemard has participated in the program committee of the first International Conference on Technologies for Music Notation and Representation (TENOR 2015).

Jean-Louis Giavitto has participated in the program committee of the 41st International Computer Music Conference (ICMC), the ninth IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO), the International Workshop on Nature Inspired Cooperative Strategies for Optimization (NICSO), the 13th European Conference on Artificial Life (ECAL), the Digital Entertainment Technologies and Arts (DETA track at GECCO 2015, 10th International Conference on Information Processing in Cells and Tissues IPCAT, and TENOR 2015. He organized jointly with Gérard Berry the Réunion de l'inter-section des applications des sciences on "Informatique et Musique".

#### 9.1.2.2. Reviewer

The members of the team participated as reviewers for IEEE ICASSP, ACM Multimedia Conferences, Sound and Music Computing, International Computer Music Conference (ICMC), Digital Audio Effects Conference (DAFx), IEEE Symposium on Logic In Computer Science (LICS), International Conference on Automated Deduction (CADE), Conference on Concurrency Theory (Concur), Computer Science Logic (CSL), Conference on Rewriting Techniques and Applications (RTA). and more.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

Jean-Louis Giavitto is the redactor-in-chief of TSI (Technique et Science Informatiques) published by Lavoisier. He has coorganizd with Antoine Spicher (Univ. Paris Est), Stefan Dulman (Univ. Twente) and Mirko Viroli (Univ. of Milano) a special issue of *The Knowledge Engineering Review* on Spatial Computing. This issue is finalized and will be printed in 2016.

#### 9.1.3.2. Reviewer - Reviewing activities

The of the team participated as reviewers for the journal Information and Computation, ACM TOPLAS, IEEE Transactions on Multimedia, IEEE Transactions on Audio and Speech Signal Processing, and ACM Transactions on Intelligent Systems.

### 9.1.4. Invited talks

Jean-Louis Giavitto was invited to give the annual seminar of the Decanat des Science, Université de Namur (mai 2015) as well as at the International workshop *Mathemusical Conversations: mathematics and computation in performance and composition* jointly hosted by the Yong Siew Toh Conservatory of Music and the Institute for Mathematical Sciences in Singapore, in collaboration with the Center for Digital Music, Queen Mary University of London

### **9.1.5. Leadership within the scientific community**

Arshia Cont is an elected board member of **International Computer Music Association (ICMA)** in charge of organizing the annual ICMC Conference and promoting research in the field.

### **9.1.6. Scientific expertise**

Jean-Louis Giavitto is in the management team of the GDR GPL (Genie de la programmation et du logiciel), responsible with Etienne Moreau of the “Languages and Verification” pole of the GDR. He is also an expert for the ANR DEFI program and a reviewer for FET projects for the UC.

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

### **9.2.1. Supervision**

- PhD defended: José Echeveste, *Accorder le temps de la machine et celui du musicien*, started in october 2011, supervisor: Arshia Cont and Jean-Louis Giavitto.
- PhD in progress: Clément Poncelet, *Formal methods for analyzing human-machine interaction in complex timed scenario*. Started in october 2013, supervisor: Florent Jacquemard.
- PhD in progress: Philippe Cuvillier, *Probabilistic Decoding of strongly-timed events in realtime*, supervisor: Arshia Cont.
- PhD in progress: Julia Blondeau, *Espaces compositionnels et temps multiples : de la relation forme/matériauq (thèse en art)*, supervisor: Jean-Louis Giavitto, co-director Dominique Pradelle (Philosophy, Sorbonne), Started October 2015.
- PhD in progress: Maxim Sirbu, *Online Interaction via Machine Listening*. Supervisors: Arshia Cont (MuTant) and Mathieu Lagrange (IrCyNN), Started October 2015.

### **9.2.2. Juries**

Jean-Louis Giavitto was reviewer of the Habilitation of René Douence (Ecole des Mines de nantes, Composition non modulaire modulaire). He was examiners of the PhD thesis of Sergiu Ivanov (University of Paris Est, *Étude de la puissance d’expression et de l’universalité des modèles de calcul inspirés par la biologie*), and the PhD of Simon Martiel (University of Nice, *Approches informatique et mathématique des dynamiques causales de graphes*).

## **9.3. Popularization**

Arshia Cont appeared as expert in **BFM Business TV** special live event on Music and New Technology.

## PARKAS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

Albert Cohen was the general chair of the 20<sup>th</sup> ACM Conference on the Principles and Practice of Parallel Computing, PPOPP 2015, San Francisco (ranked A+). 186 participants. Coordination of the three co-located conferences. 700 participants.

Albert Cohen will be the general chair of the ACM Conference on Programming language Design and Implementation, PLDI 2017 conference in Barcelona (ranked A+). 600 participants expected.

#### 9.1.1.2. Member of the organizing committees

Albert Cohen is in the steering committee of CC 2016, now separated from ETAPS. The number of submissions doubled after the renovation of the conference organization.

Albert Cohen is the sponsor chair of HiPEAC 2015 and 2016.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

- Albert Cohen was program chair of the ARCS 2015 conference:  
<http://arcs2014.itl.uni-luebeck.de>

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

- Timothy Bourke was a member of the PC of EMSOFT 2015, Modelica 2015, and RTAS 2016.
- Albert Cohen was a member of the PC of PLDI 2016, PACT 2016, 2015; IPDPS 2015; ICPP 2015 and of the ERC of PLDI 2015 (ranked A+); ASPLOS 2016 (ranked A+); ISCA 2016 (ranked A+);
- Marc Pouzet was a member of the PC of DAC 2015; EOOLT 2015; FLOPS 2015; and two french speaking conferences AFADL 2015 and MSR 2015. Member of the jury for “Prix de these GPL” (PhD thesis award in software engineering).
- Francesco Zappa Nardelli is a member of the PC of POPL 2016 and of the ERC of ECOOP 2015.

#### 9.1.2.3. Reviewer

- Timothy Bourke was a reviewer for DAC 2015 (Design Automation Conference), DATE 2015 (Design, Automation and Test in Europe), ETAPS/FASE 2015 (Fundamental Approaches to Software Engineering), FLOPS 2015 (Symposium on Functional and Logic Programming), JFLA 2015 (Journées Francophones des Langages Applicatifs), and NFM 2015 (NASA Formal Methods Symposium).

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- Albert Cohen is an Associate Editor of the ACM Transactions on Architecture and Code Optimization (TACO), since 2013.
- Albert Cohen is on the editorial board of the Int. Journal on Parallel Programming (IJPP, Springer), since 2011.

#### 9.1.4. Invited talks

- February, T. Bourke presented “Exploiting and extending synchronous languages for hybrid modelling” at the MODPROD Workshop in Linköping, Sweden.
- February, T. Bourke presented “A synchronous approach to designing and compiling hybrid modelling languages” in the Chalmer’s Functional Programming group in Gothenburg, Sweden.
- February, T. Bourke presented “Mechanization of a mesh network routing protocol and the proof of its loop freedom in Isabelle/HOL” in the Chalmer’s Formal Methods group in Gothenburg, Sweden.
- September, T. Bourke participated in the Modelica conference in Versailles, France.
- October, T. Bourke participated in the Embedded Systems Week conferences in Amsterdam, The Netherlands.
- October, T. Bourke presented “Some recent improvements in modelling Loosely Time-Triggered Architectures” at the Journées Nationales GEOCAL-LAC-LTP 2015 in Nancy, France.
- November, T. Bourke presented “Zélus : un langage synchrone avec équations différentielles ordinaires” in the tool session of the 10th colloquium on the Modélisation des Systèmes Réactifs (MSR 2015) in Nancy, France.
- December, T. Bourke presented “Verification of code generation for a Lustre language” at the SYNCHRON workshop in Kiel, Germany.
- December, T. Bourke presented “Showing safety properties of a layered reactive model in Isabelle/HOL” at the University of Iowa, USA.
- December, T. Bourke presented “Towards the verified compilation of Lustre” at the University of Iowa, USA.
- October, M. Pouzet gave an invited talk at the EMSOFT’2015 conference, in Amsterdam “Building a Hybrid Systems Modeler from Synchronous Language Principles”.
- April, F. Zappa Nardelli gave a Keynote at the EuroLLVM international conference, London, UK.
- July, F. Zappa Nardelli gave a Keynote at the TAP international conference, L’Aquila, Italy.

### **9.1.5. Leadership within the scientific community**

Marc Pouzet is responsible with Sandrine Blazy (Prof., Univ. Rennes) of the group LTP (Language, Types, Proof) of the French GDR (Groupe de Recherche) GPL (Genie de la Programmation) from the CNRS. Two one-day seminars are organised every year. In 2015, one seminar in Bordeaux; the second was 12-14 october 2015, in Nancy, and together with the groups LAC and GeoCal.

Albert Cohen is a member of the Steering Committee of the ACM PPoPP and Compiler Construction conferences.

Albert Cohen is a Steering Committee member of the HiPEAC 3 network of excellence.

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

### **9.2.1. Teaching**

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

Master: A. Cohen: “Operating Systems Principles and Programming” (M1), 38h, École Polytechnique, France

Master: A. Cohen & F. Zappa Nardelli, “Semantics, languages and algorithms for multicore programming”, Lecture, 9h+12h, M2, MPRI: Ecole normale supérieure and Université Paris Diderot, France

Licence : F. Zappa Nardelli: “Introduction à l’informatique” (L3), TDs, 40h, École Polytechnique, France

Licence : F. Zappa Nardelli: “Programmation Concurrente et Distribuée” (L3), TDs, 32h, École Polytechnique, France

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

Master: T. Bourke participated in reviewing the M1 internships of students at the ENS, France.

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

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

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

### 9.2.2. Supervision

PhD in progress : Guillaume Baudart, 3rd year, supervised by T. Bourke and M. Pouzet

PhD in progress : Robin Morisset, 3rd year, supervised by F. Zappa Nardelli.

PhD in progress : Adrien Guatto, 4th year, supervised by A. Cohen and M. Pouzet, defended in January 2016.

PhD in progress : Riyadh Baghdadi, 4th year, supervised by A. Cohen and S. Verdoolaege, defended in September 2015.

PhD in progress : Nhat Minh Lê, 3rd year, supervised by A. Cohen.

PhD in progress : Ivan Llopard, 4th year, supervised by A. Cohen, defense in February 2016.

PhD in progress : Jie Zhao, 1st year, supervised by A. Cohen.

PhD in progress : Chandan Reddy, 1st year, supervised by A. Cohen.

M2 Internship: Virgile Andreani (Ecole normale supérieure, MPRI) supervised by T. Bourke and M. Pouzet.

L3 Internship: Chaitanya Malaviya (Nanyang Technological University) supervised by T. Bourke and M. Pouzet.

M1 Internship: Léo Testard (UPMC) - June/July 2015. Supervised by M. Pouzet

M1 Internship: Valentin Lorentz (Ecole normale supérieure de Lyon) - April/July 2015. Supervised by M. Pouzet

### 9.2.3. Juries

Albert Cohen was in the committees of

- Habilitation thesis, as reviewer: Marc Pérache (2015, U. Versailles and CEA DAM), Vincent Gramoli (2015, U. Pierre et Marie Curie et U. New South Wales, Australia);
- Habilitation thesis, as examiner: Dumitru Potop-Butucaru (2015, U. Pierre et Marie Curie and Inria), Stéphane Louise (2015, U. Versailles and CEA LIST);
- PhD thesis, as a reviewer: Diego Caballero (2015, U. Politècnica de Catalunya), Mohamed Bergach (2015, U. Nice Sophia-Antipolis), Lokesh Gidra (2015, U. Pierre et Marie Curie), Zakaria Bendifallah (2015, U. Versailles), Manuel Selva (2015, U. Lyon), Stefan Geuns (2015, U. Twente, The Netherlands), Jarryd Beck (2015, U. New South Wales, Australia), Jean-François Dollinger (2015, U. Strasbourg), Artem Shinkarov (2015, U. Heriot Watt, UK), Eugene Yip (2015, U. Auckland, New Zealand);
- PhD thesis, as an examiner:

Andi Drebes (2015, U. Pierre et Marie Curie),

Alexandre Aminot (2015, U. Grenoble).

Marc Pouzet was member of the PhD jury of Arlen Cox (2015, Univ. of Boulder).

Marc Pouzet was reviewer of the PhD thesis of Bernhard Thiele (2015, TUM, Munich)

Marc Pouzet was a member of the recruiting jury for two assistant professor positions at Chalmers University, Sueden, during spring 2015.

Marc Pouzet was a member of the recruiting jury for two Prof. position at University Paris Diderot, during spring 2015.

## PARSIFAL Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

L. Straßburger was on the Organization Committee for the International Workshop on Efficient and Natural Proof Systems, held at the University of Bath 14-16 December, 2015

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

K. Chaudhuri was the Program Committee chair of the following meeting.

LFMTP 2015: Logical Frameworks and Meta-Languages: Theory and Practice  
Co-chaired with Iliano Cervesato, Carnegie Mellon University (Qatar)

#### 9.1.2.2. Member of conference program committees

D. Miller was on the Program Committees of the following meetings.

TABLEAUX 2015: Automated Reasoning with Analytic Tableaux and Related Methods, Wroclaw, Poland, September.

PPDP 2015: 17th International Symposium on Principles and Practice of Declarative Programming, Siena, Italy, 13-16 July.

PxTP 2015: Fourth Workshop on Proof eXchange for Theorem Proving, Berlin, Germany, 2-3 August.

ICALP 2015 (42nd International Colloquium on Automata, Languages, and Programming), Track B, Kyoto, Japan, 6-10 July.

S. Graham-Lengrand was on the Program Committees of the following meetings.

TABLEAUX 2015: Automated Reasoning with Analytic Tableaux and Related Methods, Wroclaw, Poland, September.

CSL 2015: 24th EACSL Annual Conference on Computer Science Logic, Berlin, Germany, 7-10 September.

K. Chaudhuri was on the Program Committees of the following meetings.

CPP 2015: ACM-SIGPLAN Conference on Certified Programs and Proofs

FICS 2015: International Workshop on Fixed Points in Computer Science

WoF 2015: International Workshop on Focusing

L. Straßburger was on the Program Committees of the following meetings.

FoSSaCS 2015: 18th International Conference on Foundations of Software Science and Computation Structures

WENSP: International Workshop on Efficient and Natural Proof Systems

G. Reis was on the Program Committee for the following meeting.

LFMTP 2015: Logical Frameworks and Meta-Languages: Theory and Practice

#### 9.1.2.3. Reviewer

T. Libal was a reviewer for the following workshops:

Fourth Workshop on Proof eXchange for Theorem Proving.

S. Graham-Lengrand was a reviewer for the following conferences:

LPAR 2015: 20th International Conference on Logic for Programming, Artificial Intelligence and Reasoning, Suva, Fiji, November.

LICS 2015: 30th Annual ACM/IEEE Symposium on Logic in Computer Science, Kyoto, Japan, July.

D. Ilik was a reviewer for the following conferences:

ESOP 2015: 24th European Joint Conferences on Theory and Practice of Software

FoSSaCS 2015: 18th International Conference on Foundations of Software Science and Computation Structures

TLCA 2015: 13th International Conference on Typed Lambda Calculi and Applications

M. Volpe was a reviewer for the following conferences:

Tableaux 2015: 24th International Conference on Automated Reasoning with Analytic Tableaux and Related Methods, Wroclaw, Poland, September.

L. Straßburger was a reviewer for the following conferences:

TLCA 2015: 13th International Conference on Typed Lambda Calculi and Applications

LPAR 2015: 20th International Conference on Logic for Programming, Artificial Intelligence and Reasoning, Suva, Fiji, November.

FLOPS 2016: Thirteenth International Symposium on Functional and Logic Programming March 4-6, 2016, Kochi, Japan

B. Accattoli was a reviewer for the following conferences:

- CSL 2015: 24th EACSL Annual Conference on Computer Science Logic, Berlin, Germany, 7-10 September.
- TGC 2015: 10th International Symposium on Trustworthy Global Computing, Madrid, Spain, August 31 to September 1.
- FoSSaCS 2016: 19th International Conference on Foundations of Software Science and Computation Structures, to be held in Eindhoven, The Netherlands, 2-8 April 2016.

T. Brock-Nannestad was a reviewer for the following conferences:

- ITP 2015: 6th Conference on Interactive Theorem Proving, Nanjing, China, August 24–27 August, 2015.
- CPP 2016: The 5th ACM SIGPLAN Conference on Certified Programs and Proofs, Saint Petersburg, Florida, USA, January 18–19, 2016.

### **9.1.3. Journal**

#### *9.1.3.1. Editor-in-chief*

D. Miller was Editor-in-Chief of the ACM Transactions on Computational Logic. He completed a six year term on June 2015.

#### *9.1.3.2. Member of the editorial boards*

D. Miller is on the editorial board of the following journals: *ACM Transactions on Computational Logic*, *Journal of Automated Reasoning* (Springer), *Theory and Practice of Logic Programming* (Cambridge University Press), and *Journal of Applied Logic* (Elsevier).

D. Miller served on as an editor for Logical Methods in Computer Science for the production of a special issue for papers from CSL-LICS 2014.

K. Chaudhuri served as a guest editor for Mathematical Structures in Computer Science special issue on Logical Frameworks and Meta Languages, based on selected papers from LFMTTP 2015

#### *9.1.3.3. Reviewer - Reviewing activities*



- T. Libal was a reviewer for the following journals:  
Journal of Automated Reasoning (Springer).
- S. Graham-Lengrand was a reviewer for the following journals: J. Appl. Logic, Theoret. Comput. Sci., Acta Inform.
- D. Ilik was a reviewer for the following journals:  
Mathematical Reviews (MathSciNet)  
Zentralblatt MATH
- M. Volpe was a reviewer for the following journals:  
Annals of Mathematics and Artificial Intelligence;  
Journal of Automated Reasoning;  
Logica Universalis.
- L. Straßburger was a reviewer for the following journals:  
Logical Methods in Computer Science (two articles)  
Theoretical Computer Science, Elsevier  
Ontos Mathematical Logic, Walter De Gruyter  
Logic Journal of the IGLP, Oxford University Press
- B. Accattoli was a reviewer for the following journals:
  - Logical Methods in Computer Science (two articles)
  - Theoretical Computer Science, Elsevier

#### **9.1.4. Invited talks**

D. Miller was a plenary speaker at the joint meeting of LOPSTR 2015 and PPDP 2015 (Siena, Italy) and was an invited speaker at LSFA 2015 (Natal Brazil) and in the Session on History and Philosophy of Computing at the 15th Congress of Logic, Methodology and Philosophy of Science, Helsinki.

D. Miller gave spoke at the ETH Zurich Department of Computer Science Distinguished Colloquium Series on 20 April.

S. Graham-Lengrand gave an invited talk at the IFIP Working Group 1.6 on Term Rewriting, on the occasion of its 2015 annual meeting in Warsaw, Poland.

B. Accattoli was an invited speaker at the 16th International Workshop on Logic and Computational Complexity (Kyoto, Japan, 5th of July).

#### **9.1.5. Leadership within the scientific community**

D. Miller was a member of the ACM SIGLOG Advisory Board, the LICS Organizing Board, the CPP Steering Committee, and the ACM SIGLOG Executive Committee Nominating Committee. He was also the Chair of the LICS 1995 Test-of-Time Award selection committee.

S. Graham-Lengrand is head of the French National Workgroup on *Logic, Algebra, and Computation* (part of GDR Informatique Mathématique, funded by CNRS).

K. Chaudhuri was elected to the Steering Committee of LFMTTP (<http://lfmtp.org>) for a term of 5 years in 2015.

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

### **9.2.1. Teaching**

Licence: K. Chaudhuri, “*INF 321 : Les principes des langages de programmation*”, 40 hours eq. TD, L3, École polytechnique, France

Licence: K. Chaudhuri, “*INF 431 : Programmation concurrente et distribuée*”, 40 hours eq. TD, L3, École polytechnique, France

Licence: S. Graham-Lengrand, “*INF411: Les bases de la programmation et de l’algorithmique*”, 32 hours eq. TD, L3, École Polytechnique, France.

Master: S. Graham-Lengrand, “*INF551: Computational Logic*”, 45 hours eq. TD, M1, École Polytechnique, France.

Master: S. Graham-Lengrand, “*MPRI 2-1: Logique linéaire et paradigmes logiques du calcul*”, 12 hours, M2, Master Parisien de Recherche en Informatique, France.

Master: D. Miller, “*MPRI 2-1: Logique linéaire et paradigmes logiques du calcul*”, 12 hours, M2, Master Parisien de Recherche en Informatique, France.

Licence: T. Libal, “*INF 321 : Les principes des langages de programmation*”, 40 hours eq. TD, L3, École polytechnique, France

Master: T. Libal, “*INF551: Computer-aided reasoning*”, 20 hours eq. TD, M1, École Polytechnique, France.

### **9.2.2. Supervision**

PhD: Zakaria Chihani, “*Certification of first-order proofs in classical and intuitionistic logics*”, École Polytechnique, 2 Nov 2015; supervised by Dale Miller.

PhD in progress: Sonia Marin, 1 Nov 2014, supervised by L. Straßburger and D. Miller

PhD in progress: Roberto Blanco, Ulysse Gérard, and Quentin Heath, supervised by D. Miller

Internship: Horace Blanc, May-September 2015, supervised by B. Accattoli.

### **9.2.3. Juries**

D. Miller was a reporter and president for the PhD jury of Ali Assaf, École Polytechnique, 28 September.

S. Graham-Lengrand was a member of the PhD thesis committee of Simon Cruanes, École Polytechnique, 10 September.

K. Chaudhuri was a member of the PhD thesis committee of Yuting Wang, University of Minnesota, 5 November.

## **9.3. Popularization**

K. Chaudhuri organized a half-day tutorial on Abella as a satellite event of CADE 2015 in Berlin. The slides from the talk are available as [40], and the tutorial web-site is: <http://abella-prover.org/tutorial>. This event was co-organized with Gopalan Nadathur, professor of Computer Science at the University of Minnesota, USA.

G. Reis participated in “Fête de la Science” as an assistant to the programming activities.

## PI.R2 Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

#### 8.1.1.1. Member of the organising committees

Yves Guiraud and Philippe Malbos organised with Samuel Mimram (LIX, École Polytechnique) the first edition of the Higher-Dimensional Rewriting and Applications (HDRA) workshop of the International Conference on Rewriting, Deduction, and Programming (RDP), held in Warsaw in June-July 2015. The second edition of HDRA will be held in June 2016 in Porto, during the new Formal Structures for Computation and Deduction (FSCD) conference.

Yann Régis-Gianas, Pierre Letouzey, Matthieu Sozeau were the organisers of the “Ecole de Printemps d’Informatique Théorique 2015” about proof of programs (cf. Highlights section).

Matthieu Sozeau co-organised and chaired the first Coq for Programming Languages (CoqPL) workshop, collocated with POPL’15 in Mumbai, India, in January 2015.

### 8.1.2. Scientific events selection

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

Frédéric Loulergue is member of of the program committee of the International Conference on Computational Science (ICCS’15), and is co-chair of the special session “Formal Approaches to Parallel and Distributed Systems” (4PAD) of the Euromicro PDP 2016 conference.

#### 8.1.2.2. Member of the conference steering committees

Pierre-Louis Curien and Hugo Herbelin were members of the steering committee of the conference *Typed Lambda Calculi and Applications* (TLCA) until its merge with the conference *Rewriting Techniques and Application* in the new conference *Formal Structures for Computation and Deduction* (FSCD), whose first edition will be held in Porto in 2016.

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

Matthieu Sozeau is member of the steering committee of the Dependently Typed Programming international workshop (DTP).

Frédéric Loulergue is a member of the steering committee of the international symposium on High-Level Parallel Programming and Applications (HLPP).

### 8.1.3. Journal

#### 8.1.3.1. Member of the editorial boards

Pierre-Louis Curien is co-editor in chief (and becomes editor in chief in January 2016) of *Mathematical Structures in Computer Science*.

Hugo Herbelin, Pierre Letouzey and Matthieu Sozeau were co-editors of the post-proceedings of the conference TYPES 2014. These post-proceedings were published in October 2015 as LIPICS volume 39.

#### 8.1.3.2. Reviewer - Reviewing activities

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

#### 8.1.4. Invited talks

Pierre-Louis Curien gave an invited talk at the GALOP'15 (Games in Logic and Programming) Workshop, in London (April 11-12).

Matthieu Sozeau participated to the HoTT/UF workshop in Warsaw, Poland (June 29-30). He gave an invited lecture on “Coq support for Homotopy Type Theory”.

Alexis Saurin gave an invited talk, in the form of a distilled tutorial, at WoC'2015, affiliated to ETAPS 2015 on “Logical by need”.

#### 8.1.5. Hiring committees

Pierre-Louis Curien has been member of the “Comité de Sélection” for a professor position in mathematics at the University Paris Diderot.

#### 8.1.6. Scientific expertise

Pierre-Louis Curien is a member of the Scientific Committee of the CIRM (since June 2013).

#### 8.1.7. Presentation of papers

Amina Doumane presented [24] at CSL (sep 2015).

Matthieu Sozeau has presented [31] at ICFP 2015.

Cyprien Mangin has presented [29] at LFMTTP 2015.

Yann Régis-Gianas has presented [32] at Formalize 2015.

Thibaut Girka has presented [33] at ATVA 2015.

Jovana Obradović has presented [43] at Category Theory 2015.

#### 8.1.8. Other presentations

Matthieu Sozeau gave a talk on the development of Coq at the CoqPL workshop in Mumbai (Jan 2015).

Amina Doumane gave a talk at GALOP'15 on Least and Greastest Fixed Points in Ludics.

Étienne Miquey gave a talk at GALOP'15 Workshop on realisability games for arithmetical formulæ [37], and a talk on a classical sequent calculus with dependent types at TYPES'15 [34].

Hugo Herbelin gave a talk at TYPES'15 on a proof of Gödel's completeness using side-effects.

Hugo Herbelin gave a talk at the workshop HoTT-UF15 on an extension of his construction of semi-simplicial types to simplicial types.

Pierre-Louis Curien and Jovana Obradović gave talks at the workshop Logic and Applications 2015 <http://imft.ftn.uns.ac.rs/math/cms/LAP2015>, Dubrovnik (September 21-25).

Cyrille Chenavier and Jovana Obradović gave talks at the workshop HDRA, Warsaw (cf. Scientific events organisation).

#### 8.1.9. Talks in seminars

Yves Guiraud gave talks on various aspects of Squier's theory and its applications in algebra at the LCR seminar (Jan. 2015, LIPN, Univ. Paris 13), the Logique et Interactions seminar (Nov. 2015, I2M, Univ. Aix-Marseille) and the Chocola monthly meeting (Dec. 2015, ENS Lyon).

Étienne Miquey gave talks on the classical realisability and arithmetical formulæ at the Chocola monthly meeting (May 2015, ENS de Lyon) and the Logique et Interactions seminar (Jul. 2015, I2M, Univ. Aix-Marseille).

Matthieu Sozeau gave a talk on a new unification algorithm for Coq at the MIT seminar in Boston (April 2015).

Jean-Jacques Lévy gave a talk about Readable proofs of Depth First Search in graphs using Why3, at VALS seminar, Plateau de Saclay (December), and a talk about The cost of usage in the lambda-calculus, at Deducteam seminar, Inria (April), and Journées Choccola at ENS-Lyon (November).

#### **8.1.10. Attendance to conferences, workshops, schools,...**

Matthieu Sozeau attended POPL'15, RDP'15, LFMTP'15 and ICFP'15.

Étienne Miquey attended GALOP'15, the “École Jeunes Chercheurs 2015” of the GDR-IM, TYPES'15 and the EPIT spring school.

Hugo Herbelin attended TYPES'15, RDP'15 and ITP'15.

Pierre-Marie Pédrot attended JFLA'15 and LICS'15.

Hugo Herbelin, Pierre Letouzey, Pierre-Marie Pédrot and Matthieu Sozeau attended the first Coq coding sprint as developers communicating their expertise to the participants. Cyprien Mangin attended as participant.

#### **8.1.11. Groupe de travail Théorie des types et réalisabilité**

This is one of the working groups of PPS, jointly organised by Hugo Herbelin and Paul-André Melliès, since September 2009. It is held weekly. Matthieu Sozeau joined the organisation in 2014.

The speakers in 2015 were Danko Ilik (Eliminating control operators from classical realisability), Ali Assaf (Tarski and Coq), Maxime Dénès (Coqnut: a formally verified JIT compiler for Coq), Tomer Libal (Regularity in higher-order unification), Andrew Polonsky (Defining equality by induction on type structure), Sergei Soloviev (Isomorphism of Dependent Products in Type Theory: Specifics and Scientific Context), Noam Zeilberger (Functors are Type Refinement Systems), Gabriel Scherer (Which types have a unique inhabitant?), Andrej Bauer (A sound and complete language for type theory with equality reflection), Nicolas Tabareau (Vers un analogue de l'axiome de Giraud en HoTT), Alexandre Miquel (An axiomatic presentation of forcing, or: forcing for the dummies), Danko Ilik (The exp-log normal form of formulas).

#### **8.1.12. Groupe de travail Catégories supérieures, polygraphes et homotopie**

Pierre-Louis Curien and Yves Guiraud, together with Cyrille Chenavier, Maxime Lucas and Jovana Obradović actively participate in this weekly working group of PPS, organised by François Métayer since 2009.

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

### **8.2.1. Teaching**

Master: Pierre-Louis Curien teaches in the course Models of programming languages: domains, categories, games of the MPRI (together with Thomas Ehrhard and Paul-André Melliès).

Alexis Saurin chairs LMF1 M2 since September 2013.

Yann Régis-Gianas took part in the MPRI course entitled “Type systems”: he gave a 12-hour course about generalised algebraic data types, higher-order Hoare logic and dependently typed programming.

In addition to his regular teaching duties for the Computer Science department of Paris 7 (M1 and M2 Pro), Pierre Letouzey taught 2 courses in the LMF1 M2 in 2015 : initiation to formal proofs on computer (24h) and models of programming (24h).

Matthieu Sozeau teaches in the MPRI course on Advanced uses of Proof Assistants (12 hours + a project), together with Assia Mahboubi (Inria SpecFun).

Licence and Master: Lourdes González had a temporary research and teaching position (A.T.E.R) at University Paris 7 for the academic year 2014–2015. During the second semester (Jan - Aug 2015) she was in charge of TP (Travaux pratiques, 44 hours) on the subjects “Projet Informatique” (L2) and “Introduction aux environnements de développement et génie logiciel” (L3). During the second semester (Jan - Aug 2015) she was in charge of TP (Travaux pratiques, 24 hours) on the subject “Programmation système” (M1).

Licence: Étienne Miquey was in charge of practical sessions in the course “Analyse de données structurées” (36h, L2) and “Programmation Orientée Objet et Interface Graphique” (60h, L2) at University Paris 7.

MOOC: In collaboration with Roberto DiCosmo and Ralf Treinen, Yann Régis-Gianas has created a MOOC about the OCaml programming language.

### **8.2.2. Supervision**

Internship: Yann Régis-Gianas has supervised the M2 internships of Béatrice Carré and Jacques Pascal Deplaix, and the M1 internships of Léo Brun and of Loïc Runarvot.

Internship: Matthieu Sozeau has supervised the M2 internships of Gabriel Lewertowsky (with Nicolas Tabareau), who is now starting a PhD under their joint supervision, and of Cyprien Mangin, who is starting a PhD under the supervision of Bruno Barras and Matthieu Sozeau.

Internship: Yves Guiraud has supervised the M2 internship of Pierre Giraud.

PhD in progress: Guillaume Claret, supervised by Hugo Herbelin and Yann Régis-Gianas.

PhD in progress: Thibaut Girka, supervised by Roberto DiCosmo and Yann Régis-Gianas.

PhD in progress: Cyrille Chenavier, supervised by Yves Guiraud and Philippe Malbos.

PhD in progress: Maxime Lucas, supervised by Yves Guiraud and Pierre-Louis Curien.

PhD in progress: Jovana Obradović, supervised by Pierre-Louis Curien.

PhD in progress: Amina Doumane, supervised by Alexis Saurin, David Baelde and Pierre-Louis Curien.

PhD in progress: Étienne Miquey, supervised by Hugo Herbelin and Alexandre Miquel.

Pierre-Marie Pédrot and Lourdes González defended their PhD in 2015.

### **8.2.3. Juries**

PhD Juries: Pierre-Louis Curien has been reviewer (rapporteur) for the PhD thesis of Fabio Zanasi (Lyon, October 2015).

Examinator tasks: In June and July 2015, Pierre Letouzey has participated to the jury of the competitive examination for the entrance to Ecole Normale Supérieure (ENS Ulm). More precisely, he has been responsible for the oral test of computer science and has been examiner for about forty candidates, one hour each.

## **8.3. Popularisation**

Étienne Miquey took part in the animation of several activities about mathematics in primary and high schools of Paris.

Yann Régis-Gianas co-organised the “Journée Francilienne de Programmation”, a programming contest between undergraduate students of three universities of Paris (UPD, UPMC, UPS). Yann Régis-Gianas organised, and Étienne Miquey took part in the animation of the (computer science part of the) “Fête de la Science” event at the University Paris 7. Yann Régis-Gianas gave several presentations about “What is programming?” in primary and high schools of Paris.

Jean-Jacques Lévy gave a presentation about “Science et Informatique” at the primary school le Coteau, Vaucresson (November).

## POLSYS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

Guénaél Renault and Emmanuel Prouff were both General Co-chairs of CHES 2015.

#### 9.1.1.2. Member of the organizing committees

Dongming Wang was involved in the organization of the following conferences

- Fourth International Seminar on Program Verification, Automated Debugging and Symbolic Computation (PAS 2015) (Beijing, China, October 21-23, 2015);
- Dagstuhl Seminar 15471: Symbolic Computation and Satisfiability Checking ((SC)<sup>2</sup> 2015) (Dagstuhl, Germany, November 15-20, 2015);
- International Seminar on Geometric Computation (GC 2015) (Nanning, China, February 2-4, 2015).

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

Dongming Wang was Program Co-chair of the following conferences

- Fourth International Seminar on Program Verification, Automated Debugging and Symbolic Computation (PAS 2015) (Beijing, China, October 21-23, 2015);
- Dagstuhl Seminar 15471: Symbolic Computation and Satisfiability Checking ((SC)<sup>2</sup> 2015) (Dagstuhl, Germany, November 15-20, 2015);
- International Seminar on Geometric Computation (GC 2015) (Nanning, China, February 2-4, 2015).

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

Jean-Charles Faugère was member of the program committees of the following conferences

- PKC 2015
- Eurocrypt 2016

Ludovic Perret was member of the program committees of the following conferences

- The 7th International Workshop on Parallel Symbolic Computation (PASCO'15)
- The 41th International Symposium on Symbolic and Algebraic Computation (ISSAC'16)

Emmanuel Prouff was member of the program committees of the following conferences

- Workshop on Cryptographic Hardware and Embedded Systems (CHES 2015);
- 14th Smart Card Research and Advanced Application Conference (CARDIS 2015);
- 6th International Workshop on Constructive Side-Channel Analysis and Secure Design (COSADE);
- Indocrypt 2015.

Guénaél Renault was member of the program committees of the following conferences

- International Symposium on Symbolic and Algebraic Computation (ISSAC 2015)

Mohab Safey El Din was member of the program committees of the following conference

- International Conference on Mathematical Aspects of Computer and Information Sciences (MACIS) 2015;

Dongming Wang was member of the program committees of the following conferences

- International Conference on Mathematical Aspects of Computer and Information Sciences (MACIS);
- International Symposium on Symbolic Computation in Software Science (SCSS).

### **9.1.3. Journal**

#### *9.1.3.1. Member of the editorial boards*

Ludovic Perret is Member of the Editorial Board of Designs, Codes and Cryptography.

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

Dongming Wang has the following editorial activities:

- Editor-in-Chief and Managing Editor for the journal Mathematics in Computer Science (published by Birkhäuser/Springer, Basel).
- Executive Associate Editor-in-Chief for the journal SCIENCE CHINA Information Sciences (published by Science China Press, Beijing and Springer, Berlin).
- Member of the Editorial Boards for the
  - Journal of Symbolic Computation (published by Academic Press/Elsevier, London),
  - Frontiers of Computer Science (published by Higher Education Press, Beijing and Springer, Berlin),
  - Texts and Monographs in Symbolic Computation (published by Springer, Wien New York),
- Member of the International Advisory Board for the Communications of JSSAC (Japan Society for Symbolic and Algebraic Computation) (published by JSSAC).

### **9.1.4. Invited talks**

Jean-Charles Faugère was invited speaker at

Workshop on “Grobner bases techniques for post-quantum cryptography”, March 27, 2015 Washington (USA)

Workshop on Algebra, Geometry and Proofs in Symbolic Computation Thematic Program on Computer Algebra, Fields Inst. Toronto, Dec. 2015.

Sixth International Conference on Mathematical Aspects of Computer and Information Sciences (MACIS) Nov 11–13, 2015 Zuse Institute Berlin (ZIB), Germany.

Journées Nationales de Calcul Formel (3 hours lecture) Oct 2015, Cluny France

Daniel Lazard was special invited talk at Effective Methods in Algebraic Geometry 2015 - Università di Trento, Trento, June 2015.

Emmanuel Prouff was invited talk at Workshop on Constructive Side-Channel Analysis and Secure Design 2015, Mövenpick Hotel, Berlin, Apr. 2015.

Mohab Safey El Din was invited speaker at

Workshop on Algebra, Geometry and Proofs in Symbolic Computation Thematic Program on Computer Algebra, Fields Inst. Toronto, Dec. 2015.

Workshop on Linear Computer Algebra and Symbolic-Numeric Computation, Thematic Program on Computer Algebra, Fields Inst. Toronto, Oct. 2015.

Workshop Algebraic Vision, TU Berlin, October 2015.

Dagstuhl seminar on Complexity of Symbolic and Numeric Procedures, Dagstuhl, Germany, June 2015.

Czech workshop on applied mathematics in engineering Prague, Czech, February, 2015.



Mohab Safey El Din was also invited to give talks at

Minisymposium on Maximum Likelihood Degrees and Critical Points, SIAM Conference on Applied Algebraic Geometry, Daejeon, Aug. 2015, South-Korea.

Minisymposium on Real algebraic geometry and Optimization, SIAM Conference on Applied Algebraic Geometry, Daejeon, Aug. 2015, South-Korea.

Minisymposium on Polynomial Optimization and Moments, SIAM Conference on Applied Algebraic Geometry, Daejeon, Aug. 2015, South-Korea.

Elias Tsigaridas was invited speaker at

Workshop on Algebra, Geometry and Proofs in Symbolic Computation Thematic Program on Computer Algebra, Fields Inst. Toronto, Dec. 2015.

Structured Matrices Days 2015 June 4–5, 2015 XLIM-DMI, Université de Limoges, France.

Computer Algebra in Scientific Computing (CASC) September 14–18, 2015 RWTH Aachen University, Aachen, Germany.

### **9.1.5. Scientific expertise**

Guénaël Renault had the following scientific expertise activities :

member of jury de selection du concours CR2 Inria Saclay

participating to the panel for research proposals selection in the field of theoretical computer science, Finland Academy.

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

### **9.2.1. Teaching**

Jérémy Berthomieu had the following teaching activities:

Master : Modeling and problems numerical and symbolic solving through MAPLE and MATLAB software, 52 hours, M1, Université Pierre-et-Marie-Curie, France

Master : In charge of Basics of Algebraic Algorithms, 70 hours, M1, Université Pierre-et-Marie-Curie, France

Master : Introduction to Security, 20 hours, M1, Université Pierre-et-Marie-Curie, France

Licence : Numerical Algorithmic, 6 hours, L3, Université Pierre-et-Marie-Curie, France

Licence : Representations and Numerical Methods, 40 hours, L2, Université Pierre-et-Marie-Curie, France

Licence : Projects supervision, 20 hours, L2, Université Pierre-et-Marie-Curie, France

Jean-Charles Faugère had the following teaching activities:

Master: Fundamental Algorithms in Real Algebraic Geometry, 13,5 hours, M2, ENS de Lyon, France

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

Ludovic Perret had the following teaching activities amounting to around 220 hours:

Master : Polynomial Systems solving, M2, MPRI

Master : In charge of Introduction to Security, M1, Université Pierre-et-Marie-Curie, France

Master : In charge of Complexity, M1, Université Pierre-et-Marie-Curie, France

Licence : Introduction to Algorithmic, L2, Université Pierre-et-Marie-Curie, France

Licence : In charge of the Computer Science – Applied Mathematics Program (PIMA) in Licence, L2, Université Pierre-et-Marie-Curie, France

Licence : Project supervision, L2, Université Pierre-et-Marie-Curie, France

Guénaël Renault had the following teaching activities:

Master : In charge of the Security, Reliability and Numerical Efficiency Program in Master, 45 hours, M1 and M2, Université Pierre-et-Marie-Curie, France

Master : In charge of Advanced and Applied Cryptology, 70 hours, M2, Université Pierre-et-Marie-Curie, France

Master : In charge of Security and Side-channels, 10 hours, M2, Université Pierre-et-Marie-Curie, France

Master : In charge of Threats and Attacks Modeling, 40 hours, M1, Université Pierre-et-Marie-Curie, France

Master : Pro/Research internships supervision, 40 hours, M2, Université Pierre-et-Marie-Curie, France

Master : Projects supervision, 20 hours, M1, Université Pierre-et-Marie-Curie, France

Licence : In charge of Introduction to Cryptology, 30 hours, L3, Université Pierre-et-Marie-Curie, France

Licence : Project supervision, 10 hours, L2, Université Pierre-et-Marie-Curie, France

Mohab Safey El Din had the following teaching activities:

Master : In charge of Modeling and problems numerical and symbolic solving through MAPLE and MATLAB software, 18 hours, M1, Université Pierre-et-Marie-Curie, France

Master : In charge of Introduction to polynomial systems solving, 48 hours, M2, Université Pierre-et-Marie-Curie, France

Master: In charge of Fundamental Algorithms in Real Algebraic Geometry, 22,5 hours, M2, ENS de Lyon, France

Licence : Introduction to Cryptology, 20 hours, L3, Université Pierre-et-Marie-Curie, France

Licence : In charge of the Computer Science – Applied Mathematics Program (PIMA) in Licence, L2 and L3, Université Pierre-et-Marie-Curie, France

Mohab Safey El Din gave also a course at the “Ecole Jeunes Chercheurs 2015” of GDR IM.

### **9.2.2. Supervision**

PhD in progress : Ivan Bannwarth, Fast algorithms for studying real algebraic sets, started in Sept. 2014, Mohab Safey El Din

PhD in progress : Matías Bender, Algorithms for Sparse Gröbner basis and applications, started in Dec 2015, Jean-Charles Faugère and Elias Tsigaridas

PhD in progress : Eleonora Cagli, Analysis and interest points research in the attacks by observation context, Emmanuel Prouff and Cécile Dumas

PhD : Simone Naldi, Exact algorithms for determinantal varieties and semidefinite programming, Univ. Toulouse, defended in Sept. 2015, Didier Henrion and Mohab Safey El Din

PhD in progress : Adrian Thillard, Countermeasures to side-channel attacks and secure multi-party computation, Damien Vergnaud, Emmanuel Prouff

PhD : Frédéric Urvoy de Portzamparc, Algebraic and physical security based on error-correcting codes, Université Pierre-et-Marie-Curie, defended in Apr. 2015, Jean-Charles Faugère and Ludovic Perret

PhD in progress : Thibaut Verron, Gröbner bases and structured polynomial systems, started in Sept. 2012, Jean-Charles Faugère and Mohab Safey El Din

PhD : Rina Zeitoun, Algebraic methods for the analysis of the security of cryptographic algorithms implementations, Université Pierre-et-Marie-Curie, defended in July 2015, Jean-Charles Faugère and Guénaël Renault

### **9.2.3. Juries**

Jean-Charles Faugère was:

- reviewer and member of the PhD committee of Tristan Vaccon;
- member of the PhD committee of Simone Naldi;
- member of the PhD committee of Frédéric de Portzamparc;
- member of the PhD committee of Simone Naldi;

Ludovic Perret was:

- member of the PhD committee of Frédéric de Portzamparc;

Emmanuel Prouff was:

- member of the PhD committee of Luke Maher;
- member of the PhD committee of Mathieu Carbone;
- member of the PhD committee of Praveen Vadnala;
- member of the PhD committee of Sonia Belaid;
- member of the PhD committee of Sylvain Ruhault;
- member of the PhD committee of Vincent Grosso;
- member of the PhD committee of Annelie Heuser as reviewer;
- member of the PhD committee of Kevin Layat.

Guénaél Renault was:

- member of the PhD committee of Rina Zeitoun;
- member of mid-term evaluation committee of Nicolas Bruneau;

Mohab Safey El Din was:

- member of the PhD committee of Simone Naldi;
- member of the PhD committee of Frédéric Urvoy de Portzamparc;

Elias Tsigaridas was

- member of the PhD committee of Aaron Herman;
- member of the mid-term evaluation committee of Mario Cornejo-Ramirez;

## **9.3. Popularization**

Mohab Safey El Din gave a course at the “Ecole Jeunes Chercheurs 2015” of GDR IM and wrote for it a book chapter [21].

## POSET Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- D. Janin was general chair of the workshop “**Modélisation et représentation musicale**”, GDR ESARS, Bordeaux,

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- D. Janin, PC Chair of **ACM Workshop on Functional Art, Music, Modeling and Design (FARM)**, Vancouver (Canada), associated with ICFP,

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

- M. Desainte-Catherine, PC member of **Journées d’Informatique Musicale (JIM 2015)**, Montréal (Canada),
- M. Desainte-Catherine, PC member of **Sound and Music Computing (SMC 2015)**, Maynooth (Ireland),
- M. Desainte-Catherine, PC member of **International Conference on Digital Audio Effects (DAFX 2015)**, Trondheim (Norway).

#### 10.1.2.3. Reviewer

Members of the project are yearly reviewers for a number of international conferences including LICS, ICALP, STACS, MFCS, FST&TCS, in theoretical computer science, and ICMC, SMC, NIME, FARM, TENOR, JIM in computer music.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- S. Salvati is editor of the **Journal of Logic Language and Information (JoLLI)**; since the end of 2015, he has been promoted as Editor in Chief,
- M. Desainte-Catherine is editor of the **Revue francophone d’informatique musicale (RFIM)**.

#### 10.1.3.2. Reviewer - Reviewing activities

Members of the project are regular reviewers for a number of international journal including **ACM Computers In Entertainment (CIE)**, **Iranian Journal of Fuzzy Systems (IJFS)**, **Journal of New Music Research (JNMR)**, **Journal of Logic Language and Information (JoLLI)**, **Revue francophone d’informatique musicale (RFIM)**, **Discrete Mathematics & Theoretical Computer Science (DMTCS)**, **International Journal of Foundations of Computer Science (IJFCS)**, **Information & Computation (I&C)** ...

#### 10.1.4. Invited talks

- S. Salvati, LIF seminar, "Formal language theory and lambda-calculus", February 2015
- M. Desainte-Catherine, Albi Seminar *Les nouveaux territoires de la création*, "Jouer avec le temps", March 2015,
- S. Salvati, Chocola meeting, "Model construction for higher-order model-checking", April 2015
- S. Salvati was an invited speaker of the conference Finite State Methods in Natural Language Processing, "Context-freeness, automata and denotational semantics", June 2015
- S. Salvati, NII seminar "Model construction for higher-order model checking", July 2015,
- D. Janin, Dagstuhl Seminar *Verification of Evolving Graph Structures*, "Higher dimensional strings", November 2015,
- D. Janin, RNSC MuSICAL meeting, "Visualisation et programmation musicale via l'algèbre", December 2015,
- D. Janin, workshop GDR Esthétique Arts et Science (ESARS), "Représentation musicale et algèbre", Novembre 2015,
- M. Desainte-Catherine, colloque A& S FACTS, "Projet A& S le chant du filament", with Nicolas Villenave, November 2015,
- M. Desainte-Catherine and J.-M. Celerier, workshop GDR Esthétique Arts et Science (ESARS), "Structuration du temps avec i-score", Bordeaux, November 2015.

#### 10.1.5. Leadership within the scientific community

- M. Desainte-Catherine is president of the [Association Française d'Informatique Musicale \(AFIM\)](#)
- S. Salvati is the secretary of the Foundation for Logic Language and Information (FoLLI).

#### 10.1.6. Scientific expertise

- Expertise of Art and Science projects of Diagonale Paris-Saclay.
- Expertise of projects for the young researcher award of Science and Music colloque at the University of Rennes.

#### 10.1.7. Research administration

- M. Desainte-Catherine, directrice adjointe du LaBRI,
- M. Desainte-Catherine, directrice scientifique et administrative du SCRIME,
- M. Desainte-Catherine, responsable du thème SI de l'équipe image et son du LaBRI,
- D. Janin, membre commission recherche Bordeaux INP/ENSEIRB-MATMECA.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: Myriam Desainte-Catherine, *Programmation fonctionnelle*, 44 h, L3, Software Engineering department, Bordeaux INP, France,

Licence: Myriam Desainte-Catherine, *Projet d'algorithmique et de programmation*, 25 h, L3, Software Engineering department, Bordeaux INP, France,

Licence: Anne Dicky, *Algorithmique des graphes*, 30 h, L3, Computer Science Departement, Paris VI University, Vietnam,

Licence: Anne Dicky, *Probabilités et combinatoire*, 75 h, L3, Computer Science Departement, Bordeaux University, France,

Licence: Anne Dicky, *Algorithmique et structures de données*, 50h, L2, Computer Science Departement, Bordeaux University, France,

Licence: Anne Dicky, *Fondamentaux pour les mathématiques et l'informatique*, 35 h, L1, Computer Science Departement, Bordeaux University, France,

Master: Sylvain Salvati, *Logique*, 12h, M1, Computer Science Departement, Bordeaux University, France,

Licence: David Janin, *Projet d'algorithmique et de programmation*, 25 h, L3, Software Engineering department, Bordeaux INP, France,

Licence: Sylvain Salvati, *Analyse syntaxique et projet de programmation 3*, 37,5 h, niveau L3, Computer Science Departement, Bordeaux University, France,

Master: Myriam Desainte-Catherine, *Compilation*, 14 h, M1, Software Engineering department, Bordeaux INP, France,

Master: Myriam Desainte-Catherine, *Projet de Génie Logiciel*, 25 h, M1, Software Engineering department, Bordeaux INP, France,

Master: Myriam Desainte-Catherine, *Informatique musicale contrôle et composition*, 25 h, M2, Software Engineering department, Bordeaux INP, France,

Master: Anne Dicky, *Recherche operationelle*, 70 h, M1, Computer Science Departement, Bordeaux University, France,

Master: David Janin, *Projet de Génie Logiciel*, 25 h, M1, Software Engineering department, Bordeaux INP, France,

Master: David Janin, *Compilation*, 20 h, M1, Network and System Engineering department (RSI), Bordeaux INP, France,

Master: David Janin, *Tutorat*, 15 h, M1, M2, Network and System Engineering department (RSI), Bordeaux INP, France,

Doctorat: Sylvain Salvati, *Initiation à CoQ*, 12 h, Ecole Doctorale Mathématique et Informatique, Bordeaux University, France.

### 10.2.2. Supervision

HdR : Sylvain Salvati, “Lambda-calculus and formal language theory”, Université de Bordeaux, defended in december 2015,

PhD : Jaime Arias, “Formal Semantics and Automatic Verification of Hierarchical Multimedia Scenarios with Interactive Choices”, Université de Bordeaux, defended in november 2015, supervised by M. Desainte-Catherine,

PhD : Jérôme Kirman, “Mise au point d'un formalisme syntaxique de haut niveau pour le traitement automatique des langues”, Université de Bordeaux, defended in december 2015, supervised by Bruno Courcelle, Lionel Clément, Sylvain Salvati,

PhD in progress : Pauline Mouawad, “Analyse et modélisation de l'émotion musicale”, started in september 2012, supervised by M. Desainte-Catherine,

PhD in progress : Etienne Dubourg, “Contribution à la théorie des langages de tuiles”, started in november 2012, supervised by D. Janin,

PhD in progress : Jean-Michaël Célérier, “Outils d'écriture spatiale pour les partitions interactives”, started in january 2015, supervised by M. Desainte-Catherine,

PhD in progress : Simon Archipoff, “Modélisation et programmation tuilée réactive”, started in september 2015, supervised by D. Janin,

### 10.2.3. Juries

- M. Desainte-Catherine was a member and a reviewer of the PhD jury of Olivier Perrotin, “Chanter avec les mains : Interfaces chironomiques pour les instruments de musique numériques”, Université Paris-Saclay(LIMSI), Septembre 2015,

- M. Desainte-Catherine was a member and a reviewer of the PhD jury of Ko Yi Chun, “L’espace sensible :expérience inter-sensorielle et corporelle, à partir des dispositifs musicaux interactifs”, Université Vincennes Saint-Dennis, Novembre 2015,
- D. Janin was a member and the president of the PhD jury of Jaime Arias: “Formal Semantics and Automatic Verification of Hierarchical Multimedia Scenarios with Interactive Choices”, Université de Bordeaux (LaBRI), November 2015,
- S. Salvati was a member of the PhD jury of Yann Salmon: “Analyse d’atteignabilité pour les programmes fonctionnels avec stratégie d’évaluation en profondeur”, Université de Rennes 1, December 2015.

## POSTALE Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

- Marc Baboulin,
  - Member of the steering committee of HPC 2015
  - Minisymposium “Randomized algorithms in numerical linear algebra.” Organizers: Marc Baboulin, Jack Dongarra (Univ. of Tennessee) et Sherry Li (Lawrence Berkeley National Laboratory), SIAM Conference on Computational Science and Engineering, Salt Lake City, USA, March 14-18, 2015.
- Christine Eisenbeis, comité d’organisation du colloque "Les métiers du travail scientifique : images et valeurs, réalités et défis", 20-21 mai 2015, Orsay, (<http://www.centre-dalembert.u-psud.fr/2015-les-metiers-du-travail-scientifique-images-et-valeurs-realites-et-defis/>).

#### 9.1.2. Journal

##### 9.1.2.1. Member of the editorial board

- Christine Eisenbeis, IJPP

#### 9.1.3. Invited talks

- Marc Baboulin, invited plenary speaker at the HPCSE conference, Solan, Czech Republic, May 25-28, 2015.

#### 9.1.4. Scientific expertise

- Marc Baboulin, comité de sélection pour un poste de maître de conférences en informatique, université Paris-Sud 11, mai 2015.
- Christine Eisenbeis, comité de sélection pour un poste de professeur d’informatique, université Paris-Sud 11, mai 2015.
- Joël Falcou, comité de sélection pour un poste de maître de conférences en informatique, université Paris-Sud 11, mai 2015.
- Lionel Lacassagne, comité de sélection pour un poste de maître de conférences en informatique, université Paris-Sud 11, mai 2015.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Supervision

PhD in progress: Lénaïc Bagnères, "Adaptation automatique et semi-automatique des optimisations de programmes", University Paris-Sud 11, supervisors: Cédric Bastoul and Christine Eisenbeis

PhD in progress: Ian Masliah, "Automatic code generation in high-performance computing numerical libraries", University Paris Sud 11, Supervisors: M. Baboulin and J. Falcou

PhD defended: Jason Lambert, "Parallélisation de simulations interactives de champs ultrasonores pour le contrôle non destructif", CEA List/Disc funding, University Paris-Sud 11, July 3rd, 2015, Supervisor: Lionel Lacassagne



PhD defended: Adrien Rémy, "Solving dense linear systems on accelerated multicore architectures", University Paris Sud 11, July 8th, 2015, Supervisors: M. Baboulin and B. Rozoy

PhD defended: Antoine Tran Tan, "Squelettes algorithmiques asynchrones : application aux langages orientés domaine", University Paris-Sud 11, October 8th, 2015, Supervisor: Joël Falcou

PhD defended: Yushan Wang, "Solving Incompressible Navier-Stokes Equations on Heterogeneous Parallel Architectures", University Paris Sud 11, April 9th, 2015, Supervisors: M. Baboulin and O. Le Maître

### 9.2.2. *Juries*

- Marc Baboulin,
  - PhD defence of Michele Mangili, Politecnico di Milano (15/12/2015), chairman of the committee.
  - HDR defence of Stéphane Louise, CEA Saclay (29/06/2015), chairman of the committee.
- Christine Eisenbeis, rapporteuse de la thèse de Nicolas Triquenaux, « Energy Characterization and Savings in Single and Multiprocessor Systems : Understanding how much can be saved and how to achieve it in modern systems » , 18 septembre 2015, université de Versailles-Saint-Quentin.

### 9.3. Popularization

Christine Eisenbeis est membre du conseil scientifique des programmes du centre d'Alembert, Centre Interdisciplinaire d'Étude de l'Évolution des Idées, des Sciences et des Techniques (CIEEIST), de l'université Paris-Sud. À ce titre, elle a fait partie du comité d'organisation du colloque "Les métiers du travail scientifique : images et valeurs, réalités et défis", 20-21 mai 2015, Orsay, (<http://www.centre-dalembert.u-psud.fr/2015-les-metiers-du-travail-scientifique-images-et-valeurs-realites-et-defis/>).

## **PRIVATICS Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. Member of the organizing committee*

Cédric Lauradoux : GREHACK 2015.

Daniel Le Metayer : La vie privée à travers les cultures: divergences et convergences dans un monde globalisé, Rencontres Jacques Cartier, Lyon, 31 November 2015.

### **9.1.2. Scientific events selection**

#### *9.1.2.1. Chair of conference program committee*

Cédric Lauradoux : GREHACK 2015.

#### *9.1.2.2. Member of the conference program committee*

Mathieu Cunche : Trustcom 2015, ICISSP 2015, HotPlanet 2015.

Cédric Lauradoux : Wisec 2015.

Daniel Le Métayer : IWPE 2015, WETICE 2015.

Claude Castelluccia : WISEC 2015, PETS'15.

Marine Minier : WCC 2015.

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

### **9.2.1. Teaching**

Undergraduate course : Vincent Roca, On Wireless Communications, 12h, L1, Polytech' Grenoble, France.

Undergraduate course : Vincent Roca, On Network Communications (44h), L1, IUT-2 (UPMF University) Grenoble, France.

Undergraduate course : Marine Minier, Probabilities, 80h, L3, INSA-Lyon, France.

Undergraduate course : Marine Minier, Signal Processing, 20h, L3, INSA-Lyon, France.

Undergraduate course : Marine Minier, Analysis, 20h, L3, INSA-Lyon, France.

Undergraduate course : Marine Minier, Introduction to Cryptography, 10h, L3, INSA-Lyon, France.

Undergraduate course : Marine Minier, Information Theory, 10h, L3, INSA-Lyon, France.

Undergraduate course : Marine Minier, Computer Architecture, 20h, L3, INSA-Lyon, France.

Undergraduate course : Marine Minier, Computer Security, 20h, L3, IUT-Lyon, France.

Undergraduate course : Mathieu Cunche, Introduction to computer science, 120h, L1, INSA-Lyon, France.

Master : Mathieu Cunche, Wireless Security, 6h, M2, INSA-Lyon, France.

Undergraduate course : Mathieu Cunche, On Wireless Network Security, 10h, L1, IUT-2 (UPMF - Grenoble University), France.

Undergraduate course : Cédric Lauradoux, Advanced Topics in Security, 20h, L3, ENSIMAG, France.

Master : Cédric Lauradoux, Introduction to Cryptology, 30h, M1, University of Grenoble, France.

Master : Cédric Lauradoux, Internet Security, M2, University of Grenoble, France.

Master : Claude Castelluccia, Advanced Topics in Security, 20h, M2, Ensimag/University of Grenoble, France.

Master : Claude Castelluccia, Advanced Topics in Security, 15h, M2, Ensimag/INPG, France.

Master : Marine Minier, Security for wireless networks, 20h, M2, INSA-Lyon, France.

Master : Mathieu Cunche, Wireless Security, 6h, M2, INSA-Lyon, France.

### **9.2.2. Supervision**

PhD defended : Gael Thomas, Algebraic Automata in Symetric Cryptography, Marine Minier.

PhD defended : Lukasz Olejnik, Internet Tracking and Profiling, Claude Castelluccia.

PhD in progress : Jagdish Achara, Mobile devices and operating systems from a privacy point of view, October 2013, Vincent Roca and Claude Castelluccia.

PhD in progress : Thibaud Antignac, New solutions for a better privacy, September 2011, Daniel Le Métayer.

PhD in progress : Jessye Dos Santos, Wireless physical tracking, October 2013, Cédric Lauradoux and Claude Castelluccia.

PhD in progress : Amrit Kumar, Privacy and multiparty computation, November 2013, Cédric Lauradoux.

PhD in progress : Vincent Primault, Privacy and geolocated services, November 2013, Cédric Lauradoux.

PhD in progress : Célestin Matte, Système d'observation des flux humains via Wi-Fi respectueux de la vie privée, October 2014, Marine Minier et Mathieu Cunche.

Intern (M2): Khaoula Dhifallah, Resiliency properties of protocols for WSNs (02/2015 - 07/2015)

Intern (M2): Saikou Fall, Packet Too Big or Too Small ? The PTB-PTS ICMP-based attack against IPsec gateways and tunneling mechanisms (05/2015 - 09/2015)

Intern (M2): Aude Tessier, Etude comparee technico-juridique des lois dites de renseignement (02/2014- 09/2014)

Intern (M2): Leo Letaro, Détection des altération de pages Web (02/2015-07/2015)

Intern (M1): Mathieu Thiery, NeuroAuth-Authenticating People from their Implicit Memory (03/2015 - 09/2015)

Intern (M1): Lenka Kunikova, An efficient implementation of a generic two-party secure computation protocol in the UC framework (02/2015 - 06/2014)

Intern (M1): Jose Paul Dominguez, Tarantula: individual targeting for passphrase attacks (02/2015 - 06/2014)

Intern (M1): Michael Omer, Security and QR-codes (02/2015 - 06/2014)

Intern (M1): Quentin Ricard, Algorithmic complexity attacks against sorting algorithms (02/2015 - 08/2014)

Intern (M1): Jonathan Tournier, Evaluating Forensics Tools (02/2015 - 06/2014)

### **9.2.3. Juries**

PhD : Lukasz Olejnik, Internet Tracking and Profiling, Université de Grenoble, Grenoble, 30/01/2015, Claude Castelluccia.

HDR : Benoît Parrein, Le code à effacement Mojette: applications dans les réseaux et dans le Cloud, Université de Nantes, Nantes, 22/06/2015, Vincent Roca.

PhD : Regina Melo Marin, Enhancing Privacy Protection in Social Network Systems Through Decentralization and Policy Conflict Management, Université de Rennes, Rennes, 07/09/2015, Daniel Le Métayer.

PhD : Paul Mazenc-Lajoie, Réputation et respect de la vie privée dans les réseaux dynamiques auto-organisés, Université de Rennes, Rennes, 25/09/2015, Daniel Le Métayer.

PhD : Koen Decroix, Model-Based Analysis of Privacy in Electronic Services, Université de Leuven, Leuven, 21/10/2015, Daniel Le Métayer.

PhD : Thibaud Antignac, Méthodes formelles pour le respect de la vie privée par construction, INSA Lyon, Lyon, 25/02/2015, Daniel Le Métayer.

PhD : Joëlle Roué, Analyse de sécurité des chiffrements par bloc, 14/10/2015, Université Pierre et Marie Curie, Paris, Marine Minier.

### 9.3. Popularization

Article of C.Castelluccia and D.Le Métayer in le Monde, Oui, la loi sur le renseignement prépare bien une surveillance de masse, 09/06/2015.

Article of C.Castelluccia and D.Le Métayer in Pour La Science, Renseignement : le traitement massif de données est aussi dangereux qu'inefficace, 11/06/2015.

Interview of C.Castelluccia and D.Le Métayer in le Monde, Des dizaines de milliers de personnes vont être suspectées à tort, 06/05/2015.

Article of C.Castelluccia and D.Le Métayer in La Recherche, Les failles de la loi sur le renseignement, 11/2015.

Interview of V. Roca on France Culture in Les Nouvelles Vagues, Privacy leaks in smartphones, 10/2015

Article of V. Roca in Interstice, Quand nos smartphones sont espionnés, [https://interstices.info/jcms/p\\_83464/quand-nos-smartphones-sont-espionnes](https://interstices.info/jcms/p_83464/quand-nos-smartphones-sont-espionnes), 09/2015.

Representation of Privatics by V. Roca at Journée numérique au Sénat, 11/02/2015.

Representation of Privatics by M. Cunche at Journée numérique au Sénat, 11/02/2015.

Seminar of C. Lauradoux at the security seminar LORIA, Google Safe Browsing: Security and Privacy, 18/11/2015.

Seminar of C. Lauradoux at GRACE seminar (Inria Saclay), Membership Tests in Security, 18/11/2015.

Seminar CCA of C. Lauradoux, Exploitations concrètes des mauvaises utilisations des fonctions de hachage, 12/06/2015.

Workshop of C. Lauradoux at GREHACK 2015, Sécurité des drones.

Seminar of Marine Miner at LIMOS seminar, CUBE Cipher: Une Famille de Chiffrement par Blocs Quasi-Involutifs et Facile à Masquer, 01/10/2015.

Seminar of Marine Miner at XLIM seminar, CUBE Cipher: Une Famille de Chiffrement par Blocs Quasi-Involutifs et Facile à Masquer, 10/02/2015.

Seminar of Marine Miner at Rennes, Some solutions for security of WSNs, 11/2015.

## PROSECCO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events selection

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

- ACM POPL – January 2015, Mumbai, India: Karthikeyan Bhargavan
- ACM CCS – October 2015, Denver, USA: Karthikeyan Bhargavan
- ETAPS POST – April 2015, London, UK: Karthikeyan Bhargavan
- ACM SEC@SAC – April 2015, Salamanca, Spain: Karthikeyan Bhargavan
- HotSpot – April 2015, London, UK: Bruno Blanchet

#### 10.1.1.2. Reviewer

- Members of Prosecco reviewed papers for many major conferences and workshops including ACM CCS, ACM POPL, IEEE S&P, etc.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial boards

Associate Editor

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

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Bruno Blanchet, Cryptographic protocols: formal and computational proofs, 9h equivalent TD, master M2 MPRI, universit  Paris VII, France

License: Karthikeyan Bhargavan, INF431, INF421, INF672, INF321, introductory courses at at Ecole Polytechnique, Palaiseau, France

Doctorat: Catalin Hritcu, lectures at University of Saarbruecken, Germany

Doctorat: Catalin Hritcu, F\* tutorials at POPL 2015 and ICFP 2015

### 10.2.2. Supervision

PhD in progress: Evmorfia-Iro Bartzia

*Machine-checked program verification for concrete cryptography*, started October 2011, supervised by Karthikeyan Bhargavan and Pierre-Yves Strub

PhD in progress: Antoine Delignat-Lavaud

*Verified security for web applications*, started September 2012, supervised by Karthikeyan Bhargavan

PhD in progress: Jean Karim Zinzindohoue

*Analyzing cryptographic protocols and their implementations*, started September 2014, supervised by Karthikeyan Bhargavan

PhD in progress: Nadim Kobeissi

*Analyzing cryptographic web applications*, started February 2015, supervised by Karthikeyan Bhargavan

PhD in progress: Yannis Juglaret  
*Micro-policies and Secure Compilation*,  
started September 2015, supervised by Catalin Hritcu

### **10.2.3. Juries**

Rémy Chrétien – Ph.D. – Jan. 11, 2016 – ENS Cachan  
*Automated analysis of equivalence properties for cryptographic protocols*  
Bruno Blanchet (reviewer)

Joeri de Ruiter – Ph.D. – Aug. 27, 2015 – Radboud University Nijmegen  
*Lesson learned in the analysis of the EMV and TLS security protocols*  
Karthikeyan Bhargavan (reviewer)

Bart van Delft – Licentiate – Mar. 14, 2015 – Chalmers University  
Karthikeyan Bhargavan (discussion leader)

## **10.3. Popularization**

### **10.3.1. Popular Press and Vulnerability Reports**

The FREAK and Logjam attacks discovered by the miTLS team resulted in articles in many newspapers, magazine, and popular websites, including the New York Times, Wall Street Journal, Economist, and Wired. As a result of our discovery of these attacks and their popularization, major changes were made in all web browsers, web servers, and in the TLS protocol itself.

### **10.3.2. Seminars**

- Catalin Hritcu: invited talks at CoqPL Workshop (Jan 2015), HP Labs France (May 2015), Inria Rennes (Jun 2015), PLAS Workshop (Jul 2015), Microsoft Research Redmond (Aug 2015), University of Washington (Aug 2015), ML Workshop (Sep 2015), Alcatel-Lucent Bell Labs (Dec 2015)
- Karthikeyan Bhargavan: invited talks at Real World Crypto (Jan 2015), Inria Nancy (Feb 2015), OSSIR Paris (Jun 2015), DefCon Crypto Village (Aug 2015), Catreil Workshop (Oct 2015)

## SECRET Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- WCC 2015 (Paris, April 13-17, 2015) has been organized by the project-team. The organizing committee is composed of A. Canteaut, G. Leurent, M. Naya Plasencia.
- N. Sendrier, co-organizer of Dagstuhl Seminar 15371, "Quantum Cryptanalysis", September 7-11, 2015, Dagstuhl, Germany.

#### 9.1.1.2. Member of the organizing committees

- Advances in Quantum Cryptography Workshop, AQC 2015: March 23-24, 2015, Paris (France): A. Chailloux and A. Leverrier

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

- WCC 2015: April 13-17, 2015, Paris (France): P. Charpin, N. Sendrier and J.P. Tillich (co-chairs).

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

- FSE 2015: March 8-11, 2015, Istanbul, Turkey (A. Canteaut, G. Leurent, M. Naya-Plasencia);
- CT-RSA 2015: April 20-24, 2015, San Francisco, USA (M. Naya-Plasencia);
- Eurocrypt 2015: April 26-30, 2015, Sofia, Bulgaria (A. Canteaut);
- Codes, Cryptology, and Information Security - C2SI 2015: May 26-28, 2015, Rabat, Morocco (A. Canteaut).
- Finite Fields and their applications  $F_{q^{12}}$ , Saratoga, USA, July 13-17, 2015 (A. Canteaut);
- SAC 2015: August 12-14, 2015, Sackville, Canada (M. Naya-Plasencia);
- Crypto 2015: August 16-20, 2015, Santa Barbara, USA (A. Canteaut);
- National workshop on Coding and Cryptography (Journées C2), October 5-9, 2015, La-Londe-Les-Maures, France (M. Naya-Plasencia, JP. Tillich);
- QCrypt 2015, Fifth annual conference on Quantum Cryptography, 28 September - 2 October 2015, Tokyo, Japan (A. Leverrier);
- ICCS 2015, International Conference on Coding and Cryptography, Alger, Algeria, November 2-5, 2015 (P. Charpin)
- Indocrypt 2015: December 6-9, 2015, Bangalore, India (A. Canteaut, G. Leurent)
- IMA-CC 2015, December 15-17, 2015, Oxford, UK (P. Charpin)
- PQCrypto 2016: February 24-26, 2016, Fukuoka, Japan (N. Sendrier, J.P. Tillich);
- CT-RSA 2016: Feb. 29- March 4, 2016, San Francisco, USA (M. Naya Plasencia)
- FSE 2016: March 20-23, 2016, Bochum, Germany (G. Leurent)
- Eurocrypt 2016: May 8-12, 2016, Vienna, Austria (M. Naya Plasencia)
- Crypto 2016: August 14-18, 2016, Santa Barbara, USA (A. Canteaut)
- ACISP 2016: July 4-6, 2016, Melbourne, Australia (G. Leurent)
- Waifi 2016: July 13-15, 2016, Ghent, Belgium (A. Canteaut)

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- *Designs, Codes and Cryptography*, associate editor: P. Charpin.
- *Finite Fields and Their Applications* associate editors: A. Canteaut, P. Charpin.
- *Annals of telecommunications*, associate editor : J.-P. Tillich.

#### 9.1.3.2. Guest editor for books or special issues

- Special issue in Coding and Cryptography, *Designs, Codes and Cryptography*, 2015, co-editors: P. Charpin, N. Sendrier and J-P. Tillich.
- *Contemporary Developments in Finite Fields and Applications*, 2016, World Scientific Publishing, co-editor: A. Canteaut.

### 9.1.4. Invited talks

- A. Canteaut, *Differential Attacks Against SPN: A Thorough Analysis*, Codes, Cryptology, and Information Security - C2SI 2015, Rabat, Morocco, May 2015.
- G. Leurent, *Generic Attacks against MAC Algorithms*, Selected Areas in Cryptography - SAC 2015, Sackville, Canada, August 2013
- A. Leverrier, *Introduction to Quantum Cryptography*, WIC Symposium on Information Theory in the Benelux Brussels, Belgium, May 2015.
- J.P. Tillich *A survey on decoding quantum LDPC codes*, Quantum Information Processing - QIP 2015, Sydney, Australia, January 2015.

The members of the project-team have also been invited to give talks to some workshops or international seminars, including:

- A. Canteaut, *On the behaviors of affine equivalent Sboxes regarding differential and linear attacks*, Early Symmetric Crypto - ESC 2015, Clervaux, Luxemburg, January 2015.
- A. Canteaut, *Sur la résistance aux cryptanalyses différentielles et linéaires*, Journées Codage et Cryptographie 2015, La Londe-les-Maures, France, October 2015.
- A. Chailloux *Arbitrarily long relativistic bit commitment*, QuPa - Quantum Information in Paris, Paris, France, December 2015.
- A. Chailloux *Introduction to Quantum Cryptography*, 9ème Journées Scientifiques de l'Université de Toulon - France, April 2015.
- A. Chailloux *Introduction à l'Informatique Quantique*, ENS Lyon Seminar, France, January 2015.
- G. Leurent, *On cryptanalysis of the Chaskey MAC*, Early Symmetric Crypto - ESC 2015, Clervaux, Luxemburg, January 2015.
- G. Leurent, *Generic Attacks against MAC Algorithms*, Asian Workshop on Symmetric Key Cryptography - ASK 2015, Singapore, September 2015
- A. Leverrier, *Quantum differential cryptanalysis*, Dagstuhl Seminar Quantum Cryptanalysis, Dagstuhl, Germany, 7-11 September 2015.
- A. Leverrier, *Quantum expander codes*, QuPa - Quantum information in Paris, France, 7-8 December 2015.
- M. Naya-Plasencia, *On impossible differential attacks*, Early Symmetric Crypto - ESC 2015, Clervaux, Luxemburg, January 2015.
- N. Sendrier, *Best known attacks on code-based cryptosystems: state of the art and perspectives*, DIMACS Workshop on the Mathematics of Post-Quantum Cryptography, Piscataway, USA, January 2015.



### 9.1.5. Leadership within the scientific community

- A. Canteaut serves as a chair of the steering committee of *Fast Software Encryption (FSE)*;
- N. Sendrier serves on the steering committee of *Post-quantum cryptography (PQCrypto)*;
- M. Naya Plasencia serves on the steering committee of the *Coding and Cryptography* group of GDR-IM <https://crypto.di.ens.fr/c2:main>;
- Since Autumn 2014, JP. Tillich organizes a working group on code-based cryptography which meets on a monthly/bimonthly basis. It gathers people from the project-team, from the GRACE project-team (Inria Saclay), from the University of Limoges, from the University of Rennes and from the University of Rouen who all work on this topic.

### 9.1.6. Research administration

- N. Sendrier is a vice-chair of the “Commission d’Evaluation” at Inria;
- A. Canteaut is a member of the “Comité de pilotage” of the Fondation Sciences Mathématiques de Paris;
- N. Sendrier is a member of the committee PEDR INS2I (CNRS) 2015
- N. Sendrier is a member of the committee for PhD fundings, EDITE, Commission thématique O (RO, Algo, Calcul et Programmation).
- J.-P. Tillich is in charge of “Formation par la recherche” for the Paris-Rocquencourt Inria center.
- **Committees for the selection of professors, assistant professors and researchers:** Inria Directeurs de recherche (N. Sendrier), Inria Paris-Rocquencourt Chargés de recherche (A. Canteaut), Université Rennes 1 MC (M. Naya Plasencia), Université de Limoges PR (A. Canteaut)
- Inria Jury d’admission, Directeurs de recherche and Chargés de recherche (N. Sendrier)

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: A. Canteaut, *Stream ciphers*, 6 hours, M1, Telecom ParisTech, France;

Master: A. Canteaut, *Introduction to symmetric cryptography*, 7 hours, M1, Telecom ParisTech, France;

Master: A. Canteaut, *Error-correcting codes and applications to cryptology*, 11 hours, M2, University Paris-Diderot (MPRI), France;

Master: A. Chailloux, *Quantum computing*, 6 hours, M2, University Paris-Diderot (MPRI), France.

Master: N. Sendrier, *Code-based cryptography*, 4.5 hours, M2, University Paris-Diderot (MPRI), France;

Master: J.-P. Tillich, *Introduction to Information Theory*, 32 hours, M2, Ecole Polytechnique, France.

The members of the project-team also gave advanced lectures to summer schools for PhD students:

- *IACR School on Design and security of cryptographic algorithms and devices*, Sardinia, Italy, Oct. 18-23, 2015: A. Canteaut.

A. Canteaut, M. Naya-Plasencia and JP. Tillich gave several lectures on symmetric cryptography at Thales.

### 9.2.2. Supervision

PhD: Joëlle Roué, *Analysis of the resistance of block ciphers against linear and differential attacks*, University Pierre-et-Marie Curie, October 14, 2015, supervisor: A. Canteaut

PhD: Audrey Tixier, *Blind identification of error-correcting codes*, University Pierre-et-Marie Curie, October 14, 2015, supervisor: J.P. Tillich

PhD in progress: Virginie Lallemand, *Cryptanalysis for symmetric cryptography*, since October 2013, supervisors: M. Naya-Plasencia and A. Canteaut

PhD in progress: Julia Chaulet, *Study of public-key cryptosystems based on MDPC quasi-cyclic codes*, since February 2014, CIFRE convention with Thales, supervisor: N. Sendrier

PhD in progress: Kaushik Chakraborty, *Position-based Quantum Cryptography*, since October 2014, supervisors: A. Leverrier, J.P. Tillich

PhD in progress: Adrien Hauteville, *Rank-metric-based Cryptosystems*, since October 2014, supervisors: P. Gaborit (Univ. Limoges) and J.-P. Tillich

PhD in progress: Rodolfo Canto Torres, , since September 2015, supervisor: N. Sendrier

PhD in progress: Sébastien Duval, *Constructions for lightweight cryptography*, since October 2015, supervisor: A. Canteaut and G. Leurent

PhD in progress: Yann Rotella, *Finite fields and symmetric cryptography*, since October 2015, supervisor: A. Canteaut

### 9.2.3. Juries

- Martin M. Lauridsen, *Design and Analysis of Symmetric primitives*, Technical University of Denmark (DTU), October 26, 2015, committee: A. Canteaut (reviewer).
- Carl Löndahl, *Some Notes on Code-Based Cryptography*, Lund University, February 6, 2015, committee: N. Sendrier (opponent)
- Joëlle Roué, *Analysis of the resistance of block ciphers against linear and differential attacks*, University Pierre-et-Marie Curie, October 14, 2015, committee: A. Canteaut (supervisor), M. Naya Plasencia.
- Sylvain Ruhault, *Security Analysis for Pseudo-Random Number Generators*, École Normale Supérieure, June 30, 2015, committee: N. Sendrier
- Audrey Tixier, *Blind identification of error-correcting codes*, University Pierre-et-Marie Curie, October 14, 2015, committee: J.P. Tillich (supervisor), N. Sendrier
- Gaël Thomas, *Design and security analysis for constructions in symmetric cryptography*, University of Limoges, May 13, 2015, committee: A. Canteaut (chair).

## 9.3. Popularization

- André Chailloux published a paper in the general-audience journal *La Recherche*: Calcul quantique sans erreurs.
- Gaëtan Leurent took part to the radio program *Service Public*: "Mot de passe partout", France Inter, April 2015 <http://www.franceinter.fr/emission-service-public-mot-de-passe-partout>
- Anne Canteaut gave a talk on cryptography for female students in "Première" and "Terminale" attending the *Girls can code!* week organized at EPITA, August 24-29, 2015 <https://gcc.prologin.org/>.

## SPADES Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Alain Girault was general chair of the 10th International Federated Conference on Distributed Computing Techniques (DisCoTec'15), held in Grenoble in June 2015. <http://discotec2015.inria.fr>
- Jean-Bernard Stefani was the organization chair of the 7th Reversible Computation (RC'15) conference, held in Grenoble in July 2015. <http://www.reversible-computation.org/2015>

#### 9.1.1.2. Member of the organizing committees

- Jean-Bernard Stefani was organiser chair for the 10th International Federated Conference on Distributed Computing Techniques (DisCoTec'15), held in Grenoble in June 2015. <http://discotec2015.inria.fr>
- Sophie Quinton was workshops chair for the 10th International Federated Conference on Distributed Computing Techniques (DisCoTec'15), held in Grenoble in June 2015. <http://discotec2015.inria.fr>

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

- Alain Girault was technical program committee co-chair for the ACM/IEEE International Conference on Embedded Software (EMSOFT'15), held in Amsterdam in October 2015. <http://esweek.acm.org/esweek2015/emsoft>
- Jean-Bernard Stefani was program committee co-chair for the 5th Reversible Computation conference (RC'15), held in Grenoble in July 2015. <http://www.reversible-computation.org/2015>
- Sophie Quinton was co-chair of the 6th International Workshop on Analysis Tools and Methodologies for Embedded and Real-time Systems (WATERS'15), held in Lund in July 2015. <http://waters2015.inria.fr>

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

- Pascal Fradet served in the program committee of the 15th International Conference on Modularity (MODULARITY'16).
- Alain Girault served in the program committees of the International Conference on Design and Test in Europe (DATE'15), the Design Automation Conference (DAC'15), and the International Symposium on Industrial Embedded Systems (SIES'15).
- Gregor Gössler served in the program committee of the 10th International Federated Conference on Distributed Computing Techniques (FORTE'15).
- Sophie Quinton served in the program committees of the 27th Euromicro Conference on Real-Time Systems (ECRTS'15), the 20th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA'15), the 2nd International Workshop on Multi-Objective Many-Core Design (MOMAC'15), and the 3rd International Workshop on Mixed Criticality Systems (WMC'15).
- Jean-Bernard Stefani served in the program committee of the 12th International Colloquium on Theoretical Aspects of Computing (ICTAC'15).

#### 9.1.2.3. Reviewer

- Alain Girault reviewed an article for ECRTS'15.

- Gregor Gössler reviewed articles for ECRTS' 15
- Xavier Nicollin reviewed an article for DATE' 16.
- Sophie Quinton reviewed articles for DAC' 15, FORTE' 15, SIES' 15, DATE' 16.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- Alain Girault is a member of the editorial board of the EURASIP Journal on Embedded Systems.
- Jean-Bernard Stefani is a member of the editorial board of Annals of Telecommunications.

#### 9.1.3.2. Reviewer - Reviewing activities

- Pascal Fradet reviewed articles for LNCS Transactions on Aspect-Oriented Software Development.
- Alain Girault reviewed an article for the Journal on Advances in Signal Processing.
- Gregor Gössler reviewed articles for ACM Transactions on Embedded Computing Systems (TECS), Acta Informatica, and the EURASIP Journal on Embedded Systems.
- Sophie Quinton reviewed articles for the journal Real-time Systems and the Transactions on Design Automation of Electronic Systems,
- Jean-Bernard Stefani reviewed articles for Theoretical Computer Science.

### 9.1.4. Scientific expertise

- Alain Girault was reviewer for an ERC grant.

### 9.1.5. Research administration

- Pascal Fradet is head of the committee for doctoral studies (“Responsable du comité des études doctorales”) of the INRIA Grenoble – Rhône-Alpes research center.
- Alain Girault was head of science (“Délégué scientifique”) of the INRIA Grenoble – Rhône-Alpes research center until June 2015.
- Alain Girault has been Vice Chair of the INRIA Evaluation Committee since September 2015. As such, he co-organizes in particular the evaluation seminars of the INRIA teams (twice a year) and all the juries for the hiring and promotion of INRIA’s researchers (CR2, CR1, DR2, DR1, and DR0).
- Gregor Gössler has been leading a working group with the goal of fostering collaborations on the topic of formal methods for system design between the INRIA Grenoble – Rhône-Alpes research center and CEA Tech since September 2015.
- Jean-Bernard Stefani has been head of science of the INRIA Grenoble – Rhône-Alpes research center from July 2015. As such, he manages with the research center director all aspects of the scientific life of the research center (creation of the research teams and their evaluation by international panels, scientific relationships with our academic and industrial partners, hiring of the new junior researchers, ...).
- Jean-Bernard Stefani is co-director of I/O LAB, the joint research laboratory with Orange Lab.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Pascal Fradet, Théorie des Langages 1, 18 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Licence : Xavier Nicollin, Algorithmique et Structures de données 1, 22,5 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Licence : Xavier Nicollin, Théorie des Langages 2, 18 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Master : Jean-Bernard Stefani, Formal aspects of component software, 6h, MOSIG, Univ. Grenoble Alpes, France

### 9.2.2. Supervision

- PhD: Vagelis Bebelis, “Boolean Parametric Data Flow – Modeling – Analyses – Implementation”, Univ. Grenoble Alpes, defended on February 26th 2015, co-advised by Pascal Fradet and Alain Girault.
- PhD: Dmitry Burlyaev, “Design, Optimization, and Formal Verification of Circuit Fault-Tolerance Techniques”, Univ. Grenoble Alpes, defended on November 26th 2015, co-advised by Pascal Fradet and Alain Girault.
- PhD in progress: Yoann Geoffroy, “Towards a general causality analysis framework”, Univ. Grenoble Alpes, since October 2013, advised by Gregor Gössler.
- PhD in progress: Christophe Prévot, “Early Performance assessment for evolving and variable Cyber-Physical Systems”, Univ. Grenoble Alpes, since November 2015, advised by Alain Girault and Sophie Quinton.

### 9.2.3. Juries

- Alain Girault was member of the PhD jury of Paul-Antoine Arras (Univ. Bordeaux).
- Alain Girault was referee for the PhD of Julien Heulot (INSA Rennes).
- Jean-Bernard Stefani was president of the PhD jury of Jakub Zwolakowski (U. Paris-Diderot).
- Jean-Bernard Stefani was member of the HDR jury of Philippe Merle (U. Lille).
- Jean-Bernard Stefani was referee for the HDR of Luc Fabresse (U. Lille).
- Jean-Bernard Stefani was referee for the PhD of Vincent Lanore (ENS Lyon).
- Sophie Quinton was member of the jury for a “Maître de Conférences” position in Nancy.

## 9.3. Popularization

Gregor Gössler was the scientific organizer of an In’Tech seminar on *Embedded systems and liability. Failures, accidents: who’s to blame*<sup>0</sup> featuring seven invited speakers and a panel. Led by the INRIA Grenoble - Rhône-Alpes research centre, the In’Tech seminars strive to offer an opportunity for SMEs, industrial operators and researchers to come together, thus promoting technology monitoring and the exchange of information among the various participants in the development of the region’s Information Sciences and Technologies.

---

<sup>0</sup><http://www.inria.fr/centre/grenoble/actualites/logiciel-embarque-et-responsabilite>

## **SPECFUN Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. Member of the organizing committees*

- A. Bostan has served in the organizing committee of the *Journées Nationales de Calcul Formel* (JNCF 2015), the annual meeting of the French computer algebra community.
- A. Mahboubi has served in the organizing and scientific committees of *Mathematics, Algorithms and Proofs* (MAP 2016).

### **9.1.2. Scientific events selection**

#### *9.1.2.1. Member of the conference program committees*

- A. Bostan is part of the Scientific advisory board of the conference series *Conference on Effective Methods in Algebraic Geometry* (MEGA).
- F. Chyzak has served as a conference program committee member for the *Conference on Intelligent Computer Mathematics* (CICM 2015).
- A. Mahboubi has served as a program committee member for the *25th International Conference on Automated Deduction* (CADE 25).
- A. Mahboubi has served as a program committee member for the *21st International Conference on Types for Proofs and Programs* (TYPES 2015).
- A. Mahboubi has served as a program committee member for the *Workshop on Logical Frameworks and Meta-Languages: Theory and Practice* (LFMTP 2015).

#### *9.1.2.2. Reviewer*

- A. Bostan has served as reviewer for the *International Symposium on Symbolic and Algebraic Computation* (ISSAC 2015).
- F. Chyzak has served as reviewer for the *International Symposium on Symbolic and Algebraic Computation* (ISSAC 2015).
- A. Mahboubi has served as reviewer for the international conferences *NASA Formal Methods Symposium* (NFM 2015), *Certified Programs and Proofs* (CPP 2015), *Typed Lambda Calculi and Applications* (TLCA 2015), *Conference on Intelligent Computer Mathematics* (CICM 2015) and for the national conference *Journées Nationales des Langages Applicatifs* (JFLA 2015).
- Th. Sibut-Pinote has served as reviewer for the *International Conference on Automated Deduction* (CADE 2015).

### **9.1.3. Journal**

#### *9.1.3.1. Reviewer - Reviewing activities*

- A. Bostan has served as reviewer for the *Journal of Symbolic Computation*, the *Journal of Complexity and Applicable Algebra in Engineering, Communication and Computing*.
- F. Chyzak has served several times as a reviewer for the *Journal of Symbolic Computation*.
- A. Mahboubi has served as a reviewer for the *Journal of Formalized Reasoning* and several times for *Journal of Automated Reasoning*.

### **9.1.4. Invited talks**

- A. Bostan has given an invited 3-hours lecture at the Séminaire Lotharingien de Combinatoire in Ellwangen, Germany (March 2015) and another 3-hours lecture at the *SFB-Workshop on Restricted Lattice Walks* in RISC, Hagenberg, Austria (May 2015).
- A. Bostan has given an invited talk in the conference *Automatic Sequences, Number Theory, and Aperiodic Order*, held at the Technical University of Delft, Netherlands (Oct 2015).
- A. Bostan has given a talk during the *Thematic Program on Computer Algebra* (Fields Institute, Toronto, Canada, September 2015).
- F. Chyzak has given a number of talks on his ongoing work (joint with A. Bostan of the team) on obtaining hypergeometric closed-form expressions in the enumerative combinatorics of walks: *Functional Equations in Limoges* (Limoges, March 2015), *Thematic Program on Computer Algebra* (Fields Institute, Toronto, Canada, September 2015), *Séminaire Philippe Flajolet* (Institut Henri Poincaré, Paris, October 2015).
- A. Mahboubi has given an invited talk common to the conferences *14th Asian Logic Conference* (ALC 15) and *6th Indian Conference on Logic and its Application* (ICLA 15), in Mumbai, India (January 2015).
- A. Mahboubi has given an invited talk to the Workshop on Homotopy Type Theory / Univalent Foundations, satellite of the International Conference on Rewriting, Deduction, and Programming, in Warsaw, Poland (July 2015).
- A. Mahboubi has given a talk during the *Thematic Program on Computer Algebra* (Fields Institute, Toronto, Canada, December 2015).

### 9.1.5. Scientific expertise

- F. Chyzak is member of the steering committee of the *Journées Nationales de Calcul Formel* (JNCF 2015), the annual meeting of the French computer algebra community.
- A. Mahboubi has been nominated as a member of the management committee the COST action EUTYPES (CA15123) *The European research network on types for programming and verification*, coordinated by Herman Geuvers.

### 9.1.6. Research administration

- A. Mahboubi is a member of the *Commission Scientifique* of the Inria–Saclay–Île-de-France center.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: A. Bostan, *Algorithmes efficaces en calcul formel*, 18h, M2, MPRI, France

Master: F. Chyzak, *Algorithmes efficaces en calcul formel*, 4.5h, M2, MPRI, France

Master: A. Mahboubi, *Assistants de preuve*, 18h, M2, MPRI, France

License: L. Dumont, various courses, 64h, Université Paris-Sud, France.

License: Th. Sibut-Pinote, various courses, 64h, École Polytechnique, France.

### 9.2.2. Supervision

- PhD in progress: L. Dumont, *Algorithmique efficace pour les diagonales, applications en combinatoire, physique et théorie des nombres*, École Polytechnique, started in September 2013, supervised by A. Bostan and B. Salvy.
- PhD in progress: Th. Sibut-Pinote, *Calcul numérique et démonstrations mathématiques, de la rigueur à la preuve formelle*, École Polytechnique, started in September 2014, supervised by A. Mahboubi.

- Master internship in progress (M1): G. Boisseau and Th. Huffschmitt, *Combination of decision procedures in presence of meta-variables*, École Polytechnique, supervised by A. Mahboubi (jointly with S. Graham-Lengrand from LIX).

### **9.2.3. Juries**

- A. Bostan has served as a jury member of the French *Agrégation de Mathématiques – épreuve de modélisation, option C*.
- A. Bostan has served as an examiner in the PhD jury of Cuang Tran, *Calcul formel dans la base des polynômes unitaires de Chebyshev*, Université Paris 6, October 9, 2015.
- F. Chyzak has served as an examiner in the PhD jury of Suzy Maddah, *Formal Reduction of Differential Systems*, Université de Limoges, September 25, 2015.
- A. Mahboubi has served as an examiner in the half-way PhD defense of Pierre Boutry, *Learning environment for interactive proof in geometry*, University of Strasbourg, June 15th, 2015.

### **9.3. Popularization**

- A. Bostan has published, together with Kilian Raschel, a popularization article titled *Compter les excursions sur un échiquier* in the popular science magazine *Pour la Science*, the French version of the *Scientific American*.



## SUMO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Nathalie Bertrand is an elected steering committee member for the international conference QEST (Quantitative Evaluation of Systems).

Thierry Jérón is member of the steering committee of the european summer school MOVEP (Modélisation et Vérification des Systèmes Parallèles). The next edition will take place in Genova in July 2016.

Hervé Marchand is member of the IFAC Technical Committees (TC 1.3 on Discrete Event and Hybrid Systems) since 2005. He is member of the steering committee of MSR (Modélisation de systèmes réactifs).

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

Éric Badouel was Scientific President of CRI 2015 (Yaoundé)

Nathalie Bertrand was co-chair of the international workshop QAPL'15 with Mirco Tribastone.

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

Éric Badouel was PC member of ATAED 2016 (Brussel).

Nathalie Bertrand was PC member of the following international conferences: Formats'15, ICLA'15, QEST'15, TACAS'15.

Loïc Hérouët was member of the program committee of ACSD 2015 (Approaches of Concurrency for Systems Design, Brussels june 2015) and SDL 2015 (System Design Languages, Berlin, 2015).

Thierry Jérón was PC member of the following international conferences: ICTSS'15, TAP'15, USE'15, RV'16.

Hervé Marchand was PC member of the DCDS 2015 and MSR 2015 conferences.

#### 10.1.2.3. Reviewer

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

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Éric Badouel is Editor in Chief of ARIMA Journal.

#### 10.1.3.2. Reviewer - Reviewing activities

Éric Badouel was a reviewer for Science of Computer Programming, Fundamenta Informaticae and Mathematical Review.

Nathalie Bertrand acted as a reviewer for Journal of the ACM, Formal Methods in System Design, Information and Computation.

Éric Fabre reviewed submissions to IEEE TAC, Automatica, J. of Discrete Event Dynamic Systems, IEEE Trans. on Automation Sciences and Engineering.

Loïc Hérouët was a reviewer for Formal aspects of computing and Theoretical Computer Science.

Hervé Marchand was reviewer for JDEDS and for the Annual Reviews in Control.

Christophe Morvan was a reviewer for Journal of Computer and System Sciences and for IEEE Transactions on Automatic Control.

Ocan Sankur was a reviewer for Theoretical Computer Science, Logical Methods in Computer Science, Science of Computer Programming and Formal Methods in System Design

#### 10.1.4. Invited talks

Nathalie Bertrand gave an invited talk at Gandalf 2015, and at MSR 2015. She gave a lecture on Controlling probabilistic systems under partial information at the EJCIM (École jeunes chercheurs Informatique Mathématiques) in april 2015. See the lecture notes [45].

Thierry Jérón and Ocan Sankur both gave lectures at ETR'15 (Ecole temps réel) in Septembre 2015, respectively on "Model-based conformance test generation for timed systems", and "Control of timed systems".

#### 10.1.5. Scientific expertise

Éric Fabre serves as expert for the Minsitry of Research, for the Credit Impot Recherche, a tax-reduction programme for research activities performed by private companies. He was solicited for 4 companies in 2015.

Loïc Hérouët acted as reviewer for the ANR.

Thierry Jérón was reviewer for the CHIST-ERA consortium and for a NSERC Discovery Grant proposal (Canada).

#### 10.1.6. Research administration

Éric Badouel is secretary of the Permanent Committee of CARI, co-Director of LIRIMA, and the Scientific Manager for Africa and Middle-East region at Inria DPEI.

Nathalie Bertrand is secretary and committee member of Gilles Kahn PhD prize.

Éric Fabre is the co-director, with Olivier Audouin, of the joint research lab of Alcatel-Lucent Bell Labs and Inria.

Loïc Hérouët and Éric Fabre are members of the Scientific Board of the joint lab of Alstom Transport and Inria.

Loïc Hérouët was *réfèrent chercheur* for the Inria Rennes research center.

Thierry Jérón was Vice Scientific Delegate of the Inria Rennes research center and member of the Inria Evaluation Committee until 09/2015. This year he was member of the following Inria hiring committees: junior scientists (CR2) at Lille, starting and advanced senior research positions (ARP, SRP), and senior scientists (DR2). He is also member of the IFIP Working Group 10.2 on Embedded Systems and member of the Management Committee (substitute) of the COST IC1402 (ARVI: Runtime Verification beyond Monitoring). He is member of the COS Prospective of Irisa Rennes.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### Nathalie Bertrand

Agreg: Responsible of computer science organization, 16h (eq. TD), M2, Ecole Normale Supérieure de Rennes, France.

L3: Lecture on Algorithms, 18h (eq. TD), L3, University Rennes 1, France.

#### Éric Fabre

Master : "ASR: introduction to distributed systems and algorithms," 12h, M2, Univ. Rennes 1, France.

Master : "Information theory," 15h, M1, Ecole Normale Supérieure de Bretagne, France.

Master : Preparation of Aggregation, 6h, M1, Ecole Normale Supérieure de Bretagne, France.

**Blaise Genest**

Master: Advanced verification techniques, M2 in Computer Science, Université Rennes I, 10h.

**Loïc Hérouët**

Licence: JAVA and algorithmics at INSA de Rennes for students in the second year of engineer cycle. He also supervises practical studies (development of a small project by students under the supervision of two teachers).

Agreg: algorithmics at ENS Rennes (8 hours / year).

**Éric Fabre, Loïc Hérouët, Hervé Marchand**

Master: supervised 3 students from ENS Rennes at the M1 level during 6 month. (2 hours/ week during 6 months)

**Christophe Morvan**

Licence: Compilation, System, Advanced Algorithmics Université de Paris-Est, Marne-la-Vallée, France.

**10.2.2. Supervision**

HdR: Nathalie Bertrand, “Contributions to the verification and control of timed and probabilistic models”, University Rennes I, November 16, 2015.

PhD:

Paulin Fournier, “Parameterized verification of networks of many identical processes”, Université Rennes I, December 17, 2015, Supervisors: Nathalie Bertrand, Thierry Jéron, Arnaud Sangnier (LIAFA).

Srinivas Pinisetty, “Runtime Enforcement of Timed Properties”, Université Rennes I, January 23, 2015, Supervisors: Thierry Jéron, Hervé Marchand, Yliès Falcone (LIG).

PhD in progress:

Karim Kecir (2015-2018, CIFRE thesis): “Régulation et robustesse des systèmes ferroviaires urbains”, Université Rennes I, Supervisor: Loïc Hérouët.

Matthieu Pichené (2014-2017): “Stochastic models for the modelling of apoptosis”, Université Rennes I, Supervisor: Blaise Genest.

Engel Lefauchaux (2015-2018): “Information control in probabilistic systems”, Université Rennes I, Supervisors: Nathalie Bertrand, Serge Haddad (LSV, ENS Cachan).

**10.2.3. Juries**

Éric Badouel was opponent of the Doctoral Thesis of Abel Armas-Cervantès, “Diagnosing Behavioural Differences Between Business Process Models”, University of Tartu, Estonia, August 2015.

Nathalie Bertrand was member of the PhD defense committee of Nathanaël Fijalkow, *Counting and Randomising in Automata Theory*, Université Paris VII, 15/10/2015.

Éric Fabre was in the mid-term jury of 4 PhD students of Telecom Bretagne.

Thierry Jéron was member of the Habilitation defense committee of Nathalie Bertrand, University Rennes I, November 16, 2015 (see above), and president of the PhD defense committee of Abderahman Kriouile, Université de Grenoble, September 17, 2015. He was also in the mid-term PhD jury of Mouna Hkimi (Supélec Rennes).

Hervé Marchand was Member of the PhD Defense of Johan Girault « Conception formelle du pilotage d’une flotte de robots mobiles », Ecole centrale de Nantes, November 2015.

## TASC Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events selection

#### 10.1.1.1. Chair of conference program committees

- **Nicolas Beldiceanu**: Sixth International Workshop on Bin Packing and Placement Constraints.

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

- **Nicolas Beldiceanu**: Member of the senior program committee of **CP 2015**.
- **Nicolas Beldiceanu**: Member of the program committee of **CP 2016**.
- **Nicolas Beldiceanu**: Member of the senior program committee of **CPAIOR 2015**.
- **Nicolas Beldiceanu**: Member of the senior program committee of **CPAIOR 2016**.
- **Nicolas Beldiceanu**: Member of the program committee of **IJCAI 2015**.
- **Xavier Lorca**: Member of the program committee of **IJCAI 2015**.
- **Xavier Lorca**: Member of the program committee of **CP 2015**.
- **Xavier Lorca**: Member of the program committee of **ROADEF 2015**.
- **Xavier Lorca**: Member of the program committee of **ROADEF 2016**.
- **Eric Monfroy**: Track chair de **ACM-SAC 2015** CSP track.
- **Eric Monfroy**: Member of the program committee of **Evocop 2015**.
- **Eric Monfroy**: Member of the program committee of **Evocop 2016**.
- **Eric Monfroy**: Member of the program committee of **IJCAI 2015**.
- **Eric Monfroy**: Member of the program committee of **ICTAI 2015**, special track on SAT and CSP.
- **Eric Monfroy**: Member of the program committee of **JFPC 2015**.
- **Florian Richoux**: Member of the program committee of **LION 9**.
- **Florian Richoux**: Member of the program committee of **SAC 2015**.
- **Florian Richoux**: **Journé Jeux Vidéo and Intelligence Artificielle 2015**.

#### 10.1.1.3. Reviewer

- **Nicolas Beldiceanu**, reviewer at **CPAIOR 2015**.
- **Nicolas Beldiceanu**, reviewer at **CP 2015**.
- **Nicolas Beldiceanu**, reviewer at **CPAIOR 2016**.
- **Nicolas Beldiceanu** reviewer at **AAAI 2016**.
- **Florian Richoux** reviewer at **IEEE Transactions on Comp. Int. and AI in Games**.
- **Florian Richoux** reviewer at **AIIDE 2015** (Artificial Intelligence and Interactive Digital Entertainment).
- **Florian Richoux** reviewer at Artificial Intelligence in Adversarial Real-Time Games workshop associated to **AIIDE 2015**.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial boards

- **Nicolas Beldiceanu**, **Constraints** (Springer).

- **Thierry Petit**, *Constraints* (Springer).
- **Florian Richoux**, *Encyclopedia of Computer Graphics and Games* (Springer).
- **Charlotte Truchet**, blog *Binaire* of *lemonde*.

#### 10.1.2.2. Reviewer - Reviewing activities

- **Xavier Lorca** reviewer at **AIJ**.
- **Xavier Lorca** reviewer at **Constraints** (Springer).
- **Xavier Lorca** reviewer at **RAIRO**.

#### 10.1.3. Invited talks

- **Florian Richoux** *Feedback on IA competitions in the context of games*. Workshop PFIA 2015, Jeux Vidéo and IA, July 2015, Inria Rennes (France).
- **Florian Richoux** *Antagonist IA for Win That War !*, workshop PFIA 2015, Jeux Vidéo and IA, July 2015, Inria Rennes (France).

#### 10.1.4. Leadership within the scientific community

**Xavier Lorca** is the co-head of the **OR and Constraints** working group.

#### 10.1.5. Research administration

Within the forthcoming research unit *UMR LS2N* **Xavier Lorca** is the co-head of the cluster *Data Science and Decision* that group together seven research teams.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Master: **Nicolas Beldiceanu**, Constraint (**Master ORO**), 30h, M2, **Nantes University**, France.
- Master: **Nicolas Beldiceanu**, Logic Programming, 32h, M2, **Mines Nantes**, France.
- Master: **Nicolas Beldiceanu**, Gipad end project, 8h, M2, **Mines Nantes**, France.
- Licence: **Nicolas Beldiceanu**, Programming with Java, 42h, L3, **Mines Nantes**, France.
- Licence: **Nicolas Beldiceanu**, Automata, 12h, L3, **Mines Nantes**, France.
- Licence: **Nicolas Beldiceanu**, IPIPIP project, 12h, L1, **Mines Nantes**, France.
- Licence: **Gilles Chabert**, Variational calculus, 12h, L3, **Mines Nantes**, France.
- Licence: **Gilles Chabert**, Numerical methods, 21h, L3, **Mines Nantes**, France.
- Master: **Gilles Chabert**, Project Supervision, L3, Master 1 and Master2, **Mines Nantes**, France.
- Master: **Gilles Chabert**, Non-linear optimization, 20h, M1, **Mines Nantes**, France.
- Master: **Gilles Chabert**, Non-linear optimization, 24h, M1, **Nantes University**, France.
- Master: **Gilles Chabert**, Non-linear programming, 20h, M2, **Mines Nantes**, France.
- Licence: **Xavier Lorca**, Software engineering and miscellaneous, 30h, **Mines Nantes**, France.
- Master: **Xavier Lorca** In charge of the organisation of the Gipad specialty (coordinating 12 modules of 45h each).
- Master: **Xavier Lorca** Gipad (Graph and Algorithms, Artificial Intelligence and Constraint Programming, Decision Analytics, Data Visualisation, Architecture of Computer System and Software), 100h, **Mines Nantes**, France.
- Licence, Master: **Eric Monfroy**, Head of the computer science department, **Nantes University**, France.
- Licence: **Eric Monfroy**, Logic, L2 **Nantes University**, France.
- Licence: **Eric Monfroy**, Computer Architecture, L3 **Nantes University**, France.

Licence: **Eric Monfroy**, Computability theory and foundations, L3 **Nantes University**, France.

Master: **Eric Monfroy**, Modelling with constraints, (Master ORO), M1, **Nantes University**, France.

Licence: **Florian Richoux**, Algorithm and data structures, L2, **Nantes University**, France.

Licence: **Florian Richoux**, Object programming and design patterns, L3, **Nantes University**, France.

Licence: **Florian Richoux**, Operation Research, exercises and practice, L3, **Nantes University**, France.

Master: **Florian Richoux**, Machine Learning, exercises and practice (Master ATAL), M1, **Nantes University**, France.

Master: **Florian Richoux**, Constraint programming (Master ORO), M1, **Nantes University**, France.

Licence: **Charlotte Truchet**, 192h, L1, **Nantes University**, France.

### 10.2.2. Supervision

PhD : **Alban Derrien**, Cumulative scheduling in constraint programming (energetic characterization of reasoning and robust solutions), **Mines Nantes**, November 27 2015, **Thierry Petit** and **Nicolas Beldiceanu**.

PhD in progress : **Ignacio Salas Donoso**, Packing curved shapes, May 2013, **Gilles Chabert** and **Nicolas Beldiceanu**.

PhD in progress : **Gilles Madi Wamba**, Mixing constraint programming and behavioural models to manage energy consumption in data centre, October 2014, **Nicolas Beldiceanu** and **Didier Lime**.

PhD in progress : **Alejandro Reyes Amaro**, Toward autonomous parallel algorithms for constraint-based problems, October 2014, **Eric Monfroy** and **Florian Richoux**.

PhD in progress : **Anicet Bart**, Solving mixed constraints, application to the management of mobile sensors, October 2014, **Eric Monfroy** and **Charlotte Truchet**.

PhD in progress : **Ekaterina Arafailova**, Functional constraints, September 2015, **Nicolas Beldiceanu** and **Rémi Douence**.

PhD in progress : **Nicolas Galvez**, Hybrid Algorithms for Search Based Software Engineering, December 2014, **Eric Monfroy** with **Frédéric Saubion** from Angers University and **C. Castro** from UTFSM Valparaiso, Chili.

PhD in progress : **Léopold Houdin**, Set-based algorithms for characterizing limit cycles in bio-inspired robotics, October 2015, **Frédéric Boyer**, **Gilles Chabert**, **Alexandre Goldsztejn**.

Master thesis : Ekaterina Arafailova (February-June 2015), *reformulation of automata with accumulators as linear programs*, **Nicolas Beldiceanu**.

Master thesis : Julien Fradin (February-June 2015), *extensions to the GHOST library*, **Florian Richoux**.

Master thesis : Adrien Bodineau (January-April 2015), *extensions to the GHOST library*, **Florian Richoux**.

Internship : Guillaume Legru (April-May 2015), *IA for combat games*, **Florian Richoux**.

### 10.2.3. Juries

- **Nicolas Beldiceanu**, Member of the committee of the PhD of **Alban Derrien**, Cumulative scheduling in constraint programming (energetic characterization of reasoning and robust solutions), **Mines Nantes**, November 27 2015.
- **Nicolas Beldiceanu**, Member of the committee of the PhD of **Haykel Boukadida**, Automatic creation of video summarisation with constraint programming, **Rennes University**, December 4 2015.
- **Xavier Lorca**, Member of the committee of the PhD of **Alban Derrien**, Cumulative scheduling in constraint programming (energetic characterization of reasoning and robust solutions), **Mines Nantes**, November 27 2015.

- **Xavier Lorca**, Member of the committee of the PhD of **Nebras Gharbi**, Compression and parallelisation in CSP, **Lens University**, December 4 2015.
- **Xavier Lorca**, Member of the committee of the PhD of **Mohammed Rezgui**, Parallelism in constraint programming, **Nice University**, July 7 2015.
- **Eric Monfroy**, Member of the committee of the PhD of **Roberto Amadini**, Portfolio Approaches in Constraint Programming, **Bologna University**, June 4 2015.
- **Thierry Petit**, Member of the committee of the PhD of **Alban Derrien**, Cumulative scheduling in constraint programming (energetic characterization of reasoning and robust solutions), **Mines Nantes**, November 27 2015.

### 10.3. Popularization

- A the 2015 edition of the **Fête de la Science (Nantes University)**:
  - A workshop around *Software for sound processing in the context of the R2D2 robot* was given by **Charlotte Truchet**.
  - One talk on *Travel to the land of dreams : lands, monsters and fairies* was given by **Nicolas Beldiceanu**.
  - Two sessions discussing and answering questions around the work of professor and researcher in computer science with young persons (18 years old) was spent by **Nicolas Beldiceanu** and **Florian Richoux**.
- **Charlotte Truchet** wrote an **article** regarding *women in computer science*.
- **Interview** for the WebTV FranceLive on AI and games in November 2015 by **Florian Richoux**.
- **Interview** for **Nantes University** regarding the collaboration of **Florian Richoux** with **Facebook** in summer 2015.
- Interview of **Florian Richoux** in the Thinkovery magazine (number 3, April-May-June 2015) regarding Artificial Intelligence in Games.
- **Interview** of **Florian Richoux** in Rue89 in March 2015 regarding works of **Google DeepMind** around the Atari game.

## TEA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Jean-Pierre Talpin is a member of the steering committee of the ACM-IEEE Conference on Methods and Models for System Design (MEMOCODE).

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

Jean-Pierre Talpin co-chaired the AVICPS'15 workshop at RTSS'15

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

Jean-Pierre Talpin served the program committee of:

- MEMOCODE'15, 13th ACM-IEEE International Conference on Formal Methods and Models for System Design
- ACVI'15, 2nd Workshop Architecture Centric Virtual Integration
- AVICPS'15, 5th Analytic Virtual Integration of Cyber-Physical Systems Workshop
- FACS'15, 12th International Conference on Formal Aspects of Component Software
- FTSCS'15, 8th International Workshop on Formal Techniques for Safety-Critical Systems
- ICESS'15, 12th International Conference on Embedded Software and Systems
- SCOPES'15, 18th International Workshop on Software and Compilers for Embedded Systems
- SAC'15, 30th ACM/SIGAPP Symposium on Applied Computing

Thierry Gautier served as program committee member for the 2015 Electronic System Level Synthesis Conference, ESLsyn 2015 (<http://ecsi.org/eslsyn>).

#### 10.1.2.3. reviewer

Thierry Gautier reviewed for ICCAD 2015 and MEMOCODE 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Jean-Pierre Talpin is Associate Editor with the ACM Transactions for Embedded Computing Systems (TECS), with the Springer journal on Frontiers of Computer Science (FCS), and with the EURASIP journal of embedded systems (JES).

Jean-Pierre Talpin was Guest Editor of two special issues of the ACM TECS on *Architecture-Centric Virtual Integration* and on *Formal Methods for System Design*.

#### 10.1.3.2. reviewer

Jean-Pierre Talpin reviewed articles for Acta Informatica.

Thierry Gautier reviewed for Frontiers of Computer Science.

### 10.1.4. Invited talks

Jean-Pierre Talpin gave a lecture on "Sémantique formelle de modèles d'architecture" at the Ecole temps-réel 2015 in Rennes



### **10.1.5. Scientific expertise**

Jean-Pierre Talpin is co-author with Huafeng Yu and Sandeep Shukla of two patents filed with the USPTO:

- T1834.10134US01 – A timing-oriented and architecture-centric system design using contracts
- T1834.10131US01 – Bottom-up approach for integrating models for software components using contracts

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

### **10.2.1. Supervision**

- Jean-Pierre Talpin is the supervisor of Simon Lunel's thesis on "*Timed contract algebras for correct by construction real-time system design*" and co-supervisor of Imré Frotier de la Mésselière with Mines ParisTech until June 2015.

### **10.2.2. Juries**

Jean-Pierre Talpin served as Referee (rapporteur) for the HDR Thesis defense of Claire Paggetti , entitled "*Programmation sûre de plates-formes embarquées de type multi/pluri-cœurs*".

Jean-Pierre Talpin served as Referee (rapporteur) for the PhD. Thesis Defence of

- Elie Richa, Telecom ParisTech, entitled "*Qualification of Source Code Generators in the Avionics Domain : Automated Testing of Model Transformation Chains*".
- Ahlem Triki, Université de Grenoble , entitled "*Distributed Implementations of Timed Component-based Systems*".
- Yu Bai, TU Kaiserslautern , entitled "*Model-based Design of Embedded Systems by Desynchronization*".

## TOCCATA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- S. Conchon is the program committee co-Chair of ICFEM 2015 (CNAM, Paris, 3-6 November 2015). <http://icfem2015.lri.fr>.
- A. Charguéraud is the organizer of the 2nd International Workshop on Coq for Programming Languages, co-located with POPL, January 23rd 2016. <http://conf.researchr.org/home/CoqPL-2016>.
- A. Paskevich is the co-organizer of the 4th international workshop on Proof eXchange for Theorem Proving (PxTP 2015), affiliated with CADE-25 (August 2-3, 2015, Berlin, Germany).

#### 10.1.1.2. Member of the organizing committees

- S. Boldo and G. Melquiond are members of the organizing committee for the 22nd IEEE Symposium on Computer Arithmetic (ARITH 2015), held in Lyon in June 2015.
- G. Melquiond is a member of the organizing committee for the 23rd IEEE Symposium on Computer Arithmetic (ARITH 23), held in Santa Clara, CA, USA in July 2016.
- S. Conchon is a member of the organizing committee for ICFEM 2015, CNAM, Paris, 3-6 November 2015. <http://icfem2015.lri.fr>.
- S. Conchon is local chair for the 44th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL 2017), held in Paris, France in January 2017.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- A. Charguéraud is program chair for the 2nd International Workshop on Coq for Programming Languages, co-located with POPL, January 23rd 2016. <http://conf.researchr.org/home/CoqPL-2016>.
- A. Paskevich is the co-chair of the 4th international workshop on Proof eXchange for Theorem Proving (PxTP 2015), affiliated with CADE-25 (August 2-3, 2015, Berlin, Germany).

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

- S. Boldo is a member of the program committee of the 26th Journées Francophones des Langues Applicatifs (JFLA 2015).
- S. Boldo is a member of the program committee of the 8th International Workshop on Numerical Software Verification (NSV-8).
- S. Boldo is a member of the program committee of the 22nd IEEE Symposium on Computer Arithmetic (ARITH 2015).
- S. Boldo is a member of the program committee of the 27th Journées Francophones des Langues Applicatifs (JFLA 2016).
- S. Boldo is a member of the program committee of the 23rd IEEE Symposium on Computer Arithmetic (ARITH 2016).
- A. Charguéraud is a member of the program committee for the 25th European Symposium on Programming (ESOP), to be held in April 2016, <http://www.etaps.org/index.php/2016/esop>.
- A. Paskevich is a member of the program committee of the 20th International Symposium on Formal Methods (FM 2015).

- C. Paulin is a member of the program committee of the 4th ACM-SIGPLAN Conference on Certified Programs and Proofs (CPP 2015, colocated with POPL 2015).
- C. Paulin is a member of the program committee of the conference on Mathematics of Program Construction (MPC 2015).
- C. Paulin is a member of the program committee of the 21st International Conference on Types for Proofs and Programs (Types 2015).
- C. Paulin is a member of the program committee of the 20th International Conferences on Logic for Programming, Artificial Intelligence and Reasoning (LPAR-20).
- C. Paulin is a member of the program committee of the 31st Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 2016).
- C. Paulin is a member of the program committee of the 7th International Conference on Interactive Theorem Proving (ITP 2016).

#### 10.1.2.3. Reviewer

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

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- G. Melquiond is a member of the editorial board of *Reliable Computing*.
- S. Boldo is member of the editorial committee of the popular science web site “i()”: <http://interstices.info/>.
- S. Boldo is member of the editorial board of Binaire <http://binaire.blog.lemonde.fr>, the blog of the French Computer Science Society.
- J.-C. Filiâtre is member of the editorial board of the *Journal of Functional Programming*.
- C. Paulin is member of the editorial board of the *Journal of Formalized Reasoning*.

#### 10.1.3.2. Reviewer - Reviewing activities

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

### 10.1.4. Invited talks

- S. Boldo was speaker in a panel at the 2015 congress of the French Computer Science Society, on February 4th in Orléans. The panel was about stereotypes and academic orientation of girls.
- S. Boldo gave a talk at the French-Japanese Workshop on Numerical Computations in Paris, on March 25th.
- S. Boldo gave several invited talks in French laboratories: for the Deducteam team (Inria Paris - Rocquencourt) on March 27th, for the Pequan team (UPMC, Paris) on November 30th, at the Digicosme Research Days on March 23rd.
- A. Charguéraud was invited to teach at the Spring School in Theoretical Computer Science, entitled “Mechanizing proofs of programs”, June 26th, <http://www.epit2015.website/>
- C. Marché, “An History of Frama-C”, Frama-C Day, CEA LIST, March 13th, 2015, <http://frama-c.com/framaCDay.html>
- G. Melquiond, “Formal verification of a floating-point elementary function”, ARITH 22 tutorials, June 25th, 2015, <http://www.ens-lyon.fr/LIP/AriC/tutorials-june-25-2015>.
- C. Paulin gave a talk “Langages and systems for interactive proofs” at Collège de France as part of the seminar “Proving programs : why, when and how ?” organised by Gérard Berry <http://www.college-de-france.fr/site/gerard-berry/seminar-2015-03-18-17h30.htm>.
- C. Paulin was invited by FRAE (Fondation de Recherche pour l’Aéronautique et l’Espace, <http://www.fnrae.org/>) to contribute to a panel discussion on how to master complex systems.

- C. Paulin was invited to give a presentation at the Ecole Jeunes Chercheurs Informatique Mathématique (EJCIM 2015, <http://www.univ-orleans.fr/lifo/evenements/EJCIM2015/>) on the Coq proof assistant.

#### **10.1.5. Leadership within the scientific community**

- C. Paulin, scientific leader of Labex DigiCosme <http://labex-digicosme.fr> (Digital Worlds: distributed data, programs and architectures), a project launched by the French Ministry of research and higher education as part of the program “Investissements d’avenir”, it involves the 14 research units in computer science and communications from the “Paris-Saclay” cluster.
- É. Contejean, leader of the VALS team of LRI since February 2014.

#### **10.1.6. Scientific expertise**

- S. Boldo, member of the reviewing board for the ANR (first and second step in 2015, first step in 2016).
- S. Boldo, member of the 2015 committee for the Gilles Kahn PhD award of the French Computer Science Society.
- S. Conchon and A. Paskevich, members of the “*commission consultative de spécialistes de l’université*”, Section 27, University Paris-Sud since December 2014.
- É. Contejean, elected member of the “*section 6 du Comité National de la Recherche Scientifique*” since September 2012.
- C. Marché, member of the “*jury de l’agrégation externe de mathématiques*” as expert in computer science, since 2012.
- C. Marché, president of the evaluation committee of the joint Digiteo-DigiCosme call for projects <https://digicosme.lri.fr/AAPDigiteoDigiCosme2015>. The committee selected 16 thesis projects for funding, among 52 submissions. The committee also selected to support 6 scientific events in the Île-de-France region.
- C. Marché, A. Paskevich, reviewer for the ANR (second step in 2015).

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

- S. Boldo, member of the CCD, *commission consultative des doctorants*.
- S. Boldo, member of the CLFP, *comité local de formation permanente*.
- S. Boldo, scientific head for Saclay for the MECSI group for networking about computer science popularization inside Inria.
- A. Charguéraud is vice-president of *France-ioi*, a non-profit organization in charge of the selection and the training of the French team to the International Olympiads in Informatics (IOI). France-ioi also provides online exercises in programming and algorithmics—in average, over 70,000 such exercises are solved every month on the website.
- A. Charguéraud is a board member of the non-profit organization *Animath*, which aims at developing interest in mathematics among young students.
- A. Charguéraud and G. Melquiond are members of the committee for the monitoring of PhD students (“*commission de suivi des doctorants*”).
- J.-C. Filliâtre is *correcteur au concours d’entrée à l’École Polytechnique et aux ENS* (computer science examiner for the entrance exam at École Polytechnique and Écoles Normales Supérieures) since 2008.
- C. Marché, director of the ProofInUse Joint Laboratory between Inria and AdaCore, <http://www.spark-2014.org/proofinuse>
- C. Paulin, member of the “*commission consultative de spécialistes de l’université*”, Section 27, University Paris-Sud since April 2010. C. Paulin is the president of this committee since December 2014.

- G. Melquiond, elected officer of the IEEE-1788 standardization committee on interval arithmetic since 2008.
- C. Paulin, chaired the hiring committee for a professor position in computer science at Université Paris-Sud.
- J.-C. Filliâtre, member of the board of GDR GPL, since January 2016.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

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

Master: Fondements de l’informatique et ingénierie du logiciel (FIIL) [https://www.lri.fr/~conchon/parcours\\_fil/](https://www.lri.fr/~conchon/parcours_fil/): “Programmation C++11 avancée” (M2), G. Melquiond (18h), “Preuves Interactives et Applications” (M2), C. Paulin (9h), “Vérification déductive de programmes” (M2), A. Paskevich (11.5h), Université Paris-Sud, France.

Licence: “Mathématiques pour l’informatique 2” (L2), C. Paulin (50h), Université Paris-Sud, France.

Licence: “Logique pour l’informatique” (L3), C. Paulin (54h), Université Paris-Sud, France.

Master: “Logique pour l’option informatique à l’agrégation” (M2), C. Paulin (21h), ENS Cachan, France.

Licence: “Programmation fonctionnelle avancée” (L3), S. Conchon (30h), Université Paris-Sud, France.

Licence: “Introduction à la programmation fonctionnelle” (L2), S. Conchon (10h), Université Paris-Sud, France.

Master: “Compilation et langages” (M1), S. Conchon (45h), Université Paris-Sud, France.

Master: “Software Model Checking” (M2), S. Conchon (10h), Université Paris-Sud, France.

Licence: “Langages de programmation et compilation” (L3), J.-C. Filliâtre (26h), École Normale Supérieure, France.

Licence: “INF411: Les bases de l’algorithmique et de la programmation” (L3), J.-C. Filliâtre (16h), École Polytechnique, France.

DUT (Diplôme Universitaire de Technologie): M1101 “Introduction aux systèmes informatiques” (S1), A. Paskevich (36h), M3101 “Principes des systèmes d’exploitation” (S3), A. Paskevich (58.5h), IUT d’Orsay, Université Paris-Sud, France.

### 10.2.2. Internships

- S. Conchon supervised the M2 internship of Mattias Roux, who developed a new reachability algorithm for the Cubicle Model Checker.
- A. Charguéraud supervised, with F. Pottier (Inria Paris) the M2 internship of Armaël Guéneau, who developed a formalization in Coq of the big-O notation, and put it to practice to establish big-O asymptotic bounds in CFML, in particular for a sequence data structure with logarithmic-time random access operations.
- C. Paulin supervised with F. Hivert (LRI) the magistère of Mathematics internship of Olivier Stietel, who developed a proof in Coq of a result in combinatorics (a result of Frame, Robinson and Thrall counting the number of Young tableaux of a given shape) using a probabilistic method.

### 10.2.3. Supervision

PhD: C. Lelay, “Repenser la bibliothèque réelle de Coq : vers une formalisation de l’analyse classique mieux adaptée”, Université Paris-Sud, June 15th 2015, supervised by S. Boldo and G. Melquiond [11].

PhD in progress: S. Dumbrava, “Towards data certification”, since Oct. 2012, supervised by V. Benzaken (LRI) and É. Contejean.

PhD in progress: L. Gondelmans, “Obtention de programmes corrects par raffinement dans un langage de haut niveau”, since Oct. 2013, supervised by J.-C. Filliâtre and A. Paskevich.

PhD in progress: M. Clochard, “A unique language for developing programs and prove them at the same time”, since Oct. 2013, supervised by C. Marché and A. Paskevich.

PhD in progress: D. Declerck, “Vérification par des techniques de test et model checking de programmes C11”, since Sep. 2014, supervised by F. Zaïdi (LRI) and S. Conchon.

PhD in progress: M. Roux, “Model Checking de systèmes paramétrés et temporisés”, since Sep. 2015, supervised by Sylvain Conchon.

PhD in progress: M. Pereira, “A Verified Graph Library. Tools and techniques for the verification of modular higher-order programs, with extraction”, since May 2015, supervised by J.-C. Filliâtre.

PhD in progress: A. Coquereau, “[ErgoFast] Amélioration de performances pour le solveur SMT Alt-Ergo : conception d’outils d’analyse, optimisations et structures de données efficaces pour OCaml”, since Sep. 2015, supervised by Sylvain Conchon, Fabrice Le Fessant et Michel Mauny.

#### 10.2.4. Juries

S. Boldo: reviewer, PhD committee of O. Kupriianova, “Towards a Modern Floating-Point Environment”, Université Pierre et Marie Curie, France, December 2015.

A. Charguéraud: examiner, PhD committee of Lidia Sánchez Gil, “On the equivalence of operational and denotational semantics for parallel functional languages”, Universidad Complutense de Madrid, July 2015.

C. Marché: reviewer, PhD committee of A. Dieumegard, “Formal Guarantees for Safety Critical Code Generation: The Case of Highly Variable Languages”, Université Toulouse 3 Paul Sabatier, France, January 2015.

C. Marché: external reviewer of the PhD memoir of D. Larraz, “Automatic Program Analysis using Max-SMT”, Universitat Politècnica de Catalunya, Barcelona, Spain, April 2015.

C. Marché: president of the PhD committee of A. David, “Vers la synthèse de systèmes ouverts : tableaux pour les logiques temporelles multi-agents”, Université Évry Val d’Essonne, Évry, France, September 2015.

C. Marché: examiner, PhD committee of Z. Chihani, “Certification of First-order proofs in classical and intuitionistic logics”, École Polytechnique, Palaiseau, France, November 2015.

### 10.3. Popularization

- A. Charguéraud and S. Boldo contributed to the preparation of the exercises of the *Concours Castor informatique* <http://castor-informatique.fr/>. A. Charguéraud is also one of the three organizers of this contest. The purpose of the Concours Castor is to introduce pupils (from *CM1* to *Terminale*) to computer sciences. More than 345,000 teenagers played with the interactive exercises in November 2015.
- C. Marché, together with J. Kanig from AdaCore company, wrote an article in the ERCIM news journal [17] to advertise on the work done in the ProofInUse joint laboratory for the popularization of formal methods in the development of safety-critical Ada programs.

- S. Boldo, with T. Vieville (Mnemosyne team, Inria Bordeaux - Sud-Ouest), F. Masegla (Zenith team, Inria Sophia Antipolis - Méditerranée and P. Bernhard (INRA) wrote a text about the TIPE 2016 (personal work before the competitive entrance in engineering schools). The topic was “Structures: organization, complexity, dynamic”. This was published on the popularization website <http://pixees.fr> [31].
- S. Boldo co-organized popularization talks for the administrative staff of Inria Saclay - Île-de-France. She gave a talk on January 29th about a scientific article [21] and led a coding session (with Scratch) on February 12th with A. Imperiale (M3DISIM team).
- S. Boldo co-organized the coming of teenagers from the collège Flemming in Orsay to the laboratory on May 28th and gave talks to several groups all day long.
- S. Boldo co-organized the Inria Saclay - Île-de-France *Fête de la science*. She created two stands (about programming) and run one on October 9th.
- S. Boldo gave a talk to the winners of the Mathematics Olympiads on June 10th in Rocquencourt.
- S. Boldo gave a talk at the “Girls can code” week on August 27th, in Paris.
- S. Boldo gave a talk to high school teenagers in Angers on October 12th.
- S. Boldo gave a talk to “Classes Préparatoires” at l’Essouriau, Les Ulis on September 24th.
- S. Boldo gave a talk at “Futur en Seine” a popularization festival in Paris and Paris area, in Orsay, on June 18th.
- C. Paulin together with I. Glas from labex DigiCosme is proposing an introduction to computer science (various activities on programming, data representation, algorithms during 6 sessions of 1 hour) as an extracurricular activity in schools for pupils in *CM1-CM2*.
- C. Paulin organised in 2015 the third edition of the Concours ISN of the Labex DigiCosme, supported by the Rectorat de l’Académie de Versailles. Selected projects developed by the high school pupils (Terminale) as part of their curricula in Computer Science are submitted to this contest. The best projects are selected and presented during a general event.
- C. Paulin, I. Glas, and A. Paskevich run a stand (introduction to information technologies and programming) during the “Fête de la science” Île-de-France on October 9 and 10.



## VEGAS Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific events organisation

##### 8.1.1.1. Member of the organizing committees

Sylvain Lazard organized with S. Whitesides (Victoria University) the 14th Inria - McGill - Victoria Workshop on Computational Geometry<sup>0</sup> at the Bellairs Research Institute of McGill University in Feb. (1 week workshop on invitation).

Guillaume Moroz co-organized the *Journées Nationales de Calcul Formel 2015 (JNCF)*.

Monique Teillaud co-organized the Dagstuhl Seminar on Computational Geometry, with Otfried Cheong (KAIST, Korea) and Jeff Erickson (University of Illinois at Urbana-Champaign), Leibniz-Zentrum für Informatik, Germany, March 9-13. <http://www.dagstuhl.de/en/program/calendar/semhp/?semnr=15111>

Monique Teillaud co-organized the Workshop on Computational Geometry in non-Euclidean Spaces, with Éric Colin de Verdière (CNRS, ENS Paris) and Jean-Marc Schlenker (Mathematics Research Unit, U. Luxembourg), Inria, Loria, Nancy, August 26-28. The slides of the talks are available on the workshop website <http://neg15.loria.fr/>.

Monique Teillaud and Marc Pouget organized the 39th **CGAL** Developer Meeting, Sept 28 - Oct 2 at Inria Nancy - Grand Est.

#### 8.1.2. Scientific events selection

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

Monique Teillaud was a member of the program committee of the 2015 *Symposium on Computational Geometry* SoCG'15.

##### 8.1.2.2. 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.

#### 8.1.3. Journal

##### 8.1.3.1. Member of the editorial boards

Olivier Devillers is a member of the Editorial Board of *Graphical Models*.

Monique Teillaud is a managing editor of JoCG, *Journal of Computational Geometry*. She is also a member of the Editorial Boards of CGTA, *Computational Geometry: Theory and Applications*, and of IJCGA, *International Journal of Computational Geometry and Applications*.

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

##### 8.1.3.2. 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.

---

<sup>0</sup>Workshop on Computational Geometry



### 8.1.4. Invited talks

Guillaume Moroz was invited to give a talk at the Fields Institute in Toronto for the workshop on Algebra, Geometry and Proofs in Symbolic Computation. He was also invited to give a talk at the IHP for the seminar on algorithmic and computational geometry and at Supelec.

### 8.1.5. Research administration

#### 8.1.5.1. Hiring committees

S. Lazard was president of the hiring committee for a Professor position (UL/ENSEM/LORIA).

#### 8.1.5.2. Steering Committees

M. Teillaud is a member of the Steering Committee of the European Symposium on Algorithms (ESA).

#### 8.1.5.3. National committees

L. Dupont is a member of “Commission Pédagogique Nationale” (CPN) Information-Communication / Métiers du Multimédia et de l’Internet.

M. Teillaud is a member of the Scientific Board of the *Société Informatique de France* (SIF).

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

#### 8.1.5.4. Local committees and responsibilities

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 IAE+M* (since 2009). Head of the *Mission Jeunes Chercheurs* for Inria Nancy-Grand Est (since 2011). Head of the Department Algo at LORIA (since 2014). Member of the *Conseil Scientifique* of LORIA (since 2014).

M. Teillaud is a member of the CDT, *Commission de développement technologique*, of Inria Nancy - Grand Est.

#### 8.1.5.5. Websites

M. Teillaud is maintaining the Computational Geometry Web Pages <http://www.computational-geometry.org/>, hosted by Inria Nancy - Grand Est since December. 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 Symposium on Computational Geometry.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master : Guillaume Moroz, *Géométrie algébrique et applications en robotique*, 12h, M1, École Mathématique Africaine, Sénégal.<sup>0</sup>

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

Licence: Laurent Dupont, *Algorithmique*, 72h, L1, Université de Lorraine, France.

Licence: Laurent Dupont, *Web development*, 75h, L2, Université de Lorraine, France.

Licence: Laurent Dupont, *Traitement Numérique du Signal*, 10h, L2, Université de Lorraine, France.

Licence: Laurent Dupont, *Data structures*, 40h, L1, Université de Lorraine, France.

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

<sup>0</sup><http://nlaga-simons.ucad.sn/index.php/new-international-events>

### 8.2.2. Supervision

PhD: Rémy Thomasse, Complexity analysis of random convex hulls, defended December 18th 2015. The student is hosted in EPI GEOMETRICA but supervised by O. Devillers [10].

PhD in progress : Ranjan Jha, Étude de l'espace de travail des mécanismes à boucles fermées, started in Oct. 2013, supervised by Damien Chablat, Fabrice Rouillier and Guillaume Moroz.

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.

Postdoc: Rémy Imbach, Topology and geometry of singular surfaces with numerical algorithms, supervised by Guillaume Moroz and Marc Pouget.

Postdoc: Laurent Veysseire, Probabilistic analysis of geometric structures, supervised by Olivier Devillers.

### 8.2.3. Juries

O. Devillers was a member (advisor) of the PhD defense committee of Rémy Thomasse (Univ. Nice - Sophia Antipolis).

S. Lazard was an external examiner (rapporteur) of the Ph.D. of Cuong Tran (Univ. Pierre et Marie Curie).

## 8.3. Popularization

Guillaume Moroz is a member of the organizing committee of the *Olympiades académiques de mathématiques*.

## VERIDIS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Organization of scientific events

#### 10.1.1.1. General chair, scientific chair

Jasmin Blanchette and Christoph Weidenbach co-organized the **Dagstuhl seminar 15381** “Information from Deduction: Models and Proofs” with Nikolaj Bjørner (Microsoft Research, Redmond, USA) and Viorica Sofronie-Stokkermans (Universität Koblenz-Landau, Germany).

Jasmin Blanchette is an ex officio member of the steering committee of the conference series *Interactive Theorem Proving*.

Pascal Fontaine and Thomas Sturm co-organized the **Dagstuhl seminar 15471** “Symbolic Computation and Satisfiability Checking” with Erika Abraham (RWTH, Aachen, Germany) and Dongming Wang (Beihang University, Beijing, China).

Stephan Merz is a member of the steering committee of the workshop on Automated Verification of Critical Systems (AVoCS). He chaired the organizing committee of the *Journées Nationales* of the working groups *Géométrie du Calcul, Logique, Algèbre et Calcul*, and *Logique, Types et Preuve* of GDR IM and GDR GPL in October 2015 in Nancy.

Thomas Sturm is chair of the steering committee of the conference series *Mathematical Aspects of Computer and Information Sciences* (MACIS).

Christoph Weidenbach is a member of the steering committee of *Bundeswettbewerb Informatik*, the German competition among high-school students in computer science.

#### 10.1.1.2. Membership in organizing committees

Jasmin Blanchette was co-chair of workshops, tutorials, and system competitions of CADE-25 in Berlin.

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 2015, VTSA took place during the last week of August in Koblenz, Germany.

Dominique Méry and Stephan Merz were part of the organizing committee of the 10th edition of the conference *Modélisation des Systèmes Réactifs* (MSR 2015) in November 2015 in Nancy.

### 10.1.2. Service in Program Committees

#### 10.1.2.1. Chair of conference program committees

Jasmin Blanchette co-chaired the program committee of the Ninth International Conference on Tests and Proofs in July, as part of the STAF Conference Series in L'Aquila, Italy.

Dominique Méry co-chaired the program committee of the Second Workshop on Formal Integrated Development Environments [38], a satellite of the Formal Methods conference in Oslo, in June 2015.

Stephan Merz co-chaired the program committee of the Second International Workshop on Formal Reasoning in Distributed Algorithms (FRIDA) in June, as part of the DisCoTec federation of conferences in Grenoble, and of the 10th edition of the French conference *Modélisation des Systèmes Réactifs* (MSR 2015) in Nancy.

#### 10.1.2.2. Membership in conference program committees

Jasmin Blanchette served on the program committee of the International Conference on Automated Deduction (CADE).

Pascal Fontaine served on the program committees of the International Conference on Frontiers of Combining Systems (FroCoS) and of the workshop SMT.

Dominique Méry served on the program committees of FM2015, ICTAC 2015, ICECCS 2015, and MEDI 2015.

Stephan Merz served on the program committees of the international conferences ICFEM, NETYS, SEFM, and of the workshops AVoCS, GRSRD, SETS, and SYNASC.

Thomas Sturm served on the program committees of CASC 2015, MACIS 2015, and ISSAC 2015.

Uwe Waldmann served on the program committee of the 11th International Workshop on the Implementation of Logics.

Christoph Weidenbach served on the program committee of the International Conference on Frontiers of Combining Systems (FroCoS).

### **10.1.3. Editorial boards of journals**

Pascal Fontaine, Thomas Sturm, and Uwe Waldmann edited Mathematics in Computer Science 9(3), a special focus volume on *Constraints and Combinations*.

Dominique Méry is a member of the editorial board of the journal *Formal Aspects of Computing* (Springer).

Stephan Merz, together with Jun Pang of the University of Luxembourg, is the editor of a special issue of Formal Engineering Methods in the journal *Formal Aspects of Computing*.

Martin Quinson is a member of the editorial board of the Interstices journal, aiming at increasing the scientific outreach of informatics.

Thomas Sturm is a member of the editorial boards of the *Journal of Symbolic Computation* (Elsevier) and *Mathematics in Computer Science* (Springer).

Christoph Weidenbach is an editor of the Journal of Automated Reasoning.

### **10.1.4. Invited talks**

Stephan Merz gave an invited lecture at *Journées Francophones des Langages Applicatifs* in January 2015. He also gave an invited talk at Aarhus University on *Modeling Distributed Algorithms in TLA<sup>+</sup>*.

Thomas Sturm gave an invited talk at FroCoS 2015 titled *From Complete Elimination Procedures to Subtropical Decisions over the Reals*.

Christoph Weidenbach gave an invited tutorial “25th Anniversary of Superposition: Status and Future” at the International Conference on Automated Deduction (CADE), together with Stephan Schulz. He gave an invited tutorial “Automated Reasoning Building Blocks” at the International Conference on Frontiers of Combining Systems (FroCoS).

### **10.1.5. Leadership within the scientific community**

Jasmin Blanchette was elected editor of the newsletter of the Association for Automated Reasoning (AAR) and member of the AAR board.

Pascal Fontaine is one of three SMT-LIB managers. He was elected CADE trustee in October 2014.

Dominique Méry is a member of the IFIP Working Group 1.3 on *Foundations of System Specification*.

Stephan Merz is a member of the IFIP Working Group 2.2 on *Formal Description of Programming Concepts*.

Christoph Weidenbach is a trustee of CADE (elected 2009, reelected 2012).

### 10.1.6. Scientific expertise

Jasmin Blanchette is an expert for the French Agence Nationale de la Recherche (ANR) and the Deutsche Forschungsgemeinschaft (DFG).

Pascal Fontaine was a panel member for the CASC-25 competition of first-order theorem provers.

Dominique Méry is an expert for the French Agence Nationale de la Recherche (ANR) and for HCERES.

Stephan Merz is an expert for the French Agence Nationale de la Recherche (ANR), for the German DFG, and for the European Research Council (ERC). He helped IRISA Rennes evaluate the opportunity of creating a new research team.

Christoph Weidenbach is an advisor for the German-Israeli Foundation for Scientific Research.

### 10.1.7. Research administration

Dominique Méry is the head of the Doctoral School IAEM Lorraine for the University of Lorraine and head of the Formal Methods department of the LORIA laboratory.

Stephan Merz is a member of the Scientific Directorate of the International Computer Science Meeting Center in Schloss Dagstuhl. He is the delegate for the organization of conferences at the Inria Nancy – Grand Est research center and head of the PhD committee for computer science of the Doctoral School IAEM Lorraine. He is also the coordinator of the CPER *Sciences du Numérique* in Lorraine (2015–2020).

Thomas Sturm is a member of the selection committee for MSc and PhD students at the International Max Planck Research School.

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

## 10.2. Teaching, Supervision, Juries

### 10.2.1. Teaching

Licence: Jasmin Blanchette and Daniel Wand, Concrete Semantics with Isabelle/HOL, 60 HETD, Universität des Saarlandes, Germany

Licence: Marie Duflot-Kremer, Algorithmique et Programmation 1, 113 HETD L1 Mathématiques, Informatiques Sciences pour l'Ingénieur, Université de Lorraine, France.

Licence: Marie Duflot-Kremer, Projet personnel, 15 HETD, L2 informatique, Université de Lorraine, France.

Licence: Marie Duflot-Kremer, Bases de données 2, 10 HETD, L2 informatique, Université de Lorraine, France.

Licence: Marie Duflot-Kremer, Projet personnel et communication, 50 HETD, L2 informatique, Université de Lorraine, France.

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

Master: Marie Duflot-Kremer and Stephan Merz, Vérification algorithmique, 30 HETD, M2 Informatique, Université de Lorraine, France.

Master: Marie Duflot-Kremer and Stephan Merz, Elements of Model Checking, 36 HETD, M2 Informatique and Master Erasmus Mundus DESEM, Université de Lorraine, France.

Licence: Pascal Fontaine, Structure des ordinateurs, 67 HETD, L2 MIASHS, parcours MIAGE, Université de Lorraine, France.

Licence: Pascal Fontaine, Logique des prédicats, 32 HETD, L2 MIASHS, Université de Lorraine, France.

- Master: Pascal Fontaine, Réseaux, 50 HETD, M1 MIAGE, Université de Lorraine, France.
- Master: Pascal Fontaine, Génie Logiciel, 30 HETD, M1 MIAGE, IGA Rabbat et Université de Lorraine, Maroc.
- Master: Pascal Fontaine, Procédures de décision et vérification de programmes, 6 HETD, M2 informatique, Université de Lorraine, France.
- Master: Dominique Méry, Models and algorithms, 60 HETD, M1, Telecom Nancy, Université de Lorraine, France.
- Master: Dominique Méry, Modeling and verification of distributed algorithms, 30 HETD, M1, Université de Lorraine, France.
- Master: Dominique Méry, Modeling and verification of distributed algorithms, 30 HETD, M1 informatique, Université de Lorraine, France.
- Master: Dominique Méry, Modeling and verification of software systems, 60 HETD, M1 (continued education), Telecom Nancy, Université de Lorraine, Nancy.
- 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.
- Licence: Martin Quinson, Algorithmique et Programmation, 48 HETD, L3, Telecom Nancy, Université de Lorraine, France.
- Licence: Martin Quinson, Langage C et programmation shell, 48 HETD, L3, Telecom Nancy, Université de Lorraine, France.
- Master: Martin Quinson, Programmation Système, 24 HETD, M1, Telecom Nancy, Université de Lorraine, France.
- Master: Thomas Sturm and Christoph Weidenbach, seminar on decision procedures, Universität des Saarlandes, Germany.
- Master: Uwe Waldmann, Automated Reasoning, 90 HETD, Universität des Saarlandes, Germany

### **10.2.2. Supervision**

- PhD: Manamiary Andriamiarina, Développement d'algorithmes répartis corrects par construction, Université de Lorraine. Supervised by Dominique Méry, defended on October 20, 2015.
- PhD: Marion Guthmuller, Dynamic verification of distributed applications, using a model-checking approach, Université de Lorraine. Supervised by Martin Quinson and Sylvain Contassot-Vivier, defended on June 29, 2015.
- PhD: Manuel Lamotte Schubert, Automatic Authorization Analysis, Saarland University. Supervised by Christoph Weidenbach, defended on September 18, 2015.
- PhD: Martin Suda, Resolution-based Methods for Linear Temporal Reasoning, Universität des Saarlandes. Supervised by Christoph Weidenbach, defended on October 16, 2015.
- PhD in progress: Noran Azmy, On the Automation of Proofs in TLAPS, Saarland University. Supervised by Stephan Merz and Christoph Weidenbach, since 11/2012.
- PhD in progress: Haniel Barbosa, Refutational Completeness in Satisfiability Modulo Theories, Université de Lorraine and UFRN (Natal, Brazil). Supervised by David Déharbe, Pascal Fontaine, and Stephan Merz, since 12/2013.
- PhD in progress: Gabor Alági, Efficient Reasoning in Finite Domains, Saarland University. Supervised by Christoph Weidenbach, since 11/2012.

PhD in progress: Martin Bromberger, Arithmetic Reasoning, Saarland University. Supervised by Christoph Weidenbach, since 07/2014.

PhD (on hold for personal reasons): Pablo Federico Dobal, Satisfiability Modulo Arithmetic Theories, Université de Lorraine and Saarland University. Supervised by Pascal Fontaine, Stephan Merz, and Thomas Sturm, since 09/2014.

PhD in progress: Mathias Fleury, Formalization of Logical Calculi, Saarland University. Supervised by Christoph Weidenbach and Jasmin Blanchette, since 09/2015.

PhD in progress: Marek Košta, Computational Logic, Universität des Saarlandes. Supervised by Thomas Sturm, since 11/2011.

PhD in progress: Marco Voigt, Decidable Hierarchic Combinations, Saarland University. Supervised by Christoph Weidenbach, since 11/2013.

PhD in progress: Daniel Wand, First-Order Extensions to Support Higher-Order Reasoning, Saarland University. Supervised by Christoph Weidenbach, since 02/2011.

### 10.2.3. Thesis committees

Dominique Méry served as PhD examiner at IRIT.

Stephan Merz served as a reviewer for the PhD theses of Luís Diogo Couto (Aarhus University, Denmark), Hugues Evrard (University of Grenoble), Laure Millet (University Pierre et Marie Curie, Paris), and Alexander Schimpf (University of Freiburg, Germany).

Uwe Waldmann served as a reviewer for the PhD thesis of Simon Cruanes (École Polytechnique).

## 10.3. Popularization

Marie Dufлот-Kremer took part in various popularization activities, with a public ranging from primary school kids to high school and potential University students. A selection of these activities is given below:

- two days at “Fête de la science” in Nancy;
- a course on databases for high school professors in charge of teaching optional course ISN (Informatique et Sciences du Numérique);
- her explanations of unplugged activities have been recorded by Inria, and a Youtube channel has been created by the Interstice team to promote and share such activities;
- she is a member of two groups dedicated to the training of math teachers who will teach computer science to students of age 11 to 18;
- “Journée femmes de Sciences”: one day dedicated to the promotion of science among 14 years old girls;
- she is a member of the steering committee preparing an itinerant exposition intended for explaining computer science to the public, to be released in 2016;
- she presented a poster at the Scratch2015 conference about teaching computer programming to kids from the age of 8 years onward.

Pascal Fontaine and Stephan Merz illustrated techniques that underly formal verification of protocols and algorithms at events like “Fête de la Science”. Using wooden puzzles and Sudoku sheets, they explained how real-life problems can be represented in logical form and then solved using automated tools based on formal logic.

Martin Quinson organized a 2-days workshop for secondary math teachers on how algorithms could be used to reinforce the abilities of pupils to verbalize, set out arguments and conduct rigorous demonstrations (Nancy, March 2-3 2015). This workshop was co-organized by the IREM (Institut de Recherche en Enseignement des Mathématiques) of Nancy. He also co-organized a one day workshop for about 100 secondary computer science teachers. This event spreads the best practices to teach our topic (Nancy, March 12th 2015). Martin Quinson was a scientific expert in an experiment in which we explored how Scratch can be used to teach Computer Science in after school activities every week for the whole week. The results of this experiment, conducted in a collaboration between Inria and the MJC Nomade (Nancy) were published in [35].

Christoph Weidenbach lectured within the series “Perspektiven der Informatik” at Saarland University and within the public lecture series of the federal state of Saarland.



## ACUMES Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

#### 8.1.1.1. General chair, scientific chair

- J.-A. Désidéri and A. Habbal jointly held the chairs of the 27th IFIP TC7 Conference 2015 on System Modelling and Optimization, SophiaTech Campus Sophia Antipolis, France June 29 - July 3, 2015.
- A. Habbal was general co-chair of the LIRIMA Biomathematics workshop, 11-12 November 2015, In LERMA - Mohammadia Engineering School, Mohammed V University - Rabat, Morocco.

#### 8.1.1.2. Member of the organizing committees

- P. Goatin was member of the Organizing Committee of the workshop “*Mathematical Foundations of Traffic*” at IPAM (UCLA), Los Angeles (USA). Sept. - Oct. 2015. <http://www.ipam.ucla.edu/programs/workshops/workshop-i-mathematical-foundations-of-traffic/>
- P. Goatin co-organized with J. Härrri (EURECOM) the Labex UCN@Sophia thematic day “*Intelligent Transport Systems*”. March 2015.
- J.-A. Désidéri and A. Habbal directed the Organizing Committee of the 27th IFIP TC7 Conference 2015 on System Modelling and Optimization, SophiaTech Campus Sophia Antipolis, France June 29 - July 3, 2015

### 8.1.2. Journal

#### 8.1.2.1. Reviewer - Reviewing activities

- R. Duvigneau is reviewers for the following international journals : Computers & Fluids, International Journal for Numerical Methods in Fluids, Computer Methods for Applied Mechanical Engineering, Computer Aided Geometric Design, Applied Mathematics & Mechanics, Engineering Optimization.
- P. Goatin is reviewers for the following international journals: Acta Applicandæ Mathematicæ ; African Journal of Mathematics and Computer Science Research; Algorithms; Annales de l’Institut Henri Poincaré (C) Analyse Non Linéaire; Applied Mathematics and Computation; Computer-aided Civil and Infrastructure Engineering; Discrete and Continuous Dynamical Systems; European Journal of Operational Research; IEEE Transactions on Automatic Control; IEEE Transactions on Intelligent Transportation Systems; International Journal of Dynamical Systems and Differential Equations; Journal of Computational Physics; Journal of Flow, Turbulence and Combustion; Mathematical Models and Methods in Applied Sciences; Mathematics of Computation; Networks and Heterogeneous Media; New Journal of Physics; Nonlinear Analysis Ser. B: Real World Applications; SIAM Journal of Mathematical Analysis; SIAM Journal of Applied Mathematics; SIAM Journal of Numerical Analysis; SIAM Journal on Scientific Computing.
- A. Habbal is reviewer for the following international journals: Applied Mathematics (AM), Scientific Research Publishing ; Journal of Structural and Multidisciplinary Optimization ; Journal of Math. Model. Nat. Phenom. ; International Journal of Mechanical Sciences ; Modern Applied Science ; Asian Journal of Control ; Applied Mathematics and Computation ; Computer Methods in Applied Mechanics and Engineering.

#### 8.1.3. Invited talks

- J.-A. Désidéri: Contributions to PDE for Applications, Univ. Paris 6, Aug. 31-Sept. 1 2015. “Multiple-Gradient Descent Algorithm (MGDA) applied to the parametric optimization of pulsating jets in unsteady flow”.
- P. Goatin: 8th International Congress on Industrial and Applied Mathematics, Beijing (China), August 2015. Mini-symposium: “Data-driven mathematical models for production and traffic flow”. Invited talk: “*Uncertainty quantification in traffic flow models calibration from GPS data*”.
- P. Goatin: 13th Viennese Workshop on Optimal Control and Dynamic Games, Vienna (Austria), May 2015. Special session: “Mean-field models and control of multi-agent systems”. Invited talk: “*Conservation laws with non-local flux in traffic flow modeling*”.
- P. Goatin: CoToCoLa - Conference on Contemporary topics in conservation laws, Besançon (France), February 2015. Invited talk: “*Conservation laws with non-local flux in traffic flow modeling*”.
- A. Habbal: 1st Summer School Labex MS2T - Multi-objective design and optimisation of technological systems, Cap Hornu, August 2015. Invited lecture: *Multidisciplinary Optimization and Game Theory*.

### 8.1.4. Research administration

- P. Goatin is member of BCP (“Bureau du Comité des Projets”) at Inria Sophia Antipolis Méditerranée.
- R. Duvigneau is member of the "Conseil National des Universités" (CNU) for the 26th section (applied mathematics).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

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

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

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

Licence: Numerical Methods I, 76hrs, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

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

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

Master: Concurrent design in building structures, M2 Students Project, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

### 8.2.2. Supervision

PhD : Sébastien Bourasseau, *Contribution to a mesh refinement method based on the adjoint vector for the computation of aerodynamic outputs*, December 2015. Supervisors : J.-A. Désidéri and J. Peter (ONERA).

PhD : Matthias Mimault, *Crowd motion modeling by conservation laws*, University of Nice Sophia Antipolis, December 2015. Supervisor: P. Goatin.

PhD in progress : Cédric Durantin, *Meta-modelling for the optimization of nanophotonic devices*, October 2014. Supervisors : J.-A. Désidéri and A. Glière (CEA LETI).

PhD in progress : Quentin Mercier, *Multicriterion optimization under uncertainties : the stochastic multiple gradient approach. Application to aerelasticity*, October 2015. Supervisors : J.-A. Désidéri and F. Poirion.

PhD in progress : Maroua Mokni, *Development, analysis and numerical evaluation of MGDA*, October 2013. Supervisors : J.-A. Désidéri and M. Ayadi (LAMSIN-ENIT, Tunisia).

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

PhD in progress: Boutheina Yahyaoui, *Validation of mecano-chemo-biological models for cell sheet wound closure*, Jan 2013, Supervisors: A. Habbal, Mekki Ayadi (LAMSIN, ENIT, Tunis)

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

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

PhD in progress: A. Gdhami, *isogeometric analysis methods for hyperbolic systems*, University of Tunis / University of Nice - Sophia Antipolis, Oct. 2013, supervisors: R. Duvigneau and M. Moakher (ENIT).

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

### 8.2.3. Juries

- P. Goatin was member of the selection (Inria Sophia Antipolis) committee for the competitive selection of young graduate scientists (CR2).
- P. Goatin was member of the committee of Y. Tang's PhD thesis "*Stability analysis and Tikhonov approximation for linear singularly perturbed hyperbolic systems*", Université de Grenoble, September 18th, 2015.
- P. Goatin was referee of U. Razafiston's Habilitation thesis "*Contribution à l'analyse théorique de problèmes elliptiques en domaine non borné, à la simulation numérique d'équations hyperboliques et aux méthodes de bases réduites*", Université de Besançon, December 3rd, 2015.
- A. Habbal was referee of M.F. Frabolot PhD thesis *optimisation de forme avec detection automatique de parametres* (Mécanique avancée, UT Compiègne), March 2015
- A. Habbal was referee of R.F. Coelho Habilitation HDR *Optimisation structurale et multidisciplinaire en mécanique et en Génie civil* (UT Compiègne), April 2015
- J.-A. Désidéri was referee of Gwladys Ravon's PhD thesis *Inverse problems for heart optical cartography*, December 18th, 2015.
- R. Duvigneau was reviewer of the PhD manuscript of D. Valizadeh ("*Development and analysis of a discrete adjoint operator for incompressible Navier-Stokes equations for low Reynolds number*", Ecole Centrale de Nantes).

## APICS Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

- L. Baratchart gave a talk at the International Instrumentation and Measurement Technology Conference (I2MTC IEEE), May 11-14 2015, Pisa (Italy), at the AMS-EMS-SPM meeting, June 10-13 2015, Porto (Portugal), at the 10-th ISAAC congress (International Society for Analysis, its Applications and Computation), August 3-8 2015, Macau (China); he was a colloquium speaker at IUPUI, November 2015.
- M. Caenepeel gave a talk at the IMS 2015 in Phoenix [15] and at the EuMC 2015 in Paris [16].
- S. Chevillard gave a talk at the 27th IFIP TC7 Conference on System Modelling and Optimization, Sophia Antipolis (July 2015).
- J. Leblond presented a communication at the seminar “Mathématiques pour l’Analyse des Données” (MAD), Nice, May 21.
- C. Papageorgakis presented posters at the 1st International Conference on Mathematical Neuroscience (ICMNS, Juan les Pins, Jun.) [17] and at the International Conference on Basic and Clinical Multimodal Imaging (BACI, Utrecht, the Netherlands, September) [18], [19].
- D. Ponomarev gave talks at the seminar “Modèles et Algorithmes Déterministes” of Lab. Jean Kuntzmann, Univ. J. Fourier, Grenoble (May 28) and at the 27th IFIP TC7 Conference on System Modelling and Optimization, Sophia Antipolis (July 2015).
- F. Seyfert gave a talk at the European Microwave Week 2015 in the workshop dedicated to "Recent Advances in the Synthesis of Microwave Filters and Multiplexers", Paris, France

#### 9.1.1. Scientific events organisation

L. Baratchart and J. Leblond organized a special session on “Inverse Elliptic Problems” at the 27th IFIP TC7 Conference on System Modelling and Optimization, Sophia Antipolis (July 2015).

K. Mavreas and C. Papageorgakis are the PhD students in charge of the PhD students Seminar within the Research Center (since September).

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

L. Baratchart was on the Program Committee of the 17th IFAC Symposium on System Identification (SYSID 2015), Beijing, China, October 19-21, 2015.

F. Seyfert was a member of the technical committee of the conference "International Workshop on Microwave Filters" in Toulouse, France, March 23-25 2015, <http://www.iwmf2015.com/>

#### 9.1.2. Journal

##### 9.1.2.1. Member of the editorial boards

L. Baratchart is a member of the Editorial Boards of the journals *Constructive Methods and Function Theory* and *Complex Analysis and Operator Theory*.

##### 9.1.2.2. Reviewer - Reviewing activities

L. Baratchart was a reviewer for several journals including, *SIAM Journal on Analysis*, *Inverse Problems*, *Journal of Approximation Theory*, *Annales de l’Institut Fourier*.

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

J. Leblond was a reviewer for the journals *Applied Mathematical Modelling*, *International Journal of Computer Mathematics*.

F. Seyfert was a reviewer of the journal *IEEE Microwave Transaction on Theory and Techniques*

### 9.1.3. Invited talks

L. Baratchart was an invited speaker at the Workshop on Blaschke Products and Function Theory, July 29-31 2015, Hong-Kong (China), and at the conference Orthogonal and Multiple Orthogonal Polynomials, August 9-14 2015, Oaxaca (Mexico). He was a plenary speaker at the “Journées du Gdr Analyse Fonctionnelle, Harmonique et Probabilités”, November 30-December 4 2015, Luminy (France).

J. Leblond was invited to give a communication at the conference “Harmonic Analysis, Function Theory, Operator Theory and Applications” (in honor of J. Esterle), Bordeaux, Jun. 1-4.

F. Seyfert gave a mini course on "Advanced Filter Synthesis" at the "International Workshop on Microwave Filters" in Toulouse, France, March 23-25 2015

### 9.1.4. Research administration

S. Chevillard is representative at the “comité de centre” and at the “comité des projets” (Research Center Inria-Sophia).

J. Leblond is an elected member of the “Conseil Scientifique” and of the “Commission Administrative Paritaire” of Inria. She is in charge of the mission “Conseil et soutien aux chercheurs” within the Research Center. She is also a member of the “Conseil Académique” of the Univ. Côte d’Azur (UCA).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

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

### 9.2.2. Supervision

PhD in progress: D. Ponomarev, Inverse problems for planar conductivity and Schrödinger PDEs, since Nov. 2012 (advisors: J. Leblond, L. Baratchart).

PhD in progress: M. Caenepeel, The development of models for the design of RF/microwave filters, since Feb. 2013 (advisors: Y. Rolain, M. Olivi, F. Seyfert).

PhD in progress: C. Papageorgakis, Conductivity model estimation, since Oct. 2014 (advisors: J. Leblond, M. Clerc, B. Lanfer).

PhD in progress: K. Mavreas, Inverse source problems in planetary sciences: dipole localization in Moon rocks from sparse magnetic data, since Oct. 2015 (advisors: S. Chevillard, J. Leblond).

### 9.2.3. Juries

L. Baratchart was a reviewer for the “Mémoire d’habilitation à diriger des Recherches” of Rachid Zarouf, Univ. Aix-Marseille, December 2015.

J. Leblond was a member of the “jury d’admission du concours CR” of Inria (Jun.).

## 9.3. Popularization

- M. Olivi is president of the Committee MASTIC (Commission d’Animation et de Médiation Scientifique) <https://project.inria.fr/mastic/>. She is responsible for Scientific Mediation.

## ASPI Project-Team

## 8. Dissemination

### 8.1. Promoting scientific activities

#### 8.1.1. Scientific events organisation

Valérie Monbet has co-organized the workshop on *Stochastic Model-Data Coupled Representations for the Upper Ocean Dynamics*, the kick-off meeting of the SEACS project, held in Landeda in May 2015.

#### 8.1.2. Journal

Valérie Monbet has been the guest editor of a special issue (volume 156, number 1) on stochastic weather generators, in *Journal de la Société Française de Statistique*.

#### 8.1.3. Invited talks

Valérie Monbet has given an invited talk on Markov-switching vector autoregressive models for multivariate time series of air temperature, at *47èmes Journées de Statistique*, held in Lille in June 2015.

### 8.2. Teaching, supervision, thesis committees

#### 8.2.1. Teaching

Patrick Héas gives a course on *Monte Carlo simulation methods in image analysis* at université de Rennes 1, within the SISEA (signal, image, systèmes embarqués, automatique, école doctorale MATISSE) track of the master in electrical engineering and telecommunications.

François Le Gland gives

- a course on *Kalman filtering and hidden Markov models*, at université de Rennes 1, within the SISEA (signal, image, systèmes embarqués, automatique, école doctorale MATISSE) track of the master in electrical engineering and telecommunications,
- a 3rd year course on *Bayesian filtering and particle approximation*, at ENSTA (école nationale supérieure de techniques avancées), Paris, within the systems and control module,
- a 3rd year course on *linear and nonlinear filtering*, at ENSAI (école nationale de la statistique et de l'analyse de l'information), Ker Lann, within the statistical engineering track,
- and a 3rd year course on *hidden Markov models*, at Télécom Bretagne, Brest.

Valérie Monbet gives several courses on data analysis, on time series, and on mathematical statistics, all at université de Rennes 1 within the master on statistics and econometrics.

#### 8.2.2. Supervision

François Le Gland and Valérie Monbet are jointly supervising one PhD student

- Chau Thi Tuyet Trang, provisional title: *Non parametric filtering for Metocean multi-source data fusion*, université de Rennes 1, started in October 2015, expected defense in October 2018, co-direction: Pierre Ailliot (université de Bretagne Occidentale).

François Le Gland is supervising two others PhD students

- Alexandre Lepoutre, provisional title: *Detection issues in track-before-detect*, université de Rennes 1, started in October 2010, expected defense in 2016, funding: ONERA grant, co-direction: Olivier Rabaste (ONERA, Palaiseau),
- Kersane Zoubert-Oussené, provisional title: *Particle filters for hybrid indoor navigation with smart-phones*, université de Rennes 1, started in December 2014, expected defense in 2017, funding: CEA grant, co-direction: Christophe Villien (CEA LETI, Grenoble).

Valérie Monbet is supervising one other PhD student

- Audrey Poterie, provisional title: *Régression d'une variable ordinale par des données longitudinales de grande dimension : application à la modélisation des effets secondaires suite à un traitement par radiothérapie*, université de Rennes 1, started in October 2015, expected defense in October 2018, co-direction : Jean-François Dupuy (INSA de Rennes), Laurent Rouvière (université de Haute Bretagne).

### 8.2.3. Thesis committees

François Le Gland has been a reviewer for the PhD theses of Jana Kalawoun (université Paris Sud, Orsay, advisors: Gilles Celeux and Patrick Pamphile) and Antoine Campi (université Paul Sabatier, Toulouse, advisors: Christophe Baehr, Alain Dabas and Pierre Del Moral). He has also been a member of the committee for the PhD thesis of Eugenia Koblents (Universidad Carlos III de Madrid, advisor: Joaquín Míguez).

Valérie Monbet has been a member of the committee for the PhD theses of Xavier Kergadallan (École des Pont ParisTech, advisor: Michel Benoit) and Khalil El Waled (université de Haute Bretagne, advisor: Dominique Dehay).

## 8.3. Participation in workshops, seminars, lectures, etc.

In addition to presentations with a publication in the proceedings, which are listed at the end of the document in the bibliography, members of ASPI have also given the following presentations.

Frédéric Cérou has presented the results about the convergence of ABC at the probability and stochastic processes seminar of université de Rennes 1, and at the applied mathematics seminar of université de Nantes, both in November 2015.

Patrick Héas has given a talk on 3D wind field reconstruction by infrared sounding, at EUMETSAT (European Organisation for the Exploitation of Meteorological Satellites) in Darmstadt, Germany, in June 2015, and a talk on reduced-order modeling of hidden dynamics, at the international workshop on reduced basis, POD and PGD model reduction techniques, held in Cachan in November 2015.

François Le Gland has given a talk on simulation-based algorithms for the optimization of sensor deployment at the department of signal theory and communications of Universidad Carlos III de Madrid, in February 2015, and a talk on marginalization in rare event simulation for switching diffusions at the ONERA workshop on particle algorithms, held in Toulouse in May 2015.

Valérie Monbet has given a talk on switching autoregressive models for stochastic weather generators, and application to temperature series, at the kick-off meeting of the SEACS project, held in Landeda in May 2015.

Kersane Zoubert-Ousseni has given a poster presentation at the summer school on **Foundations and Advances in Stochastic Filtering**, held in Barcelona in June 2015.

## BIPOP Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

G. James is chairing with C.Daraio (ETH Zürich) and A. Vakakis (Univ. Illinois) the forthcoming Euromech colloquium 580 *Strongly nonlinear dynamics and acoustics of granular metamaterials*, which will be organized by the BIPOP team at Inria in July 2016.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

- Florence Bertails-Descoubes was Program Chair of the 2015 **ACM/EG Symposium on Computer Animation**, together with Stelian Coros (Carnegie Mellon University).

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

- Bernard Brogliato was Program Committee Member for the first IEEE International Conference on Event-based Control, Communication, and Signal Processing (EBCCSP 2015), June 17-19, 2015, Krakow, Poland  
(www.ebccsp2015.org).
- Bernard Brogliato was in the International Program Committee de 14th European Control Conference, Linz, Austria, July 15-17, 2015.
- Florence Bertails-Descoubes was in the Program Committee of ACM SIGGRAPH Asia 2015.
- Pierre-Brice Wieber was Associate Editor for the 2015 IEEE RAS Humanoids Conference.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- Pierre-Brice Wieber is Associate Editor for IEEE Transactions on Robotics.
- Bernard Brogliato is Associate Editor for Nonlinear Analysis: Hybrid Systems (starting January 2016).

#### 9.1.3.2. Reviewer - Reviewing activities

- Bernard Brogliato is a reviewer for Automatica, IEEE Transactions on Automatic Control, ASME Journal of Applied Mechanics, Multibody System Dynamics, Nonlinear Analysis, Systems and Control Letters.
- Arnaud Tonnelier is a reviewer for Physical Review E, Nonlinear Analysis: Hybrid Systems, Journal of Physics A, International Journal of Bifurcation and Chaos, SIADS, Mathematical Biosciences and Engineering.
- Florence Bertails-Descoubes is a reviewer for ACM SIGGRAPH, ACM SIGGRAPH Asia, ACM Transactions on Graphics, IEEE Transactions of Vizualisation and Computer Graphics, Eurographics, Computer Graphics Forum.
- Jérôme Malick is reviewer for SIAM Journal of Optimization, Computational Optimization and Applications, Set-Valued and Variational Mathematics

### 9.1.4. Invited talks

- Florence Bertails-Descoubes gave the following invited talks in 2015:



- “Geometry and mechanics of fibers: some numerical models”, **Mathematical Progress in Expressive Image Synthesis**, Kyushu University (Fukuoka, Japon), September 2015.
- “Geometry and mechanics of fibers: some numerical models”, **Rencontres DYSCO**, organized in Treffort (Isère) by the interdisciplinary laboratory of physics (LIPhy), May 2015.
- “Modélisation numérique de fibres en contact : application à la synthèse de chevelures réalistes”, **Collège de France**, Paris (within the course series given in 2015 by M.-P. Cani), April 2015.

### 9.1.5. Research administration

- Arnaud Tonnelier is member of CNU 26 (2011-2015).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master 2015-2016: Pierre-Brice Wieber, Autonomous Robotics, 9h, M2, MOSIG (Grenoble INP)

Master 2015 : Jérôme Malick, Numerical Optimization, 50 h., M1, ENSIMAG (Grenoble INP)

Master 2015 : Jérôme Malick, Mathematical Programming, 16 h., M2, UJF

Master 2015-2016: Florence Bertails-Descoubes, IRL Module, 3 h., M1, ENSIMAG (Grenoble INP)

### 9.2.2. Supervision

HdR : Vincent Acary, université Grenoble-Alpes, July 2015.

PhD : Romain Casati, Quelques contributions à la modélisation numérique de structures élançées pour l’informatique graphique, université Grenoble-Alpes, June 2015, F. Bertails-Descoubes.

PhD : Olivier Huber, Commande par modes glissants en temps discret, université Grenoble-Alpes, B. Brogliato and V. Acary.

PhD : Mounia Haddouni, Algorithmes de résolution de la dynamique du contact avec impact et frottement, université Grenoble-Alpes, B. Brogliato and V. Acary.

PhD : Jory Lafaye, Control of movements and balance of a humanoid robot with omnidirectional wheels, université Grenoble-Alpes, P.B. Wieber.

PhD in progress : Narendra Akadkhar, Analysis of multibody systems with joint clearances, January 2013, université Grenoble-Alpes, to be defended in March 2016, B. Brogliato and V. Acary.

PhD in progress : Alejandro Blumentals, Analysis of rigid and deformable mechanical systems with frictional constraints, université Grenoble-Alpes, September 2013, B. Brogliato and F. Bertails-Descoubes.

PhD in progress : Jose Morales Morales, Soliton in the excitable Burridge-Knopoff model, université Grenoble-Alpes, September 2013, G. James and A. Tonnelier.

PhD in progress : Gilles Daviet, Macroscopic modeling of granular and fibrous materials, université Grenoble-Alpes, September 2014, F. Bertails-Descoubes and B. Raffin.

PhD in progress : A. Sherikov, Control of humanoid robots, Université Grenoble-Alpes, P.B. Wieber.

PhD in progress : Alexandre Vieira, Commande optimale de systèmes linéaires de complémentarité, université Grenoble-Alpes, B. Brogliato and C. Prieur.

PhD in progress : Nestor Bohorquez, Safe motion for humanoid robots in human environments, Université Grenoble-Alpes, P.B. Wieber.

PhD in progress : Federico Pierucci, nonsmooth optimization for machine learning , université Grenoble-Alpes, J. Malick and A. Ioudilski.

PhD in progress : Saed Al Homsy, Génération en ligne de trajectoires optimales en temps pour des robots industriels en environnements dynamiques, 17 March 2016, université Grenoble-Alpes, P.B. Wieber.

### **9.2.3. Juries**

- Bernard Brogliato:
  - Habilitation (HDR) of Gang Zheng, November 2015, Inria Lille.
  - PhD thesis of P.O. Lamarre (LJK, Grenoble), September 2015.
- Pierre-Brice Wieber:
  - PhD thesis of J. Agravante (LIRMM, Montpellier), December 2015.

### **9.3. Popularization**

- Florence Bertails-Descoubes co-authored the paper “Approcher des courbes par des hélices” in the journal *Quadrature* (making the *cover* of the journal), together with Alexandre Derouet-Jourdan, April 2015.
- Pierre-Brice Wieber gave a lecture on “The best way to walk for a robot” to 100 high-school students during the national Mathematics week, March 2015.

## CAGIRE Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Member [RM] of the steering committee of the Special Interest Group “Turbulence Modelling” (SIG-15) of ERCOFTAC (European Research COmmittee for Flow, Turbulence and Combustion) that organizes a series of international workshops dedicated to cross-comparisons of the results of turbulence models and experimental/DNS databases.

### 10.1.2. Scientific events selection

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

- Member [RM] of the scientific committee of the Intl Symp. Turbulence, Heat and Mass Transfer, Sarajevo, Bosnia and Herzegovina, 2015

#### 10.1.2.2. Reviewer

This year, the team members have reviewed (12) contributions to the following conferences:

ECOS 2015 (Pau, France) (1) [PB] ASME GT Turbo Expo 2015 (Montréal, Canada) (2) [PB] ASME-GT Turbo Expo 2016 (Séoul, South Korea) (2) [PB] THMT-2015 (Sarajevo, Bosnia-Herzegovina) (5) [RM] NURETH (The Haag, The Netherlands) (2) [RM]

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing activities

This year, the team members have reviewed (29) papers for the following journals:

- Aerospace Science and Technology (6) [PB]
- Combustion and Flame (5) [PB]
- Computers & Fluids (1) [VP]
- International Journal of Fluid Mechanics Research (2) [PB]
- International Communications in Heat and Mass Transfer (1)[YM]
- International Journal of Sustainable Aviation (1) [PB]
- Journal of Computational and Applied Mathematics (1) [YM]
- Journal of Computational Physics (2) [VP]
- Journal of Petroleum Science and Engineering (2) [PB]
- Journal of the Taiwan Institute of Chemical Engineers (1) [PB]
- International Journal of Heat and Fluid Flow (3) [RM]
- Flow Turbulence and Combustion (2) [RM]
- Journal of Fluid Mechanics (1) [RM]
- Heat Transfer Engineering (1) [RM]

#### 10.1.4. Invited talks

- “A brief overview of Inria Cagire team activity”, CTA/ITA/IAE, Sao José dos Campos, Brazil, 26 November 2015. [PB]

#### 10.1.5. Scientific expertise

V. Perrier is an expert for research for the "Région Île de France".

#### 10.1.6. Research administration

V. Perrier is a member of the evaluation committee, which is in charge of assessing the calibre of research conducted at Inria and guaranteeing the quality of its hiring and internal promotions.

V. Perrier participated to the hiring committees for Young Graduate Scientists (CR2) in Inria Bordeaux and Inria Saclay. He participated also to the hiring committee for an assistant professor in Pau.

V. Perrier is member of the health, safety and working conditions committee, in charge of watching the prevention in the Bordeaux Sud Ouest center.

V. Perrier is appointed member of the Scientific Applications committee of Pau University in charge of developing the scientific computing and high performance computing policy within Pau University.

V. Perrier is an elected member of the Mathematics and Application experts committee in Pau university, in charge of hiring the non permanent teachers, of forming the hiring committees for assistant professors, and of ranking the proposition of invited professors. He was elected vice-chair of this committee in 2015.

V. Perrier is the scientific responsible for the website of the Mathematics department in Pau.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Master : [RM], Turbulence Modelling, 28h, École centrale de Lille/ENSI Poitiers/ISAE-ENSMA, Poitiers, France.
- Engineering School: [RM] Industrial codes for CFD, 12h, ISAE-ENSMA, Poitiers, France.
- Master : [PB] “Fluid mechanics: Mach zero flows vs low Mach number flows”, 30h, M2, Al Faraby University, Almaty, Kazakhstan.
- Master : [PB], "An introduction to the numerical simulation of reacting flows", 15h, M2, ISAE-SupAéro, Toulouse, France.
- Licence : [JJ], "Sequences and functions of one variable", 48h45, L1 - Geo-sciences, Université de Pau et des Pays de l'Adour, Pau, France.
- Licence : [JJ], "Mathematics for the geo-sciences 2", 19h30, L2 - Chemistry, Université de Pau et des Pays de l'Adour, Pau, France.
- Licence : [JJ], "Sequences and series", 19h30, L2 - MIASHS, Université de Pau et des Pays de l'Adour, Pau, France.

### 10.2.2. Supervision

- PhD : Simon Delmas, Simulation numérique directe d'un jet en écoulement transverse à bas nombre de Mach en vue de l'amélioration du refroidissement par effusion des chambres de combustion aéronautiques, 16 December 2015, Sup.: [PB] and Co-sup.: [VP].
- PhD in progress: Jean-François Wald, Modélisation de la turbulence avec traitement adaptatif des parois prenant en compte la thermique active ou passive, started October 2013, Sup.: [RM]

- PhD in progress : Nurtoleu Shakhan, Modelling and simulation of supersonic jet in crossflow, University of Almaty (Kazakhstan), started October 2013, Sup.:A. Naïmanova and Co-Sup.: [PB] (the thesis subject has been modified mid-2014).
- Young Engineer: Benjamin Lux, Implementation of h-p multigrid in Aerosol, Sup.: [VP]

### **10.2.3. Juries**

The participation in the following thesis juries is noted ("referee" in a French doctoral thesis jury is more or less equivalent to an external opponent in an Anglo-Saxon like PhD jury):

- PhD : G. Sempionato "Numerical study of premixed stratified flame using the b-theta flame wrinkling model with extinction limit", National Institute of Aerospace Research (INPE), Sao José dos Campos, Brazil, 25 november 2015, Sup.: W.M.C. Dourado. [PB]
- PhD : D. Lahbib « Modélisation aérodynamique et thermique des multiperforations en LES », University of Montpellier-2, France, 17 December 2015. Supervisor and co-supervisor: F. Nicoud and A. Dauplain. [PB, referee]
- PhD : A. Ghani « Simulation aux grandes échelles des instabilités de combustion transverses pour des flammes parfaitement prémélangées et swirlées diphasiques ». University of Toulouse, France, 17 September 2015. Supervisor: L. Gicquel. [PB]
- PhD : C. Koupper "Unsteady multi-component simulations dedicated to the impact of the combustion chamber on the turbine of aeronautical gas turbines", Université de Toulouse, France, 11 May 2015 (Rapporteur). Supervisor and co-supervisor: L. Gicquel and P. Duchaine. [PB, referee]
- PhD : N. Petrova "Turbulence-chemistry interaction models for numerical simulation of aeronautical propulsion systems", École Polytechnique, Palaiseau, France, 16 January 2015. Supervisor: V.A. Sabel'nikov. [PB, referee]

### **10.3. Popularization**

- « Simulation d'écoulements turbulents : retour d'expérience de partenariats de recherche », Meeting "Nature & Technology" organized by the "Conseil départemental des Pyrénées Atlantiques", devoted to « La recherche scientifique au service de l'aéronautique », Parlement de Navarre, Pau, France, 12 November 2015. [PB]
- « Carrefour des Métiers » organized by the "Zone d'Activité Pédagogique d'Orthez", gymnase Blazy, Mourenx(64), France, 4 April 2015 (a stand was manned by [PB] during one day with the objective of explaining the activity of researcher to an audience of schoolboys/girls and high school students).

## CARDAMOM Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

In collaboration with J.-C. Saut, Mathieu Colin has organized the workshop "Quasilinear and nonlocal nonlinear Schrödinger equations" at the Pauli institute, Vienna. (sept. 28th 2015-oct. 2nd 2015).

Pietro Marco Congedo and Luc Mieussens have contributed to the organisation of the Workshop "Modèles et Méthodes Cinétiques pour la Dynamique des Gaz Raréfiés", Octobre 2015, Bordeaux (with Céline Baranger and Julien Mathiaud).

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

In collaboration with H. Kalisch (University of Bergen), Mathieu Colin has organized the session "Fully nonlinear Boussinesq models: Theory and practice" to the Nineth IMACS International Conference on Nonlinear Evolution Equation and Wave phenomena : Computation and Theory (April 01-05 2015).

In collaboration with A.-P. Engsig-Karup (DTU Compute), and C. Eskilsson (Chalmers University), Mario Ricchiuto has organized the session "Hydrodynamic modelling of wave energy converters" at the 2nd Frontiers in Computational Physics Conference: Energy Sciences, 3-5 June 2015, Zurich, Switzerland

In collaboration with E. Miglio (MOX Politecnico di Milano), Mario Ricchiuto has organized the session "Robust and Multi Scale Models for Water Wave Propagation" at the 2015 SIAM Conference on Mathematical and Computational Issues in the Geosciences, Stanford, June 29-July 2, 2015

#### 10.1.1.2. Member of the editorial boards

Mathieu Colin is a member of the board of the journal Applications and Applied Mathematics: An International Journal (AAM)

Mario Ricchiuto is member of the editorial board of *Computers & Fluids*, Elsevier.

#### 10.1.1.3. Reviewer - Reviewing activities

We reviewed papers for top international journals in the main scientific themes of the team : journal of Computational Physics, Computer Methods in Applied Mechanics and Engineering, Optimization and Engineering, International Journal of Numerical Methods in Fluids, Physics of Fluids, Journal of Marine Science and Technology, Engineering Applications of Computational Fluid Mechanics, Computers and Fluids, International Journal of Modelling and Simulation in Engineering Aircraft Engineering and Aerospace Technology, International Journal of Computational Fluid Dynamics, Applications and applied mathematics : An international journal, Discrete and Continuous Dynamical Systems - Series A, Electronic Journal of Differential Equations, Calculus of Variations and Partial Differential Equations, Nonlinear Analysis: Modelling and Control, Advanced Nonlinear Studies, Communications on Pure and Applied Analysis, Communications in Computational Physics.

### 10.1.2. Invited talks

- 13th US National Congress on Computational Mechanics: H. Beaugendre *et al.*, Unsteady residual distribution schemes adapted to immersed boundary methods on unstructured grids to account for moving bodies, San Diego, CA, July 26-30, 2015.
- Pietro Marco Congedo has been invited as Speaker in three Lectures at the VKI lecture Series 38th Advanced Computational Fluid Dynamics. Adjoint methods and their application in Computational Fluid Dynamics, 2015, Von Karman Institute.
- P.M. Congedo, A phase transition model and scheme for reproducing cavitation, Workshop TOTAL MATHIAS, October 2015, Paris.
- Mario Ricchiuto, Simple conservative Simple and conservative mesh adaptation for shallow water flows, Oberwolfach workshop on “Recent Developments in the Numerics of Nonlinear Hyperbolic Conservation Laws”, Oberwolfach (Germany), September 2015
- Luc Mieussens, SIAM conference on Computational Science & Engineering, 2015, Salt Lake City (Utah, USA)
- Luc Mieussens, Workshop “Kinetic and Related Equations”, 2015, Oaxaca (Mexico), July 2015
- Luc Mieussens, Numerical Simulation of the Crookes Radiometer, 2nd European Conference on Non-equilibrium Gas Flows, University of Technology of Eindhoven (Netherlands), December 2015

### 10.1.3. Leadership within the scientific community

- As of January 2015, Luc Mieussens is member of the scientific board of CEA ;
- Pietro Marco Congedo is part of the scientific committee of the ARA (Association pour la rentrée atmosphérique) Association;
- Mario Ricchiuto is member of the Industrial CFD committee of the Aristote association ;

### 10.1.4. Scientific expertise

H. Beaugendre: ANR expertise (programme accompagnement spécifique des travaux de recherches et d’innovation defense).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Mathieu Colin, Analyse Fonctionnelle et Intégration, 54 h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Mathieu Colin, TER 32h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Mathieu Colin, Analyse, L1, Formation alternée INP, FRANCE

Licence : Pietro Marco Congedo, Fundamentals of Numerical Analysis II, 24h, ENSEIRB-MATMÉCA, France.

Licence : Cécile Dobrzynski, Langages en Fortran 90, 54h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Cécile Dobrzynski, Analyse numérique, 24h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Mario Ricchiuto, Fundamentals of Numerical Analysis, 24h, ENSEIRB-MATMÉCA, France.

Master : Héloïse Beaugendre, Responsable de filière de 3ème année, 15h, M2, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Calcul Parallèle (OpenMP-MPI), 40h, M1, ENSEIRB-MATMÉCA et Université de Bordeaux, France

Master : Héloïse Beaugendre, Encadrement de projets de la filière Calcul Haute Performance, 15h, M2, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Calcul Haute Performance et décomposition de domaine, 39h, M2, ENSEIRB-MATMÉCA et Université Bordeaux, France

Master : Héloïse Beaugendre, Projet fin d'études, 4h, M2, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin, PDE, 30 H, M1, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin, EDP approfondies, 36 h, M2, Université de Bordeaux, FRANCE

Master : Mathieu Colin, TER, 12h, M1, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin, Projet fin d'études, 6h, M2, ENSEIRB-MATMÉCA, FRANCE

Master : Pietro Marco Congedo, Simulation Numerique des ecoulements fluides, 20h, M2, ENSEIRB-MATMÉCA, France

Master : Cécile Dobrzynski, Projet fin d'études, 6h, M2, ENSEIRB-MATMÉCA, FRANCE

Master : Cécile Dobrzynski, TER, 16h, M1, ENSEIRB-MATMÉCA, FRANCE

Master : Cécile Dobrzynski, Théorie du maillage, 12h, M2, formation Structures Composites, ENSCBP, FRANCE

Master : Cécile Dobrzynski, Techniques de maillages, 36h, M2, ENSEIRB-MATMÉCA, FRANCE

Post-graduate: Mario Ricchiuto, 12h, Computational Methods for Compressible Flows, Research Master, von Karman Institute for Fluid Dynamics, BELGIUM

### 10.2.2. Supervision

PhD in progress : Arpaia Luca, Continuous mesh deformation and coupling with uncertainty quantification for coastal inundation problems, started in March 2014.

PhD in progress : Bosi, Umberto, ALE spectral element Boussinesq modelling of wave energy converters, started in November 2015

PhD in progress : Bellec Stevan, Discrete asymptotic modelling of free surface flows, October 2013.

PhD in progress : Cortesi Andrea, Predictive numerical simulation for rebuilding freestream conditions in atmospheric entry flows, started in October 2014.

PhD in progress : Filippini Andrea, Nonlinear finite element Boussinesq modelling of non-hydrostatic free surface flows, started in February 2014.

PhD in progress: Fusi Francesca, Stochastic robust optimization of a helicopter rotor airfoil, started in October 2013.

PhD in progress: Lin Xi, Asymptotic modelling of incompressible reactive flows in self-healing composites, started in October 2014.

PhD in progress : Nouveau Léo, Adaptation de maillage non structurés anisotropes pour les méthodes de pénalisation en mécanique des fluides compressibles, started in Oct 2013.

PhD in progress: Perrot Gregory, Physico-chemical modelling of self-healing ceramic composites, started in October 2011.

PhD in progress : Peluchon Simon, Approximation numérique et modélisation de l'ablation différentielle de deux matériaux: application à l'ablation liquide. Started in December 2014.

PhD in progress : Viville Quentin, Etude sur les méthodes de pénalisation adaptées aux maillages non-structurés fortement anisotropiques et utilisation de l'adaptation de maillage, started in Oct 2013.

### 10.2.3. Juries

PhD Jury:

- B. Monmarson, Institut National Polytechnique de Grenoble (P. Congedo, rapporteur).
- A. Resmini, UPMC, Paris (P. Congedo).
- L. Margheri, UPMC, Paris (P. Congedo).
- C. Mimeau, LJK, Grenoble (H. Beaugendre).
- R. Chauvin, ONERA ISAE SUPAERO, Toulouse (H. Beaugendre).
- G. Perrot, U. Bordeaux (M. Ricchiuto)



### 10.3. Popularization

- P.M. Congedo, "Houston, YOU have a problem !", Unithé ou café Seminar, Inria Bordeaux Sud-Ouest, Avril 2015.
- M. Ricchiuto has contributed to the organisation of the Solutions Cop21 <sup>0</sup>, and represented Inria representatives at the research stand on the opening day.

---

<sup>0</sup><http://www.inria.fr/institut/strategie/inria-a-la-cop21>

## COMMANDS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Axel Kröner (chair), Frederic Bonnans: Workshop on “Optimal Control of Partial and Ordinary Differential Equations”, Palaiseau, November 16-17
- Axel Kröner: Minisymposium on “Optimal Control and Hamilton-Jacobi Bellman Equations: Numerical Methods and Applications”

#### 10.1.1.2. Member of the organizing committees

- F. Bonnans: PGMO days, Oct. 27-28, Ensta, Palaiseau.

### 10.1.2. Scientific events selection

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

- F. Bonnans: XII International Seminar on Optimization and Related Areas (ISORA), Lima, Peru, 5-9 October 2015.  
16th IFAC Workshop Control Applications of Optimization (CAO'2015) Garmisch-Partenkirchen, Germany, Oct. 6-9, 2015.  
EUROPT Workshop on Advances in Continuous Optimization, July 8-10, 2015, Edinburgh.

#### 10.1.2.2. Organization of sessions

- A. Kröner (with D. Kalise (RICAM)): Minisymposium on “Optimal Control and Hamilton-Jacobi Bellman Equations: Numerical Methods and Applications. 27 th IFIP TC7 Conference 2015 on System Modelling and Optimization. SophiaTech Campus Sophia Antipolis, France, June 29 - July 3, 2015

### 10.1.3. Journal

#### 10.1.3.1. Editorial boards

- F. Bonnans is Corresponding Editor of “ESAIM:COCV” (Control, Optimization and Calculus of Variations), and Associate Editor of “Applied Mathematics and Optimization”, “Optimization, Methods and Software”, and “Series on Mathematics and its Applications, Annals of The Academy of Romanian Scientists”.

#### 10.1.3.2. Reviewer - Reviewing activities

Reviews for major journals in the field such as Applied Mathematics and Optimization, Automatica, Journal of Optimization Theory and Applications the SIAM J. Optimization, SIAM J. Control and Optimization.

#### 10.1.4. Leadership within the scientific community

- F. Bonnans: member of the PGMO board (Gaspard Monge Program for Optimization and Operations Research, EDF-FMJH).
- F. Bonnans: member of the Broyden Prize committee (from the Journal Optimization Methods and Software).

#### 10.1.5. Research administration

- F. Bonnans: member of the Institut carnot Inria commission, and of the Inria-Saclay commission for “Technological development actions” (ADT).

### 10.2. Teaching - Supervision - Juries

#### 10.2.1. Teaching

- Master :  
F. Bonnans: Numerical analysis of partial differential equations arising in finance and stochastic control, 24h, M2, Ecole Polytechnique and U. Paris 6, France.  
F. Bonnans: Optimal control, 15h, M2, Optimization master (U. Paris-Saclay) and Ensta, France.  
F. Bonnans : Stochastic optimization, 15h, M2, Optimization master (U. Paris-Saclay), France.

##### E-learning

Pedagogical resources: F. Bonnans, several lecture notes on the page  
<http://www.cmap.polytechnique.fr/~bonnans/notes.html>

#### 10.2.2. Supervision

- PhD in progress : Cédric Rommel, Data exploration for the optimization of aircraft trajectories. Started November 2015, F. Bonnans and P. Martinon, CIFRE fellowship (Safety Line).
- PhD in progress : Benjamin Heymann, Dynamic optimization with uncertainty; application to energy production. Started October 2013, F. Bonnans, Polytechnique fellowship.
- PhD: Florine Bleuse, Optimal control and robustness for rechargeable hybrid vehicles. Started October 2014, stopped September 2015. F. Bonnans and P. Martinon, IFPEN fellowship.
- PhD: Nicolas Grébillé, Numerical methods for solving stochastic equilibrium problems; application to energy markets. Started January 2013, stopped December 2015, F. Bonnans, CIFRE fellowship (EDF R & D).
- PhD: Cristopher Hermosilla, Optimal control problems on well-structured domains and stratified feedback controls, ENSTA ParisTech, February 2015, F. Jean, H. Zidani. <https://hal.inria.fr/tel-01128691> [11][cite:picarelli:tel-01145588]
- PhD: A. Picarelli, On some stochastic control problems with state constraints, ENSTA ParisTech, April 2015, H. Zidani.

#### 10.2.3. Juries

Various PhD juries in France.

### 10.3. Popularization

- F. Bonnans: article on 'Optimal Control' for the Encyclopédie des sciences de l'ingénieur [30].
- F. Bonnans and P. Martinon: Inria-industry day on energetic transition, June 12, 2015. Common stand with Safety Line on energy savings by optimization aircraft trajectories.
- B. Heymann: talk at the Workshop on open power systems (WOPS), Oct. 16, 2015, Institut des systèmes complexes, Paris .

## CQFD Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- NEO 2015 - Pierrick Legrand, <http://neo.cinvestav.mx/NEO2015/>. The aim of the NEO is to bring together scientists from different fields and countries to discuss recent advances in numerical and evolutionary optimization. The workshop has first been held in 2013 in Tlalnepantla, Mexico, and the NEO 2015 is the third edition.
- EVOLVE 2015 - Pierrick Legrand, <http://www.evolve-conference.org/>. The aim of the EVOLVE international conference is to build a bridge between probability, statistics, set oriented numerics and evolutionary computing, as well as to identify new common and challenging research aspects. The event is also intended to foster a growing interest for robust and efficient new methods with a sound theoretical background and, last but not least, to unify theory-inspired methods and cutting-edge techniques aimed at reaching top-level performance. By gathering researchers with different backgrounds, ranging from computer science to mathematics, statistics and physics, to name just a few, a unified view and vocabulary can emerge where theoretical and practical advancements may echo in different domains.. The wide use and large applicability spectrum of evolutionary algorithms in real-life applications nurture the need for further developing solid theoretical grounds. Among many examples intricate mathematical objects show, as proven by acknowledged new results that evolutionary algorithms can, in some cases, act as good and fast estimators. Similarly, the handling of large quantities of data may require the use of distributed environments where the probability of failure and the stability of algorithms need to be formally addressed. Common practice confirms in many cases that theory-based results ensure performance guarantee factors for evolutionary algorithms in areas as diverse as optimization, bio-informatics or robotics. Summarizing, EVOLVE focuses on basic research and application challenges arising in theory, new paradigms and practice, thus aiming to provide a unifying view and to raise questions related to reliability, performance guarantees and modeling.
- EA 2015 - Pierrick Legrand, <https://ea2015.inria.fr/>. 12th Biennial International Conference on Artificial Evolution, EA 2015, held in Lyon (France). Previous EA editions took place in Bordeaux (2013), Angers (2011), Strasbourg (2009), Tours (2007), Lille (2005), Marseille (2003), Le Creusot (2001), Dunkerque (1999), Nimes (1997), Brest (1995), and Toulouse (1994). Authors had been invited to present original work relevant to Artificial Evolution, including, but not limited to: Evolutionary Computation, Evolutionary Optimization, Co-evolution, Artificial Life, Population Dynamics, Theory, Algorithmics and Modeling, Implementations, Application of Evolutionary Paradigms to the Real World (industry, biosciences, ...), other Biologically Inspired Paradigms (Swarm, Artificial Ants, Artificial Immune Systems, Cultural Algorithms...), Memetic Algorithms, Multi-Objective Optimization, Constraint Handling, Parallel Algorithms, Dynamic Optimization, Machine Learning, and hybridization with other soft computing techniques. Each submitted paper was reviewed by three members of the International Program Committee. Among the 31 submissions received, 18 papers were selected for oral presentation and 8 other papers for poster presentation. For the previous editions, a selection of the best papers which were presented at the conference and further revised were published (see LNCS volumes 1063, 1363, 1829, 2310, 2936, 3871, 4926, 5975, 7401 and 8752).

### 10.1.2. Scientific events selection

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

J. Anselmi has been a member of the TPC of the international conferences VALUETOOLS-2015, ScalCom-2015 and ASMTA-2015.

M. Chavent has been a member of program committee of the SFC 2015 conference.

P. Legrand has been a member of program committee for Gecco 2015, EA 2015, NEO 2015, EVOLVE 2015.

F. Dufour has been a member of the program committee of the international SIAM conference on Control & its Application, July 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

F. Dufour is associate editor of the journal: SIAM Journal of Control and Optimization since 2009.

J. Saracco is an associate editor of the journal Case Studies in Business, Industry and Government Statistics (CSBIGS) since 2006.

#### 10.1.3.2. Reviewer - Reviewing activities

All the members of CQFD are regular reviewers for several international journals and conferences in applied probability, statistics and operations research.

### 10.1.4. Invited talks

J. Anselmi gave the following invited talks;

- *Open-loop control of parallel queues: asymptotics of periodic policies*, international workshop “Modern Trends in Controlled Stochastic Processes: Theory and Applications”, Liverpool, July 2015
- *Open-loop control of parallel queues: asymptotics of periodic policies*, international conference APS INFORMS, Istanbul, July 2015

M. Chavent gave invited talks at the seminar of MIAT-INRA of Toulouse in June 2015, and the seminar of the IECL of Nancy in November 2015.

A. Genadot gave a talk at the seminar of IMB, October 2015.

F. Dufour gave the invited talk *Constrained and Unconstrained Optimal Control of Piecewise Deterministic Markov Processes* international workshop “Modern Trends in Controlled Stochastic Processes: Theory and Applications”, Liverpool, July 2015.

### 10.1.5. Research administration

M Chavent and J. Saracco are elected members of CNU 26.

B. de Saporta was an elected member of CNU 26 until sept. 2014.

J. Saracco is vice president of the french statistical society (SFdS).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Licence : J. Anselmi, Probability, 12,41 hours (“équivalent TD”), L1, ENSEIRB MATMECA filiere telecom, Bordeaux, France
- Licence : J. Anselmi, Probability, 8 hours (“équivalent TD”), L1, ENSEIRB MATMECA filiere électronique, Bordeaux, France
- Licence: M. Chavent, Statistique descriptive, 36 ETD, L1, Bordeaux university, France
- License: M. Chavent, Modélisation statistique, 18 ETD, niveau L3, Bordeaux university, France
- Master : M. Chavent, Analyse des données 2, 25 ETD, niveau M2, Bordeaux university, France
- Master : M. Chavent, Apprentissage automatique, 25 ETD, niveau M2, Bordeaux university, France
- Licence : F. Dufour, Probabilités et statistiques, 16 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

- Master : F. Dufour, Méthodes numériques pour la fiabilité, 24 heures, niveau M1, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.
- Master : F. Dufour, Probabilités, 20 heures, niveau M1, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.
- P. Legrand, Algèbre (responsable de l'UE), Licence 1 SCIMS (108 heures)
- P. Legrand, Informatique pour les mathématiques (responsable de l'UE), Licence 1 et Licence 2 (36 heures)
- P. Legrand, Espaces Euclidiens. (responsable de l'UE), Licence 2 SCIMS (54 heures)
- P. Legrand, Formation Matlab pour le personnel CNRS (responsable de l'UE), (24 heures)
- Licence: J. Saracco, Descriptive statistics, 10.5h, L3, First year of ENSC, France
- Licence: J. Saracco, Mathematical statistics, 20h, L3, First year of ENSC, France
- Licence: J. Saracco, Data analysis (multidimensional statistics), 20h, L3, First year of ENSC, France
- Licence: J. Saracco, Mathematics (complement of linear algebra), 20h, L3, First year of ENSC, France
- Master: J. Saracco, Statistical modeling, 20h, M1, Second year of ENSC, France
- Master: J. Saracco, training project, 20h, M1, Second year of ENSC, France
- A. Genadot, Probabilités (30h), Licence MIASHS deuxième année, Université de Bordeaux.
- A. Genadot, Modélisation statistique (18h), Licence MIASHS troisième année, Université de Bordeaux.
- A. Genadot, Probabilités (30h), Master MIMSE première année, Université de Bordeaux.

### 10.2.2. Supervision

PhD completed : Karim Claudio, Un outil d'aide à la maîtrise des pertes dans les réseaux d'eau potable : mise en place d'un modèle de fuite multi-état en secteur hydraulique instrumenté , supervised by J. Saracco and V. Couallier.

PhD completed : Amaury Labenne, Approche Statistique du diagnostic territorial par la notion de qualité de vie, supervised by M. Chavent, J. Saracco and V. Kuentz.

PhD in progress : Adrien Todeschini, Elaboration et validation d'un système de recommandation bayésien, supervised by F. Caron and M. Chavent.

PhD completed : Isabelle Charlier, Optimal quantization applied to conditional quantile estimation, University of Bordeaux and Université Libre de Bruxelles, supervised by J. Saracco and D. Paindavaine.

PhD in progress : Christophe Nivot, Optimisation de la chaîne de montage du futur lanceur européen, September 2013, B. supervised by B. de Saporta and F. Dufour

PhD in progress : Alizé Geeraert, Contrôle optimal des processus Markoviens déterministes par morceaux et application à la maintenance, University of Bordeaux, September 2014, supervised by B. de Saporta and F. Dufour.

Nicolas Antunes: Application d'algorithmes prédictifs à l'identification de niches ecoculturelles des population du passé: approche ethnoarchéologique. Financement ERC F. D'Errico. Co-encadrement : D'Errico, Del Moral, Legrand. Cette thèse consiste à utiliser des algorithmes de type GARP pour prédire l'existence de niches écologiques à partir de données climatologiques. 2011-2014.

Emigdio Z. Flores Lopez, "Classification of mental states with genetic programming", PhD in engineering sciences. Funded by Conacyt (Consejo Nacional de Ciencia y Tecnologia), national scholarship for PNPC programs (Programa Nacional de Posgrados Calidad), Mexico. Co-encadrement: L. Trujillo (50%), P. Legrand (50%). 2013-2016.

### 10.2.3. Juries

J. Anselmi has been a member of the jury for the PhD defense of Henda Ben Cheikh, with thesis granted by INSA-Toulouse.

P. Legrand has been a member of the jury for the PhD defense of Nicolas Antunes, Ubx.

## DEFI Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

- H. Haddar organized with A. Lechleiter the second edition of the Franco-German Summer School Inverse Problems for Waves Ecole Polytechnique, August 24-28, 2015. Over 50 participants took part of this event. This event was mainly funded by the Franco-German university with participation of Inria, Ecole polytechnique and University of Bremen. [http://www.math.uni-bremen.de/zetem/cms/detail.php?template=ipschool2015\\_parse\\_title&person=ip-school2015](http://www.math.uni-bremen.de/zetem/cms/detail.php?template=ipschool2015_parse_title&person=ip-school2015)

#### 9.1.1.1. General chair, scientific chair

- G. Allaire is the scientific chair and one of the main organizers of the CEA/GAMNI seminar on computational fluid mechanics, IHP Paris (January 2015).

#### 9.1.1.2. Member of the organizing committees

- G. Allaire, PGM0 conference (27-28 October 2015).

### 9.1.2. Scientific events selection

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

- H. Haddar, Waves 2015, Karlsruhe (July 2015)

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- G. Allaire is member of the editorial board of
  - book series "Mathématiques et Applications" of SMAI and Springer,
  - ESAIM/COCV, Structural and Multidisciplinary Optimization,
  - Discrete and Continuous Dynamical Systems Series B,
  - Computational and Applied Mathematics,
  - Mathematical Models and Methods in Applied Sciences (M3AS),
  - Annali dell'Universita di Ferrara,
  - OGST (Oil and Gas Science and Technology),
  - Journal de l'Ecole Polytechnique - Mathématiques,
  - Journal of Optimization Theory and Applications.
- H. Haddar is member of the editorial advisory board of Inverse Problems
- J.-R. Li is an Associate Editor of the SIAM Journal on Scientific Computing.

#### 9.1.3.2. Reviewer - Reviewing activities

The members of the team reviewed numerous papers for numerous international journals. Too many to make a list.

### 9.1.4. Invited talks

- Lucas Chesnel gave a talk at the “Séminaire de Mathématiques Appliquées du Collège de France”. The video is available here <http://www.college-de-france.fr/site/pierre-louis-lions/seminar-2015-01-16-11h15.htm>
- Grégoire Allaire
  - 4ème conférence internationale de la SM2A, Oujda, Maroc (february 2015). Congrès "Simulation" de la Société des Ingénieurs de l'Automobile (SIA), Montigny le Bretonneux (march 2015).
  - Journées du GDR Mascot-Num, Saint-Etienne (april 2015).
  - European forum on additive manufacturing, Chatenay Malabry (june 2015).
  - Ecole d'été du CIMPA, Mumbai (july 2015).
  - Variational Analysis and Aerospace Engineering, Erice (september 2015).
  - Workshop on Optimal Control of Partial and Ordinary Differential Equations, Palaiseau (november 2015).
  - Calculus of Variations and its Applications, Lisboa (december 2015).
- Housseem Haddar
  - Mini-symposium “Inverse problems for elliptic PDEs, analysis and applications”, IFIP, June 29 - July 3, 2015
  - IMA Hot Topics Workshop, Hydraulic Fracturing: From Modeling and Simulation to Reconstruction and Characterization, University of Minnesota, May 11-14, 2015
  - Workshop "reconstruction, stability and applications in inverse problems", IHP, 29 June - 3 July 2015
  - Workshop “problèmes inverses pour les EDP”, Université de Reims, 2-3 June, 2015
  - Workshop on "Inverse Problems in Wave Propagation", IWaP 2015, University of Bremen, April 7-10, 2015.
  - Workshop on “Multi-scale Waveform Modeling and Inversion” at KAUST from March 22-24 2015

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Licence : Grégoire Allaire, Approximation Numérique et Optimisation, for students in the second year of Ecole Polytechnique curriculum: 8 lessons of 1h30.
- Licence : Housseem Haddar, Approximation Numérique et Optimisation, for students in the second year of Ecole Polytechnique curriculum: 8 TDs of 4h.
- Licence : Housseem Haddar, Variational analysis of partial differential equations, for students in the second year of Ecole Polytechnique curriculum: 8 TDs of 4h.
- Licence: Lucas Chesnel, “Elementary tools of analysis for partial differential equations”, 29 equivalent TD hours, L3, Ensta ParisTech, Palaiseau, France
- Licence: Lucas Chesnel, Mentoring for the course “Variational analysis of partial differential equations”, 15 equivalent TD hours, L3, École Polytechnique, Palaiseau, France
- Master : Grégoire Allaire, Optimal design of structures, for students in the third year of Ecole Polytechnique curriculum. 9 lessons of 1h30.
- Master : Grégoire Allaire, Transport et Diffusion, for students in the third year of Ecole Polytechnique curriculum. With F. Golse, 1/2 of 9 lessons of 1h30.



- Master : Grégoire Allaire, Functional analysis and applications, for Master (M2) students of Ecole Polytechnique and Paris 6 University, 6 lessons of 3h.
- Master : Housseem Haddar, Inverse problems, for Master (M2) students of Ecole Polytechnique and Paris 6 University, 1/2 of 9 lessons of 2h.
- Master: Lucas Chesnel, “A mathematical study of transmission problems with sign-changing coefficients”, (main instructor) 16 equivalent TD hours, M2, Ensta ParisTech, Palaiseau, France

### **9.2.2. Supervision**

- Ph.D. : L. Audibert, Qualitative methods for non destructive testing of concrete like materials, September 2015, Ecole polytechnique, H. Haddar.
- Ph.D. : T. Mercier Data assimilation for temperature estimates in PWR, September 2015, Ecole polytechnique, H. Haddar.
- Ph.D. : T. Rienmuller, Scattering for inhomogeneous waveguides, 2015, September 2015 University of Bremen and Ecole polytechnique, A. Lechleiter and H. Haddar.
- Ph.D. in progress: M. Lakhali, Time domain inverse scattering for buried objects, 2014, H. Haddar
- Ph.D. in progress: T.P. Nguyen, Direct and Inverse scattering from locally perturbed layers, 2013, H. Haddar
- Ph.D. in progress: B. Charfi, Identification of the singular support of a GIBC, 2014, H. Haddar and S. Chaabane
- Ph.D. in progress: G. Fournet, Inclusion of blood flow in micro-vessels in a new dMRI signal model, 2013, J.-R. Li and L. Ciobanu
- Ph.D. in progress: S. Schiavi, Homogenized models for Diffusion MRI, 2013, H. Haddar and J.-R. Li
- Ph.D. in progress: K. Van Nguyen, Modeling, simulation and experimental verification of water diffusion in neuronal network of the Aplysia ganglia, 2014, J.-R. Li and L. Ciobanu
- PhD in progress : A. Maury, shape optimization for non-linear structures, 2013, G. Allaire and F. Jouve
- PhD in progress : J.-L. Vié, optimization algorithms for topology design of structures, 2013, G. Allaire and E. Cancès
- PhD in progress : C. Patricot, coupling algorithms in neutronic/thermal-hydraulic/mechanics for numerical simulation of nuclear reactors, 2013, G. Allaire and E. Hourcade
- PhD in progress : A. Talpaert, the direct numerical simulation of vapor bubbles at low Mach number with adaptative mesh refinement, 2013, G. Allaire and S. Dellacherie
- PhD in progress : A. Bissuel, linearized Navier Stokes equations for optimization, floating and aeroacoustic, 2014, G. Allaire
- PhD in progress : M. Giacomini, Shape optimization and Applications to aeronautics, 2013, O. Pantz and K. Trabelsi
- PhD in progress :P. Geoffroy on topology optimization by the homogenization method in the context of additive manufacturing (Safran Tech, to be defended in 2019), G. Allaire.

## DISCO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Catherine Bonnet was co-chair of the Organizing Committee of SIAM CT15 which will held 8-10 July in Paris.
- Catherine Bonnet is together with Alexandre Chapoutot and Paolo Mason the organizer of the Working Group Shy of Digicosme on the Plateau de Saclay.

#### 10.1.1.2. Member of the organizing committees

- Catherine Bonnet was with Maurice Robin (DIGITEO) the co-Local Conference Organizer of SIAM CT15 which will held 8-10 July in Paris.
- Catherine Bonnet was a member of th organizing Committee of IFIP 2015, June 29-July 3rd 2015, Sophia-Antipolis, France.

### 10.1.2. Scientific events selection

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

- Catherine Bonnet is a member of the IPC of the IFAC TDS16 Conference, Istanbul, june 2016.
- Hakkı Unal is a Member of National Programme Committee of Turkish Automatic Control Meeting in 2016.
- Frédéric Mazenc a member of the scientific committee of SIAM on Control and Its Applications CT15, (Paris, France, July 2015), <http://www.siam.org/meetings/ct15/>
- Sorin Olaru was member of the IPC for ICSTCC 2015.
- Guillaume Sandou was a member of the program committee of the 2015 IEEE Symposium on Computational Intelligence in Production and Logistics Systems, Cape Town, South Africa.

#### 10.1.2.2. Reviewer

The team reviewed many papers for international conferences e.g IEEE Conference on Decision and Control, American Control Conference, European Control Conference, the power systems computation conference (PSCC)

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Frédéric Mazenc is Member of the Mathematical Control and Related Fields editorial board.
- Frédéric Mazenc is Member of the European Journal of Control editorial board.
- Frédéric Mazenc is Associate Editor for the Asian Journal of control.
- Frédéric Mazenc is Associate Editor for the Journal of Control and Decision.
- Frédéric Mazenc is Associate Editor for IEEE Transactions on Automatic Control.
- Frédéric Mazenc was Associate Editor for the conferences 2016 American Control Conference, Boston, USA and the 54th IEEE Conference on Decision and Control, Osaka, Japan, (2015).
- A. Quadrat is an associate editor of the journal *Multidimensional Systems and Signal Processing*, Springer.
- Sorin Olaru is an associate editor for IMA Journal of Mathematical Control and Information

### 10.1.3.2. Reviewer - Reviewing activities

The team reviewed many papers for international journals of mathematics, control Theory and symbolic computation e.g European Journal of Control, Automatica, IEEE Trans. Aut. Contr., IEEE Trans. on Control Systems Technology, IMA Journal of Mathematical Control and Information, Journal of Process Control, Asian Journal of Control, transactions on control systems and technology journal and for a book for Springer.

### 10.1.4. Invited talks

Y. Bouzidi was an invited speaker at the conference ANR GeoLIM, Jussieu 22-24/06 and at the Cadi Ayyad university, Marrakesh, Morocco (17/12), and gave a talk at the seminar of the Vegas team, Inria Nancy Grand Est (30/06).

Frédéric Mazenc was a plenary speaker of 12th International Multi-Conference on Systems, Signals and Devices, SDD'15, <http://www.ssd-conf.org/ssd15/>. March 16-19, 2015, Mahdia, Tunisia. Title of his talk: *Stabilization of Time-Varying and Nonlinear Systems with Pointwise and Distributed Delays Through the Reduction Model Approach*.

Frédéric Mazenc gave a talk entitled "*Interval Observer: recent advances*" for the Journée Analyse et Synthèse d'observateur pour les systèmes complexes, INSA Centre Val de Loire, Campus de Bourges, 17 juin 2015, <http://www.ensea.fr/webecs/New-SYNC/>

Frédéric Mazenc gave a talk entitled "*Continuous-Discrete Observers for Time-Varying Nonlinear Systems: A Tutorial on Recent Results*" for the workshop entitled "Praly's fest" in July, 27-28th 2015, Mines ParisTech, Paris, <http://cas.ensmp.fr/petit/LP/>

A. Quadrat was an invited speaker at 7th Functional Equations in LIMoges (FELIM), Limoges, 23-25/03, at the conference ANR GeoLIM, Jussieu 22-24/06, and at the 4th DelSys conference (25-27/11). He gave a talk at the GT Systèmes à Retards (SAR) (04/06) and at the seminar of the Non-A team, Inria Lille - Nord Europe (06/02) and of the SpecFun team, Inria Saclay (15/06).

Sorin Olaru delivered an IEEE talk in Montreal, Canada in 2015. Details at: <https://meetings.vtools.ieee.org/m/34673>

### 10.1.5. Leadership within the scientific community

Frédéric Mazenc was Co-Editor of "Recent Results on Nonlinear Delay Control Systems, Springer", Advances in Delays and Dynamics, Volume 4 2016,

Editors: Michael Malisoff, Pierdomenico Pepe, Frédéric Mazenc, Iasson Karafyllis,

ISBN: 978-3-319-18071-7 (Print) 978-3-319-18072-4 (Online).

### 10.1.6. Scientific expertise

Catherine Bonnet is a member of the Evaluation Committee of Inria since September 2015.

Catherine Bonnet has been an expert for ANR.

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

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

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

### 10.1.7. Research administration

Catherine Bonnet is in the board of Directors of the consortium Cap'Maths.

She is also involved in the Inria Parity Committee created in 2015.

Frédéric Mazenc and Sorin Olaru are members of the Conseil du Laboratoire of Laboratoire des Signaux et Systèmes (L2S).

Frédéric Mazenc is president of the commission scientifique du CRI Saclay-Ile-de-France.

Frédéric Mazenc is member of the Bureau du Comité des Projets du CRI Saclay - Ile-de-France

A. Quadrat was in charge for Inria Saclay of the ANR MDOS.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: A. Quadrat gave a course on constructive algebra (30 hours) at AIMS Structured Master's Mathematical Sciences, African Institute for Mathematical Sciences, South Africa, 23/02-13/03/2015.

Licence : Guillaume Sandou, Signals and Systems, 87h, L3, CentraleSupélec

Licence : Guillaume Sandou, Mathematics and programming, 18h, L3, CentraleSupélec

Master : Guillaume Sandou, Automatic Control, 8h, M1, CentraleSupélec

Master : Guillaume Sandou, Numerical methods and optimization, 28h, M1 and M2, Centrale-Supélec

Master : Guillaume Sandou, Modelling and system stability analysis, 21h, M2, CentraleSupélec

Master : Guillaume Sandou, Control of energy systems, 22h, M2, CentraleSupélec

Master : Guillaume Sandou, Robust control and mu-analysis, 9h, M2, CentraleSupélec

Master : Guillaume Sandou, Systems identification, 32h, M2, ENSTA

Master : Guillaume Sandou, System Analysis, 22h, M2, Ecole des Mines de Nantes

### 10.2.2. Supervision

- PhD in progress : Mohamed Lotfi Derouiche, Sur l'optimisation par métaheuristiques avancées de lois de commande prédictive non linéaire. Supervisor: Soufienne Bouallegue, Joseph Haggège et Guillaume Sandou.
- PhD in progress Walid Djema, Analysis of an AML model enabling evaluation of polychemiotherapies delivered in the case of AML which have a high level of Flt-3 duplication (Flt-3-ITD). Supervisor : Catherine Bonnet. Co-supervisors : Jean Clairambault and Frédéric Mazenc.
- PhD : Philippe Feyel, Optimisation des correcteurs par les métaheuristiques et application à la stabilisation inertielle de ligne de visée, soutenue le 16 juin 2015.
- PhD in progress : Sophie Frasnedo, Optimisation globale des lois de commande des autodirecteurs sur critère optronique : application à un autodirecteur à double phase de stabilisation. Supervisors : Gilles Duc et Guillaume Sandou.
- PhD in progress : Nicolo Gionfra, Optimisation du pilotage d'un parc d'énergies renouvelables avec stockage et du réseau de distribution sous-jacent. Supervisors: Houria Siguerdidjane et Guillaume Sandou.
- PhD in progress : Mohamad Koteich, Modélisation et Observabilité des Machines Electriques en vue de la commande sans capteur mécanique. Supervisors: Gilles Duc et Guillaume Sandou.
- PhD in progress : Juliette Pochet, Analyse de performance et de résilience d'une ligne de type RER équipée d'un automatisme CBTC. Supervisors: Guillaume Sandou.
- PhD: G. Rance, *Stabilisation paramétrique de systèmes flexibles à retard et applications aux viseurs*, SAGEM Défense Sécurité, CIFRE. Supervisors: A. Quadrat and H. Mounier.
- Postdoc: Y. Bouzidi, *Constructive study of analysis and synthesis problems of multidimensional systems*, Inria Saclay - Île-de-France, ANR MSDOS. Supervisor: A. Quadrat.

### 10.2.3. Juries

Catherine Bonnet was the President of the Jury of the Junior Researcher (CR2) Competition of the Saclay-Ile-de-France Inria center in 2015.

She was the external examiner of the thesis of Aolo Bashar Abusaksakar entitled "*Properties of Delay Systems and Diffusive Systems*", School of Mathematics, University of Leeds, UK, 29 June 2015.

Frédéric Mazenc was a reviewer of the PhD thesis of Vincent Léchappé, entitled "*Predictive control and estimation of uncertain systems with an input delay*", (Université de Nantes Angers Le Mans, ECN, December 7, 2015).

A. Quadrat was a reviewer of the PhD thesis of S. Damak, "Approximation de systèmes à paramètres répartis : Analyse, simulation et commande", INSA Lyon, 31/03.

Sorin Olaru was member of the PhD defense committee of Juan Manuel Grosso Perez at Universitat Politècnica de Catalunya.

Guillaume Sandou was a member of the following PhD theses committees:

- + Yujun He, Contribution au réglage de la tension sur un réseau HTA avec producteurs. Apport de la flexibilité de la demande, 5 mars 2015.
- + Rodrigo Mena, Risk based Modeling, Simulation and Optimization for the Integration of Renewable Distributed Generation into Electric Power Networks, 30 juin 2015.

## DOLPHIN Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- L. Jourdan, C. Dhaenens, M-E. Marmion: Learning and Intelligent OptimizatioN Conference; LION 9, Lille, FRANCE, Jan. 12-15, 2015.
- N. Melab: Chair of the McM'2015 workshop (Multi/Many-core computing for parallel Metaheuristics) organized in conjunction with MIC'2015, Agadir, June 7<sup>th</sup> 2015.
- N. Melab: Chair of 5 simulation and HPC-related seminars at Lille 1 oct-dec. 2015 (UPMC, Nvidia, LATMOS/UPMC, VU Leuven, Intel).
- E-G. Talbi: General chair MIC'2015 Int. Conf. on Metaheuristics, Agadir, Morocco, June 2015.

#### 10.1.1.2. Member of the organizing committees

- D. Brockhoff: Lorentz Center workshop "SAMCO - Surrogate-Assisted Multi-Criteria Optimization", Leiden, Netherlands together with Michael Emmerich, Boris Naujoks, and Tobias Wagner, March 2016
- D. Brockhoff: special session on "Evolutionary Multiobjective Optimization" at the MCDM'2015 conference, Hamburg, Germany, together with Joshua Knowles, Boris Naujoks, and Karthik Sindhya, August 2015
- D. Brockhoff: GECCO 2015 workshop entitled "Blackbox Optimization Benchmarking", Madrid, Spain, together with Youhei Akimoto, Anne Auger, Nikolaus Hansen, Olaf Mersmann, and Petr Pošík, July 2015
- D. Brockhoff: CEC 2015 special session entitled "Blackbox Optimization Benchmarking", Sendai, Japan, together with Youhei Akimoto, Anne Auger, Nikolaus Hansen, Olaf Mersmann, and Petr Pošík, May 2015
- L. Jourdan: MIC'2015 Int. Conf. on Metaheuristics and Nature Inspired Computing, Agadir, Morocco, June 2015.
- L. Jourdan: EA'2015 Biennial International Conference on Artificial Evolution Publicity chair
- A. Liefooghe: CEC 2015 special session entitled "Fitness landscape analysis and search space structure", Sendai, Japan, together with Hernan Aguirre, Kiyoshi Tanaka and Sébastien Verel, May 2015

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- E-G. Talbi: Track chair « Big data and smart applications » of IIT'2015 11th IEEE Int. Conf. on Innovation in Information Technology, Dubai, Nov 2015.
- E-G. Talbi: Program chair IEEE NIDISC'2015 Workshop on Nature Inspired distributed Computing, Hyderabad, India, May 2015.

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

- CEC'2015: IEEE Congress on Evolutionary Computation (Sendai, Japan, 2015)
- EA'2015: 12th International Conference on Artificial Evolution (Lyon, France 2015)

- EMO'2015: 8th International Conference on Evolutionary Multi-criterion Optimization (Guimarães, Portugal, 2015)
- EPIA'2015: 17th Portuguese Conference on Artificial Intelligence, Track on Artificial Life and Evolutionary Algorithms (Coimbra, Portugal, 2015)
- EvoCOP'2015: 15th European Conference on Evolutionary Computation in Combinatorial Optimisation (Copenhagen, Denmark, 2015)
- GECCO'2015: Genetic and Evolutionary Computation Conference, Evolutionary Combinatorial Optimization and Metaheuristics (ECOM) track (Madrid, Spain, 2015)
- LION'2015: 9th Learning and Intelligent Optimization Conference (Lille, France, 2015)
- ICCS'2015 International Conference on Computational Science, Reykjavik, Iceland, June 1-3, 2015.
- IEEE IPDPS/NIDISC'2015 IEEE International Workshop on Nature Inspired Distributed Computing, Hyderabad, India, May 25-29, 2015.
- IEEE IPDPS/PCO'2015 IEEE Intl. Workshop on Parallel Computing and Optimization, Hyderabad, India, May 25-29, 2015.
- MIC'2015 Metaheuristics Intl. Conf., Agadir, Morocco, June 7-10, 2015.
- COSI'2015 Colloque sur l'Optimisation et les Systèmes d'information, Oran, Algérie, June 1-3, 2015.
- INCoS 2015 Intl. Conf. on Intelligent Networking and Collaborative Systems, Taipei, Taiwan, Sep. 2-4, 2015.
- CoCoNet'2015 Intl. Conf. on Computing and Network Communications, Trivandrum, India, Dec. 16-19, 2015.
- IC3'2015 Intl. Conf. on Contemporary Computing, Noida, India, Aug. 20-22, 2015.
- CloudTech'2015 Intl. Conf. of Cloud Computing Technologies and Applications, Marrakech, Morocco, June 2-4, 2015.
- Workshop on Foundations of Genetic Algorithms (FOGA 2015).

### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

- E-G. Talbi : Editor of the Journal « Computers and Industrial Engineering (CAIE, Elsevier)» Area «Computational Intelligence».
- D. Brockhoff, B. Derbel, A. Liefooghe and S. Verel: Guest editors of a special issue on Evolutionary Multiobjective Optimization, European Journal of Operational Research.
- N. Melab Guest Editor for the special issue on Multi/Many-core Computing for Parallel Metaheuristics. In Concurrency and Computation: Practice and Experience, 2015.
- E-G. Talbi, P. Bouvry : Guest editor of a special issue on Computational intelligence for Cloud computing, IEEE Computational Intelligence Magazine, Vol.10, No.1, 2015.
- D. Brockhoff : Special Issue "Evolutionary Multiobjective Optimization" of Computers and Operations Research journal (C&OR), together with Joshua Knowles, Boris Naujoks, and Karthik Sindhya, submission deadline in September 2015
- L. Jourdan : Review Editor Frontiers in Big Data.

#### *10.1.3.2. Reviewer - Reviewing activities*

- A Quarterly Journal of Operations Research (4OR, Springer)
- European Journal of Operational Research (EJOR, Elsevier)
- Journal of Heuristics (HEUR, Springer)
- Soft Computing (SOCO, Springer)

- IEEE Transactions on Evolutionary Computation
- Applied Soft Computing
- International Transactions in Operational Research (ITOR)
- IEEE/ACM Transactions on Computational Biology and Bioinformatics
- Computers & Operations Research (COR, Elsevier)
- Computers & Industrial Engineering (CAIE, Elsevier)
- ACM Computing Surveys
- Computation and Concurrency: Practice and Experience
- Parallel Processing Letters
- Omega, The International Journal of Management Science

#### **10.1.4. Invited talks**

- L. Jourdan, Combinatorial optimization for Bioinformatics, invited talk (1day), summer school of Bioinformatics, Angers, 2015.
- A. Liefooghe, “On multi-objective fitness landscapes and the performance of EMO algorithms”, Dec 2015, Shinshu University, Nagano, Japan
- D. Brockhoff, invited tutorial “Evolutionary Multiobjective Optimization”, GECCO 2015, Madrid, Spain, July 12, 2015, together with Tobias Wagner
- N. Melab, Invited lecture “Basics on parallel programming”, HPC day organized in conjunction with COSI’2015, May 31<sup>th</sup>, Oran, Algeria, 2015.
- E-G. Talbi, “Combining metaheuristics with mathematical programming, constraint programming and machine learning”, Keynote speaker ROADEF’2015 Société Française de Recherche Opérationnelle, Marseille, France, Feb 2015.
- E-G. Talbi, “Solving complex optimization problems”, Tutorial IIT’2015 11th Int. Conf. on Innovations in Information Technology, Dubai, UAE, Nov 2015.
- C. Dhaenens, L. Jourdan and M-E. Marmion, “Synergy of knowledge and optimization”, KU Leuven KULAK, April 2015
- C. Dhaenens and M-E. Marmion, “Synergy of knowledge and optimization”, Shinshu University, Nagano, Japan, Feb. 2015

#### **10.1.5. Leadership within the scientific community**

- L. Jourdan : Co-president of the working group “ATOM: Multi-objective optimization”, GDR RO.
- N. Melab : scientific leader of Grid’5000 (<https://www.grid5000.fr>) at Lille, Since 2004
- N. Melab : Chargé de Mission of High Performance Computing and Simulation at Université Lille 1, Since 2010
- E-G. Talbi : Co-president of the working group “META: Metaheuristics - Theory and applications”, GDR RO and GDR MACS.
- E-G. Talbi : Co-Chair of the IEEE Task force on Cloud Computing within the IEEE Computational Intelligence Society.
- L. Jourdan, A. Liefooghe : Secretary of the association “Artificial Evolution” (EA).

#### **10.1.6. Scientific expertise**

- C. Dhaenens: Jury of the contest “les pros de la RO”, organised by the ROADEF society, Nov 2015.
- L. Jourdan: external reviewer for the Luxembourg National Research Fund (FNR).
- L. Jourdan: external reviewer for the FWO (Research Foundation Flanders ).



- L. Jourdan : Jury of the contest "prix Robert Faure" for contribution in the field of Operational research organized by ROADEF Feb. 2015
- E-G. Talbi : Expert for Qatar Foundation QNRF projects, 2015.

### **10.1.7. Research administration**

- C. Dhaenens : Vice-head of CRISAL laboratory (Centre de Recherche en Informatique, Signal et Automatique de Lille), common to CNRS, University of Lille and Ecole Centrale de Lille, 430 people.
- F. Dufossé : Member of the Inria "center committee" and "research applications".
- N. Melab : Member of the steering committee of "Maison de la Simulation" at Université Lille 1.
- L. Jourdan Membre du bureau de la direction des écoles doctorales en Informatique du Nord Pas de Calais.

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

### **10.2.1. Teaching**

- Licence: A. Liefoghe, Algorithmic and Data structure, 36h ETD, L2, Université de Lille 1, France
- Licence: A. Liefoghe, Algorithmic for Operations Research, 36h ETD, L3, Université de Lille 1, France
- Master: A. Liefoghe, Databases, 30h ETD, M1, Université de Lille 1, France
- Master: A. Liefoghe, Advanced Object-oriented Programming, 53h ETD, M2, Université de Lille 1, France
- Master: A. Liefoghe, Combinatorial Optimization, 10h ETD, M2, Université de Lille 1, France
- Master: A. Liefoghe, Multi-criteria Decision Aid and Optimization, 25h ETD, M2, Université de Lille 1, France
- A. Liefoghe is supervising the Master 2 MIAGE IPI-NT
- B. Derbel is the co-supervising the Master 2 MOCAD (Complex Models, Algorithms, Data)
- Master : Bilel Derbel, Combinatorial Optimization, 35h, M2, University Lille 1, France
- Master : Bilel Derbel, Grid Computing, 16h, M2, University Lille 1, France
- Master : Bilel Derbel, Parallel and Distributed Programming, 35h, M1, University Lille 1, France
- Master : Bilel Derbel, Advanced Object Programming, 132h, M1, University Lille 1, France
- Master : Bilel Derbel, Algorithms and Applications, 28h, M1, University Lille 1, France
- Laetitia Jourdan: Master in Computer Sciences and Master MIAGE of University of Lille 1: Business Intelligence (30h), Datamining (60h), Datawarehouse (30h)
- Laetitia Jourdan : Informatique L1 University of Lille 1 48h
- Laetitia Jourdan: Responsible of sandwich courses in Master Lille 1
- Laetitia Jourdan : Responsible of Master MIAGE Formation en Alternance
- Laetitia Jourdan: Co-responsible of Licence 1 Computer Science
- Dimo Brockhoff: Introduction to Optimization, Ecole Centrale Paris, Supelec, ESSEC, MSc in Data Sciences & Business Analytics
- Dimo Brockhoff: Introduction to Optimization, Univ. Paris-Sud, MSc (together with Anne Auger (TAO team)), M2 Apprentissage, Information et Contenu
- Master lecture: N. Melab, Supercomputing, 33h, Master 2, Université Lille 1, France
- Master lecture: N. Melab, Operations Research, 82h, Master 1, Université Lille 1, France

- Master leading: N. Melab, Co-head (with C. Chainais) of the master 2 of advanced scientific computing, U. Lille 1
- Engineering school : Clarisse Dhaenens, Graphs and Combinatorics, 80 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school : Clarisse Dhaenens, Operations Research, 70 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school : Clarisse Dhaenens, Algorithmics and programming, 45 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Advanced optimization, 36h, Polytech'Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Data mining, 36h, Polytech'Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Operations research, 60h, Polytech'Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Graphs, 25h, Polytech'Lille, University Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Database (responsible), 60h, 1st year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Algorithm and Programming, 44h, 1st year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Graphs (responsible), 44h, 1st year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Optimization, 14h, 2nd year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Optimization, 8h, 3rd year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Data mining, 10h, 3rd year, Université Lille 1, France

### **10.2.2. Supervision**

PhD defended : Sophie Jacquin, Combining exact method and metaheuristics for production problems, 11/2015, Co-direction : El-Ghazali Talbi et Laetitia Jourdan

Phd defended : Nicolas Dupin, Modélisation et résolution de grands problèmes stochastiques et combinatoires : Application à la gestion de production électrique, Oct 2015, El-Ghazali Talbi

Phd defended : Mathieu Gérard, Contribution à la résolution de problèmes d'optimisation en distribution, Dec 2015, Francois Clautiaux.

PhD defended: Rudi LEROY, Parallel Branch-and-Bound revisited for solving permutation combinatorial optimization problems on multi-core processors and coprocessors, Nouredine Melab and Mohand Mezmaç (UMONS, Belgium), Defended on 19/11/2015

PhD in progress: Maxence Vandromme, Datamining et optimisation combinatoire adaptés à la prévention et à l'orientation de patients, début : 1/06/2014, CIFRE with Alicante Co-direction : Clarisse Dhaenens and Laetitia Jourdan

PhD in progress: Gauvain Marquet, Mono-objective decomposition for multi-objective optimization, University Lille 1, Sep. 2014, Bilel Derbel and El-Ghazali Talbi

PhD in progress : Thanh-Do Tran, Benchmarking Continuous Multiobjective Optimization Algorithms, since 12/2011, Dimo Brockhoff and El-Ghazali Talbi

PhD in progress: Jan GMYS, Optimization and simulation of electrical networks using massively parallel heterogeneous computing, Nouredine Melab and Daniel Tuytens (UMONS, Belgium), since October 2014

PhD in progress : Sylvain Dufourny, Optimisation de décisions économiques concurrentielles dans un simulateur de gestion d'entreprise, Novembre 2012, Clarisse Dhaenens

PhD in progress : A. Q. Nguyen, Green scheduling on cloud computing systems, 11/2012, El-Ghazali Talbi and Pascal Bouvry

PhD in progress : Oumayma Bahri, Fuzzy multi-objective optimization, 11/2013, El-Ghazali Talbi and Nayla Ben-Omar

PhD in progress : Asma Gannouni, Stochastic multi-objective optimization using metaheuristics , 11/2013, El-Ghazali Talbi and Rachid Ellaia

New PhD : Aymeric Blot, Réagir et s'adapter à son environnement : Concevoir des méthodes autonomes pour l'optimisation combinatoire à plusieurs objectifs , ENS Student co-directed Laetitia Jourdan and Marie-Eléonore Marmion

New PhD : AnneLise Bedenel, Classification supervisée et non supervisée en présence de descripteurs évoluant dans le temps. Application à la comparaison d'assurances en ligne, CIFRE with Pixeo co-directed Laetitia Jourdan and Christophe Biernacki (Modal Inria Team)

New PhD : Gautier Vaillant, Parallel combinatorial optimization for molecular sampling and docking on hybrid clusters, Nouredine Melab and Daniel Tuytens (UMONS, Belgium), Started in 09/2015

### 10.2.3. Juries

- L. Jourdan: PhD thesis: Pierrick Buret, "Sécurité temporelle des hyperviseurs aérospatiaux", Université de Limoges, Dec 2015.
- L. Jourdan: Phd thesis: CHRAIBI Abdelahad, "A Decision Making System for Operating Theater Design: Application of Facility Layout Problem", Université Américaine de Beyrouth, Liban, Dec 2015.
- L. Jourdan : Optimization of the car relocation operations in one-way carsharing systems, de Rabih ZAKARIA de l'UTBM, December 14th 2015 (L. Jourdan, Rapporteur)
- N. Melab: HDR: Patricia Stolf, "Resource management for green infrastructures through reconfiguration", Université de Toulouse, November 13th, 2015.
- E-G. Talbi: PhD thesis: Charlie Vanaret "Hybridation d'algorithmes évolutionnaires et de méthodes d'intervalles pour l'optimisation de problèmes difficiles», Université de Toulouse, Jan 2015.
- E-G. Talbi: HDR : A. Sbihi "Contributions à la résolution de quelques problèmes d'optimisation combinatoire avec contraintes complexes: Etude et stratégie algorithmique", Université de Cergy-Pontoise, Jan 2015.
- E-G. Talbi: PhD : Simon Thevenin "Metaheuristics for constrained production scheduling problems", Université Genève, Switzerland, June 2015.
- E-G. Talbi: HDR : D. Duvivier "Contributions au couplage de l'optimisation et de la simulation", Université de Valenciennes, Sept 2015.
- E-G. Talbi: HDR : A. Nakib "From static to dynamic metaheuristics", Université de Paris Est, Dec 2015.

### 10.3. Popularization

- D. Brockhoff: Blackbox Optimization talk at 30min of Inria.
- L. Jourdan: Bioinspired computing - talk in undergraduate and graduate schools.
- L. Jourdan: Operational research - for 2nde during integration week (June 2015).
- L Jourdan, C. Dhaenens "Data et Santé", in "Data for you, data for business", organized by inria Lille (Nov 2015).
- L. Jourdan : Coding gouter for children (Dec. 2015).

## ECUADOR Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

- Laurent Hascoët is on the organizing committee of the EuroAD Workshops on Algorithmic Differentiation.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : Laurent Hascoët, Optimisation avancée, 15 h, M2, University of Nice

### 9.2.2. Supervision

PhD : Gautier Brèthes, “Multigrilles anisotropes adaptatives”, defended december 10, advisor A. Dervieux

PhD in progress : Ala Taftaf, “Adjoint Automatic Differentiation on High-performance codes”, started july 2013, advisor L. Hascoët.

PhD in progress : Éléonore Gauci, “Norm-oriented criteria for CFD and coupled CSM-CFD systems”, started october 2014, advisor A. Dervieux

### 9.2.3. Juries

- Alain Dervieux, jury, PhD defense of Nicolas Barral, University Paris VI, november 27.
- Alain Dervieux, jury, PhD defense of Vilas Schinde, X-IMSIA, december 17.

## 9.3. Popularization

Alain Dervieux and Ala Taftaf participated to the event “la fête de la science” in Antibes, october 10-11.

**GAMMA3 Project-Team (section vide)**

## GECO Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific events organisation

##### 8.1.1.1. General chair, scientific chair

Ugo Boscain was member of the scientific committee of the workshop Nonlinear Control and Geometry, 23-29/08/2015, Banach Center Conferences, Bedlewo. Poland.

#### 8.1.2. Journal

##### 8.1.2.1. Member of the editorial boards

- Ugo Boscain is Associate Editor of SIAM Journal of Control and Optimization
- Ugo Boscain is Managing Editor of Journal of Dynamical and Control Systems
- Mario Sigalotti is Associate Editor of Journal of Dynamical and Control Systems
- Ugo Boscain is Associate Editor of ESAIM Control, Optimisation and Calculus of Variations
- Ugo Boscain is Associate Editor of Mathematical Control and Related Fields
- Ugo Boscain is Associate editor of Analysis and Geometry in Metric Spaces

#### 8.1.3. Invited talks

- Mario Sigalotti gave an invited talk at the Journée McTAO, Dijon, Jan 2015;
- Ugo Boscain gave an invited talk at the Workshop on Infinite-dimensional Riemannian geometry, Wien Austria, Jan 2015;
- Mario Sigalotti gave an invited talk at the conference on Persistence of population models in temporally fluctuating environments, Lausanne, Switzerland, Feb 2015;
- Mario Sigalotti gave an invited talk at the GSSI-GDRE CONEDP workshop in L'Aquila, Italy, Apr 2015;
- Ugo Boscain gave an invited talk at the INDAM meeting "The Hamilton-Jacobi Equation: at the crossroads of PDE, Dynamical Systems and Geometry", Cortona, Italy, Jun 2015;
- Ugo Boscain gave an invited talk at the workshop "From Open to Closed Loop Control", Mariatrost, Graz, Austria Jun 2015;
- Mario Sigalotti gave an invited talk at the Workshop on Nonlinear Control and Geometry, Bedlewo, Poland, Aug 2015;
- Ugo Boscain gave an invited talk at the Workshop on Analysis and PDE, Leibniz Universität, Hannover, Germany, Sep 2015;
- Ugo Boscain gave an invited talk at the workshop "Stochastic Analysis and Numerical Perspectives", Inria Sophia Antipolis, Sep 2015;
- Ugo Boscain has been plenary speaker at the "Journées Annuelles 2015 du GdR MOA", Dijon, Dec 2015.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Supervision

- PhD in progress: Guiherme Mazanti, "Stabilité et taux de convergence pour les systèmes à excitation persistante", started in 1/9/2013, supervisors: Yacine Chitour, Mario Sigalotti.
- PhD in progress: Ludovic Sacchelli, "Sub-Riemannian geometry, hypoelliptic operators, geometry of vision", started in 1/9/2015, supervisors: Ugo Boscain, Mario Sigalotti.
- PhD in progress: Leonardo Suriano, "Conception d'un cortex visuel primaire artificiel", started in 1/10/2015, supervisors: Ugo Boscain, Mario Sigalotti.

### 8.2.2. Juries

Mario Sigalotti was member of the commission for the PhD defense of Pierre-Olivier Lamare, University of Grenoble, September 2015.

### **8.3. Popularization**

Ugo Boscain gave a popularization conference at the “Rencontres Mathématiques de Rouen” with a general introduction to sub-Riemannian geometry and its applications, Jun 2015.

## GEOSTAT Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

N. Brodu is the principal convener of the special session « Machine Learning adaptations for Earth monitoring » at European Geosciences Union General Assembly, **the most important european congress in Earth Sciences**.

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

H. Yahia was a member of the conference program committee Recent Advances in Electronics & Computer Engineering (RAECE), January 2015.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial boards

H. Yahia is a member of the editorial board of the open access journal *Frontiers in Fractal Physiology*.

### 10.1.3. Invited talks

- B. Xu has given an invited talk at the University of Basel, *Research Group : Computational Physiology and Biostatistics*. Title: **From the Complexity Analysis of Biosignals to Clinical Applications**.
- K. Daoudi has given 2 invited talks on *nonlinear speech processing* at the Czech Technical University of Prague and the Brno University (Czech Republic).
- H. Badri has given an oral presentation at the ORASIS conference [27].
- N. Brodu, H. Yahia: *Multiscale analysis with stochastic texture differences*. Recent Advances in Electronics & Computer Engineering (RAECE), January 2015.
- O. Pont has given a presentation at the **SCAM seminar: Microcanonical cascade processes: how singularity analysis characterizes cardiac arrhythmia**, on November 19th, 2015.

### 10.1.4. Scientific expertise

- H. Yahia is a member of CNU (Conseil National des Universités), section 61.
- H. Yahia has participated in the evaluation of an ANR project.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Hicham Badri, Unix Shell scripting & Python , 32 hours, L2 level , Bordeaux 1 University, France

Master : Khalid Daoudi, Financial mathematics, 20 hours lecture courses, M2 level, Lorraine University, France

3rd year engineer school: Nicoals Brodu, 18 hours, M1 level (supervision of 4 engineer students), Institut d'Optique, Bordeaux, France

Doctorat :

### 10.2.2. Supervision



PhD : Hicham Badri, Sparse and Scale-Invariant Methods in Image Processing, Bordeaux 1 University, December 1st 2015, supervisors: H. Yahia and D. Aboutajdine, [14].

PhD : Ayoub Tamim, Segmentation et classification des images satellitaires : application à la détection des zones d'upwelling côtier marocain et mise en place d'un applicatif de suivi spatio-temporel, Rabat University, September 22 2015, supervisors: K.Daoudi, H. Yahia, D. Aboutajdine, [HAL link](#).

PhD in progress : Camila Artana, Ocean dynamics at super-resolution Western Atlantic, defense scheduled in 2018, supervision: C. Provost and H. Yahia.

PhD in progress: Anass El Aouni, Temporal evolution of coastal upwelling, defense scheduled in 2018, supervision: K. Minaoui, H. Yahia and D. Aboutajdine.

PhD in progress: Akanksha Garg, super-resolution for Earth Observation, defense scheduled in 2017, co-supervision: N. Brodu and D. Singh (in the framework of the OPTIC associated team).

PhD in progress: Ghopal Singh, Novel methods in classification and machine learning for Earth Observation, co-supervision: N. Brodu and D. Singh (in the framework of the OPTIC associated team).

### 10.2.3. *Juries*

- H. Yahia is a member of the jury in the PhD defense of Mr. M. Osadebey, title *Noise Estimation, Noise Reduction and Intensity Inhomogeneity Correction in MRI Images of the Brain*, Concordia University, Electrical and Computer Engineering, June 15th, 2015.
- H. Yahia was asked by Bourgogne University to review HDR candidacy.

## 10.3. Popularization

Geostat has participated to the Inria initiative for the preparation of the COP21 international conference: *Our common future under climate change*.

## I4S Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Q. Zhang is member of the national organization committee of the IFAC Symposium SAFEPROCESS 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

V. Le Cam is head of of the scientific committee of the EWSHM scientific committee for 2015.

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

V. Le Cam was member of the scientific committee for IWSHM 2015 in Stanford.

J.Dumoulin is

- member of the scientific committee of the GI Division (Geosciences Instrumentation and Data Systems) of EGU for infrastructure instrumentation and monitoring since April 2013.
- member of the committee of QIRT (quantitative Infrared Thermography) since February 2014 (<http://qirtasia2015.com/>)
- organizer of some invited sessions at EGU 2015 (<http://www.egu2015.eu/>).

L. Mevel

- is member of the EWSHM scientific committee.
- is member of the IOMAC scientific committee.

Q. Zhang is

- Member of IFAC Technical Committee on Modelling, Identification and Signal Processing (TC 1.1, <http://tc.ifac-control.org/6/4/>).
- Member of IFAC Technical Committee on Fault Detection, Supervision and Safety of Technical Processes (TC 6.4, <http://tc.ifac-control.org/6/4/>).
- Member of the international program committee of the IFAC Symposium SYSID 2015.
- Member of the international program committee of the IFAC Symposium SAFEPROCESS 2015.

#### 10.1.2.3. Reviewer

V. Le Cam was reviewer and session chairman for the IWSHM 2015 in Stanford

M. Doehler was reviewer for IFAC Safeprocess 2015 and IEEE Multi-Conference on Systems and Control

M. Doehler was co-chairman at SYSID 2015.

L. Mevel was reviewer and session chairman for IFAC Safeprocess 2015.

### 10.1.3. Journal

#### 10.1.3.1. member of the editorial board

L. Mevel is member of the editorial board of journal of Mathematical Problems in Engineering.

L. Mevel is member of the editorial board of journal of Shock and Vibration.

Q. Zhang is member of the editorial board of the journal “Intelligent Industrial Systems”, Springer.

### 10.1.3.2. Reviewer - Reviewing activities

L. Mevel was reviewer for Mechanical Systems and Signal Processing, journal of Sound And Vibration. He was reviewer for Research Foundation Flanders in 2015.

M. Doehler was reviewer for Journal of Sound and Vibration, Sensors, Mechanical Systems and Signal Processing, Journal of Selected Topics in Signal Processing, Structural Control and Health Monitoring, ASCE Journal of Aerospace Engineering, ASCE Journal of Bridge Engineering, European Journal of Environmental and Civil Engineering

J. Dumoulin was reviewer for IEEE Transactions on Instrumentation and Measurement, Quantitative Infrared Thermography Journal, Optics and Lasers in Engineering journal , Journal Cultural Heritage, International Journal of Architectural Heritage, Journal of Geophysics and Engineering, Research in Nondestructive Evaluation

### 10.1.4. Invited talks

Q. Zhang was invited paper speaker at SYSID 2015 [22].

J. Dumoulin wa invited keynote speaker at QIRT'2015 [21].

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence Professionnelle TAM : J. Dumoulin, thermographie infrarouge active, 8h, Université Paris-Est, France

Master 2 MMMRI, (Maintenance et Maîtrise des Risques Industriels) , J. Dumoulin, contrôle non destructif par thermographie infrarouge active, 12h, Université Paris-Est, France

Master Système Communicant Mobile, V. Le Cam, embedded systems under Linux Operating System, 12h, Polytech Nantes, France

Master Civil engineering, V. Le Cam, Structural Monitoring, 4h, Université de Nantes, France

Licence 3 SEICOM, V. Le Cam, 3h, SHM and smart grids, Université de Nantes, France

Licence 3 SEICOM, V. Le Cam, 8h, TP, SHM and smart grids, Université de Nantes, France

ESEO, V. Le Cam, 8h, TP, embedded systems under Linux Operating System, France

### 10.2.2. Supervision

PhD : Delwar Hossain Bhuyan, *Damage localisation on offshore platforms*, L. Mevel and M. Doehler, Ecole doctorale MATISSE, Université de Rennes 1, since November 2014

Liangquan Zhang's post-doctoral project on hybrid system monitoring, Q. Zhang, 2014-2015.

Guillaume Gautier's post-doctoral project on morphosense system monitoring, L. Mevel, 2015-2017.

PhD : Nassif Berrabah, Electrical cable aging monitoring , Q. Zhang, Ecole doctorale MATISSE, Université de Rennes 1, since November 2014

J. Dumoulin was supervisor of the Master training of Nicolas Le Touz at Ecole Centrale Nantes (ECN) in 2014 and 2015.

### 10.2.3. Juries

- L. Mevel was referee for the PhD of Fatima Nasser at GIPSA Lab in May 2015.
- L. Mevel was referee for the PhD of Guillaume Gautier at INSA Val de Loire in July 2015.
- J. Dumoulin was part of the jury for María Inmaculada Martínez Garrido at E.T.S.Ingeniería y Sistemas de Telecomunicación de la Universidad Politécnica de Madrid in June 2015.

### 10.3. Popularization

- V. Le Cam has been invited at the ConfLunch of IRISA on April 24th 2015. [http://videos.rennes.inria.fr/confLunch/#Le Cam](http://videos.rennes.inria.fr/confLunch/#LeCam).
- J. Dumoulin has been involved in the COP 21 France stand for a solar hybrid road demonstration.
- V. Le Cam was present at the inauguration of Cité des Objets Connectés in Angers on 11/06/15 in presence of France president. He was inside the Smart sensors stand for IFSTTAR.
- A nice showcase of I4S was present at the 2015's Hanover messe, in April 2015: BAM (Berlin) had a steel frame demonstrator for the public using our techniques.

## INOCS Team

# 7. Dissemination

## 7.1. Teaching - Supervision - Juries

### 7.1.1. Supervision

PhD in progress : Luciano Porretta, "Models and methods for the study of genetic associations", May 2011, Bernard Fortz

PhD in progress : Sezin Afsar, "Revenue Optimization and Demand Response Models using bilevel programming in smart grid systems", October 2011, Luce Brotcorne

PhD in progress : Martim Moniz, "Traffic engineering in Ethernet networks", November 2012, Bernard Fortz and Luis Gouveia

PhD in progress : Bayrem Tounsi, "Gestion de réseaux de services porte à porte pour le transport de marchandises", October 2012, Luce Brotcorne

PhD in progress : Carlos Casorran, "A Mathematical Optimization Approach for Stack- elberg Solutions of Bimatrix Games", July 2013, Martine Labbé

PhD in progress : Fabio Sciamannini, "Exact algorithms for variants of the coloring problem", September 2014, Bernard Fortz, Martine Labbé and Isabella Lari

PhD in progress : Jérôme De Boeck, "Decomposition methods for combinatorial optimization problems", Octobre 2015, Bernard Fortz

PhD in progress : Léonard Von Niederhausern, "Approches bi-niveau pour la tarification de services énergétiques", Octobre 2015, Luce Brotcorne

## IPSO Project-Team

# 7. Dissemination

## 7.1. Promoting Scientific Activities

### 7.1.1. Scientific events organisation

#### 7.1.1.1. Member of the organizing committees

- M. Lemou and F. Méhats organized the CHL (Labex) workshop *Mathematical problems and modelization in kinetic theory*, Rennes, May 26-29 2015.
- E. Faou organized with B. Grébert, E. Paturol and L. Thomann (Univ. Nantes) the CHL (Labex) Summer school *PDE and large time asymptotics*, Nantes, June 22 - July 3 2015.
- N. Crouseilles and P. Chartier organized the CHL (Labex) workshop *Multiscale numerical methods for differential equations*, Rennes, August 25-27, 2015.
- F. Castella and P. Chartier organized the IPSO-LODIQUAS workshop with the support of the ANR LODIQUAS and MOONRISE, Dinard, December 9-11 2015.
- M. Lemou organized a mini-symposium at the 9th International Conference on Computational Physics (ICCP9): *numerical methods for quantum and kinetic problems*, Singapore, January 7-11 2015.
- N. Crouseilles and M. Lemou organized a mini-symposium at the national Congrès SMAI 2015: *Numerical Approaches for Stiff PDEs*, Les Karelis, June 8-12, 2015.

### 7.1.2. Scientific events selection

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

- P. Chartier was member of the scientific committee of ENUMATH 2015, 14-18 september, Ankara, Turkey.

### 7.1.3. Journal

#### 7.1.3.1. Member of the editorial boards

- P. Chartier is member of the editorial board of *Mathematical Modelling and Numerical Analysis*.
- A. Debussche is editor in chief of *Stochastic Partial Differential Equations: analysis and computations*.
- A. Debussche is member of the editorial board of *Potential Analysis*.
- A. Debussche is member of the editorial board of *Journal of Evolution Equations*.
- A. Debussche is member of the editorial board of *Differential and Integral Equations*.
- A. Debussche is member of the editorial board of *ESAIM: proceedings*.
- A. Debussche is member of the editorial board of the collection *Mathématiques et Applications*.

#### 7.1.3.2. Reviewer - Reviewing activities

The members of the team reviewed numerous papers for numerous international journals (Comm. Math. Phys., SIAM journals, J. Comput. Phys., ...).

#### 7.1.4. Invited talks

- P. Chartier gave a talk at *The 9th International Conference on Computational Physics*, Singapore, January 7-11, 2015.
- E. Faou gave a talk at the seminar of analysis, at the university of Toulouse, January, 2015.
- E. Faou gave a talk at the Seminar ANEDP, University of Lille 1, January, 2015.
- P. Chartier gave a seminar at the University of Geneva, March 10, 2015.
- E. Faou gave a talk at ENS Lyon in the physics department, May 2015.
- E. Faou gave a talk at the workshop *Mathematical Methods in Quantum Molecular Dynamics*, organized by G. Hagedorn, C. Lasser and C. Le Bris, Oberwolfach, Germany, June, 2015.
- N. Crouseilles gave a talk in the seminar of the analysis team at the University of Toulouse III, June, 2015.
- P. Chartier gave a talk at the workshop *Modelling and Numerics for Quantum Systems*, Toulouse, September 2-4, 2015.
- E. Faou gave the Dahlquist prize lecture at the *Scicade conference*, Potsdam, Germany, September, 2015.
- P. Chartier gave a colloquium at the 'School of Mathematics in Georgia Tech, Atlanta, USA, October 29, 2015.
- E. Faou gave a talk in the seminar of the analysis team at the University of Bordeaux I, October, 2015.
- F. Méhats gave seminars in Geneva (Switzerland), Beijing (China), Reims and Lyon.
- M. Lemou gave a talk at the Ki-Net international conference: *Asymptotic Preserving and Multiscale Methods for Kinetic and Hyperbolic Problems*, Madison (USA), May 4-8, 2015.
- M. Lemou gave a talk at the *International Congress on Industrial and Applied Mathematics, ICIAM 2015. Mini-symposium "Analysis and algorithm for coupling of kinetic and fluid equations*, Beijing (China), August 10-14, 2015.
- M. Lemou gave a talk at the *International workshop on kinetic problems in the honor of W. Strauss, R. Glassey and J. Schaeffer: Recent progress in collisionless models*, Imperial College, London, September 7-11, 2015.
- M. Lemou gave two conferences at the university of Wisconsin-Madison during his visit, between october 3 and october 17, 2015.
- A. Debussche gave a talk at the workshop *New challenges in PDE: Deterministic dynamics and randomness in high and infinite dimensional systems*, MSRI, Berkeley (USA), October 19-30, 2015.

#### 7.1.5. Research administration

- F. Méhats has been the head of the IRMAR (UMR CNRS 6625), since June 2015,
- P. Chartier is scientific vice-deputy of the Inria-Rennes center.
- P. Chartier is member of the "Commission d'évaluation" of Inria.
- N. Crouseilles is member of the scientific council of ENS Rennes.
- N. Crouseilles is partly in charge of the weekly numerical analysis seminar at ENS Rennes.
- A. Debussche leads the H. Lebesgue Center (Labex) with San Vu Ngoc (coordinator) and L. Guillopé.
- E. Faou is member of the scientific council of the Pôle universitaire Léonard de Vinci, since september 2015.
- E. Faou is member of the CNU 26, since december 2015.
- M. Lemou is member of the scientific council of ENS Rennes.

- M. Lemou is member of the scientific council of the H. Lebesgue Center (Labex).
- M. Lemou is head of the "numerical analysis IRMAR team".
- F. Castella is head of the european ANR project "Lodiquas", described above.
- F. Castella is member of the "Conseil d'UFR de Mathématiques".

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

Licence : P. Chartier, "Ordinary differential equations", 36 ETDH, L3, ENS Rennes.

Master : P. Chartier, "Numerical geometric integration and averaging methods", 36ETDH, M2, University of Rennes I.

Master : N. Crouseilles, "Numerical methods for kinetic equations", 18ETDH, M2, University of Rennes I.

Licence : N. Crouseilles, "Numerical methods", 36 ETDH, L3, ENS Rennes.

Master : M. Lemou, "Introduction to PDEs: hyperbolic systems and conservation laws.", 36ETDH, M2, University of Rennes I.

Master : F. Castella, "Pseudo-differential calculus.", 24ETDH, M2, University of Rennes I.

Master : F. Castella, "Kinetic equations.", 60ETDH, M1, University of Rennes I.

### 7.2.2. Supervision

PhD G. Leboucher, "Stroboscopic averaging methods for highly-oscillatory partial differential equations", University of Rennes I, defended on December 8, 2015. Advisors: P. Chartier and F. Méhats.

PhD H. Hivert, started in september 2012. Advisors: N. Crouseilles and M. Lemou.

PhD R. Horsin, started in september 2013. Advisors: E. Faou and F. Rousset.

PhD M. Malo, started in september 2015. Advisors: M. Lemou and F. Méhats.

PhD J. Sauzeau, started in september 2012. Advisors: P. Chartier and F. Castella.

PhD M. Tusseau, started in september 2013. Advisors: A. Debussche and F. Méhats.

### 7.2.3. Juries

- F. Méhats was referee on the thesis of A. Trescases (ENS Cachan). Defended on September 11, 2015.
- M. Lemou was member of the thesis committee, Phd of Xavier Valentin at Ecole Centrale de Paris. Defended on december 16, 2015.
- M. Lemou was referee on the thesis of T. Leroy (Paris 6) that will be defended on Junary 5, 2016.



## **MATHERIALS Project-Team**

### **9. Dissemination**

#### **9.1. Promoting Scientific Activities**

S. Boyaval has coorganized with G. Enchéry (IFPEN) a SMAI 2015 minisymposium about fast numerical simulation techniques for porous-media flows with highly heterogeneous permeabilities, June 2015.

E. Cancès

- is a member of the editorial boards of *Mathematical Modeling and Numerical Analysis* (2006-), *SIAM Journal of Scientific Computing* (2008-), *Communications in Mathematical Sciences* (2011-), and *SIAM MMS* (2012-),
- is a member of the executive committee of the CEA-EDF-Inria schools in applied mathematics and computer science.

He has organized or co-organized:

- the ICS summer school on Computational Chemistry and Applied Mathematics, Roscoff, France, Jul. 15-Aug. 14, 2015,
- the MBI Workshop Mathematical Challenges in Drug and Protein Design, Columbus, Ohio, Dec. 7-11, 2015.

L. Chamoin has been a member of the organization committee of the conference "Reduced Basis, POD and PGD Model Reduction Techniques", ENS Cachan, November 2015, and the co-chairman of the "International Conference on Adaptive Modeling and Simulation (ADMOS)", Nantes, June 2015.

He has organized a minisymposium entitled "Applications of error estimation and model adaptation in Computational Mechanics" within the US National Congress of Computational Mechanics, San Diego, July 2015.

V. Ehrlacher has co-organized with Areski Cousin the semester on "Uncertainty Quantification" in the framework of the IHP thematic semester on "Monte-Carlo methods" organized by B. Bouchard, E. Gobet and B. Jourdain.

T. Hudson has organized a minisymposium entitled "Modeling microstructure and material instabilities across a range of scales" at the 3rd ECCOMAS Young Investigator's Conference, Aachen, 20-23 July 2015.

C. Le Bris is editor-in-chief of *Applied Mathematics Research Express* (2003-). He is a managing editor of *Networks and Heterogeneous Media*. He is a member of the editorial boards of *Annales mathématiques du Québec* (2013-), *Archive for Rational Mechanics and Analysis* (2004-), *COCV (Control, Optimization and Calculus of Variations)* (2003-), *Mathematics in Action* (2008-), *Nonlinearity* (2005-) and *Journal de Mathématiques Pures et Appliquées* (2009-).

He is a member of the editorial boards of the monograph series *Mathématiques & Applications, Series*, Springer (2008-), and *Modeling, Simulations and Applications, Series*, Springer (2009-).

He is a member of

- the Cabinet of the High Commissioner for Atomic Energy,
- the "Comité d'experts" for the "Fondation de Recherche pour l'Aéronautique et l'Espace",
- the "International Scientific Advisory Committee" of the Centre de Recherche Mathématique, Université de Montréal,
- the "Advisory Board" of the DFG Cluster of Excellence Engineering of Advanced Materials, Erlangen,
- the "International Scientific Advisory Board" of the DFG research center Matheon, Berlin,
- the "Conseil scientifique de la SMAI" (Scientific Council of the French Applied Maths Society),
- the International Mathematical Union Circle.

He has held a regular position of Visiting Professor at the University of Chicago.

He has been a member of the scientific committee of the conference "Dimension reduction: mathematical methods and Applications", Pennsylvania State University, March 21-24, 2015.

He has co-organized

- with G. Hagedorn and C. Lasser, the Oberwolfach Workshop *Mathematical problems in dynamical quantum chemistry*, Oberwolfach, June 1-6 2015,
- with I. Kim, Fang-Hua Lin and P. Souganidis, the Banff Workshop *Developments in the Theory of Homogenization*, BIRS, Banff, July 26-31 2015.

F. Legoll

- is a member of the editorial board of SIAM MMS (2012-) and of ESAIM Proc (2012-),
- has been a member of the Scientific Committee of SciCADE 2015.

T. Lelièvre

- is editor-in-chief of ESAIM: Proceedings (with D. Chafai, P. Lafitte and C. Mouhot),
- has co-organized the Workshop "Free-energy calculations: A mathematical perspective" at BIRS, Casa Matemática Oaxaca, Mexico, July 19-24th, 2015 (with C. Chipot and R. Skeel).
- was in the scientific committee of the conference MoRePaS 2015, Trieste, October 2015,
- co-organizes the Journées EDP-Probab at Institut Henri Poincaré (with F. Malrieu),
- is in charge of the Theme 4 (Stochastic modeling, quantification and uncertainty propagation for multiscale mechanical models of materials) of the Labex MMCD,
- is involved in the organization of the IHP trimester on numerical PDEs (PI D.A. Di Pietro, A. Ern and L. Formaggia), September-December 2016.

G. Stoltz co-organizes the IHP trimester "Stochastic Dynamics Out of Equilibrium", Spring 2017 (with G. Giacomini, S. Olla, E. Saada and H. Spohn).

## 9.2. Teaching - Supervision - Juries

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

- Licence: Maths I et 2, 9h, L3, École des Mines (G. Stoltz),
- Licence: Outils mathématiques pour l'ingénieur, 15h, L3, École des Ponts (E. Cancès, V. Ehrlacher, T. Hudson, F. Legoll, T. Lelièvre),
- License: Analyse et calcul scientifique, 30h, L3, École des Ponts (T. Hudson, G. Stoltz),
- Master: Mécanique des Milieux Continus - partie Solides, 14h, M1, ENS Cachan (L. Chamoin),
- Master: Ondes et Chocs dans les Structures, 8h, M1, ENS Cachan (L. Chamoin),
- Master: Mathématiques des modèles multiéchelles, 39h, M1, École des Ponts (F. Legoll),
- Master: Contrôle des modèles et dualité, 24h, M2, ENS Cachan (L. Chamoin),
- Master: Problèmes multi-échelles, 24h, M2, Paris 6 (F. Legoll),
- Master: Approximation numérique et optimisation, 32h, École Polytechnique (E. Cancès),
- Master: Analyse variationnelle des équations aux dérivées partielles, 32h, École Polytechnique (E. Cancès),
- Master: Méthodes variationnelles et théorie spectrale, 10h, M2, Paris 6 (E. Cancès),
- Master: Modélisation mathématique des vagues, 3h, École des Ponts (S. Boyaval),
- Master: Outils Probabilistes pour la Finance, 25h, M1, École des Ponts, France (M. Rousset),
- Master: Analyse Spectrale, 39h, École des Ponts (V. Ehrlacher, A. Levitt),
- Master: Projets de physique, 10h, M1, École des Ponts, France (V. Ehrlacher, G. Stoltz),
- Master: Introduction au calcul Scientifique, 13h, M1, École des Mines, France (G. Stoltz, F. Madiot),
- Master: Introduction to computational statistical physics, 20h, M2, Paris 6 (G. Stoltz),
- Master: Modéliser Programmer Simuler, 28 h, M1, Cours École des Ponts (T. Lelièvre),
- Master: Méthodes numériques probabilistes, 36 h, M2 Mathématiques et Applications, Paris 6 (T. Lelièvre).

The following PhD theses have been defended:

- David Gontier, Contributions mathématiques aux calculs de structures électroniques, Université Paris Est, September 28 2015 (supervised by E. Cancès),
- William Minvielle, Quelques problèmes liés à l'erreur statistique en homogénéisation stochastique, Université Paris-Est, Université Paris Est, September 25 2015 (supervised by C. Le Bris and F. Legoll).

The following PhD theses are ongoing:

- Athmane Bakhta, Modélisation and simulation for photovoltaic applications, Université Paris-Est, École des Ponts, started October 1st, 2014, supervised by E. Cancès and T. Lelièvre, co-supervised by V. Ehrlacher,
- Gerome Faure, Multiscale methods for the simulation of shock and detonation waves, Université Paris-Est, École des Ponts and CEA/DAM, started November 1st 2014, supervised by G. Stoltz and J.-B. Maillat,
- Ahmed-Amine Homman, Multiscale methods for the simulation of shock and detonation waves, Université Paris-Est, École des Ponts and CEA/DAM, started April 1st, 2013, supervised by G. Stoltz and J.-B. Maillat,
- Marc Josien, Multiscale approaches for materials science, started September 1st, 2015, supervised by C. Le Bris,
- François Madiot, Multiscale finite element methods for advection diffusion problems, Université Paris-Est, Ecole des Ponts ParisTech, started October 1st, 2013, supervised by C. Le Bris and F. Legoll,
- Boris Nectoux, Métastabilité et distribution quasi-stationnaire, since November 2014, supervised by T. Lelièvre and E. Cancès,
- Julien Roussel, Variance reduction techniques for nonequilibrium systems, Université Paris-Est, École des Ponts, started September 1st 2015, supervised by G. Stoltz,
- Rémi Saint, Modèles multi-échelles pour le trafic, since September 2013, supervised by T. Lelièvre and X. Louis,
- Pierre Terrier, Reduced models for defect migration in metals, Université Paris-Est, École des Ponts and CEA Saclay, started September 1st 2015, supervised by G. Stoltz and M. Athènes,
- Zofia Trstanova, A mathematical analysis of some importance sampling strategies in molecular dynamics, Université Joseph Fourier and Inria Grenoble, started June 1st 2013, supervised by S. Redon and G. Stoltz.

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

- E. Cancès was a member (as referee) of the PhD committee of B. Pawilowski (Rennes, Dec. 2015), supervised by F. Nier and N. Mauser.
- F. Legoll was a member (as the opponent) of the PhD committee of D. Elfveron (Univ. Uppsala, Oct. 2015), supervised by A. Malqvist.
- F. Legoll was a member of the PhD committee of M. Capaldo (LMT, ENS Cachan, Nov. 2015), supervised by P. Ladevèze and D. Néron.
- T. Lelièvre was a member (as referee) of the PhD committee of C. Vergé (École Polytechnique, July 2015), supervised by P. Del Moral.
- T. Lelièvre was a member (as referee) of the PhD committee of D. Lesnicki (Paris 6, Sep. 2015), supervised by R. Vuilleumier.
- T. Lelièvre was a member of the PhD committee of O. Zahm (École Centrale de Nantes, Nov. 2015), supervised by A. Zouy.
- T. Lelièvre was a member (as referee) of the HDR committee of J. Tugaut (Dec. 2015, Saint-Étienne).

### 9.3. Conference participation

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

- S. Boyaval, Atelier EDPs stochastiques à Marseilles, June 2015,
- S. Boyaval, Séminaire mathématiques appliquées à Université Versailles Saint-Quentin en Yvelines, October 2015,
- E. Cancès, workshop on Fundamental Aspects of DFT, Oslo, Norway, January 2015,
- E. Cancès, GDR Dynqua Conference on Mathematical Physics, Nantes, France, February 2015,
- E. Cancès, Weekly seminar, ONERA, France, April 2015,
- E. Cancès, distinguished lecture series "Adventures in Theory", Duke University, USA, April 2015,
- E. Cancès, Weekly seminar of the mathematics department, Duke University, USA, April 2015,
- E. Cancès, Weekly seminar of the mathematics department, Michigan State University, Lansing, USA, May 2015,
- E. Cancès, IPAM workshop on materials for a sustainable energy future, Lake Arrowhead, USA, June 2015,
- E. Cancès, SFB conference on Discretization in Geometry and Dynamics, Herrsching am Ammersee, Germany, October 2015
- E. Cancès, Weekly seminar of the mathematics department, University of Metz, France, October 2015,
- E. Cancès, Weekly seminar of the JL Lions laboratory, Paris, France, October 2015,
- L. Chamoin, Séminaire de l'IMT, Toulouse, January 2015,
- L. Chamoin, Séminaire Aristote, École Polytechnique, Palaiseau, February 2015,
- L. Chamoin, 12ième Colloque National en Calcul des Structures, Giens, May 2015,
- L. Chamoin, International conference on Adaptive Modeling and Simulation (ADMOS), Nantes, June 2015,
- L. Chamoin, YIC GACM 2015 (3rd ECCOMAS Young Investigators Conference), Aachen, July 2015,
- L. Chamoin, US National Congress on Computational Mechanics, San Diego, July 2015,
- L. Chamoin, MORE workshop on model reduction, Pilsen, September 2015,
- L. Chamoin, Séminaire de l'équipe-projet POEMS, Palaiseau, December 2015,
- V. Ehrlacher, HIM Workshop: "Gradient flows and entropy methods", Bonn, Germany, February 2015,
- V. Ehrlacher, SIAM CSE 2015, Salt Lake City, USA, March 2015,
- V. Ehrlacher, MSME seminar, Université Marne-la-Vallée, March 2015,
- V. Ehrlacher, MOKAPLAN seminar group, Université Paris-Dauphine, March 2015,
- V. Ehrlacher, Séminaire du groupe de travail "Mécanique des fluides réels", ENS Cachan, May 2015,
- V. Ehrlacher, Séminaire du CMAP, École Polytechnique, Juin 2015,
- V. Ehrlacher, IPAM Workshop on Materials Defects: Mathematics, Computation and Engineering, Lake Arrowhead, USA, June 2015,
- V. Ehrlacher, Numerical Analysis Conference, University of Strathclyde, Glasgow, Great Britain, June 2015,
- V. Ehrlacher, USNCCM 13, San Diego, USA, July 2015,

- V. Ehrlicher, Seminar of the Theoretical Chemistry Group, Johannes Gutenberg Universität, Mainz, Germany, October 2015,
- V. Ehrlicher, 3rd MOKALIEN Meeting, Université Paris-Dauphine, November 2015,
- D. Gontier, workshop on Fundamental Aspects of DFT, Oslo, Norway, January 2015,
- D. Gontier, Oberwolfach workshop Mathematical Methods in Quantum Molecular Dynamics, Germany, June 2015,
- D. Gontier, Nonlinear equations seminar, University Paris 13, November 2015,
- T. Hudson, Workshop on "Analytic approaches to scaling limits for random system", Bonn, January 2015,
- T. Hudson, US National Congress on Computational Mechanics, San Diego, July 2015,
- T. Hudson, ICIAM conference, Beijing, August 2015,
- C. Le Bris, PIRE Workshop, "Design of materials: From grain boundaries to stochastic homogenization", Leipzig, July 2015,
- C. Le Bris, International conference on numerical mathematics and scientific computing, Nanjing (China), August 2015,
- D. Le Peutrec, Séminaire ANEDP au LMO, Université Paris-Sud, 2015,
- D. Le Peutrec, Séminaire Spectral problems in mathematical physics à l'IHP, Paris, 2015,
- D. Le Peutrec, Séminaire EDP à l'IRMAR, Université Rennes 1, 2015,
- F. Legoll, Journées annuelles du GdR ModMat, Lyon, January 2015,
- F. Legoll, Euromech Colloquium on "Multiscale Computational Methods for bridging scales in materials and structures", Eindhoven, February 2015,
- F. Legoll, Workshop "Dimension reduction: mathematical methods and applications", Penn State University, March 2015,
- F. Legoll, Reunion Conference of the Materials Defects IPAM program, Los Angeles, June 2015,
- F. Legoll, Equadiff Conference, Lyon, July 2015,
- F. Legoll, BIRS workshop on "Free-energy calculations: a mathematical perspective", Oaxaca, July 2015,
- F. Legoll, BIRS workshop on "Developments in the Theory of Homogenization", Banff, July 2015,
- F. Legoll, Workshop on "Multiscale Modeling and Analysis in Materials Science", Shanghai, August 2015,
- F. Legoll, ICIAM conference, Beijing, August 2015,
- F. Legoll, SciCADE conference, Potsdam, September 2015,
- F. Legoll, Colloque "Mathématiques appliquées et nanoélectronique", Grenoble, September 2015,
- F. Legoll, Weekly seminar of Numerical Analysis, KTH, Stockholm, October 2015,
- F. Legoll, Workshop "Reduced Basis, POD and PGD Model Reduction Techniques", ENS Cachan, November 2015,
- F. Legoll, Workshop "Gradient flows, Large deviations and Applications", Eindhoven, November 2015,
- F. Legoll, Journée EDP – Probas "Homogénéisation aléatoire", Paris, December 2015,
- F. Legoll, Journées NEEDS – Milieux Poreux, Paris, December 2015,
- T. Lelièvre, Workshop "New Discretization Methods for the Numerical Approximation of PDEs", Oberwolfach, January 2015,
- T. Lelièvre, Séminaire transversal MSME, Paris, January 2015,
- T. Lelièvre, Séminaire Collège de France, January 2015,

- T. Lelièvre, HIM workshop "Analytic approaches to scaling limits for random system", Bonn, January 2015,
- T. Lelièvre, Maxwell mini-symposium, Analysis and its applications, April 2015,
- T. Lelièvre, ADMOS, Nantes, June 2015,
- T. Lelièvre, PASC15, Zurich, June 2015,
- T. Lelièvre, Workshop "Statistical mechanics and computation of large deviation rate functions", Lyon, June 2015,
- T. Lelièvre, Workshop "Probabilistic numerical methods for non-linear PDEs", Imperial College London, July 2015,
- T. Lelièvre, MCM 2015, Linz, July 2015,
- T. Lelièvre, Workshop "Free-energy calculations: A mathematical perspective", BIRS Oaxaca, July 2015,
- T. Lelièvre, CRiSM Workshop "Non reversible dynamics", Warwick, September 2015,
- T. Lelièvre, Scicade 2015, Potsdam, September 2015,
- T. Lelièvre, Set-Oriented Numerics, Imperial College London, September 2015,
- T. Lelièvre, Séminaire de probabilités LJK, Grenoble, November 2015,
- T. Lelièvre, Séminaire analyse numérique, Orsay, November 2015,
- T. Lelièvre, Workshop "Predictive multiscale materials modelling, Cambridge, December 2015,
- T. Lelièvre, Workshop "Mathematical challenges in drug and protein design", MBI Columbus, December 2015,
- S. Lemaire, Workshop on "High order methods on polyhedral meshes", Milano, February 2015,
- S. Lemaire, PANACM conference, Buenos Aires, April 2015,
- S. Lemaire, Weekly seminar of the ANMC group, EPFL, June 2015,
- S. Lemaire, Congrès SMAI 2015, June 2015,
- F. Madiot, Congrès SMAI 2015, June 2015,
- F. Madiot, ICIAM conference, Beijing, August 2015,
- W. Minvielle, Workshop on "Analytic approaches to scaling limits for random system", Bonn, January 2015,
- W. Minvielle, International conference on Adaptive Modeling and Simulation (ADMOS), Nantes, June 2015,
- W. Minvielle, Equadiff Conference, Lyon, July 2015,
- M. Rousset, IRMAR Probability Seminar, Rennes, November 2015,
- M. Rousset, LPMA Probability Seminar, Paris, May 2015,
- M. Rousset, LATP Proba-EDP GdT, Marseille, February 2015,
- G. Stoltz, workshop "Analytic approaches to scaling limits for random systems", Bonn, January 2015,
- G. Stoltz, workshop "Progress in nonequilibrium statistical mechanics", Nice, France, June 2015,
- G. Stoltz, workshop "Free-energy calculations. A mathematical perspective", Oaxaca, Mexico, July 2015,
- G. Stoltz, workshop NASPDE 2015, Sophia-Antiopolis, France, September 2015,
- G. Stoltz, program "Nonequilibrium Statistical Physics 2015", Bangalore, India, November 2015,
- G. Stoltz, meeting of the GdR ISIS, Paris, November 2015,
- G. Stoltz, workshop "Challenges in statistical mechanics: from mathematics to molecular dynamics to technological applications", London, December 2015.

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

- E. Cancès, Winter School on Computational and Mathematical Methods for Materials Defects and Multiphase Flows, 4h, Singapore, February 2015,
- E. Cancès, International summer School in electronic structure Theory: electron correlation in Physics and Chemistry, 2h, Aussois, France, June 2015,
- E. Cancès and T. Lelièvre, ICS summer school on Computational Chemistry and Applied Mathematics, 10h, Roscoff, France, July 15-August 14, 2015.

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

- F. Madiot, Séminaire CEA GAMNI 2015, Paris, February. 2015

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

- E. Cancès, Oberwolfach workshop on Mathematical Methods in Quantum Molecular Dynamics, Germany, June 2015,
- D. Gontier, GDR DYNAmique QUAntique, Nantes, February 2015,
- D. Gontier, XVIII International Congress on Mathematical Physics, Santiago, July 2015,
- D. Gontier, Summer School on Current Topics in Mathematical Physics, Valparaiso, August 2015,
- M. Josien, PIRE Workshop, "Design of materials: From grain boundaries to stochastic homogenization", Leipzig, July 2015
- M. Josien, BIRS workshop on "Developments in the Theory of Homogenization", Banff, July 2015
- F. Madiot, École de Mécanique des Fluides Numérique 2015, Porquerolles, June 2015
- J. Roussel, Oberwolfach workshop on Mathematical Methods in Quantum Molecular Dynamics, Germany, June 2015
- J. Roussel, Non-equilibrium simulation school, Sheffield, September 2015,
- J. Roussel, Numerical Analysis of Stochastic Partial Differential Equations, Sofia-Antipolis, September 2015,
- J. Roussel, Non-equilibrium statistical physics, Bangalore, Octobre 2015,
- G. Stoltz, Oberwolfach workshop on Mathematical Methods in Quantum Molecular Dynamics, Germany, June 2015.

## MATHRISK Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

- A. Alfonsi: Co-organizer of the working group seminar of MathRisk “Méthodes stochastiques et finance”. <http://cermics.enpc.fr/~alfonsi/GTMSF.html>
- R. Dumitrescu: Co-organizer of the young researchers in Mathematics Seminar of Université Paris Dauphine.
- B. Jourdain (with B. Bouchard and E. Gobet): organization of the 2015-2016 thematic semester on Monte Carlo methods financed by the Institute Louis Bachelier.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial boards

- R. Elie  
Associate editor of *SIAM Journal on Financial Mathematics (SIFIN)* (since November 2014)
- D. Lamberton  
Associate editor of
  - Mathematical Finance,
  - Associate editor of ESAIM Probability & Statistics
- A. Sulem  
Associate editor of
  - 2011- Present: *Journal of Mathematical Analysis and Applications (JMAA)*
  - 2009- Present: *International Journal of Stochastic Analysis (IJSA)*
  - 2008- Present: *SIAM Journal on Financial Mathematics (SIFIN)*

#### 10.1.2.2. Reviewer - Reviewing activities

The members of the team reviewed numerous papers for numerous journals.

### 10.1.3. Invited talks

- A. Alfonsi
  - "Dynamic optimal execution in a mixed–market–impact Hawkes price model", Workshop on "The Mathematics of High Frequency Financial Markets", IPAM, Los Angeles, April 13 2015:
  - "Optimal transport bounds between the time-marginals of a multidimensional diffusion and its Euler scheme", AMS-EMS-SPM conference, Porto, June 10 2015:
  - "Dynamic optimal execution in a mixed–market–impact Hawkes price model", séminaire de la chaire Risques financiers, June 12 2015:
  - "Optimal execution in a Hawkes price model", London-Paris Bachelier Workshop on Mathematical Finance 2015, Sept 26 2015
- R. Dumitrescu
  - Financial Mathematics Seminar, Univ Marne-la-Vallée, ENPC and Inria, 12 January
  - Stochastic Analysis Seminar, Imperial College London, 17 March
  - Financial Mathematics Seminar, Univ Evry, 26 March.



- B. Jourdain
  - Conference in honor of Vlad Bally, le Mans, 6-9 October 2015 : Strong convergence properties of the Ninomiya Victoir scheme and applications to multilevel Monte Carlo
  - Workshop on NASPDE 2015, Inria Sophia, 22-23 September 2015 : Multitype sticky particles and diagonal hyperbolic systems of PDEs
  - Workshop BIRS Free-energy calculations, a mathematical perspective, Oaxaca 19-24 July 2015 : Analysis of discrete space versions of the self-healing umbrella sampling and well-tempered metadynamics algorithms
  - Workshop Probabilistic Numerical Methods for Non-Linear PDEs, Imperial College London , 29 June-1st July 2015 : On a stochastic particle approximation of the Keller-Segel equation - Workshop Numerical Probability and Applications to Finance, Enit Tunis, 30 April 2015 : Strong convergence properties of the Ninomiya Victoir scheme and applications to multilevel Monte Carlo
  - Maxwell Colloquium, Edimbourg, 6 February 2015 : Multitype sticky particles and diagonal hyperbolic systems of PDEs
- C. Labart : **MCM2015**, Linz, Austria, July 2015.
- J. Lelong : **MCM2015**, Linz, Austria, July 2015.
- D. Lamberton:
  - Workshop Numerical Probability and Applications to Finance, Tunis, April 2015. "On the Canadian approximation of the American put".
  - Workshop in honor of Vlad Bally, Stochastic Calculus, Monte Carlo Methods and Mathematical Finance, Le Mans October 2015. "On the binomial approximation of the American put".
- R. Elie
  - 7th general AMAMEF and Swissquote conference, Lausanne, 2015
  - Workshop Advanced methods in Mathematical Finance, Angers, France, 2015
  - Workshop on current challenges in financial mathematics and economics, London, 2015
  - Workshop on smart energy and stochastic optimization, ENPC, Paris, 2015
  - South East Asia conference in Mathematical Finance, Siem Reap, Cambodia, 2015
  - 9<sup>th</sup> Bachelier Colloquium, Metabief, France, 2015
  - seminar, Imperial College, London, 2015
- A. Lionnet - MS-EMS-SPM International Meeting, special session on Stochastic Numerical Methods for Non-linear Equations. Porto, June 10-13.
  - 2nd IMA conference on mathematics in finance. Manchester, 18–19 June.
  - Workshop on Probabilistic numerical methods for nonlinear PDEs at Imperial College. London, June 29 – July 1.
  - The 2015 conference on Stochastic Processes and Applications. Oxford, July 13–17.
- A. Sulem
  - International Conference "Stochastics and Computational Finance 2015- from academia to industry", July 6-10, 2015, ISEG - University of Lisbon, keynote speaker, <http://www.scf2015.com>
  - Conference on Mathematical Finance and Partial Differential Equations, Rutgers University, New Brunswick, New Jersey, May 2015, Plenary speaker, <http://www.finmath.rutgers.edu/mfpde2015/>
  - Second conference on " Stochastics of Environmental and Financial Economics", April 20-24, 2015, Academy of Science in Oslo, Plenary speaker, <http://www.mn.uio.no/math/english/research/groups/stochastic-analysis/events/conferences/StochEnviron-april2015/index.html>

- Conference in honor of Prof. V. Bally, "Stochastic Calculus and Malliavin Calculus, Monte-Carlo Methods and Mathematical Finance", Université du Mans, 6-9 Octobre 2015. <http://imm.univ-lemans.fr/spip.php?article129>

#### 10.1.4. Research administration

- A. Alfonsi: In charge of the Master "Finance and Application" at the Ecole des Ponts.
- V. Bally: Member of the scientific committee of Université Paris-Est Marne-la-Vallée; member of the scientific committee and responsible of the theme "Stochastic equations and PDEs" of ; Responsible of the Probability team of LAMA (until April) and organizer of the seminar of the LAMA laboratory. Labex Bezout;
- R. Dumitrescu : creation of the ALUMNI of *Fondation des Sciences Mathématiques de Paris*
- B. Jourdain: Head of the doctoral school MSTIC, University Paris-Est
- D. Lamberton: Vice-president for research at Université Paris-Est Marne-la-Vallée
- A. Sulem: member of the Committee for technology development , Inria Paris-Rocquencourt

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### Undergraduate programs

A. Alfonsi: "Modéliser, Programmer et Simuler", second year course at the Ecole des Ponts.

R. Dumitrescu, Applied courses (Travaux Dirigés) "introduction to finance", L2, Université Paris Dauphine

R. Elie

- Machine learning for actuarial sciences , Institut des actuaires français

- Arbitrage et valorisation d'options, ENSAE

- Introduction to Python, TD L2 Université Paris-Est

B. Jourdain : - course "Probability theory and statistics", first year ENPC

- "Introduction to probability theory", 1st year, Ecole Polytechnique

- "Stochastic numerical methods", 3rd year, Ecole Polytechnique

- projects in finance and numerical methods, 3rd year, Ecole Polytechnique

A. Lionnet

*Stochastic Processes*, ESIEA, Paris , 18h .

#### Graduate programs

A. Alfonsi:

- "Calibration, Volatilité Locale et Stochastique", third-year course at ENSTA (Master with University Paris I).

- "Traitement des données de marché : aspects statistiques et calibration", lecture for the Master at UPEMLV.

- A. Alfonsi: "Mesures de risque", Master course of UPEMLV and Paris VI.

V. Bally,

- Advanced Probability (Master 1 Recherche Mathématiques et Application, University of Marne-la-Vallée

- "The Malliavin calculus and applications in finance", 30h, Master 2 Mathematical Finance, Université Marne la Vallée

- V. Bally, " Interest Rates", 20h, Master 2 Mathematical Finance , Université Marne la Vallée
- V. Bally, " Risk methodes in actuarial science", 36h, Master IMIS, Université Marne la Vallée
- R. Dumitrescu, Applied courses (Travaux Dirigés) in " Asset pricing by absence of arbitrage opportunity", Université Paris Dauphine
- R. Elie - Imperfect markets modeling M2 Master MASEF (Paris-Dauphine)
- Machine learning and applications, Master 2 Mathematics, , ENPC
- Portfolio management and risk measures, Master Actuariat, Université Paris-Est
- Arbitrage, volatility and portfolio management, Master 2 Math. Finance, Université Paris-Est
- B. Jourdain, B. Lapeyre "Monte-Carlo methods", 3rd year ENPC and Master Recherche Mathématiques et Application, University of Marne-la-Vallée

#### A. Sulem

- "Finite difference for PDEs in Finance", Master 2 MASEF, Université Paris IX-Dauphine, Département Mathématiques et Informatique de la Décision et des Organisations (MIDO), 18h.
- Master of Mathematics, University of Luxembourg, 22 h lectures and responsible of the module "Numerical Methods in Finance".

### 10.2.2. Supervision

Anis Al Gerbi (started november 2013) "Discretization of stochastic differential equations and systemic risk modeling", supervised by B. Jourdain and E. Clément

Pierre Blanc, "Price impact on marker orders and limit order books (from Nov. 2012), Ecole des Ponts, Adviser : A. Alfonsi defended on October 9th 2015.

Rui Chen (Fondation Sciences Mathématiques de Paris grant), "Stochastic Control of mean field systems and applications to systemic risk, from September 2014, Université Paris-Dauphine, Adviser A. Sulem

Roxana Dumitrescu, (Fondation Sciences Mathématiques de Paris grant, RDMath Ile de France), *Contributions au contrôle stochastique avec des espérances non linéaires et aux équations stochastiques rétrogrades* , Advisers: A. Sulem with B. Bouchard and R. Elie, defended on September 28 2015, Université Paris-Dauphine.

Antoine Ly, CIFRE agreement, Partner: Miliman, advisers: R. Elie and Arthur Charpentier, Applications du machine learning en Actuariat, started 2015, Advisers: R. Elie and Arthur Charpentier

Sebastien Mollaret, CIFRE agreement, Partner: Natixis, Valorisation et couverture dans les modèles à changement de régime started 2015, Advisers: R. Elie.

Ernesto Palidda, Advisers: A. Alfonsi and Bernard Lapeyre, Ecole des Ponts, defended on May 29 2015.

- Paulo Pigato, "Lower bounds for the density of the solution of SDE's under the weak Hörmander condition, and applications in finance", Advisers: V. Bally and A. Dai Pra, University of Padova, defended October 2015, Université Paris-Est Marne la Vallée,

Victor Rabiet : "On a class of jump type stochastic equations", Université Paris-Est Marne la Vallée, Advisers: V. Bally (75 %) and E. Locherbach, defended June 2015.

Clément Rey (from Oct. 2012), " High order discretization schemes for singular diffusions", Ecole des Ponts, Advisers : A. Alfonsi and Vlad Bally, defended on December 4th 2015.

Giulia Terenzi (from October 2015) "American options in complex financial models", Advisers : D. Lamberton and Lucia Caramellino, from University Tor Vergata, Rome.

Alexandre Zhou (started November 2015) "Analysis of stochastic particle methods applied to finance", supervised by B.Jourdain

### 10.2.3. Juries

- B.Jourdain
  - Head of the HCERES visit committee of the Laboratoire de Mathématiques Raphael Salem, Rouen, November 20 2015
  - PhD of Victor Rabiet, defended on June 23 2015, University Paris-Est
  - PhD of Thi Quynh Giang NGUYEN, defended on October 19 2015, University Paris-Est
- A. Sulem
  - PhD Roxana Dumitrescu, September 2015, Université Paris-Dauphine
  - Referee (Rapporteur) HdR "*Quelques contributions en finance mathématique, risque de liquidité et finance d'entreprise*", Ly Vath Vathana, Université Evry Val d'Essonne, November 23 2015
  - Faculty opponent, PhD thesis "*Aspects of Waiting and Contracting in Game Theory*", Peter Helgesson, Chalmers University of Technology and University of Gothenburg, Sweden, June 5th 2015.
  - Sulem : Committe for the recruitment of a Professor of Insurance Mathematics, ETH Zurich January 2015
  - Committe for the recruitment of a Professor ( in Financial Mathematics and numerical probability, Laboratoire de probabilités, Université Paris-Diderot, May 2015
  - Committe for the recruitment of a researcher (chargé de recherche) Inria Paris-Rocquencourt, June 2015

## 10.3. Popularization

- A. Lionnet:
  - article on Financial Mathematics published in the online popularization magazine Interstices [https://interstices.info/jcms/p\\_82123/les-mathematiques-financieres-des-quants](https://interstices.info/jcms/p_82123/les-mathematiques-financieres-des-quants)
  - Conference given for middle-schoolers at University Paris 8 during the "Week of Mathematics 2015".
  - Participation to the colloquium "Science and You", Nancy, June 1–6.
  - The two entries of A. Lionnet to the contest SIAM Math Matters, Apply It (<https://www.siam.org/careers/matters.php>) were selected to be turned into a poster. One was on financial derivatives (<https://www.siam.org/careers/pdf/derivatives.pdf>) the other on systemic risk (<https://www.siam.org/careers/pdf/risk.pdf>).
- A. Sulem:
  - "Applications of stochastic analysis", (2015), invited contribution for the *Princeton Companion to Applied Mathematics*, <http://press.princeton.edu/titles/10592.html>
  - Responsible for the partnership of Inria with Institut Henri Poincaré for the creation of a museum of Mathematics.

## Maxplus Team

# 10. Dissemination

## 10.1. Animation de la communauté scientifique/Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- M. Akian et S. Gaubert, co-organisateurs (avec William McEneaney, San Diego, et Guillaume Vigeral, Paris-Dauphine) du minisymposium “Dynamic Games and Operators” de SIAM CT’15 (SIAM Conference on Control and its Applications) Juillet, Paris.
- S. Gaubert co-organisateur (avec William McEneaney, San Diego, et Peter Dower, Univ. Melbourne) du minisymposium “Complexity Issues in Control Computation and Max-Plus Methods” de SIAM CT’15 (SIAM Conference on Control and its Applications) Juillet, Paris.
- S. Gaubert, co-organisateur du Séminaire Parisien d’Optimisation.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- S. Gaubert, président du comité scientifique de SMAI-MODE 2016 (Toulouse, Mars 2016).

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

- S. Gaubert, membre du comité scientifique de SIAM CT’15, Paris, Juillet 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- S. Gaubert est membre du comité éditorial de la collection Mathématiques et Applications, SMAI et Springer.
- S. Gaubert est membre du comité éditorial du journal RAIRO Operations research.

### 10.1.4. Invited talks

- S. Gaubert, Oberwolfach Workshop on Noncommutative Geometry, Tropical linear programming, June 2016.
- Cours introductif aux Journées Nationales de Calcul Formel, Cluny, Novembre 2015, “Tropical algebra applied to linear programming, mean payoff games, and eigenvalue problems”.
- Exposé introductif au GDR MOA, Dijon, Dec. 2015: “Long and winding central paths, games and non-archimedean linear programming”.

### 10.1.5. Research administration

- S. Gaubert :
  - Directeur du PGM (Programme Gaspard Monge d’optimisation, programme de mécénat d’EDF administré par la FMJH).
  - Vice-président du comité des projets du Centre de Recherche Inria de Saclay – Île-de-France, et membre nommé de la commission d’évaluation de l’Inria (Janvier 2008 – Août 2015).
  - Membre du conseil scientifique du CMAP.
  - Membre du CNU en 26ième section (2011 – 2015).
- X. Allamigeon:

- Membre du conseil de laboratoire du CMAP.

## 10.2. Enseignement - Encadrement - Jurys /Teaching - Supervision - Juries

### 10.2.1. Enseignement/Teaching

- M. Akian
  - Cours “Markov decision processes: dynamic programming and applications” commun à la troisième année de l’ENSTA et au M2 “Optimisation” de l’Université Paris Saclay, cours partagé avec Jean-Philippe Chancelier (15 heures chacun).
- X. Allamigeon
  - Petites classes et encadrement d’enseignements d’approfondissement de Recherche Opérationnelle en troisième année à l’École Polytechnique (programme d’approfondissement de Mathématiques Appliquées) (niveau M1).
  - Cours du M2 “Optimisation” de l’Université Paris Saclay, cours partagé avec Céline Gicquel et Dominique Quadri (LRI, Université Paris Sud)
  - Co-responsabilité du programme d’approfondissement en mathématiques appliquées (troisième année) à l’École Polytechnique
- V. Boeuf
  - Petite classe du cours de tronc commun de 1ere année "Introduction à l’optimisation" de l’École des ponts (ENPC), niveau L1.
  - Encadrement des projets informatiques du cours de 3e année de l’Ensta ParisTech "Programmation mathématique" C9-1.
- S. Gaubert
  - Cours “Systèmes à Événements Discrets”, option MAREVA, ENSMP.
  - Cours “Algèbre max-plus pour le contrôle optimal et les jeux” du Parcours Optimisation, Jeux et Dynamique (ODJ) du M2 Mathématiques et Applications de l’Université de Paris 6 et de l’École Polytechnique.
  - Cours magistral, petites classes et organisation des enseignements d’approfondissement de Recherche Opérationnelle en troisième année à l’École Polytechnique (programme d’approfondissement de Mathématiques Appliquées), avec polycopié [75].
- A. Hochart
  - Cours de niveau L1 à l’Univ. Paris Diderot (Paris VII), dans le cadre d’un monitorat (34h).
- A. Marchesini
  - TD du Cours de L2 “Traitement du signal” (16 heures) et du cours de L1 "Graphes et langages" (2x21 heures) à l’IUT d’Orsay dans le cadre d’un monitorat.
- N. Stott
  - Cours et TD “Introduction à la programmation graphique en C++”, option MAREVA et semaine Athens à l’ENSMP (École des Mines de Paris), niveau M1.

### 10.2.2. Encadrement/Supervision

- PhD : Andrea Marchesini, inscrit à l’École Polytechnique, à partir de septembre 2012, directeur de thèse: Marianne Akian, codirection: S. Gaubert, avec une participation à l’encadrement de Françoise Tisseur (U. Manchester), soutenue le 15 décembre 2015.
- PhD in progress : Antoine Hochart, inscrit à l’École Polytechnique, depuis octobre 2013, directeur de thèse: Stéphane Gaubert, codirection: Marianne Akian.
- PhD in progress : Eric Fodjo, inscrit à l’École Polytechnique, depuis octobre 2013, directeur de thèse: Marianne Akian.

- PhD in progress : Nikolas Stott, inscrit à l'École Polytechnique, depuis octobre 2014, directeur de thèse: Stéphane Gaubert, codirection: Xavier Allamigeon, Éric Goubault et Sylvie Putot.
- PhD in progress : Vianney Boeuf, inscrit à l'École Polytechnique, depuis octobre 2014, directeur de thèse: Stéphane Gaubert, codirection: Stéphane Raclot (BSPP), Marianne Akian, Xavier Allamigeon.
- PhD in progress : Mateusz Skomra, inscrit à l'Univ. Paris Saclay depuis Oct. 2015, directeur de thèse: Stéphane Gaubert, codirection: Xavier Allamigeon.
- PhD in progress : Jean-Bernard Eytard, inscrit à l'Univ. Paris Saclay depuis Oct. 2015, directeur de thèse: Stéphane Gaubert, codirection: Marianne Akian et Mustapha Bouhtou.
- M2 internship de Mateusz Skomra.
- Enseignement d'approfondissement (EA) de l'École Polytechnique (élèves de troisième année) d'Alexandre Hannebelle et Armelle Patault (Jan-Mars), portant sur une étude d'évaluation de performance de l'évolution projetée de la chaîne de réponse aux appels d'urgence. Ce travail était cosupervisé avec le Cdt Stéphane Raclot (BSPP), Régis Reboul (Préfecture de Police) et Philippe Robert (projet Inria RAP), avec le concours de Xavier Allamigeon, et Vianney Boeuf. Ce travail a été poursuivi par un autre EA (Sep-), de Paul Dejan de la Bâtie et de Sarah Petroff, coencadré par Xavier Allamigeon, avec le concours de Vianney Boeuf. Voir Section 7.5.5 pour plus de détails.

### 10.2.3. Jurys/Committees

- M. Akian
  - Membre du jury de concours Inria CR2 de l'Inria Saclay-Île-de-France.
  - Jury de thèse de Mohamed Assellaou (ENSTA, Palaiseau, décembre 2015).
  - Jury de thèse d'A. Marchesini (X, Palaiseau, décembre 2015).
- S. Gaubert
  - Membre de la commission de recrutement en informatique à l'École Polytechnique.
  - Membre du jury de concours Inria CR2 de l'Inria Lille.
  - Membre du jury national de concours Inria DR2.
  - Jury de thèse de Xavier David Henriet (cotutelle Univ. Angers et TU Berlin, rapporteur, 2015).
  - Jury de thèse de Simone Naldi (INSA Toulouse, rapporteur, 2015).
  - Jury d'HdR de B. Cottenceau (Angers, 2015; rapporteur).
  - Jury de thèse d'A. Marchesini (X, Palaiseau, décembre 2015).

## 10.3. Popularization

- J.P. Quadrat :
  - Administre le site d'intérêt général <http://www.maxplus.org>, dédié à l'algèbre max-plus.
- V. Boeuf
  - Article dans la brochure "La recherche en mathématiques appliquées" diffusée à des lycéens d'Île de France, exposant la plateforme téléphonique pompiers + police.
- N. Stott
  - Finaliste Paris-Saclay du concours MT180 "Ma thèse en 180 secondes".

## 10.4. Participation à des colloques, séminaires/Conférences, Seminars

- M. Akian

- STORY - UCB Workshop on Stochastic and Robust Optimization, Jan. 26-27, 2015. Titre de l'exposé: "Value iteration and Policy iteration algorithms for stochastic control".
- Séminaire jeux de l'IHP, 23 mars. Titre de l'exposé: "Complexité de l'itération sur les politiques pour les jeux stochastiques à somme nulle".
- Bar-Ilan Algebra Seminar, Bar Ilan Univ., June 24, 2015. Titre de l'exposé: "Majorization inequalities for valuations of eigenvalues using tropical algebra".
- SIAM Conference on Control and its Applications (SIAM CT'15), Paris, 8-10 juillet. Titre de l'exposé: "Ergodicity Condition for Zero-Sum Games".
- 4th International Conference on Matrix methods in Mathematics and Applications (MMMA-2015), Moscow, August 24-28, 2015. Titre de l'exposé: "Majorization inequalities for valuations of eigenvalues using tropical algebra".
- SIAM Conference on Applied Linear Algebra (SIAM LA), Atlanta, Oct. 26-30, 2015. Titre des exposés: "Hungarian Scaling of Polynomial Eigenproblems" et "Tropical Bounds for the Eigenvalues of Block Structured Matrices".
- X. Allamigeon
  - SIAM Conference on Control and its Applications (SIAM CT'15), Paris, 8-10 juillet 2015. Titre de l'exposé: "Long and winding central paths"
  - Journée TropiX, Ecole Polytechnique, Palaiseau, 26 novembre 2015. Titre de l'exposé: "Long and winding central paths"
- V. Boeuf
  - 13th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS 2015), Madrid, September 2-4. Titre de l'exposé : "Performance Evaluation of an Emergency Call Center: Tropical Polynomial Systems applied to Timed Petri Nets"
  - Séminaire des doctorants du CMAP.
  - PGM days 2015, 27-28 octobre, École polytechnique. Titre de l'exposé : "Performance Evaluation of an Emergency Call Center: Tropical Polynomial Systems applied to Timed Petri Nets".
- S. Gaubert
  - SIAM Conference on Control and its Applications (SIAM CT'15), Paris, 8-10 juillet. Titre de l'exposé: "Tropicalizing Semialgebraic Pivoting Rules, Or How to Solve Mean Payoff Games in Polynomial Time on Average".
  - SIAM Conference on Control and its Applications (SIAM CT'15), Paris, 8-10 juillet. Titre de l'exposé: "A Hamilton-Jacobi Approach to Barabanov Norms of Positive Linear Systems."
  - Exposé au Workshop on Tropical Geometry, Bar Ilan, Dec 2015, "Tropicalizing linear programming".
- A. Hochart
  - Séminaire des thésards, École polytechnique, 12 juin. Titre de l'exposé: "Hypergraph conditions for the solvability of the ergodic equation for zero-sum games".
  - SIAM Conference on Control and its Applications (SIAMCT15), Paris, 8-10 juillet. Titre de l'exposé: "Generic uniqueness of the bias vector of mean-payoff zero-sum games".
  - PGM Days 2015, ENSTA ParisTech, 27 et 28 octobre. Titre de l'exposé: "Hypergraph conditions for the solvability of the ergodic equation for zero-sum games".
  - 54th IEEE Conference on Decision and Control (CDC 2015), Osaka, Japon, 15-18 décembre. Titre de l'exposé: "Hypergraph conditions for the solvability of the ergodic equation for zero-sum games".



- A. Marchesini
  - ICIAM 2015, August 10-14, 2015, Beijing, China. Titre de l'exposé: "Tropical diagonal scaling for asymptotic eigenvalue problems"
- A. Niv
  - January 14, 2015, Tropical geometry seminar, Jussieu Institute, University Pierre and Marie Curie. Titre de l'exposé: "Tropical definite forms, normal forms and the quasi-inverse".
  - March 26, 2015, Optimization seminar, School of Mathematics, University of Birmingham. Titre de l'exposé: "Properties of the Characteristic Maxpolynomial".
  - April 18, 2015, Tropical algebraic geometry symposium, Brown University. Titre de l'exposé: "Factorization of Tropical Matrices".
  - June 17, 2015, Algebra seminar, Mathematics department, Bar-Ilan University. Titre de l'exposé: "Tropical totally non-negative matrices".
- N. Stott
  - SIAM Conference on Control and its Applications (SIAM CT'15), Paris, 8-10 juillet. Titre de l'exposé: "Eigenvectors of Non-Linear Maps on the Cone of Positive Semidefinite Matrices Application to Stability Analysis"
  - EMSOFT 2015, Amsterdam, 4-10 octobre. Titre de l'exposé : "A Scalable Algebraic Method to Infer Quadratic Invariants of Switched Systems"
  - SIAM Conference on Applied Linear Algebra (SIAM LA), Atlanta, Oct. 26-30, 2015. Titre de l'exposé: "Maximal Lower Bounds in the Loewner order".
- C. Walsh
  - Séminaire du CMAP, Ecole Polytechnique, 10 novembre 2015. Titre de l'exposé: "The Tropical Martin boundary".

## MCTAO Project-Team

# 9. Dissemination

## 9.1. Teaching - Supervision - Juries

PhD: Helen Heninger, *Étude des solutions du transfert orbital avec poussée faible dans le problème des deux ou trois corps*, defended October 4, 2015, Université de Nice Sophia Antipolis, advisors: Bernard Bonnard and Jean-Baptiste Pomet.

PhD in progress: Jérémy Rouot, subject: *Moyennisation en contrôle et en contrôle optimal, effet des perturbations non périodiques*, Université de Nice Sophia Antipolis, started october, 2013, advisors: Bernard Bonnard and Jean-Baptiste Pomet.

PhD in progress: Zeinab Badredine, subject: *Techniques d'intégrabilité en dynamique des spins et applications au contrôle optimal*, Université de Bourgogne, started october, 2014, advisors: Bernard Bonnard and Ludovic Rifford.

MSc: Sofya Maslovskaya, *Finsler metric associated with average minimum time problems*, Ensta ParisTech, supervisors: Jean-Baptiste Pomet.

## MEMPHIS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Organization of the Scientific Day of the team "Modelling and Scientific Computing" of the Mathematics Institute of Bordeaux.

With Frédéric Gibou we have organized an international workshop in Santa Barbara funded by the IDEX initiative in Bordeaux. The topics of the workshop were about our common research subjects: hierarchical Cartesian meshes and monolithic models: multi-resolution schemes based on octree grid structures, refined grid patches, numerical zooms, overset.

Charles-Henri Bruneau is in the organizing committee of ICCFD conference, a major conference in CFD.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial boards

Angelo Iollo is in the advisory board of Acta Mechanica.

#### 10.1.2.2. Reviewer - Reviewing activities

- projects CSCS Swiss National Supercomputing Centre
- reviews of applications for PhD and Postdoc grants at Inria (commission jeunes chercheurs)
- journals: Journal of Computational Physics, International Journal of CFD, Journal of Non-linear Analysis B, ASME Journal of Computational and Nonlinear Dynamics, Journal of Fluid Mechanics, Acta Mechanica, AIAA Journal, International Journal Numerical Methods in Fluids, Computers & Fluids, Journal of Engineering Mathematics, European Journal of Mechanics / B Fluids, Journal Européen de Systèmes Automatisés, Applied Mathematics and Computation. Nuclear Science and Engineering, Computer Methods in Applied Mechanics and Engineering, Journal of Theoretical Biology, Computational Optimization and Applications. Applied science, Meccanica.

### 10.1.3. Invited talks

Invited seminars at Institut Montpellierain Alexander Grothendieck, Ecole Centrale Nantes, Laboratoire de Mathématiques et Applications de Poitiers, Laboratoire de Mathématiques d'Orsay, Florence University .

### 10.1.4. Leadership within the scientific community

Angelo Iollo is responsible of the scientific policy of the scientific computing department of the LabEx CPU. This department gathers 60 researchers of the math lab IMB, of the computer science lab LaBRI, of the mechanics lab I2M and of the CEA.

### 10.1.5. Scientific expertise

Angelo Iollo has been reviewer of the PhD defense « Modélisation numérique du vol inspiré à la biologie » of Thomas Engels, TU Berlin et Université Aix-Marseille, 12/12/2015. Also he is scientific reviewer for ANR (1 project) and the Romanian Research Agency (8 projects).

Michel Bergmann has a reviewing activity for the CSCS Swiss National Supercomputing Center. He is also member of the Inria Young Researchers Commission, which allocates PhD and Postdoc grants.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Four members of the team are Professors or Assistant Professors at Bordeaux University and have a teaching duty, which consists in courses and practical exercises in numerical analysis and scientific computing.

#### E-learning

Online course on the Moodle webpage of Bordeaux University, 13 weeks, licence 2, Differential equations, Lisl Weynans, 5 students registered.

### 10.2.2. Supervision

In case of co-supervision, the name of the concerned student/postdoc is mentioned twice.

Michel Bergmann:

- PhD students:
  - Alice Raeli (cpu)
  - Federico Tesser (inria)
  - Claire Morel (valeol)
  - Baptiste Lambert (univ. Bordeaux)
- Postdoc:
  - Andrea Ferrero (Aerogust)

Afaf Bouharguane

- Research Engineer: Andrea Valenti (cpu)

Charles-Henri Bruneau

- PhD student: Meriem Jedouaa (co-tutelle Grenoble Emmanuel Maitre)

Angelo Iollo:

- PhD students:
  - Alice Raeli (cpu)
  - Federico Tesser (inria)
  - Claire Morel (valeol)
  - Emanuela Abbate (univ. Insubria)
  - Mathias Braun (univ. Insubria)
- Postdoc:
  - Andrea Ferrero (Aerogust)
- Research Engineers:
  - Marco Cisternino (cpu)
  - Florian Bernard (Inria)
  - Andrea Valenti (CPU)
- Master: Nadia Loy (univ/ Florence)

Lisl Weynans

- PhD student: Baptiste Lambert (univ. Bordeaux)
- Research Engineers: Marco Cisternino (CPU)
  - 2012-2015. Dr. Alexia de Brauer. Compressible Materials Simulations. Codirectors A. Iollo and T. Milcent. DGA Grant. University of Bordeaux.
  - 2012-2015. Dr. Gwladys Ravon. Inverse Problems in Cardiac Electrophysiology. Codirectors A. Iollo, Y. Coudiere. Idex and IHU Grant. University of Bordeaux.
  - 2012-2015. Dr. Florian Bernard. Efficient Asymptotic Preserving Schemes for BGK and ES-BGK models on Cartesian grids. Codirectors A. Iollo and G. Puppo. University of Bordeaux and Politecnico di Torino. Grant from the Politecnico di Torino.

### **10.2.3. Juries**

Participation to hiring committees ("comités de sélection"): Ecole Centrale de Nantes, I2M laboratory at Bordeaux University.

Participation to PhD defence juries: C.-H. Bruneau for Eysteinn Helgason (Chalmers, Sweden), L. Weynans for Pierre Bigay (Ecole Centrale Nantes)

### **10.3. Popularization**

One member of the team (Lisl Weynans) is in charge of the communication with secondary degree for the Mathematics Institute.

Participation popularization operations, such as: "Fête de la Science", "Des enseignants dans les labos", "Le printemps de la mixité", and several talks in high schools to popularize scientific computing.

Pedagogic project with an high in rural area about statistics: the PARADOX project, awarded by a grant from the foundation "Sciences à l'école".

## MEPHYSTO Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

Denis Bonheure was General chair of the committee of the workshop in nonlinear PDEs in Brussels from Sept. 7 to 11 2015.

#### 9.1.1.2. Member of the organizing committees

Antoine Gloria and Scott Armstrong organized a minisymposium on stochastic homogenization at the EQUADIFF'15 conference held in Lyon in July.

D. Bonheure and A. Gloria organize a PDE and analysis seminar at Brussels (<http://homepages.ulb.ac.be/~dbonheur/seminaire-ANEDP.html>).

### 9.1.2. Journal

#### 9.1.2.1. Member of the editorial boards

D. Bonheure is associate editor at the Bulletin of the Belgian Mathematical Society - Simon Stevin (<http://projecteuclid.org/DPubS?service=UI&version=1.0&verb=Display&handle=euclid.bbms>) and International Scholarly Research Notices (<http://www.hindawi.com/journals/isrn/>).

Antoine Gloria is editor at the Northwestern European Journal of Mathematics.

#### 9.1.2.2. Reviewer - Reviewing activities

The members of the team review articles for many journals on a regular basis.

### 9.1.3. Invited talks

Denis Bonheure was invited speaker at

- 1st Joint Meeting Brazil-Spain in Mathematics, Universidade Federal do Ceara, Brazil, December
- Variational and Topological methods in the study of nonlinear problems, Besançon, June
- Unplugged in PDE's, Sapienza di Roma, June
- AMS-EMS-SPM International Meeting in Porto, June
- Workshop in PDE's, Calais, May
- Nonlinear elliptic PDEs at the End of the World Congress, Universidad de Magallanes, Punta Arenas - Chile, March
- Xth Americas Conference on Differential Equations and Nonlinear Analysis, Universidad de Buenos Aires, February
- Karlsruhe, seminar of Nonlinear PDE, October
- Karlsruhe, Colloquium of the Collaborative Research Centre on wave phenomena, October
- Santiago de Chile, Seminar of the Center for Analysis and Partial Differential Equations, October
- Instituto Superior Tecnico de Lisboa, Departamento de Matematica, June
- TU Delft, Analysis seminar, June
- Université de Lorraine, Séminaire d'Analyse et EDP de l'Institut Elie Cartan, June
- Université de Aix-Marseilles, Séminaire d'Analyse Appliqué du Laboratoire d'Analyse, Topologie, Probabilités UMR 7353, May
- Lille 1, Séminaire Analyse Numérique - Equations aux Dérivées Partielles, January

Stephan De Bièvre was invited speaker at

- Colloquium bisontin sur les EDPs dispersives et problèmes liés, Besançon, January.

Mitia Duerinckx was invited speaker at

- Numerical analysis and PDE seminar at the Université Lille 1, March
- Minisymposium on Stochastic Homogenization at the conference EquaDiff 2015 in Lyon, July.

Antoine Gloria was invited speaker at

- BelPRO conference on probability, Liège, January;
- PDE seminar, Université de Nice, March;
- AMS-EMS-SPM international meeting in Porto, June;
- Workshop on stochastic homogenization, Banff research center, August;
- Workshop on the calculus of variations, Lille, October;
- Séminaire EDP-Proba, IHP, Paris, December.

Christopher Shirley was invited speaker at

- Workshop on Spectra of Random Operators and Related Topics, Keio University, Yokohama.

#### **9.1.4. Leadership within the scientific community**

Denis Bonheure is member of the Executive board of the Belgian Mathematical Society.

Stephan De Bièvre is

- the scientific coordinator of the CEMPI,
- member of the drafting committee of the IDEX UDL, and of the delegation that presented the pre-project to the jury in Paris (April 2015),
- member of the Executive Committee of International Association of Mathematical Physics (since 2012).

#### **9.1.5. Scientific expertise**

Denis Bonheure is a member of the European Science Foundation panel elected by the Fundação para a Ciência e a Tecnologia for the evaluation of the research centers in Portugal for the period 2015-2020.

Guillaume Dujardin is an elected member of the Commission d'Evaluation of Inria (since 2015).

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

### **9.2.1. Teaching**

#### **Licence**

Guillaume Dujardin, Integral and differential calculus, 60h, L2 (mathematics & physics), Université Libre de Bruxelles

Stephan De Bièvre, Probability, 15h, L2 (physics), Université Lille 1

Stephan De Bièvre, Applied mathematics, 30h, L2 (physics), Université Lille 1

Stephan De Bièvre, Probability, 50h, L3 (mathematics), Université Lille 1

#### **Master**

Antoine Gloria, Elliptic regularity theory, 30h, M2, Université Libre de Bruxelles

#### **Doctorat**

Christopher Shirley, Decorrelation estimates for random operators, 4h, Gakushuin University, Tokyo

### **9.2.2. Supervision**

PhD supervision in the team:

PhD : Emilie Soret, Stochastic acceleration in an inelastic Lorentz gaz, Université Lille 1, June 30th 2015, Stephan De Bièvre & Thomas Simon (Lille 1)

PhD in progress : Mitia Duerinckx, Qualitative and quantitative aspects in stochastic homogenization of some PDEs, September 2014, Antoine Gloria & Sylvia Serfaty (Paris 6)

PhD supervision outside the team:

PhD : Manon Nys, Schrödinger equations with an external magnetic field: spectral problems & semiclassical states, Université Libre de Bruxelles and Università di Milano-Bicocca, September 11th 2015, Denis Bonheure (ULB) & Susanna Terracini (Torino)

PhD : Isabel Coelho, Boundary Value Problems for Some Curvature Operators, Université Libre de Bruxelles, June 20th 2015, Denis Bonheure (ULB)

### **9.2.3. Juries**

Denis Bonheure was member of the jury of the PhD defence of Thuy Lien Nguyen (Université de Toulouse III - Paul Sabatier).

Antoine Gloria was in the jury of the PhD defences of Emilie Soret and Manon Nys.

Stephan De Bièvre was in the HDR jury of Dominique Spehner (April 2015, Institut Fourier, Grenoble).



## MISTIS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- **IEEE DSAA 2015, IEEE international conference on Data Science and Advanced Analytics**, <http://dsaa2015.lip6.fr/>, in Paris, Oct. 19-21, 2015. F. Forbes was member of the scientific committee and organized with W. Buntine a special session on "**Trends and controversies**". 150 participants. 81 accepted papers. Acceptance ratio 29%.
- Stéphane Girard was co-chair of the Astrostatistics summer school dedicated to "Classification & Clustering" held in Les Houches, <http://stat4astro2015.sciencesconf.org/>.
- **2nd conference of the SFRMBM society (Société Française de Résonance Magnétique en Biologie et Médecine)**, <http://sfrmbm2015.sciencesconf.org/>, March 18-20, 2015, Grenoble. F. Forbes was a member of the organizing committee. 200 participants. 140 submissions. Approximate funding: 80 keuros.
- Stéphane Girard was a member of the organizing committees of "4èmes rencontres R" <http://r2015-grenoble.sciencesconf.org/> and of the 6th workshop Statlearn "Challenging problems in Statistical Learning", both held in Grenoble.
- **INRA AIGM network day** in Grenoble June 30, 2015. F. Forbes was program co-chair with N. Peyrard. 20 participants. Approximate funding: 1 keuros. AIGM events web site: <https://carlit.toulouse.inra.fr/AIGM/events.html>.

### 10.1.2. Scientific events selection

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

- Stéphane Girard was a member of the conference program committee of the "Mathematical Finance and Actuarial Sciences conference organized by the AIMS (African Institute for Mathematical Sciences), Mbour, Sénégal.

#### 10.1.2.2. Reviewer

In 2015, F. Forbes has been reviewer for NIPS 2015 and GRETSI 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Stéphane Girard is Associate Editor of the *Statistics and Computing* journal since 2012. He is also member of the Advisory Board of the *Dependence Modelling* journal since december 2014.
- F. Forbes is Associate Editor of the journal *Frontiers in ICT: Computer Image Analysis* since its creation in Sept. 2014. *Computer Image Analysis* is a new specialty section in the community-run openaccess journal *Frontiers in ICT*. This section is led by Specialty Chief Editors Drs Christian Barillot and Patrick Boutheymy.

#### 10.1.3.2. Reviewer - Reviewing activities

In 2015, S. Girard has been a reviewer for *Scandinavian Journal of Statistics*, *Extremes* and *Journal of Statistical Software*.

In 2015, F. Forbes has been reviewer for *Statistics and Computing*, *Computational Statistics and Data Analysis* journals, *IEEE trans. on Signal Processing*, *IEEE trans. on Image Processing* journals.

#### 10.1.4. Invited talks

Stéphane Girard was invited to give a talk at the SMAI Conference [32] and at the Extreme Value Analysis conference [33].

F. Forbes was invited to give a talk at the Working Group on Model-Based Clustering Summer Session, in Seattle, USA, July 19-25, 2015, <http://mathsci.ucd.ie/~brendan/wgmbc2015.html>. Title: High dimensional regression with Gaussian mixtures and partially latent response variables. 30 participants.

F. Forbes was invited to give a talk at the CHUV/SIEMENS workshop on Quantitative magnetic resonance imaging for neuroradiology, in Lausanne, Switzerland, June 29, 2015. Title: Automatic brain lesion segmentation: methodological challenges. 20 participants.

F. Forbes and S. Girard gave a tutorial at the Astrostatistics School in Les Houches in Oct. 2015, <http://stat4astro2015.sciencesconf.org/>.

#### 10.1.5. Leadership within the scientific community

Stéphane Girard is at the head of the associate team (*Statistical Inference for the Management of Extreme Risks and Global Epidemiology*) created in 2015 between Mistis and LERSTAD (Université Gaston Berger, Saint-Louis, Sénégal). The team is part of the LIRIMA (Laboratoire International de Recherche en Informatique et Mathématiques Appliquées), <http://mistis.inrialpes.fr/simerge/>.

#### 10.1.6. Scientific expertise

- Stéphane Girard was in charge of evaluating PEPS research projects (projets exploratoires premier soutien) for the CNRS and MITACS projects from Québec, Canada.
- F. Forbes is a member of the ERCIM working group on Mixture models.

#### 10.1.7. Research administration

- Stéphane Girard is at the head of the Probability and Statistics department of the LJK (Laboratoire Jean Kuntzmann) since september 2012.
- Grenoble Pole Cognition. F. Forbes is representing Inria and LJK in the pole.
- PRIMES Labex, Lyon. F. Forbes is a member of the strategic committee. F. Forbes is representing Inria.
- F. Forbes was elected in 2010 and is since then a member of the bureau of the “Statistics and Images” group in the Société Française de Statistique (SFdS), [http://www.sfds.asso.fr/318-Actualites\\_du\\_groupe\\_Statistique\\_et\\_Images](http://www.sfds.asso.fr/318-Actualites_du_groupe_Statistique_et_Images). The group is made of 5 persons. F. Forbes is vice-president.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Alexis Arnaud, *Probability and statistics*, 56 ETD, L2 level, IUT2 Grenoble, Université Pierre Mendès France.

Master : Stéphane Girard, *Statistique Inférentielle Avancée*, 45 ETD, M1 level, Ensimag. Grenoble-INP, France.

Master: Jean-Baptiste Durand, *Statistics and probability*, 192 ETD, M1 and M2 levels, Ensimag Grenoble INP, France.

J.-B. Durand is a faculty member at Ensimag, Grenoble INP.

### 10.2.2. Supervision

PhD in progress: Aina Frau-Pascual, “*Statistical Models for the coupling of ASL and BOLD Magnetic Resonance modalities to study brain function and disease*”, October 2013, Florence Forbes and Philippe Ciuciu.

PhD in progress: Alexis Arnaud “*Multiparametric MRI statistical analysis for the identification and follow-up of brain tumors*”, October 2014, Florence Forbes and Emmanuel Barbier.

PhD in progress: Pierre-Antoine Rodesch, “*Spectral tomography and tomographic reconstruction algorithms*”, october 2015, Florence Forbes.

PhD in progress: Thibaud Rahier, “*Data-mining pour la fusion de données structurées et non-structurées*”, november 2015, Florence Forbes and Stéphane Girard.

PhD in progress: Clément Albert, “*Limites de crédibilité d’extrapolation des lois de valeurs extrêmes*”, october 2015, Stéphane Girard.

PhD in progress: Maïlys Lopes, “*Télé-détection en écologie du paysage : statistiques en grande dimension pour la multirésolution spatiale et la haute résolution temporelle*”, november 2014, Stéphane Girard and Mathieu Fauvel (INRA Toulouse).

PhD in progress: Alessandro Chiancone, “*Sequential dimension reduction*”, november 2013, Stéphane Girard and Jocelyn Chanussot (Grenoble INP).

PhD in progress: Seydou Nourou Sylla, “*Modélisation statistique pour l’analyse des causes de décès décrites par autopsie verbale en milieu rural africain : cas du Sénégal*”, october 2012, Stéphane Girard and Abdou Diongue (Université Gaston Berger, Sénégal).

PhD in progress: Brice Olivier, “*Joint analysis of eye-movements and EEGs using coupled hidden Markov and topic models*”, october 2015, Jean-Baptiste Durand, Marianne Clausel and Anne Guérin-Dugué (Université Grenoble Alpes).

### 10.2.3. Juries

#### 10.2.3.1. PhD

- F. Forbes has been reviewer for four PhD theses in 2015:
  - Theodosios Gkamas, University of Strasbourg, Sept. 29, 2015.
  - Brice Ozenne, University of Lyon 1, Sept, 2015.
  - Julien Stoehr, University Montpellier 2, Oct. 2015.
  - Hajer Braham, Telecom ParisTech and Orange, December 2015.
- F. Forbes was also president for the PhD committee of Haithem Boussaid, "Efficient Inference and learning in Graphical models for multi-organ shape segmentation", Ecole Centrale Paris, January 8, 2015.
- Stéphane Girard has been reviewer of two PhD theses:
  - “*Modélisation de la dépendance et estimation du risque agrégé*”, by Andrés Cuberos, Univ. Claude Bernard - Lyon and
  - “*Analyse de données de cytométrie de flux pour un grand nombre d’échantillons*” by Xiaoyi Chen, Univ. Cergy-Pontoise.
- S. Girard was also a member of the PhD committee of Jonathan Jalbert “*Développement d’un modèle statistique non stationnaire et régional pour les précipitations extrêmes simulées par un modèle numérique de climat*”, Univ. Laval (Québec, Canada).

#### 10.2.3.2. HDR

F. Forbes was also a member of the HDR committee of Estelle Kuhn, University Paris Orsay, November 2015.

#### 10.2.3.3. Other committees

- F. Forbes is a member of the Committee for technological project and engineer candidate selection at Inria Grenoble Rhône-Alpes ("Commission du développement technologique").
- F. Forbes was a member of the committee for Inria research scientist candidate (CR) selection at Inria Rennes in 2015.
- F. Forbes was a member of the committee for attributing the bi-annual Jean Kuntzman award.
- Stéphane Girard is a member of the "Comité des Emplois Scientifiques" and "Comité de Centre" at Inria Grenoble Rhône-Alpes since 2015.
- Since 2015, Stéphane Girard is a member of the INRA committee (CSS MBIA) in charge of evaluating INRA researchers once a year in the MBIA dept of INRA.

### 10.3. Popularization

Pixyl communication. F. Forbes gave several large audience presentations related to the Pixyl startup and more recently interviews for journals such as **Presence** and INSERM Science et Santé Magazines.

## MODAL Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Christophe Biernacki was the General chair of the “47èmes Journées de Statistique de la SFdS” in Lille (JdS 2015, <http://jds2015.sfds.asso.fr/>). It holds during one week from June 1st to 5th 2015 with about 200 talks and about 400 registrations. It is the main annual French statistical conference, with international audience.

Christophe Biernacki co-organised a one-day meeting “Big-Data : Une vision globale Gestion, Analyse, Ethique et Logiciels” in Paris on March 13 2015 (<http://www.sfds.asso.fr/393-Big-Data>). It brought together about 80 registered people.

Sophie Dabo participates to the organisation of the Ecole Mathématique Africaine, 30/11-5/12 2015, Institut Polytechnique de Yamoussoukro, Côte d’ivoire

Benjamin Guedj is a founder and co-organizer of the **YSP seminar** (Young Statisticians and Probabilists), from the SFdS (Société Française de Statistique).

Benjamin Guedj is the organizer of the Modal team weekly seminar.

Benjamin Guedj is the co-organizer of the "Ateliers de la Statistique" from the SFdS.

#### 10.1.1.2. Member of the organizing committees

Christophe Biernacki co-organized a one-day meeting “Statistique et données massives : enjeux et perspectives” in Paris on October 13th 2015 (<http://bigdata2015.sfds.asso.fr/comite-dorganisation/>).

Sophie Dabo co-organise session "Asymptotic properties in nonparametric problems (EO116)" in "The 8th International Conference of the ERCIM WG on Computational and Methodological Statistics" (CMStatistics 2015)

Sophie Dabo co-organise of "Forum of Young Mathematicians", Lille, 27-29, November, 2015

Guillemette Marot is a member of the organizing committee of seminars from Bilille platform. More information about all seminars is available on <https://wikis.univ-lille1.fr/bilille/animation>.

Benjamin Guedj has been a member of the steering committee of the 47th Journées de Statistique (JdS 2015, Lille, June 2015) from the SFdS.

### 10.1.2. Scientific events selection

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

Christophe Biernacki was in the conference program committee of the “Sixièmes rencontres des jeunes statisticiens” in parc ornithologique du Teich (near Bordeaux) on August 28th to September 2nd (<http://rencontres-jeunes-statisticiens.sfds.asso.fr/>).

Julien Jacques is member of the program committees of StatLearn’15 (Grenoble, april 2015) and StatLearn’16 (Vannes, april 2016).

Benjamin Guedj has been a member of the program committee of CaP’2015 (Conférence Franco-phone sur l’Apprentissage automatique, Lille, July 2015).

Alain Celisse was a member of the Journées de Statistique de la SFdS program committee.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Christophe Biernacki is an Associate Editor of the North-Western European Journal of Mathematics (NWEJM).

Sophie Dabo is an Associate editor of *Revista Colombiana de Estadística*

Benjamin Guedj has been a reviewer for the conference CaP'2015 (Conférence Francophone sur l'Apprentissage automatique, Lille, July 2015).

Cristian Preda is an Associate Editor for the Journal Methodology and Computing in Applied Probability (<http://www.springer.com/statistics/journal/11009>) and Romanian Journal of Mathematics and Computer Science ([www.rjm-cs.ro/](http://www.rjm-cs.ro/)).

#### 10.1.3.2. Reviewer - Reviewing activities

Christophe Biernacki has acted as a reviewer for the a dozen journal papers: *Journal de la Société française de Statistique (JSFds)*, *Journal of Classification (JoC)*, *Computational Statistics and Data Analysis (CSDA)*, *Journal of Statistical and Planning Inference (JSPI)*, *Advances in Data Analysis and Classification (ADAC)*, *Communication in Statistics – Theory and Methods*, *Data Mining and Knowledge Discovery (DAMI)*, *Journal of Statistical Software (JSS)*, *Statistica Sinica*, *Electronical Journal of Statistics (EJS)*, *Canadian Journal of Statistics (CJS)*.

Sophie Dabo is reviewer of *Statistical Inference for Stochastic Processes*, *Computational Statistics and Data Analysis*, *Statistics*, *Journal Afrika Statistika*, *Journal of Multivariate Analysis*, *Journal of Nonparametric statistics*, *Annales de l'ISUP*, *Electronic journal of statistics*, *Metika*, *Annals of Statistics*

Julien Jacques has referee in 2015 papers for CSDA and Statistical Paper.

Benjamin Guedj is a reviewer for the following journals: *Journal of the Royal Statistical Society (Series A)*, *Journal of the American Statistical Association*, *Molecular Ecology Resources*, *Journal of Multivariate Analysis*, *BMC Medical Research Methodology*, *Neurocomputing*.

Alain Celisse is a reviewer for the following journals: *Annals of Statistics*, *JMLR*, *Bernoulli*, *JMVA*,...

Guillemette Marot has reviewed in 2015 papers for BMC Bioinformatics and the Journal of Bioinformatics Research Studies.

#### 10.1.4. Invited talks

Christophe Biernacki has been invited to give a talk at the following meetings:

- a tutorial “Model-based clustering/imputation with missing/binned/mixed data using the new software MixtComp” at the MissData conference in Rennes on June 18-19 2015 (<http://missdata2015.agrocampus-ouest.fr/infoglueDeliverLive/>).
- two lectures, named “Part I: CorReg Linear regression with correlated and numerous data” and “Part II: MixtComp Supervised classification with mixed data, missing data and uncertain data”, at the National Institute for Public Health (RIVM) in Utrecht (The Netherlands) on April 8-9 2015.
- a lecture “Clustering: evolution of methods to meet new challenges” to the one-day clustering meeting of Orange Labs, Issy Les Moulineaux on October 20th 2015 (<http://www.vincentlemaire-labs.fr/Clustering2015/>).
- a research talk at CMStatistics 2015 (ERCIM 2015) in London (UK) on December 12-14 2015 [25].

Sophie Dabo give an invited talk at *Tunisian Association of Statistics and Applications Conference*, march 2015 and an invited talk at the *African Women in Mathematics Association Conference*, july 2015, Kenya.

Julien Jacques has given an invited talks at CMStatistics 2015 (London, UK, december 2015), ISI2015 (Rio de Janeiro, Brasil, July 2015). He has been also invited at Università degli Studi di Napoli Federico II to give a talk on a workshop on Ordinal Data Modelling.

Alain Celisse has given invited talks at

- Nice: Calibration project meeting
- Rennes: talk at the seminar
- LSTA/UMPC: talk at the seminar
- IHP: talk at the séminaire parisien de statistique

Vincent Vandewalle has given invited talks at

- Classification society meeting, June 2015, Mc Master University, Hamilton, Canada [31]
- 8th International Conference of the ERCIM WG on Computational and Methodological Statistics, December 2015, Senate House, London, United Kingdom [33]

### 10.1.5. Scientific expertise

Christophe Biernacki is an elected member to the “Conseil National des Universités” (CNU) since October 2015.

Sophie Dabo, Expertise of l’Oreal’s Award "Womens in Science" since 2014.

Julien Jacques is referee for ANRT PhD grant.

### 10.1.6. Research administration

Christophe Biernacki is “Délégué Scientifique Adjoint” of the Inria Lille center since August 2014.

Julien Jacques is responsible of the Data Mining & Decision team of ERIC laboratory (Université de Lyon).

Vincent Vandewalle, with Chloé Friguet (Laboratoire de Mathématiques de Bretagne Atlantique) and Frédérique Letué (Laboratoire Jean Kuntzmann): organisation of a roundtable during the "47èmes Journées de Statistique de la SFdS" about how to teach the big data [51].

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Christophe Biernacki is head of the M2 “Ingénierie Statistique et Numérique” <http://mathematiques.univ-lille1.fr/Formation/> at University Lille 1.

Julien Jacques is the coordinator of the European Master on Data Mining and Knowledge Management (Université de Lyon).

Vincent Vandewalle was head of the DUT STID at IUT of University Lille 2 until June 2015.

Master: Christophe Biernacki, mathematical statistics, 60h, M1, Lille 1, France

Master: Christophe Biernacki, coaching project, 10h, M1, Lille 1, France

Master: Christophe Biernacki, data analysis, 97.5h, M2, Lille 1, France

Master: Christophe Biernacki, analysis of variance and experimental design, 22.5h, M2, Lille 1, France

Master: Christophe Biernacki, coaching internship, 20h, M2, Lille 1, France

Master: Sophie Dabo, "Spatial Statistics" 24h, M2, Lille 3, France

Master: Sophie Dabo, "Advanced Statistics" 24h, M2, Lille 3, France

Master: Sophie Dabo, "Non-parametric Statistics" 25h, M2, UGB, Senegal

Licence: Sophie Dabo, "Probability" , 24h, L2, Lille 3, France

Licence: Quentin Grimonprez, TP Probabilités, 12h, L3, Polytech’Lille, France

Master: Quentin Grimonprez, TP Classification Supervisée, 32h, M1, Polytech’Lille, France

Master: Quentin Grimonprez, TP Séries Temporelles, 14h, M2, Polytech’Lille, France

Licence: G. Marot, Biostatistics, 9h, L1, U. Lille 2, France

Master: G. Marot, Biostatistics, 45h, M1, U. Lille 2, France  
 Doctorat: G. Marot, Data Analysis with R, 24.5h, U. Lille 2, France  
 Master: B. Guedj, Statistical Learning, 10h, ENSAE ParisTech, Paris, France. 20 students.  
 Master: B. Guedj, Statistical Learning, 10h, Université de Lille, master de mathématiques, M2, parcours mathématiques et finance. 8 students.  
 Licence: S. Iovleff, Analysis and numerical methods, 28h, L1, U. Lille 1, France.  
 Licence: S. Iovleff, Linear Algebra, 74h, L1, U. Lille 1, France  
 Licence: S. Iovleff, Operational research, 28h, L2, U. Lille 1, France  
 Licence: S. Iovleff, Probability and Statistics, 32h, L3, U. Lille 1, France.  
 Master: S. Iovleff, Monte Carlo method, 30h, M1, U. Lille 1, France  
 Master: Maxime Brunin, TP du module "Modèle linéaire", 12h, M1, Polytech Lille, FRANCE.  
 Licence: V. Vandewalle, Probability, 142h, L2, U. Lille 2, France  
 Licence: V. Vandewalle, Classification, 32h, L2, U. Lille 2, France  
 Licence: V. Vandewalle, Case study and survey, 52h, L2, U. Lille 2, France  
 Licence: V. Vandewalle, Analysis, 28h, L2, U. Lille 2, France  
 Master: V. Vandewalle, Classification 34h, M1, U. Lille 1, France  
 Licence: Alain Celisse, Proba-Stat, 64h, niveau L2, université Lille, France  
 Licence: Alain Celisse, Analyse numérique, 32h, niveau L1, université Lille, France  
 Formation continue: Alain Celisse, Analyse numérique, 24h, niveau L1, université Lille, France  
 Licence: Alain Celisse, Algèbre, 68h, niveau L2, université Lille, France  
 Master: Alain Celisse, mémoire de Proba-Stat, 10h, niveau M2, université Lille, France  
 Licence: Cristian Preda, Probability, 40h, L1, Polytech'Lille, France  
 Licence: Cristian Preda, Inferential Statistics, 50h, L1, Polytech'Lille, France  
 Licence: Cristian Preda, Data Analysis, 40h, M1, Polytech'Lille, France  
 Licence: Cristian Preda, Biostatistics, 12h, M2, Polytech'Lille, France  
 Licence: Cristian Preda, Functional data analysis, 12h, M2, Lille 1, France

### **10.2.2. Supervision**

PhD: Clément Thery, Model-based covariable decorrelation in linear regression (CorReg). Application to missing data and to steel industry, University Lille 1, defended on July 8th 2015, Christophe Biernacki.  
 PhD: Stéphane Bouka, Modélisation non-paramétrique pour des observations spatialement dépendantes, Lille 3 et USTM Dabon, 21/12/2015, Sophie Dabo, Guy-martial Nkiet  
 PhD in progress: Aladji Bassene (2011-), co-tutelle between Lille 3 (Sophie Dabo) and UGB (Sénégal) (defense, April 2016)  
 PhD in progress: Emad Drwesh (2012- ) (defense, december 2016), Lille 3, Sophie Dabo, Jérôme Foncel  
 PhD in progress: Mohamed Yayaha (2012-) (defense, december 2016), Lille 3, Sophie Dabo and Aboubacar Amiri  
 PhD in progress: Mohamed Ould Yehdhih (2014-) (defense, december 2017), Lille 3, Sophie Dabo and Mohamed Attouch  
 PhD in progress: Komi Nagbe, Prédiction de production et de consommation d'énergie renouvelable, septembre 2015, Julien Jacques



PhD in progress: Yosra Ben Slimen, Extraction de connaissances dans de gros volumes de données hétérogènes (Big Data) pour la gestion automatique des réseaux radio, juin 2015, Julien Jacques

PhD in progress : Florence Loingeville, Mise en place d'outils statistiques spécifiques au contrôle de procédé en analyse microbiologique, décembre 2012, Julien Jacques and Cristian Preda

PhD in progress : Le LI, "PAC-Bayesian Online Clustering: theory and algorithms", 01/11/2014, together with Sébastien Loustau (Université d'Angers).

PhD in progress: Jérémie Kellner, Processus gaussien dans les RKHS et test d'adéquation, Université de Lille, Alain Celisse and Christophe Biernacki

PhD in progress: Quentin Grimonprez, Sélection de variable en très grande dimension par prise en compte de la dépendance, Alain Celisse, Guillemette Marot and Julien Jacques

PhD in progress: Maxime Brunin, Compromis temps de calcul-précision statistique, Alain Celisse and Christophe Biernacki

PhD in progress: Anne-Lise Bedenel, supervised and unsupervised classification with descriptors evolving in time. Application to online comparisons of insurances, Université Lille 1, Christophe Biernacki and Lætitia Jourdan

### 10.2.3. Juries

- PhD: Sophie Dabo has been examiner for Hassan Maatouk, Ecole of Mines of St-Etienne, 1/10/2015
- PhD: Sophie Dabo has been examiner for Sobom Matthieu Somé, University Franche-Comté, November 16, 2015.
- PhD: Sophie Dabo has been examiner for Abdoulaye Faye, Université Blaise Pascal, Clermont-Ferrand, december, 8, 2015.
- PhD: Sophie Dabo has been examiner for Zahraa Salloum, University of Lyon 2, 19/1/2016
- PhD: Julien Jacques has been referee for the PhD thesis of Amaury Labenne (Université de Bordeaux) and Henri Wallard (CNAM Paris)
- Christophe Biernacki participated as a reviewer to 5 PhD theses and 1 HdR, and as an examiner to 1 PhD thesis and 1 HdR.
- Cristian Preda has been for the PhD thesis of Alin Rusu (Facultatea de Matematica, Universitatea Bucuresti, June 2015).  
Guillemette Marot was a member of an INSERM competition jury (IE number 13 BAP A)

## 10.3. Popularization

- **Research Sensibilisation**
  - Christophe Biernacki has given a talk “Big Stat / MixtComp: A SaaS platform for easy Big Data analysis” to the one-day meeting Data For You at EuraTechnologie in Lille on November 26th 2015 (<http://www.euratechnologies.com/actualites/2015/10/data-you-10381>).
  - Sophie Dabo has participated to research valorisation days for high school students female.
  - Benjamin Guedj has participated in a meeting with undergraduate students at Université de Lille to promote research positions in mathematics (January 2015).
  - Benjamin Guedj has been a speaker for the “30 minutes de science” seminar (Inria Lille - Nord Europe, April 2015).
  - Vincent Vandewalle has given a talk “Clustering et modèles prédictif” to the third R&D du Plateau at EuraTechnologie in Lille on April 22th 2015 <http://www.euratechnologies.com/actualites/2015/04/3eme-r-dv-plateau-10038>

- **XPérium Lille 1**

**Participants:** Christophe Biernacki, Maxime Brunin, Quentin Grimonprez, Vincent Kubicki, Vincent Vandewalle

Vulgarization of MODAL's research to sensitize students and businesses: <https://modal.lille.inria.fr/xperium/>

## MOKAPLAN Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

Q. Mérigot was chair of the annual SMAI-Sigma meeting in Paris (2 Nov 2015)?

G. Peyré is the chair of the conference SIGMA 2016 (<https://www.ceremade.dauphine.fr/~peyre/sigma2016/>).

#### 9.1.1.2. Member of the organizing committees

G. Peyré is in the organizing committee of Mathematics and Image Analysis MIA'16 (<https://fadili.users.greyc.fr/mia/events/fgmia-16/>).

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

G. Peyré is in the conference program committees of CANUM 2016 (<http://smai.emath.fr/canum2016/>).

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

Q. Mérigot and G. Peyré were part of the program committee of Geometric Science of Information 2015

G. Carlier was member of the Scientific Committee of SMAI-2015.

#### 9.1.2.3. Reviewer

G. Peyré is reviewer for conferences in machine learning (ICML, NIPS) and computer graphics (SIGGRAPH).

V. Duval has reviewed several contributions to the conferences GRETSI, CAMSAP, SSVM, SPARS.

Q. Mérigot has reviewed for Symposium on Computational Geometry (SoCG), Symposium on the theory of computational (STOC).

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial board

Guillaume carlier is member of the editorial Board of "Journal de l'Ecole Polytechnique" and co-editor of "Mathematics and Financial Economics".

G. Peyré associate editor for SIAM Journal on Imaging Sciences and Journal of Mathematical Imaging and Vision (Springer).

#### 9.1.3.2. Reviewer

The members of the team are frequently reviewing papers in SIIMS (SIAM Journal on Imaging Sciences), JMAA (Journal of Mathematical Analysis and Applications), IPol (Image Processing Online), JVCI (Journal of Visual Communication and Image Representation), COCV, M2AN ... Discrete and computational geometry, Journal of the London Math Society, JOTA, JCP, "Information and Inference: A Journal of the IMA", JMIV, Optimization Letters, PAMI, SIAM optimization and control ...

### 9.1.4. Invited talks

V. Duval has given invited talks at the Séminaire de Mathématique Appliquée au Traitement d'Image (Télécom ParisTech & Université Paris-Descartes), Journée Traitement d'Images du projet M2NUM du GRR LMN (INSA Rouen), and Mokameetings (Inria & Université Paris-Dauphine).

Q. Mérigot: Séminaire parisien de géométrie algorithmique, Paris (décembre 2015) ; Applied PDEs Seminar, Imperial College, Londres (décembre 2015), Convexity, Probability and Discrete Structures, Marne-la-vallée (octobre 2015) ; Journée thématique transport optimal et applications, Bordeaux (octobre 2015) ; Mini-symposium on gradients flow , SciCADE conference, Potsdam (september 2015) ; Geometric Computing Group Seminar, Stanford University (février 2015)

F-X. Vialard was invited at to give talks at: Semester on Riemannian geometry in infinite dimension in Vienna, Semester on geometric mechanics and stochastics at EPFL, Math on the Rocks conference, Séminaire d'analyse at University Paris 11.

### 9.1.5. Scientific expertise

The members of the team are frequently reviewing and evaluating ANR projects.

G. Peyré was in the 2015 recruitment committees in Nice Univ. (Professor in analysis) and Paris-Dauphine (Maitre de Conference in statistics).

G. Carlier was in the AERES visiting committee at Université du Havre.

Q. Mérigot participated to the section committee MCF 26 at Paris 6.

F-X. Vialard was reviewer for the DFG RSF grant proposal (Russian-German cooperation grant).

### 9.1.6. Research administration

J-D. Benamou is a member of Inria-Paris Restaurant committee.

J-D. Benamou is an elected member of the Academic council of PSL.

G. Peyré is in the scientific advisory committee of "Fondation Sciences Mathématiques de Paris" and in the scientific advisory committee of the Ceremade laboratory, University Paris-Dauphine.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Q. Mérigot teaches Analyse convexe approfondie, 50h equivalent TD, Univ. Paris Dauphine teaches two courses on "Sparsity and Compressed Sensing" and "Deformable Models and Geodesic Methods" in Master 2 MVA ENS Cachan, France. Gabriel Peyré teaches a pre-doctoral course "image and surface processing" in PSL\* University network.

### 9.2.2. Supervision

PhD : Roméo Hatchi, intitulé , Université Paris 9 Dauphine, december 2015, G. Carlier

PhD : Julien André, These CIFRE avec l'entreprise OPTIS Grenoble-INP (co-direction D. Attali, B. Thibert, Q. Mérigot)

PhD in progress : Jocelyn Meyron, IED de Grenoble, Q. Mérigot, D. Attali and B. Thibert.

PhD in progress : Lenaïc Chizat, intitulé , october 2014, F-X. Vialard and G. Peyré.

PhD in progress : Aude Genevay, intitulé , october 2015, J-D. Benamou and G. Peyré.

PhD in progress : Luca Nenna, intitulé , october 2013, J-D. Benamou and G. Carlier.

PhD in progress : Jonathan Vacher, Machine learning approaches for neurosciences of the visual brain, October 2013, G. Peyré and Y. Fregnac.

PhD in progress : Quentin Denoyelle, *Analyse théorique et numérique de la super-résolution sans grille*, October 2014, G. Peyré and V. Duval.

Postdoc in progress : Clarice Poon, *Support recovery using total variation and others sparse priors*, September 2015, G. Peyré and V. Duval.

Postdoc in progress: Dario Prandi, sub-Riemannian model for imaging, Oct. 2015, G. Peyré and J-M Mirebeau

Postdoc in progress: Bernhard Schmitzer, fast algorithms for optimal transport, Oct. 2014, G. Peyré.

Postdoc in progress: Thomas Gallouët, Fluid model and optimal transport, Oct. 2015, Q. Mérigot and Yann Brenier.

Postdoc in progress: Roman Andreev, Numerical Methods for Mean Field Games , Mai 2015, Yves Achdou and J-D. Benamou.

### **9.2.3. Juries**

J-D. Benamou and G. Carlier were in the Ph.D. committee of Roméo Hatchi (Paris 9, december 2015) and G. Carlier was referee for the Ph.D of A. Meszaros (Paris Sud Orsay).

Gabriel Peyré was PhD reviewer of Yi-Qing Wang (Cachan, mars 2015), Laurent Gajny (Lille, avril 2015), Arthur Leclaire (Paris, juin 2015), Nicolas Chauffert (Toulouse, Sept. 2015), Matthieu Toutain (Nice, Dec. 2015).

Gabriel Peyré was habilitation reviewer of Boris Thibert (Grenoble, June 2015), Marianne Clausel (Grenoble, Sep. 2015).

Gabriel Peyré was in the PhD comitees of Solène Ozeré (Rouen, Dec. 2015)

## **9.3. Popularization**

G. Carlier gave a general audience lecture on mathematics of urban traffic at the Consulat de France in Vancouver.

## NACHOS Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific events organisation

##### 8.1.1.1. Member of the organizing committees

Claire Scheid and David Chiron (University of Nice - Sophia Antipolis) co-organized of the conference entitled "IDTPsi: Theory and Numerics" around Schrödinger equations, J.A. Dieudonné Laboratory, University of Nice - Sophia Antipolis, January 12-14, 2015.

Peter Bastian (Interdisziplinäres Zentrum für Wissenschaftliches Rechnen Universität Heidelberg) and Stéphane Lanteri have co-organized a mini-symposium on "Recent advances on scalable high order finite element type schemes for PDEs" in the framework of the Platform for Advanced Scientific Computing (PASC15), ETH Zurich, Switzerland, June 1-3, 2015.

Marcus Grote (Mathematisches Institut - Universität Basel) and Stéphane Lanteri have co-organized a mini-symposium on "Advanced time-stepping methods for wave propagation" in the framework of the International Conference on Scientific Computation And Differential Equations (SciCADE 2015), University of Potsdam, Germany, September 14-18, 2015.

##### 8.1.2. Invited talks

Claire Scheid, "Etude numérique de modèles milieux dispersifs et application en nanophotonique", Analyse Numérique et EDP seminar, Laboratoire de Mathématiques d'Orsay, March 12, 2015.

Claire Scheid, "Numerical study of dispersive media and application to nanophotonics", KIT Seminar, Karlsruhe, Germany, February 9, 2015

Stéphane Descombes, "Locally implicit and implicit discontinuous Galerkin time domain method for electromagnetic wave propagation in dispersive media", Numerical Solution of Differential and Differential-Algebraic Equations (Numdiff-14), Martin Luther University Halle-Wittenberg, Germany, September 7-11, 2015.

Stéphane Lanteri, "Numerical modeling of light/matter interaction on the nanoscale with a high order finite element type time-domain solver", Annual meeting of GDR PMSE (Plasmonique Moléculaire et Spectroscopies Exaltées), Inria Paris-Rocquencourt, November 25-27, 2015.

### 8.2. Teaching - Supervision - Juries

#### 8.2.1. Teaching

Stéphane Descombes is the head of the mathematical department of the faculty of sciences at the University of Nice-Sophia Antipolis. He is responsible of the management of all mathematical courses (around 13 000 hours/year), and especially of the M2 *Computational Biology*.

Stéphane Descombes, *Scientific computing*, M1, 18 h, University of Nice-Sophia Antipolis.

Stéphane Descombes, *Principal components analysis*, M2, 30 h, University of Nice-Sophia Antipolis.

Stéphane Descombes, *Statistics*, M2, 30 h, University of Nice-Sophia Antipolis.

Stéphane Lanteri, *Computational electromagnetics*, MAM5, 20 h, Polytech Nice.

Claire Scheid, *Practical works on ordinary differential equations*, 36 h, L3, University of Nice-Sophia Antipolis.

Claire Scheid, *Lectures and practical works, Analysis*, "Agrégation", 22h, University of Nice Sophia Antipolis.

Claire Scheid, *Lectures and practical works in Numerical Analysis*, 36 h, M1, Mathematics engineering, University of Nice-Sophia Antipolis.

Claire Scheid, *Lectures and practical works, Option*, "Agrégation", 16h, University of Nice Sophia Antipolis.

### 8.2.2. Supervision

PhD defended in December 2015: Marie Bonnasse, *Numerical simulation of frequency domain elastic and viscoelastic wave propagation using discontinuous Galerkin methods*, University of Nice-Sophia Antipolis, October 2012, Julien Diaz (MAGIQUE3D project-team, Inria Bordeaux - Sud-Ouest) and Stéphane Lanteri.

PhD defended in December 2015: Jonathan Viquerat, *Discontinuous Galerkin Time-Domain methods for nanophotonics applications*, October 2012, Stéphane Lanteri and Claire Scheid.

PhD in progress: Fabien Peyrusse, *Numerical simulation of strong earthquakes by a discontinuous Galerkin method*, University of Nice-Sophia Antipolis, October 2010, Nathalie Glinsky and Stéphane Lanteri.

PhD in progress: Colin Vo Cing Tri, *Numerical modeling of non-local dispersion for plasmonic nanostructures*, November 2014, Stéphane Lanteri and Claire Scheid.

PhD in progress: Nikolai Schmitt, *Numerical modeling of electron beam interaction with nanostructures*, October 2015, Stéphane Lanteri.

PhD in progress: Van Hieu Nguyen, *SMART-RATS: Small Animals RFID Integrated Antenna Tracking System*, October 2015, Philippe Lethuc (University of Nice-Sophia Antipolis and LEAT) and Stéphane Lanteri.

## **NANO-D Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. Member of the organizing committees*

Stephane Redon is a member of the organizing committee of JOBIM 2016

### **9.1.2. Scientific events selection**

#### *9.1.2.1. Reviewer*

- Leonard Jaillet was a reviewer ISRR (International Symposium on Robotics Research)

### **9.1.3. Journal**

#### *9.1.3.1. Reviewer - Reviewing activities*

- Leonard Jaillet was a reviewer for T-RO (Transactions on Robotics)

### **9.1.4. Invited talks**

- S. Grudinin gave an invited talk titled "Using Machine Learning and Polynomial Expansions to Predict Protein-Protein Interactions " at the 3rd International Conference on Protein and RNA Structure Prediction, 14th - 18th of December 2015, at Punta Cana, Dominican Republic.
- Stephane Redon gave a talk at IMPMC.
- Stephane Redon gave a talk at TEDx Grenoble 2015

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

### **9.2.1. Teaching**

- Stephane Redon is teaching INF585 (Introduction to C++) at Ecole polytechnique
- Stephane Redon is part of the teaching team of INF442 (Big data and high-performance computing) at Ecole polytechnique

### **9.2.2. Supervision**

- Leonard Jaillet is advising the PhD of Minh Khoa Nguyen
- Sergei Grudinin is advising the PhD of Alexandre Hoffmann
- Sergei Grudinin advised the PhD of Petr Popov (defended February 2015)
- Stephane Redon is co-advising the PhD of Krishna Kant Singh in collaboration with Jean-Francois Mehaut
- Stephane Redon is advising the PhD of Francois Rousse
- Stephane Redon is advising the PhD of Semeho Edoh
- Stephane Redon is co-advising the PhD of Zofia Trstanova in collaboration with Gabriel Stoltz

### **9.2.3. Juries**

- Stephane Redon was in the PhD committee of Matthieu Dreher

## **9.3. Popularization**

- NANO-D participated to the 2015 Fete de la Science (science fair): SAMSON was used by high school students to perform various activities related to computational nanoscience.
- Emilie Neveu participated with the AirSea team to the 2015 Fete de la Science (science fair).
- Emilie Neveu is part of the group “Cafes Sciences et Citoyens de l’Agglomeration Grenobloise”, which organises public roundtables every month.
- Stephane Redon gave a talk at TEDx Grenoble <https://www.youtube.com/watch?v=Atpigmv529E>

#### **9.4. Participation to conferences, seminars**

- L. Jaillet, and S. Grudinin attended 2015 Inria Scientific Days, 16th June – 19th June, Nancy, France.
- E. Neveu attended the Basel Computational Biology Conference, 7th June – 10th June, in Basel Switzerland where she presented a poster about Pepsi-Dock.
- S. Redon, L. Jaillet, E. Neveu, Minh-Khoa Nguyen, and S. Grudinin attended the 2015 GT Enzymes / GGMM workshop, 25-28 Mai 2015, Sète France. They gave two talks and presented four posters.
- S. Redon, L. Jaillet, and S. Grudinin attended the AlgoSB winter school, 29th Nov – 04th Dec, Cargèse, France.



## NECS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Alain Kibangou was member of the organizing committee of 'Premières Journées de l'Automatique du GDR MACS', 5-6 October 2015, Grenoble.

### 10.1.2. Scientific events selection

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

Alain Kibangou was a member of the program committee for the International Workshop on Big Data and Smart Sustainable Society (BigData-2015), <http://www2.docm.mmu.ac.uk/STAFF/L.Han/BigData-2015/index.htm>, held in conjunction with the 14th IEEE International Conference on Ubiquitous Computing and Communications (IUCC-2015), <http://cse.stfx.ca/~iucc2015>.

Hassen Fourati was a member of the International and Scientific Program Committees of:

- 4th International Conference on Systems and Control (ICSC'15), Hammamet, Tunisia, April 28-30, 2015 (<http://lias.labo.univ-poitiers.fr/icsc/icsc2015/index.php>);
- International Electrical and Computer Engineering Conference IECEC'15, Setif, Algeria, May 23-25, 2015 (<http://www.univ-setif.dz/IECEC2015>);
- 16th International Conference on Sciences and Techniques of Automatic Control and Computer Engineering STA'2015, Monastir, Tunisia, December 21-23, 2015.

#### 10.1.2.2. Reviewer

Team members have been reviewers for many conferences (including the most prestigious ones in their research area): IEEE Conference on Decision and Control CDC, European Control Conference ECC, American Control Conference ACC, European Signal Processing Conference, IEEE International Conference on Robotics and Automation ICRA, IEEE/RSJ International Conference on Intelligent Robots and Systems IROS, IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys).

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Carlos Canudas de Wit is Associate Editor of IEEE Transactions on Control of Networks Systems IEEE-TCNS (since June 2013), Associate Editor of IEEE Transactions on Control System Technology IEEE-TCST (since January 2013), and Editor of the Asian Journal of Control AJC (since 2010).

#### 10.1.3.2. Reviewer

Team members have been reviewers for many journals (including the most prestigious ones in their research area): IEEE Trans. on Automatic Control, IEEE Trans. on Control of Network Systems, IEEE Trans. on Signal Processing, Automatica, IEEE Signal Processing Letters, Systems and Control Letters, IEEE Transactions on Information Theory, Journal of the Franklin Institute, Journal of Process Control, Elsevier Signal Processing, Int. Journal of Robust and Nonlinear Control, IET Communications, IET Wireless Sensor Networks, IEEE/ASME Trans. on Mechatronics, IEEE Trans. on Instrumentations and Measurements, IEEE Sensors journal, Sensors, IEEE Trans. on Robotics, Micromachines.

#### 10.1.4. Invited talks

- C. Canudas de Wit, *Nash Game Based Distributed Control Design for Balancing of Traffic Density over Freeway Networks*, Transportation seminar series of the Institute of Transportation Studies (ITS) and the Transportation Program of the Civil and Environmental Engineering Department at the University of California, Berkeley, Oct. 2015.
- C. Canudas de Wit, *Distributed Optimal Traffic Control*, IPAM Workshop ‘New Directions in Mathematical Approaches for Traffic Flow Management – Workshop III-Traffic Control’, Oct. 2015.
- F. Garin, *Towards on-line optimization of urban traffic lights*, IPAM Workshop ‘New Directions in Mathematical Approaches for Traffic Flow Management – Workshop III-Traffic Control’, Oct. 2015.

#### 10.1.5. Leadership within the scientific community

C. Canudas de Wit has been president of the European Control Association (EUCA) until June 2015, and is now Past-president and member of the EUCA Council.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: F. Garin, Distributed Algorithms and Network Systems, 13.5h, M2, University Joseph Fourier, France.

Licence: H. Fourati, Informatique Industrielle, 105h, L1, IUT 1 (GEII), University Joseph Fourier, France;

Licence: H. Fourati, Réseaux locaux industriels, 50h, L1 et L2, IUT1 (GEII), University Joseph Fourier, France.

Licence: H. Fourati, Automatique, 61,5h, L3, UFR physique, University Joseph Fourier, France.

Licence: H. Fourati, Automatique échantillonnée, 15h, L2, IUT 1 (GEII), University Joseph Fourier, France.

Licence: A. Kibangou, Automatique, 52h, L2, IUT1(GEII1), University Joseph Fourier, France.

Licence: A. Kibangou, Mathématiques, 33h, L2, IUT1 (GEII1), University Joseph Fourier, France.

Licence: A. Kibangou, Mathématiques, 44h, L1, IUT1 (GEII1), University Joseph Fourier, France.

Licence: A. Kibangou, Automatique, 16h, L3, IUT1 (GEII1), University Joseph Fourier, France

### 10.2.2. Supervision

PhD: Thi-Minh Dung Tran, Methods for finite-time average consensus protocols design, network robustness assessment and network topology reconstruction, Grenoble University, March 26th, 2015

PhD: Ruggero Fabbiano, Collaborative source seeking-seeking control, Grenoble University, May 25th, 2015.

PhD: Giovanni de Nunzio, Traffic eco-management in urban traffic networks, Grenoble University, Oct. 2nd, 2015.

PhD in progress: Aida Makni, Fusion de données inertielles et magnétiques pour l’estimation de l’attitude sous contrainte énergétique d’un corps rigide accéléré, from Oct. 2012, co-advised by H. Fourati, A. Kibangou and C. Canudas de Wit.

PhD in progress: Simon Gerwig, Collaborative, reconfigurable and resilient control for hydro-electric power-plants, from Feb. 2014, co-advised by C. Canudas de Wit, F. Garin and B. Sari (Alstom).

PhD in progress: Pietro Grandinetti, Control of large-scale traffic networks, from Apr. 2014, co-advised by C. Canudas de Wit and F. Garin.

PhD in progress: Andrés Alberto Ladino Lopez, Robust estimation and prediction in large scale traffic networks, from Oct. 2014, co-advised by C. Canudas de Wit, A. Kibangou and H. Fourati.

PhD in progress: Thibaud Michel, Mobile Augmented Reality Applications for Smart Cities, from Nov. 2014, co-advised by N. Layaïda, H. Fourati and P. Geneves.

PhD in progress: Sebing Gracy, Cyber-physical systems: a control-theoretic approach to privacy and security, from Oct. 2015, co-advised by A. Kibangou and F. Garin.

PhD in progress: Stéphane Durand, Coupling distributed control and game theory: application to self-optimizing systems, from Oct. 2015, co-advised by B. Gaujal and F. Garin.

### 10.2.3. Juries

- C. Canudas was president of the Ph.D. defense committee of Pascal Combes, École Nationale Supérieure des Mines de Paris, Spécialité Mathématique et Automatique, Dec. 3rd, 2015
- A. Kibangou was external reviewer and committee member of two master thesis defenses for University of Pretoria: Roy Fisher (July 2015) and Daniel Ramotsoela (November 2015).
- F. Garin was committee member of the master thesis defense of Hourai Bettahar, MiSCIT Master, Grenoble, July 2015.

## 10.3. Popularization

The team's work on traffic prediction and control, with Grenoble Traffic Lab, has been popularized as follows:

- an interview reported in an article in CNRS 'Le Journal', and a related video (in French, see <https://lejournal.cnrs.fr/articles/quelle-voiture-pour-demain>)
- a video prepared by Inria for RII–Rencontres Inria-Industrie (in English, see [https://www.youtube.com/watch?v=Uia4Y-9c6k0&index=5&list=PLV1fJrIaqWIMe5savY102Oz-M\\_hVmXg30](https://www.youtube.com/watch?v=Uia4Y-9c6k0&index=5&list=PLV1fJrIaqWIMe5savY102Oz-M_hVmXg30)).
- H. Fourati gave a talk 'Prédiction et contrôle du trafic routier sur Grenoble : une solution automatisée avec MATLAB' at the 'journée Nouveautés MATLAB 2015a, Data Analytics & Calcul Parallèle', Grenoble, March 26th.

## NON-A Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

- J.-P. Richard, a member of NOC of 20th IFAC World Congress, Toulouse, France, 10-14 July 2017

### 9.1.2. Scientific events selection

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

- J.-P. Richard, Associate Editor, EUCA-IEEE ECC'15, Linz, Austria (14th European Control Conference) June 15-17, 2015, <http://www.ecc15.at>
- J.-P. Richard, Associate Editor, IEEE MED'2015, Torremolinos, Spain (23rd IEEE Mediterranean Conference on Control and Automation) June 16-19, 2015, <http://med2015.uma.es>
- J.-P. Richard, Associate Editor, IFAC TDS'2015, Ann Arbor, MI, USA (12th IFAC Workshop on Time Delay Systems), Univ. of Michigan, 28-30 juin 2015, <http://me.engin.umich.edu/dirifac/>
- Gang Zheng, Associate Editor, SIAM CT15, Paris, France (SIAM Conference of Control & Its Applications 2015), 8-10 July 2015, <http://www.siam.org/meetings/ct15/>

#### 9.1.2.2. Reviewer

The members of NON-A team are reviewers and contributors of all top-ranked conferences in the field of automatic control (IEEE Conference on Decision and Control, IFAC World Congress, European Control Conference, American Control Conference, etc)

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- T. Floquet, Member of Editorial Board, Mathematical Problems in Engineering (Impact Factor: 1.082)
- A. Polyakov, Member of Editorial Board, Journal of Optimization Theory and Applications (Impact Factor: 1.406)
- A. Polyakov, Associate Editor, Journal of the Franklin Institute (Impact Factor: 2.260)
- A. Polyakov, Editor, International Journal of Robust and Nonlinear Control (Impact Factor: 3.176)

#### 9.1.3.2. Reviewer - Reviewing activities

The members of NON-A team are reviewers of all top-ranked journals in the field of automatic control (IEEE Transactions on Automatic Control, Automatica, SIAM Journal of Control and Optimization, International Journal of Robust and Nonlinear Control, etc)

### 9.1.4. Invited talks

- Andrey Polyakov has been invited to give a talk for the conference "Optimization and Applications in Control and Data Science", 13-15 May 2015, Moscow, Russia, (<https://sites.google.com/site/polconf/>).

### 9.1.5. Leadership within the scientific community

The NON-A team is the leader in the field of non-asymptotic control and estimation using homogeneity framework. For European Control Conference 2015 the tutorial session "Homogeneity in Control: Geometry and Applications" has been organized and contributed by members of NON-A team.

### 9.1.6. Research administration

- Wilfrid Perruquetti, directeur adjoint scientifique de l'INS2I, CNRS

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Lotfi Belkoura; Automatique (systèmes linéaires monovariables)(75h), Introduction à la Robotique (25h), L3; Lille 1; France

Licence : Gang Zheng; TP Automatic control (16h), L2; EC Lille; France

Licence : Rosane Ushirobira; TP Automatic control (16h), L2; TP Numerical Analysis (20h), L1; EC-Lille and Polytech Lille; France

Master : Jean-Pierre Richard; Systèmes dynamiques (30h), Métiers de la recherche (4h), Modélisation des systèmes complexes(12h), Séminaire episteme (24h); EC-Lille; France

Master : Lotfi Belkoura; Représentation d'état (55h), M1; Projets (10h), M1; Introduction aux distributions (10h), M2; Lille 1; France

Master : Rosane Ushirobira; Probability and Statistics (20h); M2; EC-Lille; France

Master : Denis Efimov; TD Automatic control (12h), M1; Analysis of Nonlinear Systems (28h), M2, Lille 1; France

### 9.2.2. Supervision

HdR : Gang Zheng, "Analyse d'observabilité et synthèse d'observateur pour des systèmes dynamiques complexes", "Université Lille de Sciences et Technologies", 26 November 2015

PhD: Guo Qi, "Estimation dynamique des paramètres de robots manipulateur", EC-Lille, 8 December 2015, supervisors are W. Perruquetti and M. Gautier

PhD: Nehla Debbabi, "Approches algébriques et Théorie des valeurs extrêmes pour la détection de ruptures : Applications aux signaux biomédicaux", Tunis, 14 December 2015

PhD: Matteo Guerra, "Supervisory control of collective motion of mobile robots", EC-Lille, 17 December 2015, supervisors are W. Perruquetti, D. Efimov and G. Zheng

PhD in progress : Zilong Shao, "Oscillatory control of robot manipulator", 2013–..., supervisors are W. Perruquetti, D. Efimov and G. Zheng

PhD in progress : Hafiz Ahmed, "Identification and modeling of circadian rhythms for oysters", 2013–..., supervisors are D. Efimov, R. Ushirobira and D. Tran

PhD in progress : Essaid Edjekouane, "Cyber-physical systems", 2012–..., supervisors are J.P. Barbot, S. Riachy and M. Ghanes

PhD in progress: Zohra Kader, "Observation et commande des systèmes affines à commutation", 2014–..., supervisors are L. Belkoura, C. Fiter, L. Hetel

PhD in progress: Maxime Feingesicht, "Dynamic Observers for Control of Separated Flows", 2015–..., supervisors are J.-P. Richard, F. Kerherve, A. Polyakov

PhD in progress: Francisco Lopez Ramirez, "Control and Estimation via Implicit Homogeneous Lyapunov Function", 2015–..., supervisors are W. Perruquetti, D. Efimov and A. Polyakov

PhD in progress: Tatiana Kharkovskaia, "Interval Observers for Distributed Parametr Systems", 2015–..., supervisors are D. Efimov, J.-P. Richard, A. Kremlev

PhD in progress: Langueh Désiré Kokou, "Inversion a gauche, singularités d'inversion, immersion et formes normales pour les systemes dynamiques", 2015–..., supervisors are Thierry Floquet and Gang Zheng

PhD in progress: Gabriele Perozzi, "Save exploration of aerodynamic field by microdrone", 2015–..., supervisors are Denis Efimov and Jean-Marc Biannic

PhD in progress: Guillaume Rance, "Etude de systèmes flexibles a retard et application aux viseurs", 2015–..., the supervisors are Alban Quadrat and Hugues Mounier

### 9.2.3. Juries

The team members are also involved in various examination committees of Theses and Habilitations, recruitment committees, in France and abroad.

## POEMS Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Advisory and management activities

- P. Joly is a member of the scientific committee of CEA-DAM.
- E. Lunéville is the Head of UMA (Unité de Mathématiques Appliquées) at ENSTA ParisTech.

#### 9.1.2. Scientific events organisation and selection

- E. Bécache, A. S. Bonnet-Ben Dhia, M. Bonnet, C. Hazard, P. Joly and E. Lunéville have been members of the scientific committee for the 12th international conference on mathematical and numerical aspects of wave propagation, which has been held in Karlsruhe in July 2015.
- A. S. Bonnet-Ben Dhia has been a member of the organizing committee of the workshop *Waveguides: asymptotic methods and numerical analysis* which has been held in Napoli in May 2015.
- P. Joly has been a member of the organizing committee of the workshop *Asymptotic analysis and spectral theory* which has been held in Orsay in October 2015.

#### 9.1.3. Journal

- A. S. Bonnet-Ben Dhia is associate editor of SINUM (SIAM Journal of Numerical Analysis).
- M. Bonnet is associate editor of Engineering Analysis with Boundary Elements
- M. Bonnet is in the editorial board of Inverse Problems.
- M. Bonnet is in the editorial board of Computational Mechanics.
- M. Bonnet is in the editorial board of Journal of Optimization Theory and Application.
- P. Ciarlet is an editor of CAMWA (Computers & Mathematics with Applications).
- P. Ciarlet is an editor of ESAIM:M2AN (Mathematical Modeling and Numerical Analysis).
- P. Joly is an editor of ESAIM:M2AN (Mathematical Modeling and Numerical Analysis).
- P. Joly is a member of the editorial board of AAMM (Advances in Applied Mathematics and Mechanics).
- P. Joly is a member of the Book Series Scientific Computing of Springer Verlag.
- The team members regularly review papers for many international journals.

## 9.2. Teaching - Supervision

### 9.2.1. Teaching

Eliane Bécache

- *Méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Compléments sur la méthode des éléments finis*, ENSTA ParisTech, (2nd year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech (1st year)

Marc Bonnet

- *Problèmes inverses*, Master MS2SC (Centrale Paris and ENS Cachan)
- *Méthodes intégrales*, Master TACS (ENS Cachan)
- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA Paris-Tech (1st year)

Anne-Sophie Bonnet-Ben Dhia

- *Fonctions d'une variable complexe*, ENSTA ParisTech (1st year)
- *Propagation dans les guides d'ondes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Etude mathématique de quelques problèmes de transmission avec coefficients changeant de signe*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Théorie spectrale des opérateurs autoadjoints et applications aux guides optiques*, ENSTA ParisTech (2nd year)

Laurent Bourgeois

- *Outils élémentaires pour l'analyse des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Inverse problems: mathematical analysis and numerical algorithms*, (Master AN& EDP, Paris 6 and Ecole Polytechnique)
- Speaker in the Franco-German Summer School Inverse Problems for Waves, Ecole Polytechnique, August 24-28, 2015.

Stéphanie Chaillat

- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech (1st year)
- *Equations intégrales et multipôles rapides*, Ecole doctorale MODES (Univ. Paris Est, Marne la Vallée)
- *Résolution des problèmes de diffraction par équations intégrales*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Colin Chambeyron

- *Analyse réelle: optimisation libre et sous contraintes*, Dauphine University (1st year)
- *Outils mathématiques*, Dauphine University (1st year)
- *Algèbre linéaire*, Dauphine University (2nd year)

Patrick Ciarlet

- *Compléments sur la méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Theory and algorithms for distributed computing*, ENSTA ParisTech (3rd year), and Master "Modeling and Simulation" (M2)
- *Maxwell's equations and their discretization*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Etude mathématique de quelques problèmes de transmission avec coefficients changeant de signe*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Sonia Fliss

- *Méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year).
- *Propagation des ondes dans les milieux périodiques*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Homogenisation*, Master ANEDP Paris 6 and Ecole Polytechnique (M2)

Christophe Hazard

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)

- *Théorie spectrale des opérateurs autoadjoints et applications aux guides optiques*, ENSTA ParisTech (2nd year)

Patrick Joly

- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Propagation des ondes dans les milieux périodiques*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- Speaker in the Franco-German Summer School Inverse Problems for Waves, Ecole Polytechnique, August 24-28, 2015.

Nicolas Kielbasiewicz

- *Programmation scientifique et simulation numérique*, ENSTA ParisTech (2nd year)
- *Parallélisme et calcul réparti*, ENSTA ParisTech (Master 2)

Marc Lenoir

- *Fonctions d'une variable complexe*, ENSTA ParisTech (2nd year)
- *Equations intégrales*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Méthodes asymptotiques hautes fréquences pour les équations d'ondes - course notes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Eric Lunéville

- *Introduction au Calcul Scientifique*, ENSTA ParisTech (2nd year).
- *SIMNUM : Simulation numérique*, ENSTA ParisTech (2nd year).
- *Propagation dans les guides d'ondes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Jean-François Mercier

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech, ENSTA ParisTech (2nd year)
- *Théorie spectrale des opérateurs autoadjoints et application aux guides optiques*, ENSTA ParisTech (2nd year)

### 9.2.2. Supervision

PhD: Antoine Tonnoir, "Simulation numérique de la diffraction d'ondes ultrasonores par un défaut localisé dans une plaque élastique anisotrope", June 2015, Anne-Sophie Bonnet-Ben Dhia and Sonia Fliss

PhD: Matthieu Lecouvez, "Méthodes de décomposition de domaine optimisées pour la propagation d'ondes en régime harmonique", July 2015, Patrick Joly and Francis Collino

PhD: Simon Marmorat, "Etude d'un modèle asymptotique et de son couplage avec une approche par éléments finis pour simuler la propagation d'ondes ultrasonores dans un milieu complexe perturbé par de petites inclusions", November 2015, Patrick Joly and Xavier Claeys

PhD: Camille Carvalho, "Étude théorique et numérique de guides d'ondes plasmoniques", December 2015, Anne-Sophie Bonnet-Ben Dhia and Patrick Ciarlet

PhD in progress : Zouhair Adnani, "Modélisation numérique tridimensionnelle des effets de site en interaction sol-structure par une méthode adaptée aux problèmes sismiques de très grande taille", October 2014, Marc Bonnet and Stéphanie Chaillat



PhD in progress : Marc Bakry, "Estimateurs a posteriori pour la résolution des problèmes de diffraction par équations intégrales", October 2013, Patrick Ciarlet and Sébastien Pernet.

PhD in progress : Geoffrey Beck, "Modélisation de la propagation d'ondes électromagnétiques dans des câbles co-axiaux", October 2012, Patrick Joly

PhD in progress : Antoine Bensalah, "Une approche nouvelle de la modélisation mathématique et numérique en aéroacoustique par les équations de Goldstein et applications en aéronautique", October 2014, Patrick Joly and Jean-François Mercier

PhD in progress : Mathieu Chamaillard, "Conditions aux limites effectives pour des revêtements minces périodiques", October 2011, Patrick Joly and Housseem Haddar

PhD in progress : Rémi Cornaggia, "Asymptotique petit-défaut de fonctions-coût et son application en identification: justifications théorique et expérimentale, extensions", October 2012, Marc Bonnet and Bojan Guzina

PhD in progress : Luca Desiderio, "Efficient visco-elastic wave propagation in 3D for high contrast media", October 2013, Stéphanie Chaillat and Patrick Ciarlet

PhD in progress : Léandre Giret, "Development of a domain decomposition method on non-conforming meshes: application to the modeling of a Reactivity-Initiated Accident (RIA) in a Pressurized Water Reactor (PWR)", October 2014, Patrick Ciarlet

PhD in progress : Laure Pesudo, "Modélisation de la réponse ultrasonore de défauts de type fissure par méthode BEM et couplage à un modèle de propagation - Application à la simulation des contrôle non destructifs", October 2014, Marc Bonnet and Stéphanie Chaillat

PhD in progress : Arnaud Recocquillay, "Identification de défauts dans un guide d'ondes en régime temporel", October 2014, Laurent Bourgeois

PhD in progress : Elizaveta Vasilevskaia, "Modes localisés dans les guides d'onde quantiques", November 2012, Patrick Joly

PhD in progress : Valentin Vinales, "Analyse asymptotique des équations de Maxwell en présence de métamatériaux", October 2012, Sonia Fliss and Patrick Joly

PhD in progress : Emmanuel Zerbib, "Eléments finis spectraux sur maillages décalés en électromagnétisme pour la simulation de grands modèles", October 2014, Gary Cohen

## QUANTIC Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

Benjamin Huard organized and was a member of the program committee of two international conferences in 2015: the CTCQED15 conference in Dresden (1 week in June/July) and the Third Conference on Quantum Thermodynamics in Porquerolles (1 week in October).

Alain Sarlette has organized an invited session on “quantum control” at IEEE Conference on Decision and Control (CDC) 2015 in Osaka.

### 8.1.2. Journal

#### 8.1.2.1. Member of the editorial boards

Mazyar Mirrahimi is an associate editor of System and Control Letters.

Pierre Rouchon is an associate editor of SIAM J. of Control and Optimization.

#### 8.1.2.2. Reviewer - Reviewing activities

Benjamin Huard served as a referee for Nature, Science, Physical Review Letters and other physics journals.

François Mallet served as a referee for Physical Review Letters .

Mazyar Mirrahimi served as a referee for Nature Comm., Reviews of Modern Physics, and Physical Review Journals.

Pierre Rouchon served as referee for IEEE Trans. Automatic Control, Automatica, System and Control Letters, and New J. of Physics.

Alain Sarlette has been a reviewer for several automatic control and dynamical systems journals and conferences.

### 8.1.3. Invited talks

Benjamin Huard gave an invited talk at the Colloquium of the Université de Sherbrooke, Canada, June 2015.

Benjamin Huard gave an invited talk at the PIERS conference, Prague, July 2015.

Benjamin Huard gave an invited talk at the Colloquium of the Physics department, University of Basel, Switzerland, Oct 2015.

Benjamin Huard gave an invited talk at the workshop of University of Tokyo- Ecole Normale Supérieure, Tokyo, Japan, Nov 2015.

Philippe Campagne-Ibarcq gave an invited talk at the “Congrès du GDR IQFA”, Palaiseau, France, Novembre 2015.

Philippe Campagne-Ibarcq gave an invited talk at the American Physical Society’s March Meeting in Saint Antonio, Texas, March 2-6.

Benjamin Huard and Mazyar Mirrahimi gave invited talks at the conference organized for the 30 years of Quantronics: Paris, June 22-25.

François Mallet gave an invited talk at the 14th International Conference on Squeezed States and Uncertainty Relations In Gdansk, 29 June- 3 July.

Mazyar Mirrahimi gave an invited talk at the Frontiers of Quantum and Mesoscopic Thermodynamics (FQMT) conference in Prague: July 27-August 1.

Mazyar Mirrahimi gave an invited talk at the Gordon Research Conference on Quantum Control of Light and Matter: Mount Holyoke College, MA, August 2-7.

Mazyar Mirrahimi gave an invited talk at Quantum Science Symposium in Cambridge, MA: Sept 21-22.

Pierre Rouchon gave an invited talk at the Workshop on Control Systems and Identification Problems January 12-16, 2015 in Valparaso, CHILE.

Mazyar Mirrahimi and Pierre Rouchon gave invited talks at the Oberwolfach Workshop on Mathematical Methods in Quantum Molecular Dynamics.

Pierre Rouchon gave an invited talk at the PRACQSYS meeting in Sydney: 20-25 July 2015.

Alain Sarlette gave an invited talk at the International Conference on Industrial and Applied Mathematics (ICIAM) in Beijing, August 10-14.

Alain Sarlette gave an invited talk at the second international conference on Geometric Science of Information in Palaiseau, France, Oct 28-30.

### 8.1.4. Scientific expertise

Benjamin Huard was a member of the ANR CES30 committee in 2015.

Mazyar Mirrahimi is a member of the Technical Committee on "Distributed Parameter Systems" in IFAC (International Federation of Automatic Control).

Pierre Rouchon is a member of the "Conseil Scientifique du Conservatoire National des Arts et Metiers" since 2014.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Benjamin Huard has given a course (20 hours) entitled "Quantum fluctuations and measurement" in the Master ICFP (International Centre for Fundamental Physics) of ENS Paris, UPMC, Paris 7 and Orsay.

Benjamin Huard has coordinated an experimental project (40 hours) entitled "Measuring the quantum of conductance across an atom" at ENS Paris for Physics students in L3.

Benjamin Huard has taught a "préceptorat" (16 hours) in Quantum Physics for L3 students in ESPCI, Paris.

François Mallet has taught approximately 192 hours as a university associate professor. Besides undergrad teaching, he has done classes on quantum physics (30 hours) and solid state physics (15 hours) for M1 at UPMC, and quantum transport for M2 ICFP (20 hours).

Mazyar Mirrahimi and Pierre Rouchon have given a course (20 hours) entitled "UE : Analyse et contrôle de systèmes quantiques" in the "Master de sciences et technologies, mention mathématiques et applications, Université Pierre et Marie Curie".

Pierre Rouchon has given a course (25 hours) entitled "Cryptographie, théorie des nombres et information quantique" at Mines Paristech.

Pierre Rouchon has given a course (12 hours) entitled "Modelling, simulation and feedback of open quantum systems" in the "module d'Ingénierie Quantique" of the "parcours doctoral de PSL-ITI".

Pierre Rouchon and Alain Sarlette gave a one week course (22 hours) on feedback control of quantum systems in the European Embedded Control Institute in 23-27 March 2015.

Alain Sarlette has given a master course on "Probabilistic robotics" at Ghent University (30 hours).

### 8.2.2. Supervision

PhD: Philippe Campagne-Ibarcq successfully defended his PhD thesis at ENS in June 2015. He presented his works on “Measurement back action and feedback in superconducting circuits”. (advisor: Benjamin Huard).

PhD: Pascal Combes, Mines Paristech. “Control of electrical drive” with Schneider-Electric. He has obtained his PHD in December 2015. (advisors: Pierre Rouchon and Philippe Martin).

PhD in progress: Danijela Markovic. ENS. “Quantum information protocols with microwave quantum optics”. Sept 2014. (advisors: Benjamin Huard and François Mallet).

PhD in progress: Nathanaël Cottet. ENS. “Quantum heat engines based on superconducting circuits”. Sept 2015. (advisor: Benjamin Huard).

PhD in progress: Quentin Ficheux. ENS. “Thermodynamics of quantum information”. Sept 2015. (advisors: Benjamin Huard and Zaki Leghtas).

PhD in progress: Joachim Cohen. ENS. “Fault-tolerant quantum computation for experiments in circuit QED”. Nov 2013 (advisor: Mazyar Mirrahimi).

PhD in progress: Noad Hamze El Badaoui. Mines Paristech. “Real-time estimation for Laser Gyroscope” with Thales. January 2013. (advisors: Pierre Rouchon and Philippe Martin).

PhD in progress: Pierre Six. Mines Paristech. “Parameter and quantum state estimation relying on quantum measurements”. Sept 2013. (advisor: Pierre Rouchon).

PhD in progress: Rémi Azouit. Mines Paristech. “Quantum circuits, Input/Output theory and adiabatic elimination”. Sept 2014. (advisor: Pierre Rouchon).

PhD in progress: Alain Sarlette is co-supervising 3 PhD students with his former institution UGent (Simon Apers, Zhifei Zhang, Arash Farnam). Simon Apers is working on (quantum) network algorithms accelerations and intends to address other quantum control questions.

### 8.2.3. *Juries*

Benjamin Huard was a member the PhD defense committees of Kevin Lalumière (Université de Sherbrooke, Canada), Eric Holland (Yale University, New Haven, CT USA) and Pasi Lähteenmäki (Aalto University, Finland).

Pierre Rouchon was a member the PhD defense committees of Achraf Kallel (Mines ParisTech, Sophia Antipolis), Axel Barrau (Mines ParisTech), Giovanni De Nunzio (Université de Grenoble), Philippe Laurent (Université de Nantes).

## 8.3. Popularization

Benjamin Huard gave a talk at Journée X-ENS, Ecole Polytechnique, Palaiseau, France (May 2015) in front of an assembly of professors in “classes préparas”. He also gave a seminar for students at ENS Paris (Jan 2015).

Benjamin Huard, François Mallet and Mazyar Mirrahimi gave interviews for newspapers, magazines and websites (Libération, La Recherche, Phys.org, les Echos, 01net, Silicon).

Benjamin Huard wrote an article for La Recherche: B Huard, Les microprocesseurs du futur, La Recherche 501, 62 (Juillet 2015).

Pierre Rouchon gave a lecture on "Stabilisation par feedback quantique de la boîte à photons du LKB" ( May 21, 2015) during the "journées de l'école doctorale des Universités de Bourgogne et de Franche Comté".

Alain Sarlette is answering questions about quantum control and quantum computing on the website "ik-heb-een-vraag.be" where Flemish layman can ask questions to scientific experts.

## RAPSODI Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

I. Lacroix-Violet is in charge of the organization of the weekly seminary of the Numerical Analysis and Partial Differential Equations (ANEDP) research team at the Laboratoire Paul Painlevé, Université de Lille 1.

In the framework of the ANR GEOPOR project, C. Cancès organized a two-days workshop on gradient flows in metric spaces in Paris last June 22-23 (<https://www.ljll.math.upmc.fr/cances/GFIP/>).

B. Merlet organized of a one day conference on *Calculus of Variations* at Université Lille 1, October 15, 2015.

E. Creusé organized a one-day workshop on Mathematics and Entrepreneurship on November 17, 2015.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial boards

C. Chainais-Hillairet is a member of the editorial board of the North-Western European Journal of Mathematics (<http://math.univ-lille1.fr/nwejm/>) and of the International Journal on Finite Volumes (<http://www.i2m.univ-amu.fr/IJFV/>).

#### 10.1.2.2. Reviewer - Reviewing activities

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

### 10.1.3. Research administration

C. Cancès was vice-head of the MoMaS research group (<http://www.gdrmmas.org>) funded by the Institute for Mathematical Sciences and Interaction (INSMI) of the French National Center for Research (CNRS)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

The group is strongly involved in teaching at the Université Lille 1. C. Calgaro and C. Chainais-Hillairet are in charge respectively of the Master of Mathematical Engineering and of the Master 2 of Scientific Computing. C. Calgaro has contacts with the University of Padua (Italy). Each year, the reception of an Erasmus student (with a strong mathematical background) at the master's level is possible.

### 10.2.2. Supervision

HDR : C. Cancès, *Analyse mathématique et numérique d'équations aux dérivées partielles issues de la mécanique des fluides : applications aux écoulements en milieux poreux*, defended at Université Pierre et Marie Curie on December 7, 2015.

PhD in progress: P.-L. Colin, *Theoretical and numerical study of some corrosion models*, since 01/10/2012, advisors: C. Chainais-Hillairet & I. Lacroix-Violet.

PhD in progress: A. Aït Hammou Oulhaj, *Design and analysis of nonlinear numerical schemes for solving parabolic problems: application to porous media flows*, since 01/10/2014, advisors: C. Cancès & C. Chainais-Hillairet.

PhD in progress: C. Lecerf, *Analyse numérique et simulations de modèles multifuïdes*, since 01/10/2015, advisors: C. Calgaro & E. Creusé.

PhD in progress: N. Peton, *Numerical methods for a stratigraphic model with nonlinear diffusion and moving frontier areas*, 15/10/2015, C. Cancès, Q. H. Tran (IFPEN) & S. Wolf (IFPEN).

PhD in progress: Luca Ferrari, *Line energies and applications to image reconstruction of partially masked objects*, since 01/09/2015, advisors: A. Chambolle (CNRS & CMAP, École Polytechnique) & B. Merlet.

### 10.2.3. Juries

- B. Merlet was a member of Pierre Bochar's PhD Thesis jury on June 24, 2015 at Université Paris-Sud. Title: "Vortex, entropies et énergies de ligne en micromagnétisme".
- E. Creusé was a member of Matthieu Merle's PhD Thesis jury on September 25, 2015 at École Nationale des Arts et Métiers, Paris. Title: "Approches numériques pour l'analyse de stabilité globale d'écoulements pariétaux en régime subsonique".
- Claire Chainais-Hillairet was a member of different juries:
  - Pierre Feron's PhD thesis on November 16, 2015 at Université Paris-Est (Marne-la-Vallée). Title: "Schémas gradients appliqués aux équations elliptiques et paraboliques, linéaires et non-linéaires."
  - Yumeng Zhang's PhD thesis on December 17, 2015 at Université de Nice. Title: "Modélisation et simulation des dispositifs de ventilation dans les stockages de déchets radioactifs."
  - Ulrich Razafison's HDR on December 3, 2015 at Université de Franche-Comté. Title: "Contribution à l'analyse théorique de problèmes elliptiques en domaine non borné, à la simulation numérique d'équations hyperboliques et aux méthodes de bases réduites."
- C. Cancès and C. Chainais-Hillairet were members of the hiring jury of french Agrégation de mathématiques.

### 10.3. Popularization

C. Calgaro is the organizer of the action "Mathématiques itinérantes" (<http://mathematiques.univ-lille1.fr/Ouvertures/Mathematiques-itinerantes/>), which promotes mathematics among young people (conferences in highschools, "journées de la science", etc.). Members of the team regularly participate in these actions.

## REALOPT Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- François Clautiaux has organized an optimization challenge with multinational automobile manufacturer Renault (prizes of 30.000 euros).
- François Vanderbeck has been chosen by MOS as the general chair of the next triennial Symposium on Mathematical Optimization (ISMP-2018)

### 10.1.2. Scientific events selection

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

The team members are members of the following program committees:

- Olivier Beaumont: IPDPS' 15: IEEE International Parallel & Distributed Processing Symposium.
- Olivier Beaumont: ISCIS' 15, 30th International Symposium on Computer and Information Sciences.
- Olivier Beaumont: SC' 15: IEEE ACM International Conference for High Performance Computing, Networking, Storage and Analysis.
- Olivier Beaumont: HCW' 15 24th International Heterogeneity in Computing Workshop.
- Olivier Beaumont: HeteroPar'2015: Thirteenth International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms.
- Olivier Beaumont and Lionel Eyraud-Dubois: HIPC' 15: IEEE International Conference on High Performance Computing.
- François Clautiaux: RoadeF 2015: French Operational Research Society Conference.
- Arnaud Pêcher: JGA 2015: Journées Graphes et Algorithmes 2015.
- Pierre Pesneau: INOC 2015: 7th International Network Optimization Conference.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Olivier Beaumont is editor for IEEE Transactions on Parallel and Distributed Systems (TPDS)
- François Vanderbeck is Associate Editor for the EURO Journal on Computational Optimization

#### 10.1.3.2. Reviewer - Reviewing activities

The team members are regular referees for the best journals of the field.

#### 10.1.4. Invited talks

Arnaud Pêcher: “On dense sphere packings”, International Conference on Graph Theory and its Applications, Coimbatore, India, 2015

#### 10.1.5. Research administration

- Olivier Beaumont is the scientific deputy of Inria Bordeaux Sud-Ouest.
- François Vanderbeck is taking care of the team OptimAI (“Optimisation Mathématique Modèle Aléatoire et Statistique”) at the Mathematics Institute of Bordeaux.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Licence : A. Pêcher, Programmation Impérative, 10h, DUT, Université de Bordeaux, France
- Licence : A. Pêcher, Conception Objet, 42h, DUT, Université de Bordeaux, France
- Licence : A. Pêcher, Programmation objet en Java, 44h, DUT, Université de Bordeaux, France
- Licence : A. Pêcher, Algorithmique Avancée, 32h, DUT, Université de Bordeaux, France
- Licence : A. Pêcher, Assembleur, 24h, DUT, Université de Bordeaux, France
- Licence : A. Pêcher, Programmation Mobile, 24h, DUT, Université de Bordeaux, France
- Licence : P. Pesneau, Système et Programmation en Fortran 90, 59h, L2, Université de Bordeaux, France
- Licence : P. Pesneau, Modèles et Méthodes d’Optimisation, 30h, L2, Université de Bordeaux, France
- Licence : P. Pesneau, Recherche Opérationnelle, 24h, DUT, Université de Bordeaux, France
- Master : O. Beaumont, Big Data, 4h, M1, Institut National Polytechnique de Bordeaux, France
- Master : O. Beaumont, Optimisation en Cloud Computing et Big Data, 15h, M2, Université de Bordeaux, France
- Master : O. Beaumont, Distributed Computing, 4h, M2, Institut National Polytechnique de Bordeaux, France
- Master : F. Clautiaux, Programmation Linéaire 1, 15h, M1, Université de Bordeaux, France
- Master : F. Clautiaux, Introduction à la Programmation en Variables Entières, 15h, M1, Université de Bordeaux, France
- Master : F. Clautiaux, Gestion des Opérations et Planification de la Production, 30h, M2, Université de Bordeaux, France
- Master : F. Clautiaux, Problèmes combinatoires et routage, 30h, M1, Université de Bordeaux et Institut National Polytechnique de Bordeaux, France
- Master : B. Detienne, Programmation Linéaire 1, 14h, M1, Université de Bordeaux, France
- Master : B. Detienne, Optimisation Convexe Non Linéaire, 29h, M1, Université de Bordeaux, France
- Master : B. Detienne, Recherche Opérationnelle, 16h, M1, Institut National Polytechnique de Bordeaux, France
- Master : B. Detienne, Introduction à la Programmation en Variables Entières, 14h, M1, Université de Bordeaux, France
- Master : B. Detienne, Gestion des Opérations et Planification de la Production, 28h, M2, Université de Bordeaux, France
- Master : B. Detienne, Optimisation Stochastique, 58h, M2, Université de Bordeaux, France



Master : L. Eyraud-Dubois, Introduction à la Programmation par Contraintes, 30h, M2, Université de Bordeaux, France

Master : L. Eyraud-Dubois, Optimisation en Cloud Computing et Big Data, 15h, M2, Université de Bordeaux, France

Master : J. Guillot, Modèles de flot, 14h, M1, Université de Bordeaux, France

Master : P. Pesneau, Problèmes combinatoires et routage, 8h, M1, Université de Bordeaux, France

Master : P. Pesneau, Programmation Linéaire 1, 10h, M1, Université de Bordeaux, France

Master : P. Pesneau, Algorithmique et Programmation Objet, 60h, M1, Université de Bordeaux, France

Master : P. Pesneau, Modèles de flot, 15h, M1, Université de Bordeaux, France

Master : P. Pesneau, Programmation Linéaire 2, 14h, M1, Université de Bordeaux, France

Master : R. Sadykov, Modélisation, Optimisation, Complexité et Algorithmes, 50h, M2, CNAM Aquitaine, Bordeaux, France

Master : I. Tahiri, Outils et Logiciels pour l'Optimisation, 30h, M1, Université de Bordeaux, France

Master : F. Vanderbeck, Recherche Opérationnelle, 15h, M1, Institut National Polytechnique de Bordeaux, France

Master : F. Vanderbeck, Programmation Entière, 58h, M2, Université de Bordeaux, France

### 10.2.2. Supervision

PhD : Matthieu Gérard, Heuristiques basées sur la génération de colonnes pour un problème de planification du personnel, University of Lille, December 9th 2015, François Clautiaux (dir) and Manuel Davy (dir) and Ruslan Sadykov (co-dir).

PhD : Hugo Kramer, Software clustering problems, Universtate Federal de Flumense. Eduardo Uchoa (dir) and Francois Vanderbeck (co-dir).

PhD in progress : Jérémy Guillot, Optimisation de problèmes de partitionnement, September 2014, François Clautiaux (dir) and Pierre Pesneau (dir).

PhD in progress : Quentin Viaud, Méthodes de programmation mathématiques pour des problèmes complexes de découpe, January 2015, François Clautiaux (dir), Ruslan Sadykov (dir), and François Vanderbeck (co-dir).

PhD in progress : Martin Bué, Gestion du revenu dans le cadre du voyage professionnel, September 2012, François Clautiaux (dir), Luce Brotcorne (dir).

PhD in progress : Rodolphe Griset, Robust planning in Electricity production, November 2015, Boris Detienne (dir) and François Vanderbeck (dir).

PhD in progress : Imen Ben Mohamed, Location routing problems, October 2015, Walid Klibi (dir) and François Vanderbeck (dir).

PhD in progress : Thomas Bellitto, Infinite graphs, September 2015, Arnaud Pêcher (dir) and Christine Bachoc (dir).

PhD in progress : Philippe Moustrou, Codes, September 2014, Arnaud Pêcher (dir) and Christine Bachoc (dir).

### 10.2.3. Juries

- Olivier Beaumont: Evaluation (rapporteur) of the habilitation thesis (HDR) of Georges Da Costa (IRIT Toulouse).
- Olivier Beaumont: Evaluation (rapporteur) of the PhD thesis of Nathalie Herr (University of Besançon).
- François Clautiaux: Evaluation (directeur) of the PhD thesis of Matthieu Gérard (University of Lille).

- Ruslan Sadykov: Evaluation (encadrant) of the PhD thesis of Matthieu Gérard (University of Lille).
- Ruslan Sadykov: Evaluation (examinateur) of the PhD thesis of Hugo Kramer (University Federal Fluminense, Niteroi, Brazil).
- Ruslan Sadykov: Pre-evaluation of the PhD thesis of André Soares Velasco (University Federal Fluminense, Niteroi, Brazil).
- Ruslan Sadykov: Evaluation (examinateur) of the Master thesis of Daniel Dias de Oliveira Neto (University Federal Fluminense, Niteroi, Brazil).

### **10.3. Popularization**

François Clautiaux is a member of the board of AMIES, the French Agency for Interaction in Mathematics with Business and Society. AMIES is a national organization that aims to develop relations between academic research teams in mathematics and business, especially SMEs.

## SELECT Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

Jean-Michel Poggi:

- Organization of the session: Wavelet Methods in Statistics, at the 8th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, 12-14 December 2015.
- Organization of two sessions on MOOCs, ENBIS 2015, 6-10 Sept 2015, Prague. 1) Presentation session on MOOCs, 2) Realization of MOOCs – technology, content and funding opportunities.
- Organisation of the conference: “MOOC et formation continue en statistique”, 3 mars 2015, IHP, Paris.

#### 9.1.1.2. Member of the organizing committees

Gilles Celeux is one of the co-organizers of the international working group on model-based clustering. This year this workshop took place in Seattle (USA).

### 9.1.2. Journal

#### 9.1.2.1. Member of the editorial boards

Gilles Celeux is Editor-in-Chief of the *Journal de la SFdS*. He is Associate Editor of *Statistics and Computing*, *CSBIGS*.

Pascal Massart is Associate Editor of *Annals of Statistics*, *Confluentes Mathematici*, and *Foundations and Trends in Machine Learning*.

Jean-Michel Poggi is Associate Editor of *Journal of Statistical Software*, *Journal de la SFdS* and *CSBIGS*. He is also editor (with A. Antoniadis, X. Brossat) of a Lecture Notes in Statistics: Modeling and Stochastic Learning for Forecasting in High Dimension, Springer 2015.

#### 9.1.2.2. Reviewer - Reviewing activities

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

### 9.1.3. Invited talks

The members of the team have given many invited talks on their research in the course of 2015.

### 9.1.4. Leadership within the scientific community

Jean-Michel Poggi is:

- Vice-President ENBIS (European Network for Business and Industrial Statistics), 2015-18
- Vice-President FENStatS (Federation of European National Statistical Societies) since 2012
- Council Member of the ISI (2015-19)
- Member of the Board of Directors of the ERS of IASC (since 2014)

### 9.1.5. Scientific expertise

Jean-Michel Poggi is member of the EMS Committee for Applied Mathematics (since 2014).

### 9.1.6. Research administration

Jean-Michel Poggi is the president of ECAS (European Courses in Advanced Statistics) since 2015

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

SELECT members teach various courses at several different universities, and in particular the Master 2 “Modélisation stochastique et statistique” of University Paris-Sud.

### 9.2.2. Supervision

PhD: Jana Kalawoun, Modélisation statistique de l'état de charge des batteries électriques, Université Paris-Sud, November 2015, Gilles Celeux and Patrick Pamphile

PhD: Mélina Gallopin, Classification et inférence de réseaux pour les données RNA-seq, Université Paris-Sud, December 2015, Gilles Celeux with Andrea Rau and Florence Jaffrezic (INRA)

PhD: Émilie Devijver, Modèles de mélange pour la régression en grande dimension, application aux données fonctionnelles, Université Paris-Sud, July 2015, Pascal Massart and Jean-Michel Poggi

PhD: Solenne Thivin, Détection automatique d'anomalies sur fonds complexes pour des images ou séquences d'images, Université Paris-Sud, December 2015, Erwan Le Pennec

PhD: Vincent Thouvenot, Estimation et sélection pour les modèles additifs et application à la prévision de la consommation électrique, December 2015, Jean-Michel Poggi and Anestis Antoniadis (Univ. Joseph Fourier, Grenoble)

PhD in progress: Valérie Robert, 2013, Gilles Celeux and Christine Keribin

PhD in progress: Yann Vasseur, 2013, Gilles Celeux and Marie-Laure Martin-Magniette (URGV)

PhD in progress: Neska El Haouij, 2014, Jean-Michel Poggi and Meriem Jaïdane, Raja Ghozi (ENIT Tunisie) and Sylvie Sevestre-Ghalila (CEA LinkLab), Thesis ENITUPS

PhD in progress: Florence Ducros, 2015, Gilles Celeux and Patrick Pamphile

PhD in progress: Claire Brecheteau, 2015, Pascal Massart

PhD in progress: Jeanne Nguyen, 2015, Claire Lacour

## 9.3. Popularization

Emilie Devijver:

- Organisation of a spring school for high school students about probability, Pristina, Kosovo
- Organisation of the “Séminaire de Vulgarisation des Doctorants” at Université Paris Sud
- Several talks in high schools to give tools to students to understand conferences: “Un texte, un mathématicien” organized at BNF.

## SEQUEL Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Participation to the organization of the 32nd International Conference on Machine Learning:

- Philippe Preux, local chair organization of ICML
- Jérémie Mary, conference webmaster
- Romaric Gaudel, local volunteer chair

Co-organization of ICML workshops:

- 12th European Workshop on Reinforcement Learning (EWRL)
- 4th Workshop on Machine Learning for Interactive Systems
- Jeremie Mary was Co-organizer of the workshop “Offline and Online Evaluation of Web-based Services” at WWW’15 with Lihong Li (MSR) as main organizer.

### 10.1.2. Scientific events selection

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

- International Joint Conference on Artificial Intelligence (IJCAI 2015)
- International Conference on Pattern Recognition Applications and Methods (ICPRAM 2015)
- Approximate Dynamic Programming and Reinforcement Learning (ADPRL 2015)
- International Conference on Machine Learning (ICML 2015)
- Annual Conference on Neural Information Processing Systems (NIPS 2015)

French-speaking conferences:

- French Conference on Planning, Decision-making, and Learning in Control Systems (JFPDA 2015)
- Extraction et Gestion des Connaissances (EGC 2015)
- XXIIè rencontres de la société francophone de classification

#### 10.1.2.2. Reviewer

- International Conference on Pattern Recognition Applications and Methods (ICPRAM 2015)
- Algorithmic Learning Theory (ALT 2015)
- AAAI Conference on Artificial Intelligence (AAAI 2015)
- Conference on Learning Theory (COLT 2015)
- European Workshop on Reinforcement Learning (EWRL 2015)
- Annual Conference on Neural Information Processing Systems (NIPS 2015)
- International Conference on Artificial Intelligence and Statistics (AISTATS 2015)
- European Conference on Machine Learning (ECML 2015)
- International Conference on Machine Learning (ICML 2015)
- International Joint Conferences on Artificial Intelligence (IJCAI 2015)
- Reinforcement Learning and Decision Making (RLDM 2015)
- International Conference on Uncertainty in Artificial Intelligence (UAI 2015)
- International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2015)
- International Conference on Acoustics, Speech and Signal Processing (ICASSP 2015)

French-speaking conferences:

- French Conference on Planning, Decision-making, and Learning in Control Systems (JFPDA 2015)
- Conférence francophone sur l’Apprentissage Automatique (CAP 2015)

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Neurocomputing

#### 10.1.3.2. Reviewer - Reviewing activities

- IEEE Signal Processing Letters
- IEEE Transactions on Information Theory
- IEEE Transactions on Neural Networks and Learning Systems
- Scandinavian Journal of Statistics
- Speech Communication
- Journal of Machine Learning Research
- Artificial Intelligence Journal
- Machine Learning Journal
- Journal of Artificial Intelligence Research

### 10.1.4. Invited talks

- Gergely Neu, invited talk at the “Data, Learning, and Inference” (DALI) workshop on Learning Theory, Spain, April 2015.
- Gergely Neu, invited talk at the “Learning Faster from Easy Data” NIPS workshop, Montreal, December 2015.
- Olivier Pietquin, NIPS Workshop on Spoken Language Understanding (SLU NIPS 2015).
- Michal Valko, invited talk at “LIX, École Polytechnique” April 2015
- A. Lazaric, *Open Questions in Transfer in RL*, “Machine Learning with Interdependent and Non-identically Distributed Data”, Dagstuhl, Germany, April 2015.
- A. Lazaric, *Exploiting Easy Data in Online Optimization*, “Modal Seminar Series”, Inria Lille, May 2015.
- A. Lazaric, *Policy Search in Reinforcement Learning*, Criteo, Paris, June 2015.
- A. Lazaric, *Transfer in Multi-Armed Bandit*, Aston University, Birmingham, July 2015.
- A. Lazaric, *Transfer in Reinforcement Learning*, “Promotion et Developpement de l’Intelligence Artificielle”, Paris, October 2015.
- A. Lazaric, *The Hidden World of Bandits*, “Workshop on Sequential Learning and Applications”, Toulouse, November 2015.
- J. Mary, Invited talk at Euratechnologies on *recent advances of machine learning and deep learning for Sequential data*, Lille, November 2015.
- J. Mary, Invited talk at Recommender Days organized by CRITEO <http://recommenders.fr/>, December 2015.

### 10.1.5. Scientific expertise

- Agence Nationale pour la Recherche (ANR)
- Fonds National pour la Recherche Scientifique (FNRS), Belgium
- Olivier Pietquin and Philippe Preux are expert for H2020 European Program
- *M. Valko* is an elected member of the evaluation committee and participates in the hiring, promotion, and evaluation juries of Inria, notably
  - Hiring committee for junior researchers at Inria Nancy (2015)
  - Selection committee for Inria award for scientific excellence (2015)
  - Selection committee for CR promotions (2015)

- Jérémie Mary is expert for the Research Council of Norway.
- A. Lazaric is a member of the committee for research evaluation (CER) at Inria Lille.
- A. Lazaric was a member of the hiring committee for junior researchers at Inria Lille (2015).

### 10.1.6. Research administration

- Philippe Preux is:
  - head of the DatInG (Data Intelligence Group) thematic group at CRISAL that gathers 4 research groups, totaling more than 70 people,
  - member of the scientific committee of CRISAL,
  - member of the Bureau du Comité des Projets at Inria Lille.
- Romaric Gaudel is:
  - board member of CRISAL
  - manager of proml mailing list. This mailing list gathers French-speaking researchers from Machine Learning community.
- Olivier Pietquin is:
  - board member of CRISAL
  - board member of the IEEA faculty at Univ. Lille 1
  - member of the computer science department of the Ecole Doctorale SPI
  - in charge of research and innovation for the computer science department of Univ. Lille 1

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: R. Gaudel, 2015/2016 Spring: programmation R pour statistiques et sociologie quantitative, 28h eqTD, L1, université Lille 3, France

Licence: R. Gaudel, 2015/2016 Fall: préparation au C2i niveau 1, 24h eqTD, L1-3, université Lille 3, France

Licence: R. Gaudel, 2015/2016 Fall: travail collaboratif et à distance dans un monde numérique, 13h eqTD, L1-3 (enseignement à distance), université Lille 3, France

Master: M. Valko, 2014/2015 Spring: Graphs in Machine Learning, 27h eqTD, M2, ENS Cachan

Master: M. Valko, 2015/2016 Fall: Graphs in Machine Learning, 27h eqTD, M2, ENS Cachan

Master : A. Lazaric, Reinforcement Learning, 25h eqTD, M2, ENS Cachan, France

Master : A. Lazaric, Reinforcement Learning, 25h eqTD, M2, Ecole Centrale Lille, France

Summer school : A. Lazaric, Reinforcement Learning, 8h eqTD, Toulouse, France

Master: J. Mary, 2015/2016 Fall: Machine learning with R, 20h eqTD, M2, Ecole Centrale de Lille.

#### E-learning

SPOC: R. Gaudel, Marc Tommasi and Alain Preux, culture numérique S3, 8 semaines, Moodle, université Lille 3, licence (L1), formation initiale, tous les étudiants (> 3 000).

Ph. Preux:

- modeling and simulation of the dynamics of behavior, Master 1 in Psychology & master in Cognitive Science, Université de Lille 3
- Formal neural networks, Master 1 in Cognitive Science, Université de Lille 3
- Supervised Learning, Licence 3 MIASHS, Université de Lille 3
- Advanced Data Mining, master 2 MIASHS, Université de Lille 3
- Unsupervised learning, master 1 MIASHS, Université de Lille 3

C. Dimitrakakis:

- Web Fundamentals, Licence MIASHS, Université de Lille 3
- Supervised Learning, Master MIASHS, Université de Lille 3

B. Piot:

- Networks, Master SID, Université de Lille 3
- Databases, Licence MIASHS, Université de Lille 3
- Excel, Licence MIASHS, Université de Lille 3
- Databases, Master SIAD, Université de Lille 1
- Networks, Master SIAD, Université de Lille 1
- UML, Université de Lille 1

O. Pietquin:

- Machine learning, Master Informatique, Université Lille 1
- Machine learning and decision making, Master Informatique, Université Lille 1
- Bayesian signal processing, Engineering degree, Université de Mons (Belgique)

### **10.2.2. Supervision**

Supervision of PhD:

- HDR: Jérémie Mary, Université de Lille 3, defended Nov 2015
- PhD: Amir Sani, Université de Lille 1, defended May 2015, Munos, Lazaric
- PhD: Marta Soare, Université de Lille 1, defended Dec 2015, Munos, Lazaric
- PhD in progress: Marc Abeille, since Sept. 2014, Munos, Lazaric
- PhD in progress: Merwan Barlier, since oct. 2014, Pietquin
- PhD in progress: Alexandre Bérard, since Oct. 2014, Pietquin
- PhD in progress: Daniele Calandriello, since Oct. 2014, Preux, Lazaric, Valko
- PnD in progress: Nicolas Carrara, since Oct. 2015, Pietquin
- PhD in progress: Ronan Fruit, since Dec. 2015, Ryabko, Lazaric
- PhD in progress: Pratik Gajane, since oct. 2014, Preux
- PhD in progress: Hadrien Glaude, since Feb. 2014, Pietquin
- PhD in progress: Jean-Bastien Grill, since Oct. 2014, Munos, Valko
- PhD in progress: Frédéric Guillou, since Oct. 2013, Preux, Mary, Gaudel
- PhD in progress: Tomáš Kocák, since Oct. 2013, Munos, Valko
- PhD in progress: Vincenzo Musco, since Nov. 2013, Preux, Monperrus
- PhD in progress: Julien Perolat, since Oct. 2014, Pietquin
- PhD in progress: Florian Strub, since Jan. 2016, Pietquin, Mary
- PhD in progress: Romain Warlop, since Sep. 2015, Preux, Mary, Lazaric

Management of diplomas:

- Ph. Preux is the head of the master in computer science “machine learning and data science”, Université de Lille 3.
- J. Mary is the head of the “Web analyst” track in master MIASHS, Université de Lille 3.
- head of the MoCAD master at Université Lille 1.



### **10.2.3. Juries**

Ph. Preux has been member of the PhD juries:

- Manel Tagorti, Université de Lorraine,
- Yacine Nair Benrekia, Université de Nantes,
- El Mehdi Rochd, Université de Marseille.

Ph. Preux has been member of the HdR juries:

- Jérémie Mary, Université de Lille 3.

A. Lazaric has been member of the PhD juries:

- Rodrigue Talla Kuate, Aston University, Birmingham, UK.
- Kamyar Azzizade (PhD qualification), University of California Irvine, USA.

O. Pietquin has been member of the PhD juries:

- Nicolas Galichet, Université Paris-Saclay,
- Alaedine Mihoub, Université Grenoble-Alpes,
- Emmanuel Ferreira, Université d'Avignon et des Pays du Vaucluse.

### **10.3. Popularization**

- Ph. Preux participates to a radio program on machine learning.
- Ph. Preux co-authors two papers on “Le Monde” binaire blog [38].
- Inria interview with N. Vayatis and M. Valko about teaching machine learning at ENS, July 2015.
- Rue89 interviewed M. Valko about machine learning at Inria, June 2015.
- Intel advertising face recognition software (that included the work of M. Valko), February 2015.
- M. Valko volunteered in teaching mathematics in “Association de la Clé”, that helps students from underprivileged backgrounds.
- Jérémie Mary was interviewed by "Ca m'intéresse" for a special issue on artificial intelligence.

## SIERRA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- F. Bach, program co-chair for International Conference on Machine Learning (ICML), 2015.

#### 10.1.1.2. Member of the organizing committees

- A. d'Aspremont, workshop organizer, "Optimisation pour l'apprentissage statistique", École de Physique des Houches, January 2015.
- V. Perchey, local chair for the main conference in learning theory, the "Conference On Learning Theory – COLT'15", July 2015.
- V. Perchey, workshop organizer, "Challenges in Optimization for Data Science", July 2015.
- V. Perchey, organizer of the conference "French Symposium on Games - Theory and Applications", May 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Area chairs

- S. Lacoste-Julien, International Conference on Machine Learning (ICML), 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- A. d'Aspremont, SIAM Journal on Optimization, Associate Editor.
- F. Bach, Journal of Machine Learning Research, Action Editor.
- F. Bach, Information and Inference, Associate Editor.
- F. Bach, SIAM Journal on Imaging Sciences, Associate Editor.

### 10.1.4. Others

- A. d'Aspremont is on the scientific committee for Programme Gaspard Monge pour l'Optimisation, Fondation mathématique Jacques Hadamard.
- S. Lacoste-Julien received a NIPS 2015 Outstanding Reviewer Award.

### 10.1.5. Invited talks

- S. Arlot, "V-fold selection of kernel estimators", EMS 2015: European Meeting of Statisticians, session 'Recent advances in resampling methods' (Amsterdam, July 6, 2015).
- S. Arlot, "Cross-validation for estimator selection", Workshop "Information Based Complexity and Model Selection" (IHP, Paris, April 9, 2015).
- S. Arlot, "Comparaison de procédures de validation croisée (V-fold)", Conférence "Calibration statistique" (Université de Nice - Sophia Antipolis, February 20, 2015).
- S. Arlot, "Cross-validation for estimator selection", SMPGD 2015: Statistical Methods for Post Genomic Data (Ludwig-Maximilians University, February 13, 2015).
- S. Arlot, "Sélection d'estimateurs par validation croisée", Colloquium du MAP5 (Université Paris Descartes, November 13, 2015).

- S. Arlot, “Analyse du biais de forêts purement aléatoires”, Séminaire de Probabilités et Statistiques (Lieu, Laboratoire JA Dieudonné, Université de Nice - Sophia Antipolis, January 8, 2015).
- A. d’Aspremont, “Ranking from Pairwise Comparisons using Seriation”:
  - Séminaire du Collège de France, June 2015.
  - International Symposium on Mathematical Programming, July 2015.
  - STATLEARN 2015.
  - Fields Institute workshop on big data, Toronto, Feb. 2015.
- A. d’Aspremont, “Seriation, DNA Sequencing and Nanopores”, Datalead 2015.
- A. d’Aspremont, “Optimisation et apprentissage”, Conférence SCOR - Institut des actuaires, December 2015.
- F. Bach, Invited presentation at Workshop on Data-driven Algorithmics, Harvard, September 2015.
- F. Bach, Invited tutorial at Allerton Conference, Urbana-Champaign, 2015.
- F. Bach, Invited seminar at Ecole Polytechnique Federale de Lausanne, October 2015.
- D. Garreau, “Kernel change-point detection”, 45th Ecole d’été de Saint-Flour (Saint-Flour, July 7-17, 2015).
- S. Lacoste-Julien, “Sequential Kernel Herding: Frank-Wolfe Optimization for Particle Filtering”, invited talk at the Bayes in Paris Seminar at ENSAE, Paris, France, March 2015.
- S. Lacoste-Julien, “SAGA: a fast incremental gradient method”, invited talk in the Nonsmooth Optimization cluster at ISMP 2015 (22nd International Symposium on Mathematical Programming), Pittsburgh, PA, USA, July 2015.
- S. Lacoste-Julien, “Frank-Wolfe Optimization for Structured Machine Learning”:
  - McGill University, Montreal, Canada, December 2015.
  - Université de Montréal, Montreal, Canada, December 2015.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : S. Arlot and F. Bach, “Statistical learning”, 24h, M2, Université Paris-Sud.

Master : A. d’Aspremont is co-director of the Master MASH (Mathématiques, Apprentissage et Sciences Humaines) at Paris Sciences et Lettres.

Master : A. d’Aspremont, “Optimisation et apprentissage”, 21h, M2 (MVA), ENS Cachan.

Master : A. d’Aspremont, “Optimisation convexe”, 21h, M2, Ecole Normale Supérieure.

Master : S. Lacoste-Julien and F. Bach, “Apprentissage statistique”, 35h, M1, Ecole Normale Supérieure.

Master : S. Lacoste-Julien and F. Bach (together with G. Obozinski), 30h, M2 (MVA), ENS Cachan.

Master : S. Lacoste-Julien, “Projets informatiques”, 20h, M2 (MASH), Université de Paris-Dauphine.

### 10.2.2. Supervision

PhD : Fabian Pedregosa, “Feature extraction and supervised learning on fMRI: from practice to theory”, UPMC, February 20th, 2015, F. Bach, co-advised with A. Gramfort (Telecom).

PhD : Rémi Lajugie, “Structured prediction for sequential data”, UPMC, September 18th, 2015, S. Arlot and F. Bach.

PhD : Fajwel Fogel, “Convex and spectral relaxations for phase retrieval, seriation and ranking”, Ecole Polytechnique, November 18th, 2015, A. d’Aspremont and F. Bach.

PhD in progress: Thomas Schatz, September 2012, F. Bach, co-advised with E. Dupoux (ENS, cognitive sciences).

PhD in progress: Sesh Kumar, September 2013, F. Bach.

PhD in progress: Rafael Rezende, September 2013, F. Bach, co-advised with J. Ponce.

PhD in progress: Anastasia Podosinnikova, December 2013, F. Bach and S. Lacoste-Julien.

PhD in progress: Christophe Dupuy, January 2014, F. Bach, co-advised with C. Diot (Technicolor).

PhD in progress: Jean-Baptiste Alayrac, September 2014, S. Lacoste-Julien, co-advised with J. Sivic and I. Laptev.

PhD in progress: Aymeric Dieuleveut, September 2014, F. Bach.

PhD in progress: Nicolas Flammarion, September 2014, A. d'Aspremont and F. Bach.

PhD in progress: Damien Garreau, September 2014, S. Arlot (co-advised with G. Biau).

PhD in progress: Vincent Roulet, October 2014, A. d'Aspremont.

PhD in progress: Anaël Bonneton, December 2014, F. Bach, located in Agence nationale de la sécurité des systèmes d'information (ANSSI).

PhD in progress: Dmitry Babichev, September 2015, F. Bach, co-advised with A. Judistky (Univ. Grenoble).

PhD in progress: Rémi Leblond, September 2015, S. Lacoste-Julien.

PhD in progress: Antoine Recanati, September 2015, A. d'Aspremont.

PhD in progress: Damien Scieur, September 2015, A. d'Aspremont and F. Bach.

PhD in progress: Tatiana Shpakova, September 2015, F. Bach.

### **10.2.3. Juries**

S. Arlot, member of the PhD Committee for Maud Thomas at Université Paris Diderot on July 2, 2015.

F. Bach, member of the HDR committee of Jeremie Mary (Univ. Lille).

## **10.3. Popularization**

S. Lacoste-Julien, general public talk "Apprentissage automatique et big data", at La Maison des Sciences, Châtenay-Malabry, France, September 2015.

## SPHINX Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Together with Colin Guillarmou, Matti Lassas and Jérôme Le Rousseau, David Dos Santos Ferreira organized an **IHP trimester on Inverse Problems** in April-June 2015 (more than 100 participants).

Takahashi and Tucsnak organized a workshop “Infinite dimensional systems in fluid mechanics and biology”, from December 7th to December 11th in the Guadeloupe Island.

### 10.1.2. Scientific events selection

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

- Xavier Antoine was a member of the program committee of Waves 2015, Germany, Karlsruhe, July 20-24, 2015.
- Thomas Chambrion is a member of the program committee of IFAC CPDE 2016.

#### 10.1.2.2. Reviewer

- Thomas Chambrion is a regular reviewer for papers submitted to IEEE CDC (2 papers in 2015) and ACC (2 papers in 2015).
- David Dos Santos Ferreira has written reviews for papers submitted to Annales Scientifiques de l'École Normale Supérieure and Annales de l'Institut Fourier.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Xavier Antoine has been in charge of Numerical Analysis in the editorial board of “Mathématiques Appliquées pour le Master/SMAI” since 2014.

#### 10.1.3.2. Reviewer - Reviewing activities

Most of the members are reviewer for major journals in the fields.

- Xavier Antoine is a referee for about 15 journal papers a year in “Journal of Computational Physics” and various SIAM journals.
- Thomas Chambrion is a regular referee for the journals “Automatica” and “IEEE Transactions on Automatic Control”.
- Julie Valein is a regular referee for the journals “Mathematical Control and Related Fields” and “Discrete and Continuous Dynamical Systems A”.

### 10.1.4. Invited talks

Thomas Chambrion was organizer and chairman of the invited minisymposium “Quantum Control” in the conference SIAM CT 2015, organized in Paris.

Xavier Antoine has given invited talks in the following scientific events

- Minisymposium “Numerical Simulation of Quantum and Kinetic Problems”, ICCP9, Singapore, January 2015.
- Workshop “Mathematical physics for cold atoms”, Grenoble, March 2015.
- Semaine d'Analyse Numérique de Besançon : “XFEM, Nitsche FEM, FEM Adaptive, Conditions aux Limites Artificielles”, June 2015.
- “Complex phenomena in optics: theory and experiments”, November 2015 Besançon,

David Dos Santos Ferreira has given talks in the following conferences:

- Applied Inverse Problems, Helsinki, May 2015.
- School on Fourier Integral Operators, Ouagadougou, Burkina Faso.

Alexandre Munnier has participated to the following workshops as an invited speaker:

- Waveguides: Asymptotic Methods and Numerical Analysis, Naples, May 2015.
- Third Workshop “Problèmes Inverses et Domaines Associés”, Marseille, December 2015.

Karim Ramdani participated as an invited speaker to the following workshops and conferences:

- Workshop of GDRI ReaDiNet : “Reaction-Diffusion Systems Arising in Biology”, (Nancy, December 16–17, 2015).
- Conference “Stability and Reconstruction issues in Inverse Problems” (IHP, Paris, June 29 — July 4, 2015).
- Workshop DELSyS : Observing and controlling complex dynamical systems (Grenoble, November 12–14, 2014).

Julie Valein gave an invited talk at “Workshop on control and inverse problems”, Besançon, March 2015.

### 10.1.5. Scientific expertise

- Xavier Antoine was in charge of the ANR mathematics program until August 2015.
- Thomas Chambrion belongs to the selection panel for the Natural Sciences and Engineering Research Council of Canada.
- Julie Valein belongs to the ANR expert panel for ANR JCJC.

### 10.1.6. Research administration

Xavier Antoine has been head of IECL since September 2015.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Most of the members of the team have a teaching position at Université de Lorraine.

- Xavier Antoine teaches at Mines Nancy and ENSEM (Université de Lorraine), L3-M1, 96 hours.
- Thomas Chambrion teaches at ESSTIN (Université de Lorraine), L1-L2, 192 hours.
- David Dos Santos Ferreira teaches at UFR STMIA (Université de Lorraine), 96 hours (délégation CNRS).
- Alexandre Munnier teaches at UFR STMIA (Université de Lorraine), 192 hours.
- Jean-François Scheid teaches at Telecom Nancy (Université de Lorraine), 192 hours.
- Julie Valein teaches at ESSTIN (Université de Lorraine), L1-L2, 96 hours (maternity leave).

### 10.2.2. Supervision

PhD in progress : Chi-Ting Wu, Contrôle en temps optimal pour quelques EDP réversibles en temps, since October 2012, Marius Tucsnak and Julie Valein.

PhD in progress : Boris Caudron, CIFRE thesis with Thales, since June 2015, Xavier Antoine.

### 10.2.3. Juries

- Xavier Antoine was referee of the PhD thesis of E. Veneros (Université de Genève, May 2015) and M. Lecouvez (Ecole Polytechnique, July 2015). He was also referee of the HDR of F. Triki (Université de Grenoble, December 2015).
- Karim Ramdani was member of the PhD committees of Camille Carvalho (Ecole Polytechnique, December 4th, 2015) and Simon Marmorat (Université Paris-Saclay, November 12th, 2015).

## 10.3. Popularization

Karim Ramdani is interested in economic models of scientific publishing. He has given several talks to raise awareness of researchers on the risks of author-pays publication model.

## TAO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- Cécile Germain, DataScience@LHC Workshop <http://indico.cern.ch/event/395374/>, 9-13 November 2015, CERN
- Marc Schoenauer, Steering Committee, Parallel Problem Solving from Nature (PPSN); Steering Committee, Learning and Intelligent Optimization (LION).
- Michele Sebag, Steering Committee, Eur. Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD).

### 10.1.2. Scientific events selection

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

All TAO members are members of the Program Committees of the main conferences in the fields of Machine Learning, Evolutionary Computation, and Information Processing.

#### 10.1.2.2. Reviewer

All TAO member review papers for the most prestigious journals in the fields of Machine Learning and Evolutionary Computation.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Anne Auger, member of Editorial Board, *Evolutionary Computation Journal*, MIT Press.
- Gregory Grefenstette, member of Editorial Board, *Journal of Natural Language Engineering*, Cambridge University Press.
- Nikolaus Hansen, member of Editorial Board, *Evolutionary Computation Journal*, MIT Press.
- Marc Schoenauer, member of Advisory Board, *Evolutionary Computation Journal*, MIT Press; member of Editorial Board, *Genetic Programming and Evolutionary Machines*, Springer Verlag; action editor, *Journal of Machine Learning Research*(JMLR).
- Michèle Sebag: Editorial Board, Machine Learning, Springer Verlag.
- Olivier Teytaud, action editor, *Journal of Machine Learning Research* (JMLR).

#### 10.1.3.2. Reviewer - Reviewing activities

All members of the team reviewed numerous articles for international conferences and journals.

#### 10.1.4. Invited talks

- Aurélien Decelle, workshop of Machine Learning at the Yukawa institute.
- Cyril Furtlehner, International Workshop on Innovative Algorithms for Big Data (Kyoto).
- Gregory Grefenstette, CLEF 2015, Toulouse, Sept. 8, 2015
- Gregory Grefenstette, Journée Recherche - les Big Data, Ecole Centrale Marseille, Nov 18, 2015
- Philippe Caillou, Workshop PICS at Hanoi, May 2015.
- Odalric Maillard, Journées YSP at IHP, Paris, Jan. 31, 2015.
- Odalric Maillard, Workshop CIMI at Toulouse, November 2015.
- Yann Ollivier, Deep Learning Workshop at ICML 2015.
- Yann Ollivier, Deep Learning Scoping Workshop of the Alan Turing Institute (Edinburgh).
- Yann Ollivier, American Mathematical Society - Mathematical Association of America Joint Math Meetings (San Antonio).
- Michèle Sebag, DATA 2015
- Michèle Sebag, AutoML Wshop, @ ICML 2015.
- Michèle Sebag, Constructive Machine Learning Wshop, @ICML 2015
- Michèle Sebag, Intelligence Artificielle et Interfaces Hommes-Machines 2015
- Michèle Sebag and Marc Schoenauer, Big Data Business Convention, *Seeded Influencer Ranking*, Dec. 2015.
- Marc Schoenauer, *Numbers don't Count*, Conférence en l'honneur de Laurence Halpern, January 2015.
- Marc Schoenauer *Rank-SVM for flexible optimization*, ISEGI seminar, Lisbon, Jan. 2015.
- Marc Schoenauer and Michèle Sebag, *More is different: When, and What For?*, JS Inria, Nancy, June 2015.
- Marc Schoenauer, DataScience@LHC, Nov. 9-13, 2015.

#### 10.1.5. Leadership within the scientific community

- Michèle Sebag, Chair of Steering Committee, ECML-PKDD.
- Marc Schoenauer, elected Chair of ACM-SIGEVO (Special Interest Group on Evolutionary Computation), July 2015 (2-years term).
- Marc Schoenauer, founding President of SPECIES (Society for the Promotion of Evolutionary Computation In Europe and Surroundings), that organizes the yearly series of conferences *EvoStar*.

#### 10.1.6. Scientific expertise

- Cécile Germain, evaluator for the H2020 calls: *ICT-2015 Topic ICT-16 – Big Data - research*
- Gregory Grefenstette, evaluator for FU21, Cap Digital, Digiteo (IASI) review board
- Gregory Grefenstette, project reviewer for the H2020 (SemCare): *Information and Communication Technologies ICT*
- Michele Sebag, evaluator for the Swedish Foundation for Strategic Research; CNRS PEPS Fascido, FNRS Belgium
- Michele Sebag, president of a CNRS hiring jury (EHES, research engineer); member of hiring juries for Inria, U. Paris-1, U. Lille.

#### 10.1.7. Research administration

- Cécile Germain, elected member of the Scientific Council and of its board. University officer for scientific computing. Deputy head of the computer science departement, in charge of research.
- Philippe Caillou, elected member of the Scientific Council and Academic Council.



- Marc Schoenauer, *Délégué Scientifique* (aka VP-Research) for the Inria Saclay Île-de-France branch.
- Michele Sebag, deputy director of LRI, CNRS UMR 8623; elected member of the Research Council of Univ. Paris-Saclay; head of the Research Committee of Labex Digicosme; member of the Board of the Lidexes *Institut de la Société Numérique* and *Center for Data Science*.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Philippe Caillou, Computer Science for students in Accounting and Management, 192h, L1, IUT Sceaux, Univ. Paris Sud

Licence : Aurélien Decelle, Computer Architecture, 50h, L3, Univ. Paris-Sud

Licence : Aurélien Decelle, Machine Learning and Artificial Life, 27h, L2, Univ. Paris-Sud

Licence : Aurélien Decelle, Databases, 30h, L2, Univ. Paris-Sud

Master : Aurélien Decelle, Machine Learning, 6h, M2 Recherche, Univ. Paris-Sud

Master : Anne Auger, Optimisation, 12h, M2 Recherche, U. Paris-sud.

Master : Philippe Caillou, Multi-Agents Systems, 27h, M2 Recherche, U. Paris-sud.

Master : Philippe Caillou, Multi-Agent Based Simulation, 3h, M2 Recherche, U. Paris-Dauphine.

Master : Guillaume Charpiat (et Gaétan Marceau), Machine Learning, 18h, M2 Recherche, Centrale-Supelec.

Master : Odalric-Ambrym Maillard, Machine Learning, 6h, M2 Recherche, Univ. Paris-Sud

Master : Yann Ollivier, Deep learning, 4h, M2 Recherche, Telecom/Polytech.

Master : Michèle Sebag, Machine Learning, 12h; Deep Learning, 6h; Reinforcement Learning, 6h; M2 Recherche, U. Paris-sud.

### 10.2.2. Supervision

PhD: Yoann ISAAC, *Représentations redondantes pour les signaux d'électroencéphalographie*, 29/05/2015, Jamal Atif and Michèle Sebag.

Alexandre Chotard, *Markov Chain Analysis of Evolution Strategies*, Université Paris-Sud, 24/09/2015, Anne Auger and Nikolaus Hansen

PhD: Nicolas Galichet, *Contributions to Multi-Armed Bandits: Risk-Awareness and Sub-Sampling for Linear Contextual Bandits*, Université Paris-Sud, 28/09/2015, Michèle Sebag.

PhD: Guohua Zhang, *Exploratory Robotic Controllers: An Evolution and Information Theory Driven Approach*, Université Paris-Sud, 24/09/2015, Michèle Sebag and Jingzhong Zhang.

PhD: Jialin Liu, *Portfolio methods in uncertain contexts*, Université Paris-Sud, 11/12/2015, Olivier Teytaud and Marc Schoenauer.

PhD in progress: Ouassim AIT ELHARA, *Large-scale optimization and Evolution Strategies*, 1/09/2012, Anne Auger and Nikolaus Hansen.

PhD in progress: Sandra ASTETE-MORALES, *Noisy optimization, with applications to power systems*, 1/09/2013, Olivier Teytaud.

PhD in progress: Asma ATAMNA, *Evolution Strategies and Constrained Optimization*, 1/10/2013, Anne Auger and Nikolaus Hansen.

PhD in progress: Jérémy BENSADON, *Applications of Information Theory to Statistical Learning*, Yann Ollivier, defense planned for 02/02/2016.

PhD in progress: Nacim BELKHIR, *On-line parameter tuning*, 1/5/2014, Marc Schoenauer and Johann Dréo (Thalès), CIFRE Thalès.

PhD in progress: Vincent BERTHIER, *Large scale parallel optimization, with application to power systems*, 1/09/2013, Michèle Sebag et Olivier Teytaud.

PhD in progress: Marie-Liesse CAUWET, *Artificial intelligence with uncertainties, application to power systems*, 1/09/2013, Olivier Teytaud.

PhD in progress: François GONARD, *Automatic optimization algorithm selection and configuration*, 1/10/2014, Marc Schoenauer and Michèle Sebag, thèse IRT SystemX.

PhD in progress: Pierre-Yves MASSÉ, *Gradient Methods for Statistical Learning*, 1/10/2014, Yann Ollivier

PhD in progress: Sourava MISHRA, *AutoML: An empirical approach to Machine Learning*, 1/10/2014, Balazs Kégl and Michèle Sebag

PhD in progress: Thomas SCHMITT, *A Collaborative Filtering Approach to Matching Job Openings and Job Seekers*, 1/11/2014, Michèle Sebag.

PhD in progress : Emmanuel Maggiori, *Large-Scale Remote Sensing Image Classification*, 1/1/2015, Guillaume Charpiat (with Yuliya Tarabalka and Pierre Alliez, Inria Sophia-Antipolis)

PhD in progress: Mehdi Cherti *Learning to discover: supervised discrimination and unsupervised representation learning with applications in particle physics*. 01/10/2014, Balazs Kégl and Cécile Germain.

PhD in progress: Karima Rafes *Gestion et sécurité des données personnelles dans le web des objets*. 01/10/2014, Serge Abiteboul and Cécile Germain.

### 10.2.3. Juries

All senior TAO members participated to many PhD or HDR committees.

## 10.3. Popularization

- **Odalric-Ambrym Maillard** May, participation to day "Petits débrouillards", during which secondary schools students come and visit a lab.
- **Aurélien Decelle** May, participation to day "Petits débrouillards", during which secondary schools students come and visit a lab.
- **Yann Ollivier** co-organizes the European Union Contest for Young Scientists (science fair for high school students from 30+ countries organized by the European Commission).
- **Michele Sebag**, participation to IHP debate on AI and society; panel at Technion Research Day.

## TOSCA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Promotion of Mathematics in the industry

- M. Deaconu was invited to give a talk at the Workshop *Table ronde Assurance*, on october 2015, in Luxembourg.
- 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.
- 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.

### 10.1.2. Scientific events organisation

- M. Deaconu organized an interdisciplinary workshop: Avalanches and rupture phenomena, 3-4 February 2015 in Nancy. URL: <http://iecl.univ-lorraine.fr/~Madalina.Deaconu/workshop2015>
- E. Tanré animates a transverse working group . In 2015, Philip Protter (Columbia University) gave lectures on Brownian Motion and Poisson Processes (six courses with around 45 participants issued from 12 teams).
- E. Tanré has organized two mini-courses for the interdisciplinary axe of University of Nice “Modélisation Théorique et Computationnelle en Neurosciences et Sciences Cognitives”. B. de Saporta (University of Montpellier) gave a course on Piecewise deterministic Markov Processes. M. Thieullen (University Paris 6) gave a course on a “Probabilistic study of membrane potential models, including ionic channels.”
- D. Villemonais organized a mini-symposium at the *Congrès SMAI 2015*, at Les Karellis in June 2015.

#### 10.1.2.1. Member of the organizing committees

- J. Inglis and E. Tanré were members of the organizing committee of the First International Conference on Mathematical NeuroScience (ICMNS) in Juan-les-Pins (June 2015), 170 participants.

### 10.1.3. Scientific events selection

#### 10.1.3.1. Chair of conference program committees

- D. Talay organized and chaired the NASPDE 2015 conference in Sophia Antipolis (September 2015), 50 participants.

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

- A. Lejay is member of the conference program committees of *CANUM 2016* (Obernai, France) and *Journées de Probabilités 2015* (Toulouse, France).
- D. Talay served as a member of the scientific committee of the First International Conference on Mathematical NeuroScience (ICMNS) in Juan-les-Pins (June 2015), 2015 Conference in Stochastic Analysis and Mathematical Physics in Chile (September 2015), Conference in the honor of Vlad Bally (Le Mans, October 2015).

### 10.1.4. Journal

#### 10.1.4.1. Member of the editorial boards

- N. Champagnat served as an Associate Editor of *Stochastic Models*.

- A. Lejay is one of the three editors of the *Séminaire de Probabilités*.
- M. Bossy served as an Associate Editor of *Annals of Applied Probability*.
- D. Talay served as an Associate Editor of: *Stochastic Processes and their Applications*, *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 the Co-editor in chief of *MathematicS in Action*.

#### 10.1.4.2. Reviewer - Reviewing activities

- M. Bossy wrote reviews for manuscripts submitted to *Bernoulli Journal*, *Stochastic Processes and their Applications*.
- N. Champagnat wrote reviews for manuscripts submitted to *Journal of Mathematical Biology*, *Bernoulli Journal*, *Stochastic Processes and their Applications*, *Journal of Theoretical Biology*.
- M. Deaconu wrote reviews for *Mathematical Reviews of the American Mathematical Society (MathSciNet)* and for manuscripts submitted to *Mathematics and Computers in Simulation*, *ESAIM: Mathematical Modelling and Numerical Analysis*, *Journal of Computational and Applied Mathematics*, *Revue Roumaine de Mathématiques Pures et Appliquées* and *Journal of Nonlinear Analysis: Real World Applications*.
- C. Fritsch wrote reviews for manuscripts submitted to *Stochastic Models and Ecological Modelling*.
- J. Inglis wrote reviews for *Mathematical Reviews of the American Mathematical Society (MathSciNet)* and for manuscripts submitted to *Annales de l'Institut Henri Poincaré*.
- A. Lejay wrote reviews for manuscripts submitted to *Electronic Journal of Probability*, *Journal of Computational Mathematics*, *Journal of Mathematical Analysis and Applications*, *Journal of Scientific Computing*, *Journal of Statistical Computation and Simulation*, *Mathematics and Computers in Simulation*, *Probability and Mathematical Statistics*, *SIAM Journal of Control and Optimization* and *SIAM Journal of Mathematical Analysis*.
- E. Tanré wrote reviews for manuscripts submitted to *Bernoulli Journal*, *The Journal of Mathematical Neuroscience*, *Applied Mathematical Finance*, *Annales de l'Institut Henri Poincaré*, *Probabilistic Engineering Mechanics*.
- D. Villemonais wrote reviews for *Mathematical Reviews of the American Mathematical Society (MathSciNet)* and for manuscripts submitted to *Science China Mathematics*, *Journal of Inequalities and Applications*, *Theoretical Population Biology* and *Electronic Communications in Probability*.

#### 10.1.5. Invited talks

- M. Bossy has been invited to give talks at the *Workshop on "Subgrid-scale modeling for particle simulations in LES"* (Chatou) in March, at the *Workshop EDS Incertitudes of GDR MascotNum* (Paris) in May, at the *workshop "probabilistic numerical methods for non-linear PDE"* ICL (London) in June, and at the *NASPDE Workshop*, (Sophia Antipolis) in September.
- M. Bossy gave seminar talks at the MFEE departement EDF Chatou, and a Colloquium talk at LJAD (Nice) in November.
- N. Champagnat has been invited to give talks at the *Conference on Probability and Biological Evolution* at CIRM (Luminy), Marseille in June; at the *MMEE 2015* conference (Mathematical Models in Ecology and Evolution) in Paris in July; the *Workshop on Probabilistic models in Biology* in Playa del Carmen, Mexico, in October; and the *Colloque Franco-Maghrébin en Analyse Stochastique* in Nice in November.
- M. Deaconu has been invited to give talks to the *Eighth Congress of Romanian Mathematicians*, June 26-July 1, 2015, Iași, Romania; and the *Rencontre EDP/Probab*, March 6, 2015, Institut Henri Poincaré, Paris.

- C. Fritsch has been invited to give talks at the *Congrès SMAI 2015*, at Les Karellis in June and at the MMEE 2015 conference (*Mathematical Models in Ecology and Evolution*) in Paris in July.
- B. Henry has been invited to give talks at the *Congrès SMAI 2015*, at Les Karellis in June and at the *SPA Conference* (Stochastic processes and applications) in Oxford in July. He also presented a poster at the MMEE 2015 conference (*Mathematical Models in Ecology and Evolution*) (Paris, July).
- J. Inglis gave a talk at the workshop *QFT methods in neuronal networks dynamics* at the University of Bielefeld, as part of the Mathemacis European project.
- A. Lejay has been invited to give talks at the *Conference in honor of Professor Vlad Bally* (Le Mans, October), the conference *Stochastic Analysis and Numerical Perspectives* (Sophia-Antipolis, September), the *AMS / EMS / SPM International Meeting* (Porto, June), the *Stochastic analysis, controlled dynamical systems and applications* (Iena, February).
- A. Lejay also gave seminar talks at Univ. Paris 6 in June, Univ. Marne-la-Vallée in May and CMAP (École Polytechnique) in February.
- P. Pigato gave seminar talks at the *Séminaire de probabilités et statistiques* of IECL, Univ. Lorraine, in November, and at the *Séminaire de probabilités et statistiques* of Laboratoire Dieudonné, Univ. Nice, in December.
- A. Richard gave an invited talk at the *French-Maghrebi conference on stochastic analysis* held in Nice in November, and seminar talks at the *IECL Probability Seminar* in March, at the *Seminar of the CIMFAV* (Valparaíso) in June.
- K. Salhi gave a talk at the 8th European Summer School in Financial Mathematics (Le Mans, September 2015). He also participated to the Advanced Risk and Portfolio Management bootcamp 2015 organized by SYMMYS (New York University, July 2015).
- D. Talay gave a seminar at Ecole Polytechnique in March and at Paris 6 university in May.
- D. Talay gave an invited talk at the 2015 Conference on Stochastic Analysis and Mathematical Physics (Chile, September 2015) and at the Conference of the Honor of Vlad Bally (Le Mans, October 2015).
- E. Tanré gave invited talks at the ANR SloFaDyBio meeting in March, at an HBP-EITN workshop in April, and a seminar talk at the *IECL Probability Seminar* in October.
- D. Villemonais has been invited to give a lecture on quasi-stationary distributions at the LPMA (Paris) during the *Thematic meeting of the STAB ANR project* of November 2015.

#### 10.1.6. Scientific expertise

- M. Bossy wrote reports about research projects submitted to the PACA Region council.
- M. Bossy was member of the hiring committee 26 PRF 4320 (Univ. Nice).
- N. Champagnat reported on a proposal submitted to ANR (Agence Nationale de la Recherche).
- N. Champagnat was member of the hiring committee 26 MCF 1219 (Univ. Paul Sabatier, Toulouse III).
- M. Deaconu was member of the hiring committee 26 MCF 0221 (Univ. Bourgogne) and of the hiring committee 26 MCF 80 (Univ. Bordeaux).
- D. Villemonais was member of the hiring committee 26 MCF 0706 (IUT de Dijon).
- D. Talay reported on applications to Research Grants Council (RGC) of Hong Kong.
- D. Talay participated in a Professor position recruitment committee at Paris 7 University.

#### 10.1.7. Research administration

- M. Bossy is a elected member of the Inria Evaluation Board.
- M. Bossy has been a member of the Committee for junior permanent research positions of Inria Grenoble Rhône-Alpes.

- M. Bossy is a member of the *Collectif Andromede* of the PACA Region council.
- N. Champagnat is a member of the *Commission de Développement Technologique* and the *Commission Information Scientifique et Technique* of Inria Nancy - Grand Est, a substitute member of the *Comité de Centre* 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 also local correspondent of the COERLE (*Comité Opérationnel d'Évaluation des Risques Légaux et Éthiques*) for the Inria Research Center of Nancy - Grand Est. This year, together with Aline Wagner (Inria Nancy - Grand Est), he is in charge of the new version of the application form for research approval by the COERLE (ethical committee of Inria).
- M. Deaconu is a member of the *Bureau du Comité de Projet* of Inria Nancy - Grand Est, and of the *Comité de Projet* of Inria Nancy - Grand Est.
- A. Lejay is a member of the Administration Council of the SMAI.
- A. Lejay is a member of the COMIPERS of Inria Nancy Grand-Est.
- A. Lejay has been appointed as representative of Inria Nancy-Grand Est in the Agence Mathématiques et Entreprise (AMIES)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: M. Bossy, *Continuous time stochastic models for quantitative Finance*, 45h, M2 IMAFA (Informatique et Mathématiques Appliquées à la Finance et à l'Assurance), École Polytechnique Universitaire, Univ. Nice - Sophia Antipolis, France.

Master : M. Bossy, *Risk on energetic financial markets*, 27h, Master Spécialisé, Ingénierie et Gestion de l'Énergie, Mine ParisTech, France.

Master : M. Bossy *Stochastic Particle Methods for PDEs*, 18h, M2 Probabilité et Applications, Université Paris 6, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 18h, M1, École des Mines de Nancy, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 18h, M2, École des Mines de Nancy, France.

Master: N. Champagnat, *Processus de Markov et génétique des populations*, 22.5h, M2 MFA, Université de Lorraine, France.

Master: N. Champagnat, *Processus de Galton-Watson*, 22.5h, M2 "double diplôme" Mathématiques et Applications - Ecole Supérieure des Sciences et de Technologie de Hammam Sousse, Tunisie (lieu des cours) - Université de Lorraine, France.

Master: M. Deaconu, *Équations différentielles stochastiques : résolution numérique et applications*, 21h, M2, École des Mines de Nancy, France.

Master: M. Deaconu, *Simulation de variables aléatoires*, 12h, M1, École des Mines de Nancy, France.

Master: M. Deaconu, *Modélisation stochastique*, 30h, M2, Université de Lorraine, France.

Master: M. Deaconu, *Simulation Monte Carlo*, 24h, M1, Faculté de Droit, Sciences Economiques et Gestion, Université de Lorraine, France.

Master: C. Fritsch, *Introduction à la finance quantitative*, 3h, M1, École des Mines de Nancy, France.

Licence: C. Fritsch, *Analyse numérique*, 18h, L3, École des Mines de Nancy, France.

Licence: B. Henry, *Analyse numérique*, 18h, L3, École des Mines de Nancy, France.

Licence: B. Henry, *Probabilités*, 36h, L3, École des Mines de Nancy, France.

Master: J. Inglis, *Numerical Methods for Computational Finance*, 15h, M2, UNSA (Mathmods Erasmus Mundus), France.

Master: A. Lejay, *Simulation des marchés financiers*, 28.5h, M2, Université de Lorraine (Metz), France.

Master: A. Lejay, *Probabilités Appliquées*, 22.5h, M2, Université de Lorraine (Nancy), France.

Master: A. Richard and E. Tanré, *Advanced Numerics for Computational Finance*, 40h (2\*20h), M2, UNSA (Mathmods Erasmus Mundus), France.

Licence: K. Salhi, *Mathématiques Appliquées et Probabilités*, 24h, L3, Télécom Nancy, France

Master: K. Salhi, *Probabilités et Statistiques*, 42h, M1, ENSEM Nancy, France.

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

Master: E. Tanré, *Numerical Probability in Finance*, 44h, M2, Ecole PolytechNice (IMAF), France.

Master: E. Tanré, *Mathematical Methods for Neurosciences*, 37h, M2, ENS - Master MVA / Paris 6 - Master Maths-Bio, France.

### 10.2.2. Supervision

- HdR: Nicolas Champagnat, *Approches stochastiques et déterministes en biologie: dynamique adaptative, modélisation pour l'écologie, génétique des populations et dynamique moléculaire; caractère bien posé d'équations différentielles ordinaires et stochastiques*, Univ. Lorraine, 18 February 2015.
- PhD : Lionel Lenôtre, *Étude et simulation de processus de diffusion biaisés*, Université Rennes 1, November 27, 2015, Jocelyne Erhel (Irisa), Antoine Lejay, Géraldine Pichot (Irisa).
- PhD in progress: Maxime Bonelli, *Behavioral finance approach to risk assessment in quantitative portfolio management*, September 2013, M. Bossy.
- PhD in progress: Antone Brault, *Équations rugueuses linéaires*, October 2015, Laure Coutin (Université Toulouse III) and A. Lejay.
- PhD in progress: Baldwin Dumortier, *Contrôle acoustique des éoliennes*, October 2014, M. Deaconu and E. Vincent (EPI MULTISPEECH).
- PhD in progress: Benoît Henry, *Modeling Evolutionary Relationships Between Three-Dimensional Protein Structures*, October 2013, N. Champagnat, D. Ritchie (EPI ORPAILLEUR).
- PhD in progress: Radu Maftai, *A stochastic approach to colloidal particle agglomeration in turbulent flows*, November 2014, M. Bossy.
- PhD in progress: Khaled Salhi, *Estimation of Risk in Finance*, October 2013, M. Deaconu and A. Lejay.
- PhD in progress: Milica Tomasevic, *Stochastic approaches to Keller–Segel equations*, October 2015, D. Talay.

### 10.2.3. Juries

- M. Bossy served as a referee for the Ph.D. theses of Bénédicte Jourdiere, *Ressource éolienne en France métropolitaine : méthodes d'évaluation du potentiel, variabilité et tendances*, École Polytechnique, September 2015, and of Lucie Rottner, *Reconstruction de l'atmosphère turbulente à partir d'un lidar Doppler 3D et étude du couplage avec Meso-NH*, Université Toulouse III Paul Sabatier, December 2015.
- M. Bossy served as an examiner for the Ph.D. thesis of M. Michaël Benguigui, *Valorisation d'option américaine et Value At Risk de portefeuille sur cluster de GPUs/CPUs hétérogène*. Université de Nice, August 2015.

- N. Champagnat served as a referee for the Ph.D. theses of Cristobal Quinao, *Mathematical modeling in Neuroscience: collective behavior of neuronal networks and the role of local homeoproteins diffusion in morphogenesis*, UPMC, June 2, 2015, and of Marie-Noémie Thai, *Processus de Fleming-Viot, distributions quasi-stationnaires et marches aléatoires en interaction de type champ moyen*, Univ. Paris-Est, November 27, 2015.
- A. Lejay served as an examiner for the Ph.D. thesis of Thi Quynh Giang Nguyen, *Méthodes de Monte Carlo pour les diffusions discontinues : application à la tomographie par impédance électrique*, Université de Toulon, October 2015; of Willian Minvielle, *Some problems related to statistical error in stochastic homogenization*, Université Paris-Est, October, 2015; of Lionel Lenôtre, *Étude et simulation de processus de diffusion biaisés*, Université Rennes 1, November, 2015 and of Johann Nicod, *Approximation numérique par chaos de Wiener de quelques EDPS*, Université Paris-Est, December 2015.
- D. Talay served as an examiner for the HdR of Nicolas Champagnat (see above) and the Ph.D. theses of Lorick Huang, *EDS dirigées par des processus stables. Méthode parametrix pour des estimées de densités et application aux algorithmes stochastiques*, Université Paris Diderot Sorbonne Paris Cité, July 2015, and of Athena Picarelli, *Sur des problèmes de contrôle stochastique avec contraintes sur l'état*, Ecole Polytechnique, April 2015. He also served as a referee for the Ph.D. thesis of Clément Rey, *Etude et Modélisation d'équations différentielles stochastiques*, Paris-Est university, December 2015.

### 10.3. Popularization

- M. Deaconu gave an interview for a paper in Eureka Lorraine. URL : <http://eureka.lorraine.eu/jahia/Jahia/pid/1968?actu=23647>



## ABS Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. General Chair, Scientific Chair

Together with J. Cortés (LAAS/CNRS, Toulouse), and C. Robert (IBPC/CNRS, Paris), we launched and have been organizing the Winter Schools series *Algorithms in Structural Bio-informatics*. These schools are meant to train PhD students and post-docs on advanced algorithmic techniques in structural biology. The 2015 Edition, who took place at the CNRS center in Cargèse, focused on *Sampling bio-molecular systems*, see <http://algosb.galaxy.ibpc.fr/>.

### 8.1.2. Scientific Events Selection

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

F. Cazals was member of the following program committees:

- Symposium On Geometry Processing

### 8.1.3. Invited Talks

– F. Cazals gave the following invited talks:

- *Energy Landscapes: Sampling, Analysis, and Comparison*, Max-Planck Institute for Solid State Research, Stuttgart, Germany. November 2015.
- *Beyond Two-sample-tests: Localizing Data Discrepancies in High-dimensional Spaces* GUDHI workshop on topological data analysis, Porquerolles, France. October 2015.
- *Exploring and modeling energy landscapes*, University Chemical Laboratories, Cambridge University, UK. February 2015.

– D. Mazaauric gave the following invited talks:

- *Mass Transportation Problems with Connectivity Constraints and Energy Landscape Comparison*, Laboratoire d'Informatique Fondamentale de Marseille. March 2015.
- *Representation of simplicial complexes*, Winter School on Algorithmic Geometry of Triangulations, Inria Sophia Antipolis - Méditerranée. January 2015.

### 8.1.4. Leadership within the Scientific Community

– F. Cazals:

- 2010-.... Member of the steering committee of the *GDR Bioinformatique Moleculaire*, for the *Structure and macro-molecular interactions* theme.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master: F. Cazals (Inria Sophia Antipolis Méditerranée) and S. Oudot (Inria Saclay), *Foundations of Geometric Methods in Data Analysis*, Data Sciences Program, Department of Applied Mathematics, Ecole Centrale Paris. (<http://www-sop.inria.fr/abs/teaching/centrale-FGMDA/centrale-FGMDA.html>)

Master: F. Cazals, *Algorithmic problems in computational structural biology*, 24h, Master of Science in Computational Biology from the University of Nice Sophia Antipolis, France, see <http://cbb.unice.fr>.

### 8.2.2. Supervision

**(PhD thesis, defended, November 2015)** A. Lhéritier, *Nonparametric methods for learning and detecting multivariate statistical dissimilarity*, University of Nice Sophia Antipolis. Advisor: F. Cazals.

**(PhD thesis, defended, May 2015)** D. Agarwal, *Topics in mass spectrometry based structure determination*, University of Nice Sophia Antipolis. Advisor: F. Cazals.

**(PhD thesis, ongoing)** C. Roth, *Modeling the flexibility of macro-molecules: theory and applications*, University of Nice Sophia Antipolis. Advisor: F. Cazals.

**(PhD thesis, ongoing)** S. Marillet, *Modeling antibody - antigen complexes*, University of Nice Sophia Antipolis. The thesis is co-advised by F. Cazals and P. Boudinot (INRA Jouy-en-Josas).

**(PhD thesis, ongoing)** R. Tetley, *Structural alignments: beyond the rigid case*, University of Nice Sophia Antipolis.

**(PhD thesis, ongoing)** A. Chevalier, *Sampling biomolecular systems*, University of Nice Sophia Antipolis.

### 8.2.3. Juries

– F. Cazals:

- Mathilde Le Boudic-Jamin, University of Rennes 1, December 2015. Rapporteur on the PhD thesis *Similarités et divergences, globales et locales, entre structures protéiques*. Advisor: R. Andonov.
- Nathan Desdouits, University Pierre et Marie Curie / Institut Pasteur Paris, May 2015. Rapporteur on the PhD thesis *Concepts et méthodes d'analyse numérique de la dynamique des cavités au sein des protéines applications à l'élaboration de stratégies novatrices d'inhibition*. Advisors: Michael Nilges and Arnaud Blondel.
- Petr Popov, University of Grenoble, January 2015. Committee member. *New methods for the prediction of protein - protein interactions at the structural level*. Advisor: Sergei Grudinin.

## 8.3. Popularization

**Dorian Mazaauric.** Dorian is a member of the group of Médiation et Animation des MATHématiques, des Sciences et Techniques Informatiques et des Communications (MASTIC), Inria Sophia Antipolis - Méditerranée. He participated to the following events:

- 12-16/10/2015: Fête de la Science at collège Yves Montand, Vinon-sur-Verdon. *Graphes et algorithmes pour tous*. Organized by Institut Esope 21.
- 13/10/2015: Conference at collège Yves Montand, Vinon-sur-Verdon (avec Frédéric Havet, COATI project-team). *Présentation du métier de chercheur*. Organized by Institut Esope 21.
- 10-11/10/2015: Village des sciences et de l'innovation au Palais des Congrès d'Antibes Juan-les-Pins. Fête de la Science 2015. *Graphes et algorithmes pour tous*.

- 17/06/2015: Stage MathC2+ à Inria Sophia Antipolis - Méditerranée. *Théorie des graphes et algorithmique*.
- 18/03/2015: Conference at lycée Henri Matisse de Vence. *La théorie des graphes et ses applications dans les réseaux*. Dans le cadre du dispositif régional "Science Culture".
- 17/12/2015: Presentation at école élémentaire Sartoux, Sophia Antipolis (classe de CM2). *La magie des graphes et du binaire, algorithmes et jeux*. This presentation is part of the cycle ASTEP (Accompagnement en Sciences et Technologies à l'École Primaire).
- 14/12/2015: Presentation at école élémentaire de Montaleigne, Saint-Laurent-du-Var (five classes). *La magie des graphes et du binaire, algorithmes et jeux*. This presentation is part of the cycle ASTEP (Accompagnement en Sciences et Technologies à l'École Primaire).

## AIRSEA Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

A.Vidard was a member of the organizing committee of the Summer school “Traitement du signal et des images”, Peyresq, juin 2015

C.Prieur was a member of the organizing committee of the Journées MAS 2016, Grenoble <http://mas2016.sciencesconf.org/>

E. Blayo and L. Debreu have organized a mini-symposium “Mathématiques et prévision climatique” within the SMAI 2015 conference (Les Karelis, June 2015).

L. Debreu have organized the international workshop "DRAKKAR" on global ocean modelling with the NEMO system (January 2015).

F. Lemarié and L. Debreu have organized a mini-symposium entitled "Recent algorithmic developments in oceanic models : numerical schemes and test-cases for model assessment" at the European Geosciences Union General Assembly, Vienne, April 2015.

### 10.1.2. Scientific events selection

C.Prieur was a member of the program committee of the SAMO 2016 La Réunion <http://samo2016.univ-reunion.fr/>

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing activities

E. Blayo: reviewer for Mathematics and Computers in Simulation, Ocean Modelling.

L. Debreu: reviewer for Ocean Modelling, Ocean Dynamics, Geophysical Model Development.

F. Lemarié : reviewer for Ocean Modeling, Dynamics of Atmospheres and Oceans, SIAM Journal on Scientific Computing

E. Kazantsev: reviewer for International Journal for Numerical Methods in Fluids.

### 10.1.4. Leadership within the scientific community

E. Blayo is the chair of the CNRS-INSU research program LEFE-MANU on mathematical and numerical methods for ocean and atmosphere . <http://www.insu.cnrs.fr/co/lefe>

C. Prieur chairs GdR MASCOT NUM, in which are also involved M. Nodet, E. Blayo, C. Helbert, E. Arnaud, L. Viry, S. Nanty, L. Gilquin. <http://www.gdr-mascotnum.fr/doku.php>

L. Debreu is the coordinator of the national group COMODO (Numerical Models in Oceanography)

### 10.1.5. Scientific expertise

F.-X. Le Dimet is reviewer for the PRACE consortium (scientific computing)

### 10.1.6. Research administration

C.Prieur is an elected member of CNU20

C.Prieur is a member of CS of SMF

C.Prieur is a member of the Committee of Statistical Mathematics Group of SFdS

E.Arnaud is a member of the executive committee of IXXI (complex system institute) <http://www.ixxi.fr>

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Licence: A.Vidard, Mathématiques pour l'ingénieur, 26h, L1, Universités Grenoble-Alpes, France
- Licence: E. Arnaud, Statistics for biologist, 20h, L1, University of Grenoble, France.
- Licence: E. Arnaud, Mathematics upgrade, 14h, L1, University of Grenoble, France.
- Licence: E. Blayo, Mathématiques pour l'ingénieur, 66h, L1, UJF Grenoble.
- Licence: E. Blayo, Méthodes statistiques pour la biologie, 39h, L2, UJF Grenoble.
- Licence: M.Nodet, Outils maths pour les scientifiques et ingénieurs, 90h, L1, UJF Grenoble.
- Licence: M.Nodet, Projet anglophone pour les L2 math info international 18h, L2, UJF Grenoble.
- Licence: Ch. Kazantsev, Mathématiques pour les sciences de l'Ingenieur, L1, 60h UJF Grenoble.
- Master: E. Arnaud, Advising students on apprenticeship, 28h, M2, University of Grenoble, France.
- Master: E. Arnaud, Image processing, 18h, M2, University of Grenoble, France.
- Master: E. Blayo, Méthode des éléments finis, 47h, M1, UJF Grenoble
- Master: E. Blayo, Modelling and control of PDEs, 17h, M2, UJF Grenoble
- Master: E. Blayo, F. Lemarié, Model coupling, 27h, M2, UJF Grenoble
- Master: F. Lemarié, E. Blayo, An introduction to Schwarz domain decomposition methods, 24h, M2, Grenoble
- Master: M.Nodet, Méthodes numériques, 15h, M1, UJF Grenoble
- Master: M.Nodet, Méthodes inverses assimilation de données, 36h, M2, UJF Grenoble
- Doctorat: E. Blayo, M. Nodet, A. Vidard, Introduction to data assimilation, 20h, University of Grenoble
- Doctorat : Laurent Debreu, Formation doctorale nationale Modélisation numérique de l'océan et de l'atmosphère, 16-20 novembre 2015, Brest, France. With T. Dubos (LMD/Ecole Polytechnique, Paris), G. Rouillet (Brest University), F. Hourdin (LMD/CNRS, Paris)

#### E-learning

- Elise Arnaud, Maëlle Nodet, Mathematics for engineer, L1, University of Grenoble,
- Pedagogical resources : <http://tinyurl.com/youtube-mat126>

### 10.2.2. Supervision

- HDR : Laurent Debreu, Modélisation numérique de l'océan, Université Grenoble Alpes, 17 décembre 2015.
- PhD : Simon Nanty, Quantification des incertitudes et analyse de sensibilité pour codes de calcul à entrées fonctionnelles et dépendantes, Université Grenoble-Alpes, 15 octobre 2015, Clémentine PRIEUR, Céline Helbert
- PhD in progress : Nelson Feyeux, Application du transport optimal pour l'assimilation de données images, novembre 2013, A. Vidard, M. Nodet
- PhD in progress : Thomas Capelle, Calibration of LUTI models, octobre 2013, P. Sturm (EPI STEEP), A.Vidard
- PhD in progress : Rémi Pellrej, Assimilation de données pour les modèles couplés, octobre 2014, A. Vidard, F. Lemarié
- PhD in progress : Laurent Gilquin, Sensitivity analysis of a macroeconomic LUTI model, started in October 2013, E. Arnaud and C. Prieur
- PhD in progress : Patricia Tencaliec, Approches stochastiques pour la gestion des risques environnementaux extrêmes, October 2013, Clémentine Prieur, Anne-Catherine Favre (LTHE)

PhD in progress: Mehdi-Pierre Daou, Développement d'une méthodologie de couplage multi-modèles avec changements de dimension. Validation en dynamique littorale. May 2013, E. Blayo and A. Rousseau.

PhD in progress: Charles Pelletier, Etude mathématique et numérique de la formulation du couplage océan-atmosphère dans les modèles de climat. December 2014, E. Blayo, F. Lemarié and P. Braconnot.

PhD in progress: Alexis Ropiquet, Parameter estimation for subgrid modelling, Sept.2015, C.Prieur and E. Blayo.

### 10.2.3. Juries

E. Blayo

- 4 May 2015 - HDR thesis of Emmanuel Witrant, University of Grenoble (president)
- 12 May 2015 - PhD thesis of Sébastien Barthélémy, University of Toulouse (reporter)
- 26 Jun 2015 - PhD thesis of Romain Casati, University of Grenoble (president)
- 30 Jun 2015 - HDR thesis of Isabelle Herlin, University Pierre et Marie Curie, Paris (examiner)
- 2 Dec 2015 - PhD thesis of Lucie Rottner, University of Toulouse (reporter)
- 17 Dec 2015 - HDR thesis of Laurent Debreu, University of Grenoble (examiner)

F. Lemarié : 4 novembre 2015 - PhD thesis of Aimie Moulin, University of Grenoble (examiner)

M. Nodet : jury de bac technologique 2015

F.-X. Le Dimet : 17 Dec 2015 - HDR thesis of Laurent Debreu, University of Grenoble (president)

## 10.3. Popularization

- A. Vidard has Animated the stand Inria at the exposition "Solutions - COP 21", December,9, 2015
- A. Vidard has given a Conference «Le numérique au service de l'observation et de l'anticipation des changements climatiques» at the Exposition "Solutions - COP 21", December,9, 2015
- C.Prieur has given an interview to Interstices.info [https://interstices.info/jcms/p\\_86521/mieux-modeliser-le-climat-grace-aux-statistiques](https://interstices.info/jcms/p_86521/mieux-modeliser-le-climat-grace-aux-statistiques)
- E. Blayo participated to a Journée numérique, at the French Senate (Paris), on Feb. 11th, 2015. [http://www.senat.fr/evenement/journee\\_numerique\\_inria.html](http://www.senat.fr/evenement/journee_numerique_inria.html)
- E. Blayo gave several outreach talks, in particular for high school students and for groups of teachers.
- M. Nodet co-organises a year-round weekly math club in two secondary schools, where pupils research open mathematical problems.
- M. Nodet organised a two-month weekly meeting at a secondary school to explain mathematical research, in particular modelling for ocean and climate.
- M. Nodet gave an outreach talk about maths and oceanic currents in a secondary school during the mathematical week 2015.
- M. Nodet wrote, with J. Ehrel, two outreach papers for Interstices about glaciology and inverse problems [32], [31].
- M. Nodet gave an outreach talk about mathematical modelling for the environment at the IREM Lille 2015 conference [33].
- Several members of the AIRSEA team have contributed to the 2015 Science Festival through an information stand entitled "Understanding oceanic and atmospheric circulations".

- Since 2010, Ch. Kazantsev is the Director of the IREM of Grenoble <http://www-irem.ujf-grenoble.fr/irem/accueil/>. The Institute is under rapid development now, joining about 50 teachers of primary and secondary schools of the Grenoble region and 15 university professors. They work together 16 times a year on the development of the teaching strategy for the educational community. In addition to this, IREM is the editor of two journals: "Grand N" destined to primary schools teachers and "Petit x" – to the secondary schools.
- Ch. Kazantsev and E. Blayo participate in the creation of "La Grange des maths" in Varcès
- Ch. Kazantsev has organized two stages of one or two days for children 14 or 15 years old during the holidays in the framework of "MathC2+", participation in these stages for one or two animations (in calculus and in modelisation), 2x2h for each animation
- A. Vidard gave an outreach talk at the Summer school "Traitement du signal et des images", Peyresq, juin 2015
- M. Nodet and Ch. Kazantsev are involved in an IREM group which aims to bring interdisciplinarity into secondary school curriculum and proposes activities for teachers.
- M. Nodet co-organised a two day training session for secondary and high school teachers, about modelling and mathematics for the newly created Maison Pour la Science Alpes Dauphiné.
- M. Nodet is involved in various events and groups related to pedagogy at university levels.

## AMIB Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

#### 8.1.1.1. General chair, scientific chair

Mireille Régnier

SeqBio 2015

NGS day at INRIA

#### 8.1.1.2. Member of the organizing committees

Yann Ponty

SeqBio 2015

### 8.1.2. Scientific events selection

#### 8.1.2.1. Chair of conference program committees

Mireille Régnier acted as chair of the program committee for the SeqBio 2015 workshop (Orsay, France).

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

Yann Ponty

ISMB/ECCB 2015

WABI 2015

BioVis 2015

BiCOB 2015

SeqBio 2015

Mireille Régnier

SeqBio 2015

MCCMB 2015

#### 8.1.2.3. Reviewer

Y. Ponty acted as an external reviewer for the ACM-SIGMOD 2015 conference.

### 8.1.3. Journal

#### 8.1.3.1. Member of the editorial boards

M. Régnier is an editor of PeerJ Computer Science.

#### 8.1.3.2. Reviewer - Reviewing activities

M. Régnier and Y. Ponty reviewed manuscripts for a large selection of journals in Mathematics, Computer Science and Bioinformatics: Discrete Mathematics and Theoretical Computer Science, Theoretical Computer Science, Bioinformatics, BMC Bioinformatics, Journal of Mathematical Biology, IEEE/ACM Transactions on Computational Biology and Bioinformatics, Journal of Discrete Algorithms, Algorithms for Molecular Biology, PLOS One, Journal of Theoretical Biology, RNA, Nucleic Acids Research...



#### 8.1.4. Invited talks

Y. Ponty:

Keynote address at the bi-annual the Canadian Discrete Applied Mathematics (CanaDAM'15) meeting held at the university of Saskatoon (Canada);

Invited talk at the *Benasque RNA* triannual meeting (Spain);

Invited talk at the Mathematical Biosciences Institute (Columbus, Ohio) during the *Geometric and Topological Modeling of Biomolecules workshop*;

Invited talk at the bi-annual *meeting of the CNRS GDR BIM* at Institut Pasteur, Paris.

M. Régnier

Invited talk at Sydney University (Australia).

#### 8.1.5. Leadership within the scientific community

Y. Ponty is scientific animator (2014-2018) of the *Structure and interactions of macromolecules* axis of the CNRS research group in molecular bioinformatics (GdR BIM);

Y. Ponty and M. Régnier are active members of the COMATEGE and the ALEA working group <http://igm.univ-mlv.fr/~josuatv/webalea/> of the CNRS research group in Mathematical Computer Science (GDR IM) <https://www.gdr-im.fr/>.

#### 8.1.6. Scientific expertise

Y. Ponty is a member of the 'Comité National' (hiring/evaluation committee) of CNRS in computer science (section 6) and Maths/Physics/Computer Science interfaces with life science (CID 51); he acted as an external expert for the Emergence program of Ville de Paris

M. Régnier is a member of DIGITEO program Committee and SDV working group in Saclay area.

#### 8.1.7. Research administration

M. Régnier participates to the *Conseil de laboratoire* of LIX as head of the AMIB team.

Y. Ponty is an elected member of the *comité national du CNRS*, and takes part in the evaluation of CNRS research scientists and structures at a national level in Computer Science (Section 6) and Life Science interfaces (CID 51).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

We have and we will go on having trained a group of good multi-disciplinary students both at the Master and PhD level. Being part of this community as a serious training group is obviously an asset. Our project is also very much involved in two major student programs in France: the Master AMI2B at Paris-Saclay (previously BBS (Bioinformatique et Biostatistique) at Université Paris-Sud/École Polytechnique) and the parcours d'Approfondissement en Bioinformatique at École Polytechnique. We are also involved in a student partnership with McGill University (partenariat France Quebec offering French and Canadian students co-supervised internships (short term -3 to 6 months- or long term -part of the PhD studies-).

At Ecole Polytechnique, M. Régnier is in charge of M1 and M2. Most team members are teaching in this master

Beyond the plateau de Saclay, Y. Ponty taught 12h at the M2 level for University Pierre et Marie Curie in the BIM Master program.

### 8.2.2. Supervision

#### HdR

Julie Bernauer, *Geometric and statistical methods for the analysis and prediction of structural interactions between biomolecules*, Université Paris-Sud XI, January 2015, Habilitation à diriger des recherches. <https://tel.archives-ouvertes.fr/tel-01136261>

#### PhD

Daria Iakovishina, *Detection of structural variants in tumoral genomes with a Bayesian approach*, Ecole Polytechnique, November 2015. Encadrantes: Mireille Régnier and Valentina Boeva.

#### PhD in progress

Mélanie Boudard, *Game theory and stochastic learning for predicting the three-dimensional structure of large RNA molecules*, Univ. Paris XI, Encadrant(els): D. Barth, J. Cohen and A. Denise.

Alice Héliou, *Identification et caractérisation d'ARN circulaires dans des séquences NGS*, Ecole Polytechnique, Encadrant(els): Mireille Régnier and Hubert Becker

Amélie Héliou, *Game theory and conformation sampling for multi-scale and multi-body macromolecule docking*, Ecole Polytechnique, Encadrant(els): Johanne Cohen

Vincent Le Gallic, *Design de structures secondaires avec contraintes de séquences : une approche globale fondée sur les langages formels*, Univ. Paris XI, Encadrant(els): Yann Ponty and Alain Denise.

Cécile Pereira, *Nouvelles approches bioinformatiques pour l'étude à grande échelle de l'évolution des activités enzymatiques*, Univ. Paris XI, Encadrant(els): Olivier Lespinet et Alain Denise.

Afaf Saaidi, *Differential analysis of RNA SHAPE probing data*, Ecole Polytechnique, Encadrants: Yann Ponty and Mireille Régnier.

Antoine Soulé, *Evolutionary study of RNA-RNA interactions in yeast*, Ecole Polytechnique, Encadrants: Jean-Marc Steyaert and J. Waldispohl (U. McGill, Canada)

### 8.2.3. Juries

Yann, JMS, Philippe, MR

#### Hiring committees

Chargé de Recherches, INRIA, 2015, CRI Saclay Ile de France: M. Régnier

Ingénieur, INRIA, 2015, CRI Grenoble Rhone-Alpes: Mireille Régnier

Research Scientists/Directors, CNRS, Theoretical Computer Science (section 6) and Interfaces of Life Sciences (CID 51), 24 positions in 2015: Y. Ponty

#### PhD juries

Paul Dallaire, RNA Bioinformatics, Université de Montréal: Y. Ponty (External reviewer)

Magali Semeria, Comparative Genomics, Université Lyon I: Y. Ponty (Jury Member)

#### HDR juries

J. Bernauer (Paris-Sud U.): J.-M. Steyaert

## 8.3. Popularization

AMIB animated the *Construisons les ARN* booth at *Fête de la Science*, October 2015, <http://www.inria.fr/centre/saclay/agenda/fete-de-la-science-2015> with the participation of Y. Ponty, M. Régnier, A. Héliou, A. Héliou and A. Saaidi.

## ANGE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Y. Penel was involved in the organising committee of the day workshop “Low velocity flows – application to low Mach and low Froude regimes” that took place in University Paris Descartes on November 5-6 and that gathered 105 researchers.

E. Audusse and Y. Penel organised the welcome session for newly recruited researchers in mathematics on behalf of national research institutions (CNRS, Inra, Inria, SFdS, SMAI, SMF) on January 19.

### 10.1.2. Journal

#### 10.1.2.1. Reviewer - Reviewing activities

Member	Journal
E. Audusse	Ocean Modeling, Computational Geosciences, M2AN
C. Guichard	International Journal On Finite Volumes
A. Mangeney	Natural Hazards
J. Sainte-Marie	M2AN, M3AS, IJNMF, Computers & Fluids
N. Seguin	M2AN, ESAIM ProcS, SIAM Scientific Computing

### 10.1.3. Invited talks

Conference	Location	Month	Members involved
Avalanche and Rupture Phenomena	Inria (Nancy)	Feb.	A. Mangeney
CoToCoLa	Besancon	Feb.	J. Sainte-Marie, N. Seguin
Inria-Mexico	Mexique	June	M. Parisot
MAMERN15	Pau	June	C. Guichard
NumHyp15	Cortone (Italy)	June	N. Aïssiouene, M. Parisot, N. Seguin
AP and Multiscale methods	June	Madison (USA)	N. Seguin
CEMRACS	CIRM (Marseille)	Aug.	N. Aïssiouene, E. Audusse, Y. Penel
JAG15	Caen	Sept.	A. Mangeney
CAFFEET15	San Francisco (USA)	Sept.	J. Sainte-Marie
Algae In Silico	Sophia-Antipolis	Oct.	N. Aïssiouene
Workshop Gladys	Gard	Nov.	N. Aïssiouene
Workshop LowMach	Paris	Nov.	E. Audusse, M. Parisot
FAST	Orsay	Nov.	A. Mangeney
JILL15	LJLL (Paris)	Nov.	B. di Martino
Seminars	Date	Member	
Suisse (Zürich, Davos)	19-20 Jan.	A. Mangeney	
Orsay	16 Apr.	N. Seguin	
Manon (LJLL)	07 May	M. Parisot	
Amiens	05 Oct.	E. Audusse	
Nice	12 Nov.	Y. Penel	

### 10.1.4. Leadership within the scientific community

Organisation	People	Duty
AMIES	E. Godlewski	Member of board
CNU 26	N. Seguin	Member
EGRIN	E. Audusse	Correspondent (Paris 13)
	B. di Martino	Correspondent (Corse)
	N. Goutal	Correspondent (EDF)
	C. Guichard	Correspondent (UPMC)
	A. Mangeney	Member of board
	M. Parisot	Correspondent (ANGE)
	J. Sainte-Marie	Scientific head
SMAI	Y. Penel	Member of board

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

**Master's degree (M2)** - E. Godlewski and J. Sainte-Marie, Models and numerical methods for free surface flows, 20 hours (lectures), Univ. Pierre et Marie Curie Paris 6

**Master's degree (M2)** - C. Guichard, Numerical methods for nonstationary PDEs, 18 hours (example and programming classes), Univ. Pierre et Marie Curie Paris 6

**Master's degree (M2)** - A. Mangeney and J. Sainte-Marie, Modélisation des écoulements gravitaires et tsunamis, 40 hours (lectures and programming classes), Univ. Paris Diderot Paris 7, IPGP

**Engineering school (2nd year)** - E. Audusse, Hyperbolic systems, 30 hours (lectures), Univ. Paris 13

**Master's degree (M1)** - C. Guichard, Basis of numerical methods, 63 hours (programming classes), Univ. Pierre et Marie Curie Paris 6

**Master's degree (M1)** - A. Mangeney and J. Sainte-Marie, Dynamique des écoulements gravitaires et tsunamis, 40 hours (lectures and programming classes), Univ. Paris Diderot Paris 7, IPGP

**Master's degree (M1)** - N. Seguin, Mathematics, Numerical Analysis and Algorithmics, 72 hours (lectures, example and programming classes), Univ. Nantes

**Bachelor's degree (L3)** - N. Aïssiouene, Numerical methods for linear systems with Scilab, 36 hours (example classes), Univ. Pierre et Marie Curie Paris 6

**Engineering school (1st year)** - E. Audusse, Numerical analysis for differential equations, 30 hours (example classes), Univ. Paris 13

**Bachelor's degree (L3)** - C. Guichard, Numerical linear algebra, 72 hours (example and programming classes), Univ. Pierre et Marie Curie Paris 6

**Bachelor's degree (L3)** - M. Parisot, Hilbert analysis, 30 hours (lectures and example classes), Univ. Pierre et Marie Curie Paris 6

**Bachelor's degree (L3)** - N. Seguin, Mathematics for engineers, 37 hours (lectures and example classes), Univ. Nantes

**Bachelor's degree (L2)** - E. Audusse, Scientific computing, 36 hours (lectures), Univ. Paris 13

**Engineering school (1st year)** - Y. Penel, Partial Differential Equations, 15 hours (example classes), École Centrale Paris

**Bachelor's degree (L2)** - Y. Penel, Integration in 2 and 3 dimensions, 42 hours (lectures and example classes), Univ. Pierre et Marie Curie Paris 6 and Station Biologique Marine de Roscoff

**Bachelor's degree (L1)** - E. Nayir, Mathematics, 72 hours (example classes), Univ. Pierre et Marie Curie Paris 6

**Bachelor's degree (L1)** - F. Wahl, Calculus, 18 hours (example classes), Univ. Pierre et Marie Curie Paris 6

E. Godlewski is the head of the “Mathematics for Industry” M.Sc. program of Univ. Pierre et Marie Curie Paris 6. We mention that E. Audusse is the deputy director of the “Applied Mathematics and Scientific Computing” program of the SupGalilee engineering school.

### 10.2.2. Supervision

**PostDoc in progress** - Pierre-Olivier Lamarre, *Optimization of the hydrodynamic regime in a raceway and lagrangian trajectories of algae*, supervised by J. Sainte-Marie (in collaboration with O. Bernard, BIOCORE), from Nov. 2015

**PostDoc in progress** - Erica Schwindt, *Data assimilation for an advection/diffusion equation*, supervised by J. Sainte-Marie (in collaboration with M. Boulakia, REO), from Sept. 2015

**PostDoc** - Vivien Desveaux, *Méthodes d'assimilation de données dans le cadre de la surveillance des agressions biologiques et chimiques*, supervised by J. Sainte-Marie (in collaboration with M. Boulakia, REO), until Aug. 2015

**PhD in progress** - Nora Aïssiouene, *Derivation and analysis of a non-hydrostatic Shallow water type model*, Univ. Pierre et Marie Curie Paris 6 (Inria grant), supervised by E. Godlewski and J. Sainte-Marie, from 2013

**PhD in progress** - Vincent Bachelet, *Granular flows and generated acoustic waves: a laboratory investigation*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with J. De Rosny and R. Toussaint), from 2015

**PhD in progress** - Tim Borikov, *Physical processes at play in Martian landslides*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with D. Mège), from 2012

**PhD in progress** - Do Minh Hieu, *Analyse mathématique et schémas volumes finis pour la simulation des écoulements quasi-géostrophiques à bas nombre de Froude*, Univ. Paris 13, supervised by E. Audusse and Y. Penel (in collaboration with S. Dellacherie and P. Omnes), from 2014

**PhD in progress** - Dena Kazerani, *Simulation et modélisation de problèmes à frontière libre*, Univ. Pierre et Marie Curie Paris 6, supervised by N. Seguin (in collaboration with P. Frey and C. Audiard), from 2013

**PhD in progress** - Hélène Miallot, *Numerical modelling of landquakes*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with Y. Capdeville), from 2015

**PhD in progress** - Clément Mifsud, *Analyse et approximation des systèmes de Friedrichs : application à la modélisation de l'élastoplasticité*, Univ. Pierre et Marie Curie Paris 6, supervised by N. Seguin (in collaboration with J.-F. Babadjian and B. Després), from 2013

**PhD in progress** - Ethem Nayir, *Approximation multi-vitesse des équations de Navier-Stokes hydrostatiques: Analyse mathématique et simulations numériques*, Univ. Pierre et Marie Curie Paris 6, supervised by E. Audusse, Y. Penel and J. Sainte-Marie, from 2014

**PhD in progress** - Amandine Sergeant-Boy, *Detection and characterisation of seismic sources generated by glaciers: numerical modelling and analysis of seismic waves*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with J.-P. Montagner, E. Stutzmann and O. Castelnau), from 2013

**PhD** - Maxime Farin, *Analysis of the seismic signal generated by laboratory granular flows*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with R. Toussaint and J. de Rosny), until Mar 2015

**PhD** - Jannes Kinscher, *Analysis of seismicity in quarries*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with P. Bernard and I. Contrucci), until Feb 2015

**PhD** - Philippe Ung, *Simulation, modélisation et analyse numérique pour le transport sédimentaire*, Univ. Orléans (EDF–CNRS grant), supervised by E. Audusse and Y. Penel (in collaboration with S. Cordier), until Dec 2015

**M2 internship** - Pauline Le Bouteiller, *Ecoute sismique et analyse statistique des éboulements sur le Piton de la Fournaise*, Ecole des Mines, supervised by A. Mangeney, Summer 2015

**M2 internship** - Hugo Martin, *Modélisation et simulation d'un fluide partiellement à surface libre*, Univ. Pierre et Marie Curie Paris 6, supervised by C. Guichard, M. Parisot and J. Sainte-Marie, Summer 2015

**M2 internship** - Jean-Luc Ralaiarisoa, *Ecoute sismique et analyse statistique des tremblements de terre liés au vêlage d'icebergs au Groenland*, IPGP, supervised by A. Mangeney, Summer 2015

**M2 internship** - Fabien Wahl, *Simulations de tsunamis à l'aide d'un modèle non-hydrostatique*, Univ. Pierre et Marie Curie Paris 6, supervised by A. Mangeney and J. Sainte-Marie, Summer 2015

### 10.2.3. Juries

**Feb, PhD** - A. Mangeney (referee): Noe Bernabeu (Univ. Grenoble, *Modélisation multi-physique des écoulements viscoplastiques: application aux coulées de lave volcaniques*)

**Apr, PhD** - J. Sainte-Marie: Xavier Lhébrard (Univ. Paris-Est, *Analyse de quelques schémas numériques pour des problèmes de shallow water*)

**May, HdR** - A. Mangeney (referee): Yves Le Gonidec (Institut de Physique de Rennes, *Propagation, imagerie et monitoring acoustiques : développements méthodologiques et expérimentaux pour des systèmes complexes en géosciences*)

**May, PhD** - J. Sainte-Marie (referee): Sébastien Barthélemy, (Univ. Toulouse, *Ensemblist data assimilation and 1D-2D hydraulic model coupling for real-time flood forecasting. Application to the "Adour maritime" hydraulic network*)

**Aug, PhD** - A. Mangeney (referee): Franzisca Dammeier (ETH Zurich, *Seismic characterization of rockslides using existing regional networks*)

**Aug, PhD** - A. Mangeney (referee): Belinda Bates (EPF Lausanne, *Basal Entrainment by Geophysical Gravity Currents: An Experimental Fluid Dynamics Approach*)

**Oct, PhD** - A. Mangeney (referee): Aurore Carrier (IsTerre Chambéry, *Endommagement et processus non-linéaires au sein d'un édifice volcanique pressurisé*)

**Dec, HdR** - E. Godlewski: C. Cancès (Univ. Pierre et Marie Curie, *Analyse mathématique et numérique d'équations aux dérivées partielles issues de la mécanique des fluides : application aux écoulements en milieux poreux*)

**Dec, PhD** - A. Mangeney (referee): Jordane Mathé (Univ. Blaise Pascal, Clermont-Ferrand, *Modélisation d'écoulements gravitaires fluidisés et application à la volcanologie*)

**Dec, PhD** - N. Seguin: Matthias Mimault (Univ. Nice–Sophia Antipolis, *Lois de conservation pour la modélisation des mouvements de foule*)

## 10.3. Popularization

11/06/15 - Futur en Seine (Cap Digital): B. di Martino, M. Parisot and J. Sainte-Marie were present during the numerical festival

24/09/15 - 6th Plenary Research Data Alliance (Cap Digital): N. Aïssiouene, B. di Martino, Y. Penel and J. Sainte-Marie contributed to the Inria stand

9-11/10/15 - Fête de la Science: all the members of the team run the ANGE stand to present scientific works related to water

07-10/12/15 - Solutions COP21: N. Aïssiouene, E. Nayir, M. Parisot, Y. Penel and J. Sainte-Marie participated to the exhibition at the Grand Palais to show the application of applied mathematics to climate issues

## ARAMIS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

S. Durrleman was co-chair of the 5th Workshop on "Mathematical Foundations of Computational Anatomy" held in Munich on October 5, 2015 in conjunction with the MICCAI conference.

F. De Vico Fallani was co-chair of the satellite on "Brain Networks" during the International School and Conference on Network Science (NETSCI15) in Zaragoza, Spain, 2015.

F. De Vico Fallani was co-chair of the satellite on "Graph Models in Neuroimaging " in conjunction with the annual conference Wavelets and Sparsity (SPIE), San Diego, US, 2015.

M. Chavez was co-chair of the Minisymposia "Graph analysis of functional brain networks: theory, applications and issues" during the 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society that took place in Milano, Italy, 2015.

#### 10.1.1.2. Member of the organizing committees

F. De Vico Fallani was technical member of the symposium on "Human brain connectomics " in conjunction with IEEE Global SIP conference, Orlando, US, 2015

### 10.1.2. Scientific events selection

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

O. Colliot was a member of program committee of the Workshop on Patch-based Techniques in Medical Imaging (Patch-MI) held in Munich in October 2015 in conjunction with the MICCAI conference.

#### 10.1.2.2. Reviewer

O. Colliot acted as a reviewer for the annual meeting of the Organization for Human Brain Mapping (OHBM).

S. Durrleman acted as a reviewer for the conferences Information Processing in Medical Imaging (IPMI) and International Conference on Computer Vision (ICCV).

F. De Vico Fallani acted as a reviewer for the annual conference of the IEEE Engineering in Medical and Biology Society (EMBS).

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

O. Colliot is a member of the Editorial Board of Medical Image Analysis (Elsevier).

#### 10.1.3.2. Reviewer - Reviewing activities

During the past year the members of the team acted as reviewers for numerous journals:

O. Colliot acted as a reviewer for NeuroImage, NeuroImage: Clinical, IEEE Trans Medical Imaging, Medical Image Analysis and Neurobiology of Aging.

S. Durrleman acted as a reviewer for NeuroImage, IEEE Trans Medical Imaging, Medical Image Analysis, IEEE Trans Pattern Analysis and Machine Intelligence, IEEE Trans Biomedical Engineering.

F. De Vico Fallani acted as a reviewer for NeuroImage, IEEE Trans Biomedical Engineering, IEEE Trans Neural Systems Rehabilitation Engineering, Brain Topography, Plos One, Human Brain Mapping, Nature Scientific Reports, Journal of neuroscience methods, PLoS Computational Biology.

M. Chavez acted as a reviewer for the Imperial College Press and the following journals: PLoS Comput Biol; PLoS One; J. Neurosci Methods; Phil. Trans. R. Soc. B; J. R. Soc. Interface; Human Brain Mapping; IEEE Proceedings; Neurosci. Biobehav. Rev. and Clin Neurophys;

#### 10.1.4. Invited talks

S. Durrleman was invited lecturer at:

- Erwin Schrodinger International Institute for Mathematical Physics in Vienna for the program "Infinite-dimensional Riemannian Geometry with Applications to Image Matching and Shape Analysis",
- First congress of the Trisomy 21 Research Society at the ICM in Paris,
- "Shape Symposium" in Délemont, Switzerland,
- Colloquium "Horizon-Math" of the Mathematical Foundation of Paris.

F. De Vico Fallani was invited lecturer at:

- Conference of the IEEE Engineering in Medicine and Biology Society", Milan, Italy
- Conference on Wavelets and Sparsity (SPIE), San Diego, US
- Workshop on computational methods in system neuroscience, Tenerife, Spain
- Symposium on Magnetoencephalography, Lyon, France

M. Chavez was invited lecturer at:

- Seminario de Biofísica, Instituto de Física, Universidad de San Luis Potosi, Mexico (10/12/2015)
- Mediterranean School of Complex Networks, Salina, Italy (09/2015)
- Satellite Physics of Multiplex Networks, International School and Conference on Network Science (NetSci15), Zaragoza, Spain, (06/2015).
- Scientific sessions of the Centro de Tecnología Biomédica (CTB), Madrid, Spain, (05/2015)

#### 10.1.5. Scientific expertise

O. Colliot acted as an expert for the HCERES (Haut-Conseil de l'Évaluation de la Recherche et de l'Enseignement Supérieur).

F. De Vico Fallani acted as an expert for the NIH-NSF CRCNS program, US; the Research Foundation (FWO), Flanders; the Organization for research (NWO), Netherlands.

M. Chavez acted as an expert for the Fond National Suisse de la Recherche Scientifique.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Olivier Colliot coordinates the module "Méthodes d'imagerie médicale" of the Master 2 in Computer Science of Université Pierre et Marie Curie.

Master: Olivier Colliot, Master in Computer Science, 4.5 hours (eqTD), Université Pierre et Marie Curie

Master: Stanley Durrleman, Master in Computer Science, 9 hours (eqTD), Université Pierre et Marie Curie

Master: Olivier Colliot, Master in Cognitive Science, 4.5 hours (eqTD), Ecole Normale Supérieure (Ulm)

Master: Stanley Durrleman, Master in Applied Mathematics, 2 hours (eqTD), Ecole Normale Supérieure (Cachan)

Master: Marie Chupin, Master in Computer Science, 3 hours (eqTD), Université Pierre et Marie Curie



Master: Dominique Hasboun, Master in Biology, 4 hours, Ecole Normale Supérieure (Ulm)

Master: Dominique Hasboun, Master in Cognitive Science, 12 hours, Ecole Normale Supérieure (Ulm)

Master: Dominique Hasboun, Master in Biology, 15 hours, Université Pierre et Marie Curie

Master: Dominique Hasboun, Master in Medical Physics, 7 hours, Université Paris-Sud

Master: Fabrizio De Vico Fallani, Master in "Méthodologies et applications en imagerie médicale", 3 hours (eqTD), Université Pierre et Marie Curie

Master: Damien Galanaud, Master in Medical Physics, 4 hours, Université Paris-Sud

Engineering school: Olivier Colliot, 4.5 hours (eqTD), Telecom ParisTech

Engineering school: Dominique Hasboun, 3 hours, ENSEA

Medical school: Didier Dormont is the Director of the University Diploma (DIU) "Diagnostic and Therapeutic Neuroradiology", Université Pierre et Marie Curie

Medical school: Didier Dormont, Courses for Medical Students, Université Pierre et Marie Curie

Medical school: Dominique Hasboun, Courses for Medical Students, Université Pierre et Marie Curie

Medical school: Damien Galanaud, Courses for Medical Students, Université Pierre et Marie Curie

Medical school: Didier Dormont organizes and participates in the practical teaching of Neuroradiology for Medical Students in the Department of Diagnostic Neuroradiology of Pitié Salpêtrière University Hospital

Medical school: Didier Dormont organizes and participates in the practical teaching of Neuroradiology for Radiology Specializing Residents in the Department of Diagnostic Neuroradiology of Pitié Salpêtrière University Hospital

Medical school: Didier Dormont, Courses to the university diplomas (DU) : "Maladie d'Alzheimer", and "Imagerie Vasculaire non Invasive"

Medical school: Damien Galanaud, courses to the University Diploma (DIU) "Diagnostic and Therapeutic Neuroradiology", Université Pierre et Marie Curie

Medical school: Dominique Hasboun, courses to the University Diploma (DIU) "Diagnostic and Therapeutic Neuroradiology", Université Pierre et Marie Curie

Paramedical studies: Dominique Hasboun, Psychomotricity, 50 hours, Université Pierre et Marie Curie

### 10.2.2. Supervision

Post-doc in progress : Xavier Navarro, "Analyse des interactions entre les activités corticales et la respiration", UPMC, started in 2014, advisor: Mario Chavez

PhD in progress : "Catalina Obando-Forero, Graph models of cortical plasticity in temporal brain networks", Inria, started in 2015, advisor: Fabrizio De Vico Fallani

PhD in progress : Jeremy Guillon, "Méthode d'analyse multimodale de connectivités neuronales basée sur la théorie des réseaux complexes multicouches", EDITE Université Pierre et Marie Curie, started in 2015, advisors: Fabrizio De Vico Fallani and Mario Chavez

PhD in progress : Wen Junhao, "Cortical morphometry for discovering new biomarkers of neurodegenerative diseases", Université Pierre et Marie Curie, Started in 2015, advisors: Olivier Colliot and Stanley Durrleman

PhD in progress : Jorge Samper-Gonzalez, "Learning from heterogeneous data for prediction of Alzheimer's disease", Université Pierre et Marie Curie, Started in 2015, advisors: Olivier Colliot and Theodoros Evgeniou

PhD in progress : Alexandre Routier, “Multimodal neuroimaging for characterization of primary progressive aphasia”, Université Pierre et Marie Curie, Started in 2015, advisors: Marc Teichmann, Olivier Colliot and Marie-Odile Habert

PhD in progress: Jean-Baptiste Schiratti, “Méthodes et algorithmes pour l’analyse statistique de données anatomiques longitudinales – application à la caractérisation des phases pré-symptomatiques des maladies neurodégénératives”, Ecole Polytechnique, Started in 2013, advisors: S. Allassonnière and S. Durrleman

PhD in progress: Barbara Gris, “Approche modulaire des méthodes de grandes déformations pour l’appariement de formes”, Ecole Normale Supérieure de Cachan, Started 2013, advisors: A. Trounev and S. Durrleman

Engineer: Fanny Grosslin, “Implementation of a Brain Computer Interface for the MEG platform”, ICM, started in January 2015, advisor: Mario Chavez

Master 2: Francois Deloche, “Sparse estimation of Granger-causality with MVAR models”, Ecole Polytechnique, Mar-Aug 2015, advisor: Fabrizio De Vico Fallani and Stephanie Allassonniere

Master 2: Jorge Samper-Gonzalez, Master in data mining and knowledge management – Erasmus Mundus, Mar-Sept 2015, advisor: Olivier Colliot

Master 2: Alexandre Pron, Master in BioMedical Engineering – ParisTech Université Paris Descartes, Mar-Sept 2015, advisor: Marie Chupin

Summer internship: Daniela Ganelin, Massachusetts Institute of Technology, June-Aug 2015, advisor: Olivier Colliot

Summer internship: Regis Pierrard, Supelec, July-Aug 2015, advisor: Olivier Colliot

### 10.2.3. Juries

Olivier Colliot participated, as referee, to the PhD committee of Yogesh Karpate (Inria Rennes), 2015 (supervisors: Christian Barillot and Olivier Commowick).

Olivier Colliot participated, as examiner, to the PhD committee of Claudia Cioli (Université Pierre et Marie Curie), 2015 (supervisor: Yves Burnod and Habib Benali).

Marie Chupin participated, as examiner, to the PhD committee of Elise Blandin (Université Pierre et Marie Curie), 2015 (supervisor: Philip Gorwood).

Marie Chupin participated, as examiner, to the PhD committee of Quentin Duché (Université de Rennes 1), 2015 (supervisor: Hervé Saint-James, Oscar Acosta, Olivier Salvado).

Fabrizio De Vico Fallani participated, as referee, to the PhD committee of Yoann Isaac (Univ. Paris Sud), 2015 (supervisors: Michele Sebag).

## 10.3. Popularization

Fabrizio De Vico Fallani was interviewed for the French TV program “Zone Interdite” (M6) about the project on Brain Computer Interfaces. The video of the interview is available at <https://www.youtube.com/watch?v=BmGiaPG9cnA>

## ASCLEPIOS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- **X. Pennec** was general chair of the Mathematical Foundations of Computational Anatomy (MFCA 2015) workshop, which was held in conjunction with MICCAI at Munich, Germany, on October 9, 2015.

#### 9.1.1.2. Member of organizing committees

- **M. Sermesant** was a co-chair of the MICCAI 2015 Workshop Statistical Atlases and Computational Models of the Heart (STACOM 2015), which was held in Munich, Germany, on October 9, 2015.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Member of conference program committees

- **X. Pennec** was area chair of the International Symposium on Biomedical Imaging (ISBI 2015, New-York, NY, USA), and program committee member of the conference Geometric Sciences of Information (GSI'2015, Palaiseau, France).
- **H. Delingette** was program committee member of the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2015), the FIMH 2015 conference, and the conference on Virtual Reality Interactions and Physical Simulation (VRIPHYS'15). He was an associate editor for the conference IEEE EMBC 2015.

#### 9.1.2.2. Reviewer

- **H. Delingette** was a reviewer for the International Symposium on Biomedical Imaging (ISBI'15), the international conference on computer-aided interventions (IPCAI'15) the conference on Virtual Reality Interactions and Physical Simulation (VRIPHYS'15), the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2015), the International Conference on Computer Vision (ICCV 2015), the International Conference on Computer Vision and Pattern Recognition (CVPR 2015).
- **M. Sermesant** was a reviewer for the MICCAI 2015 and FIMH 2015 conferences.
- **X. Pennec** was a reviewer for the 24th biennial international conference on Information Processing in Medical Imaging (IPMI 2015) and the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2015).

### 9.1.3. Journal

#### 9.1.3.1. Member of editorial boards

- **N. Ayache** is the co-founder and the Co-Editor in Chief with J. Duncan (Professor at Yale) of *Medical Image Analysis*<sup>0</sup>. This scientific journal was created in 1996 and is published by Elsevier.
- **N. Ayache** is Associated Editor of *IEEE Transactions on Medical Imaging*<sup>0</sup> and a member of the editorial board of the following journals: *Medical Image Technology* (Japanese journal) and *Journal of Computer Assisted Surgery* (Wiley).
- **H. Delingette** is a member of the editorial board of the journal *Medical Image Analysis* (Elsevier).
- **I. Strobant** is editorial coordinator for *Medical Image Analysis*, Elsevier (since october 2001) and editorial assistant for *IEEE Transactions on Medical Image Analysis* (since october 2001).
- **X. Pennec** is a member of the editorial board of the journal *Medical Image Analysis* (Elsevier), of the *International Journal of Computer Vision* (Springer), of the *SIAM Journal on Imaging Sciences (SIIMS)*, and of the *Journal of Mathematical Imaging and Vision (JMIV)*.

<sup>0</sup>[http://www.elsevier.com/wps/find/journaleditorialboard.cws\\_home/620983/editorialboard](http://www.elsevier.com/wps/find/journaleditorialboard.cws_home/620983/editorialboard)

<sup>0</sup><http://www.ieee-tmi.org/>

### 9.1.3.2. Reviewer - Reviewing activities

- **H. Delingette** was a reviewer for the following journals : *Medical Image Analysis* (Elsevier), *IEEE Transactions in Medical Imaging*, *IEEE Transactions in Biomedical Engineering*, *Computer Vision and Image Understanding*, *Biomedical Engineering*, *Computers in Biology and Medicine* and *Journal of Fluids and Structures*.
- **X. Pennec** was a reviewer for the following journals : *Medical Image Analysis (MedIA)*, *IEEE Transactions in Medical Imaging (TMI)*, *NeuroImage (NIMG)*, *IEEE Transactions on Pattern Analysis (PAMI)*, *International Journal of Computer Vision (IJCV)*, *Journal of mathematical imaging and vision (IJCV)*, *SIAM journal on Imaging Sciences (SIIMS)* and *International Statistical Review (ISR)*.
- **M. Sermesant** was a reviewer for the following journals: *Journal of the American College of Cardiology*, *IEEE Transactions on Medical Imaging*, *IEEE Transactions on Biomedical Engineering*, *Medical Image Analysis* and *Computers in Biology and Medecine*.

### 9.1.4. Invited talks

- **Nicholas Ayache** gave the following invited lectures:
  - Symposium "Les savoirs de l'ENS", Ecole Normale Supérieure, Paris 2015.
  - First conference CYBERMED, Juan-les-Pins, 2015.
  - Forum Chili-France, La société intelligente, Paris 2015.
  - Conference ENIT organized by the Collège de France in Tunisia, Tunis, 2015.
  - Journées françaises des doubles cursus, Paris 2015.
  - Institut du cerveau et de la moelle épinière, Hôpital de la Pitié Salpêtrière, Paris 2015.
  - Keynote at the Multidisciplinary Computational Anatomy Initiative, Fukuoka, Japan 2015.
- **Hervé Delingette** gave the following invited lectures at the:
  - IHU Strasbourg Scientific Day on June 3rd in Strasbourg.
  - Biomed Summer School in Paris in July 2015.
  - Metice workshop in Bordeaux in September 2015.
- **Xavier Pennec** gave the following invited lectures:
  - Schrödinger institute Programme on Infinite-Dimensional Riemannian Geometry with Applications to Image Matching and Shape Analysis, Vienna, February 2015: a one week course and one workshop presentation.
  - 2015 Joint Mathematics Meetings (AMS/MAA): AMS Special Session on Differential Geometry and Statistics, San Antonio, Texas, January 2015.
  - Center for Health Sciences, SRI international, Menlo Park, USA, June 4 2015.
  - Statistics Department Seminar, Stanford University, April 21, 2015.
- **Maxime Sermesant** gave an invited lecture at Computing in Cardiology Conference, in Nice September 2015.

### 9.1.5. Leadership within the scientific community

- **Xavier Pennec** is a member of the MICCAI Society Board of Directors from 2012 to 2015.
- **Nicholas Ayache** is a member of the French Academy of Sciences in the section of Mechanics and Informatics.

### 9.1.6. Scientific expertise

- **Nicholas Ayache** was invited in Tokyo, Japan in February 2015 to evaluate a national program on the "Multidisciplinary Computational Anatomy Initiative" funded by the MEXT.

- **Xavier Pennec** was a member of the Member of the panel for the joint FLAG-ERA Joint / HBM flagship Transnational Call (JTC), 2015.
- **H. Delingette** was an evaluator for the ECOS Sud France-Chili program. He was involved in the redaction of the second application of the Université Côte d'Azur to the IDEX bid.
- **M. Sermesant** is a member of the Medical Simulation Working Group of Aviesan. He organized two hackfests for the medInria software.

### 9.1.7. Research administration

- **Nicholas Ayache** has been a member of the "Comité de la Recherche Biomédicale en Santé Publique (CRBSP)" of the Nice hospitals since 2008. He has been a member of the Research Council of the "Fondation pour la Recherche Médicale (FRM)" since January 2015.
- **Xavier Pennec** is a member of the Doctoral follow-up Committee (CSD) at Inria Sophia Antipolis and in charge of the relationships of Inria-Sophia with the Nice University Hospital (CHU).
- **H. Delingette** is a member of the local committee in charge of the scientific selection of visiting scientists (Comité NICE) and the local committee on the immersive platform.
- **M. Sermesant** is a member of the local committee in charge of the selection of funding for courses and conferences organisation and of the local organisation for scientific presentations in high schools.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : H. Delingette and X. Pennec, Introduction to Medical Image Analysis, 21h course (28.5 ETD), Master 2 MVA, ENS Cachan, France

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

Master : H. Delingette and X. Pennec, Computational Anatomy and Physiology, 21h course (28.5 ETD), Master CBB - Computational Biology and Biomedicine, Univ. Nice-Sophia Antipolis.

Master : M. Sermesant, Computational Anatomy and Physiology, 3h course (4.5 ETD), Master CBB - Computational Biology and Biomedicine, Univ. Nice-Sophia Antipolis.

### 9.2.2. PhD defended

Vikash Gupta, *Diffusion tensor imaging of the brain: towards quantitative clinical tools*, Nice Sophia Antipolis University, March 2015.[5]

Thomas Benseghir, *3D/2D Coronary Registration for Interventional Cardiology Guidance*, Nice Sophia Antipolis University, July 2015.[2]

Rocio Cabrera Lozoya, *Radio frequency ablation planning for cardiac arrhythmia treatment through biophysical modelling and machine learning approaches*, Nice Sophia Antipolis University, September 2015.[3]

Chloé Audigier, *Modeling radio-frequency ablation for the planning of abdominal tumors resection*, Nice Sophia Antipolis University, October 2015.[1]

Loic Le Folgoc, *Biophysical Personalization of Cardiac Models based on Machine Learning*, Nice Sophia Antipolis University, November 2015.[6]

Nicolas Cordier, *Simulation and Analysis and Simulation of Brain Tumors Images*, Nice Sophia Antipolis University, December 2015.[4]

Jan Margeta, *Indexation of time-series 4D cardiac MR images*, Ecole des Mines de Paris, December 2015.[7]

### 9.2.3. PhD in progress

Pietro Gori, *Statistics on the brain connectivity of patients with neurological diseases*, University of Paris. Started in 2012. Thesis in collaboration with the Aramis project-team, co-directed by O. Colliot, S. Durrleman and N. Ayache. Defended on January 8, 2016.

Mehdi Hadj-Hamou, *Biophysical modeling of the anatomical evolution of the brain*, Nice Sophia Antipolis University. Started in September 2012. Co-directed by N. Ayache and X. Pennec.

Bishesh Khanal, *Modeling the atrophy of the brain in Alzheimer's disease*, Nice Sophia Antipolis University. Started in November 2012. Co-directed by X. Pennec and N. Ayache.

Nina Miolane, *Geometric Statistics in Computational Anatomy: Template Estimation and Subspace Learning in Manifolds, Lie groups and Stratified Spaces*, Nice-Sophia Antipolis University. Started in November 2013. Directed by X. Pennec.

Anant Vemuri, *Augmented reality for image-guided surgery*, Nice Sophia Antipolis University. Started in 2012. Co-directed by S. Nicolau and N. Ayache.

Marc-Michel Rohé, *Analyse statistique spatio-temporelle des formes, déformations, flots et propriétés physiologiques du cœur*, Nice Sophia Antipolis University. Started in 2014. Co-directed by X. Pennec and M. Sermesant.

Sophie Giffard-Roisin, *Non-invasive Estimation of Cardiac Electrophysiological Parameters*, Nice Sophia Antipolis University. Started in 2014. Co-directed by N. Ayache and M. Sermesant.

Roch Molléro, *Uncertainty quantification in personalized electromechanical models. Application to cardiomyopathies and obesity*, Nice Sophia Antipolis University. Started in 2014. Co-directed by N. Ayache and M. Sermesant.

Thomas Demarcy, *Segmentation and anatomic variability of the cochlea and other temporal bone structures from medical images*, Nice Sophia Antipolis University. Started in 2014. Directed by H. Delingette.

Loïc Devilliers, *Consistency of statistics on infinite dimensional orbifolds – Applications to computational anatomy*, Nice Sophia Antipolis University. Started in October 2015. Co-directed by X. Pennec and St. Allassonnière.

Raphaël Sivera, *Analyse statistique de l'évolution de structures morphologiques partir de séquences temporelles d'IRM*, Nice Sophia Antipolis University. Started in October 2015. Co-directed by N. Ayache and H. Delingette.

Pawel Mlynarski, *Tumor segmentation based on Random Forests and Convolutional Neural Networks trained on partially annotated data*, Nice Sophia Antipolis University. Started in December 2015. Co-directed by N. Ayache and H. Delingette.

#### 9.2.4. Juries

N. Ayache was co-supervisor of the PhD theses of Vikash Gupta (U. of Nice Sophia Antipolis), Rocío Cabrera Lozoya (U. of Nice Sophia Antipolis), Chloé Audigier (U. of Nice Sophia Antipolis), Loic Le Folgoc (U. of Nice Sophia Antipolis), Nicolas Cordier (U. of Nice Sophia Antipolis) and Jan Margeta (Ecole des Mines de Paris).

Hervé Delingette was co-supervisor of the PhD theses of Chloé Audigier (U. of Nice Sophia Antipolis), Loic Le Folgoc (U. of Nice Sophia Antipolis) and Nicolas Cordier (U. of Nice Sophia Antipolis). He was a reviewer in the PhD thesis committee of Vasyl Mykhalchuk (U. of Strasbourg) and of Romane Gauriau (Telecom ParisTech). He was a member of the PhD thesis committee of Alexandre Abraham (U. of Paris-Saclay) and Jan Margeta (Ecole des Mines de Paris).

Xavier Pennec was examiner of the HDR of Laurence Rouet (U. Paris-Descartes) and of the PhD thesis committee of Thomas Benseghir (U. of Nice Sophia Antipolis). He was co-supervisor of the PhD thesis of Vikash Gupta (U. of Nice Sophia Antipolis).

Maxime Sermesant was co-supervisor of the PhD thesis of R. Cabrera Lozoya (U. of Nice Sophia Antipolis).

### 9.3. Popularization

Maxime Sermesant gave presentations about research and medical imaging at Lycée Bristol in Cannes.

## ATHENA Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- R. Deriche is Adj. Director at the Doctoral School EDSTIC (Website: <http://edstic.i3s.unice.fr/index.html>)
- T. Papadopoulo (since september 2011) is the coordinator of the Master of Science in Computational Biology and Biomedicine from University of Nice Sophia Antipolis (Website: <http://cbb.unice.fr>). The scientific goal of this program is to focus on the human being from different perspectives (understanding and modeling functional aspects or interpreting biomedical signals from various devices) and at different scales (from molecules to organs and the whole organism).

### 9.1.2. Scientific events selection

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

- R. Deriche is member of the conference Programme Committee (PC) of the International Symposium on Biomedical Imaging (ISBI), member of the PC of MICCAI 2015 Workshop on Computational Diffusion MRI and member of the PC of MFCA 2015 5th MICCAI workshop on Mathematical Foundations of Computational Anatomy.
- D. Wassermann is member of the conference Program Committee (PC) of Medical Image Computing and Computed Assisted Intervention (MICCAI 2015), and Information Processing in Medical Imaging (IPMI 2015).
- M. Clerc is a member of the Program Committee of BaCI 2015, and a member of the Scientific Committee of the Sophia Antipolis Colloquium.
- T. Papadopoulo is member of the PC of GRETSI 2015 and of MICCAI 2015 Workshop on Computational Diffusion MRI.

#### 9.1.2.2. Reviewer

- R. Deriche serves several international conferences (Isbi, MICCAI, ISMRM..) and international workshops ( CD-MRI Miccai, MFCA Miccai..)
- D. Wassermann serves several international conferences (ISBI, MICCAI, IPMI, ...) and international workshops ( CD-MRI Miccai, ..)
- T. Papadopoulo served the international conferences: (ICIP, ISBI, EUSIPCO. NER, VISAPP).

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- R. Deriche is member of the Editorial Board of the Journal of Neural Engineering, Associate Editor of SIAM Journal on Imaging Sciences (SIIMS), editorial board member at Springer for the book series entitled Computational Imaging and Vision and member of the Editorial Board of the Medical Image Analysis Journal
- M. Clerc is member of the Editorial Board of Biomedical Engineering OnLine, and of the ISTE-Wiley book series.

#### 9.1.3.2. Reviewer - Reviewing activities

- R. Deriche serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Magnetic Resonance in Medicine, Journal of Mathematical Imaging and Vision, Medical Image Analysis Journal,...).
- D. Wassermann serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Human Brain Mapping, Medical Image Analysis Journal,...).
- T. Papadopoulou serves several international journals (IEEE Transactions on Biomedical Engineering, Frontiers Neuroscience, Transactions on Neural Systems & Rehabilitation Engineering, International Journal on Computer Vision,...).

#### 9.1.4. Invited talks

- R. Deriche gave an invited talk at USTHB on September 20th, 2015.
- D. Wassermann gave the following invited talks:
  - MedICSS Summer School, London, UK, 2015: Gaussian Processes: Sound Bases for Stochasticity in Medical Imaging
  - Microbiology Department, University of Buenos Aires, Argentina, 2015: Diffusion MRI-based microscopy, applications to Neuroscience
  - ICM, Paris, France 2015: Automated in vivo dissection and microstructure-based tractography analyses of cerebral white matter structures
  - Universidad de Valladolid, Valladolid, Spain 2015: Automated in vivo dissection and microstructure-based tractography analyses of cerebral white matter structures
  - UCL, London, UK 2015: Automated in vivo dissection and microstructure-based tractography analyses of cerebral white matter structures
- M. Clerc gave the following invited talks:
  - TedX Cannes conference, March 2015.
  - Connected Health, Monaco, June 2015.
  - Keynote at EUSIPCO 2015 Conference, Nice, September 2015.
  - Invited talk at BaCI conference, Utrecht, September 2015.
  - ENS Lyon Colloquium, October 2015.
  - Horizon Maths (IBM Bois Colombes), December 2015.

#### 9.1.5. Leadership within the scientific community

The Inria Project-Lab **BCI-LIFT** was created in 2015, to foster the work of 8 Inria teams and 2 more teams outside Inria on Brain Computer Interfaces Learning, Interaction, Feedback and Training. It is coordinated by Maureen Clerc.

BCI-LIFT was responsible for setting up a **Brain Computer Interface Challenge** which attracted 260 participants. The results of the Challenge were presented at the IEEE EMBS Conference on Neural Engineering in Montpellier, April 2015.

#### 9.1.6. Scientific expertise

- R. Deriche serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Magnetic Resonance in Medicine, Journal of Mathematical Imaging and Vision, Medical Image Analysis Journal,...).
- D. Wassermann serves as a reviewer for the following scientific funding institutions: French ANR, Dutch Organisation for Scientific Research, Argentine Agencia Nacional de Promocion Cientifica y Tecnologica.

#### 9.1.7. Research administration

- R. Deriche is Chair of the 2015 and 2016 Inria Sophia Antipolis recruitment committees



- R. Deriche is member of 4 Scientific Councils: University of Nice Sophia Antipolis, ITMO ITS (Institut des Technologies pour la Santé), Olea Medical Company (<http://www.olea-medical.com/>) and the GIS UNS-ENSL-CNRS-Inria.
- R. Deriche is member of the Administration Council of AFRIF (Association Française pour la Reconnaissance et l'Interprétation des Formes) and member of the Academic Council of UCA (Nice Côte d'Azur University)
- M. Clerc is Déléguée Scientifique Adjointe for the Inria Sophia Antipolis Research Center.
- M. Clerc is a member of the Evaluation Committee of Inria.
- M. Clerc is a member of the Commission Scientifique Interne of Inria.
- M. Clerc is a deputy member of the Administration Council of Université Côte d'Azur.
- M. Clerc was a member of the ENS Rennes Professor recruitment committee in 2015.
- M. Clerc was a member of the University of Nice, JAD laboratory Professor recruitment committee in 2015.
- T. Papadopoulo is a member of the Inria committee for software development.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Master: R. Deriche, Variational approaches and Geometrical Flows for Computational Brain Imaging, 36 ETD, M2 "Computational Biology and Biomedicine", University of Nice Sophia Antipolis, France.
- Master: R. Deriche, Advanced Image Processing Techniques, 12 ETD, M1 International CBB & Ubinet, University of Nice Sophia Antipolis, France.
- Master: R. Deriche, Computational Image Processing, Analysis and Artificial Vision, 18 ETD, Institut Telecom / Telecom SudParis, Evry, France.
- Master: T. Papadopoulo, *3D Computer Vision*, 12 ETD, M1 International Ubinet, University of Nice Sophia Antipolis, France.
- Master: T. Papadopoulo, *Inverse Problems in Brain Functional Imaging*, 36 ETD, M2 "Computational Biology and Biomedicine", University of Nice Sophia Antipolis, France.
- Master: T. Papadopoulo, *Inverse problems for brain functional imaging*, 24 ETD, M2, Mathématiques, Vision et Apprentissage, ENS Cachan, France.

### 9.2.2. Supervision

- PhD defended April 14, 2015: Sebastian Hitziger, "MEEG signal processing", started Nov. 2011, Supervisors: Théodore Papadopoulo & Maureen Clerc.
- PhD in progress: Rutger Fick, "Microstructure Recovery via dMRI", started Oct. 2013, Université Nice Sophia Antipolis. Supervisor: Rachid Deriche.
- PhD in progress: Kai Dang, "Modeling and characterizing electrical conductivity for cochlear implantation", started Dec. 2013, Université Nice Sophia Antipolis. Supervisor: Maureen Clerc.
- PhD in progress: Gabriel Girard, "fMRI & dMRI", started Sept. 2012, Supervisors: Rachid Deriche & Maxime Descoteaux (University of Sherbrooke, CA).
- PhD in progress: Mouloud Kachouane, "Invariants and biomarqueurs in dMRI", started Oct. 2012, Supervisors: Rachid Deriche & L. Boumghar (USTHB, Algiers).
- PhD in progress: Thinhinane Megherbi, "HARDI & High Order Tensors", started Sept. 2011, Supervisors: Rachid Deriche & L. Boumghar (USTHB, Algiers)
- PhD in progress: Marco Pizzolato, "Diffusion & Perfusion MRI: From bench to bedside" started Dec. 2013, Université Nice Sophia Antipolis. Supervisor: Rachid Deriche.

- PhD in progress: Brahim Belaoucha, “Using diffusion MR information to reconstruct networks of brain activations from MEG and EEG measurements”, Université Nice Sophia Antipolis, started Oct. 2013, Supervisor: Theo Papadopoulo.
- PhD in progress: Guillermo Gallardo Diez, “Connectivity-Based Brain Parcellation”, started Nov. 2015, Université Nice Sophia Antipolis. Supervisors: D. Wassermann/ R. Deriche
- PhD in progress: Nathalie Gayraud, “Structured Dictionary Learning”, University Nice Sophia Antipolis, started November 2015, supervisor: Maureen Clerc.
- Master: Guillermo Gallardo Diez, “Connectivity-Based Brain Parcellation”, Supervised by D. Wassermann.

### **9.2.3. Juries**

- R. Deriche participated in the PhD jury of Jianfei Yang (Delft University, Eindhoven, Sept. 2015).
- M. Clerc participated in the PhD jury of Juliette Spinnato (Aix-Marseille Université, July 2015).
- M. Clerc participated in the PhD jury of Ronan Hamon (ENS Lyon, Oct. 2015).
- M. Clerc participated in the PhD jury of Alexandre Fouchard (CEA LETI, Nov. 2015).
- D. Wassermann participated in the PhD jury of Ariel Hernan Curiale (Universidad de Valladolid, Spain, June 2015).

## **9.3. Popularization**

Maureen Clerc gave a conference at the TedX Cannes event in March 2015 (Youtube video link: <https://youtu.be/z5AO-603AmE>).

## BEAGLE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- We organized the first EvoEvo workshop as a satellite meeting of the 2015 ECAL conference (<http://www.evoevo.eu>), July, York, UK (G. Beslon, C. Knibbe, co-organizers).
- Workshop “Molecule Trajectories in Cellular Spaces: promoting interactions between theoreticians and experimentalists” (<http://traece.inria.fr>), November, Lyon (H. Berry, organizer)
- Annual CNRS-INRA thematic school “EIEFB: Ecole interdisciplinaire d’échanges et de formation en biologie” (<http://ecoleporquerolles.inria.fr>), June, Villers-sur-Mer (H. Berry, co-organizer)

#### 9.1.1.2. Member of the organizing committees

- Bis-annual CNRS thematic school “CompSysBio: Advanced Lecture Course on Computational Systems Biology” (<http://compsysbio.inria.fr>), Autrans (H. Berry, G. Beslon)
- “EvoLyon 2015: Conference Lyonnaise sur l’évolution” (<http://evolyon.universite-lyon.fr>), Lyon (G. Beslon)
- International Conference on Systems Biology, “LyonSysBio 2015” (<http://lyonsysbio2015.sciencesconf.org/?lang=en>), Lyon (G. Beslon)

### 9.1.2. Scientific events selection

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

- Conférence en Parallélisme, Architecture et Système “COMPASS” (<http://compas15.lifl.fr/>) Lille (J. Rouzaud-Cornabas)
- 13th European Conference on Artificial Life “ECAL 2015” (<https://www.cs.york.ac.uk/nature/ecal2015/>), York, UK (G. Beslon, C. Knibbe)
- International Conference on Data Mining (ICDM) (<http://icdm2015.stonybrook.edu>), Atlantic City, NJ, USA (C. Rigotti)
- RECOMB-Comparative Genomics, 2015 (<https://applbio.biologie.uni-frankfurt.de/recombcg2015/>), Frankfurt, Germany (E. Tannier)

#### 9.1.2.2. Reviewer

- Euro-Par 2015, Vienna, Austria (J. Rouzaud-Cornabas)
- RECOMB-Comparative Genomics 2015 (E. Tannier)
- RECOMB-2016 (E. Tannier)

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- Journal of Complex Systems, AIMS Biophysics (H. Berry)

#### 9.1.3.2. Reviewer - Reviewing activities

In 2015, Beagle members have reviewed numerous papers for international journals, including PLoS Comput Biol, Frontiers Synaptic Neuroscience, Frontiers Computational Neuroscience, J Comput Neurosci, J Theor Biol, New J Physics, Systematic Biology, BMC Bioinformatics, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing....

### 9.1.4. Invited talks

- H. Berry gave invited talks at the Quantitative BioImaging 2015 conference (Paris), the NYU Abu-Dhabi Workshop on Computational Neuroscience (Abu-Dhabi) and the Neuron-Glia Interactions Workshop of the European Institute for Theoretical Neuroscience (Paris) as well as invited seminars in the following labs / groups: Center for Mathematical Medicine and Biology (Nottingham, UK), Phlam (Lille), Laboratoire de bioenergetique fondamentale et appliquee (Grenoble) and Centre de Recherche en Neurobiologie et Neurophysiologie (Marseille).
- G. Beslon has been invited to give seminars at the Basel Biozentrum (Switzerland), at the UTH Zurich systems biology doctoral program (Switzerland), at the Evolutionary Algorithms conference (Lyon), at the BioVision days (Lyon) and at the Laboratoire de Biologie Quantitative et Computationnelle (UPMC, Paris).
- H. Soula gave an invited talk to the Workshop “Molecule Trajectories in Cellular Spaces: promoting interactions between theoreticians and experimentalists” in Lyon and an invited seminar at the Laboratoire de Recherche en Informatique (LRI), Orsay.
- E. Tannier was invited to give a series of 4 lectures at Simon Fraser University, Vancouver, Canada and gave invited talks to the "Phylogenetic Networks" conference (Singapore). He was also invited to give seminars at the Biosticker seminar (Nantes), to the G-Scop lab (Grenoble) and during the interdisciplinary meeting "evolution of genomes and languages" (Lyon).

### 9.1.5. Scientific expertise

- ANR call “Numerique et Societe” (C. Rigotti)
- Evaluation committee for the calls for funding “Systems Biology and cancer” of the “ITMO Cancer” (H. Berry)
- Science Steering Committee of the Rhone-Alpes Complex Systems Institute (IXXI) (<http://www.ixxi.fr>) (H. Berry)
- Scientific board of CNRS GdR MIV (Microscopie et Imagerie du Vivant, GdR 2588, <http://gdr-miv.fr>) (H. Berry)

### 9.1.6. Research administration

- Comite National de la Recherche Scientifique, CNRS, Section 6 (G. Beslon, member)
- Comite National de la Recherche Scientifique, CNRS, Section 51 (G. Beslon, member)
- Inria Administration council (Conseil d'Administration, E. Tannier, member)
- Inria Scientific board (Conseil scientifique, H. Berry, member)
- Inria “Parity-Equality” committee (H. Berry, member)
- Inria “Symposium committee” (E. Tannier, scientific director)
- Inria Grenoble-Rhone Alpes hiring committee for “young researchers” (CR2) (H. Berry, head of the committee)
- Inria Grenoble-Rhone Alpes Comite de Developpement Technologique (CDT) (C. Knibbe, member)
- Selection committee of section 64 at INSA de Lyon (H. Soula)
- Inria hiring committee for “senior researchers” (DR2) (H. Berry, member)
- Conseil de Laboratoire LIRIS lab (UMR 5205 CNRS) (G. Beslon, C. Knibbe, members)

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Supervision

In addition to the PhD students of the group, listed above, Beagle members have been co-supervising PhD students from other groups. In 2015 E. Tannier has been co-supervising the PhD of Y. Anselmetti (Isem, Montpellier, co-supervised with Severine Berard) and M. Semeria (LBBE, Lyon, co-supervised with Laurent Gueguen). E. Tannier has also supervised P. Do Nascimento Biller’s one-year doctoral internship (Universidade Estadual de Campinas, Brazil) in Beagle.

## **9.2.2. Juries**

### *9.2.2.1. PhD Juries*

- A. Garnier, Univ. P & M Curie, Paris, December 2015 (H. Berry, rapporteur)
- A. Grignard, Univ. P & M Curie, Paris, Octobre 2015 (G. Beslon, rapporteur)
- N. Subramaniyam, Tampere University of Technology, Finland, December 2015 (H. Berry, rapporteur)
- L. Viraphong-Caudwell, Universite Grenoble Alpes, Octobre 2015 (G. Beslon, Rapporteur)
- Z. Yekuieii, Tel Aviv University, Israel, June 2015 (H. Soula, rapporteur)

### *9.2.2.2. HDR Juries*

P. Redou, University of Brest, France, June 2015(H. Soula, rapporteur)

## **9.3. Popularization**

- Eric Tannier gave a series of three lectures to the “Université populaire de Lyon”, entitled “Biocritique”

## BIGS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- R. Azaïs: Organization of the weekly seminar of the Probability and Statistics group at the Institut Élie Cartan de Lorraine
- P. Vallois organised a meeting "Fédération Charles Hermite", with assurance societies in Luxembourg, 2015 October

#### 10.1.1.2. Member of the organizing committees

A. Gégout-Petit co-organised the day "Méga données pour la santé" for the Fédération Charles Hermite, Nancy, March 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

A. Gégout-Petit was chair of 2015 "Forum des jeunes mathématicien-ne-s", Lille November 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

P. Vallois is in the editorial board of "Risk and Decision Analysis".

#### 10.1.3.2. Reviewer - Reviewing activities

All the 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, LIDA, Annals of Applied Probability, Annals of Operations Research and Journal of Machine Learning Research, ICML and IJCAI conferences, ...

### 10.1.4. Invited talks

- P. Vallois: New York, Finance Department, April 2015
- P. Vallois: Journées de probabilités, Toulouse, May 2015
- P. Vallois: Conference in memory to Marc Yor, June 2015
- C. Lacaux: Invited as plenary speaker at *Adventure in Self-Similarity*, Cornell University, USA, June 2015
- C. Lacaux: Invited speaker at *9th International conference on Extreme Value Analysis, Session Max-stable processes and applications*, Ann Arbor, Michigan, USA
- C. Lacaux: Invited as plenary speaker at *4th Stochastic Geometry Days*, Poitiers, August 2015
- R. Azaïs: *Choix optimal parmi une classe d'estimateurs non paramétriques du taux de saut d'un processus markovien déterministe par morceaux*. Rencontres de l'ANR Piece à Saint-Martin-de-Londres (May 2015)
- R. Azaïs: *Recursive kernel estimates for piecewise-deterministic Markov processes*. Rencontres de l'ANR Piece à Tours (November 2015)
- A. Muller-Gueudin: *Certainty bands for the conditional cumulative distribution function and applications*. Séminaire Statistique, Probabilités, Optimisation et Contrôle, Institut de Mathématiques de Bourgogne (June 2015)

### 10.1.5. Leadership within the scientific community

A. Gégout-Petit was the president of the french statistical society (SFdS) until June 2015.

### 10.1.6. Scientific expertise

- C. Lacaux: Elected member of the Conseil National des Universités (section 26) (2011–2015)
- R. Azaïs: Member of the Technological Development Committee (Commission de Développement Technologique (CDT) in french), Inria Nancy – Grand Est

### 10.1.7. Research administration

- C. Lacaux: Member of the board of SMAI-MAS group
- A. Gégout-Petit: elected member of the laboratory of mathematics "Institut Elie Cartan de Lorraine"
- P. Vallois: head of the "Fédération Charles Hermite", consortium of three laboratories from Université de Lorraine in mathematics (Institut de Elie Cartan), computer science (Loria) and automatics (CRAN)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

R. Azaïs and B. Scherrer excepted, BIGS members are teachers at "Université de Lorraine" and are teaching at least 200 hours each years. Many of them have pedagogical responsibilities.

- Licence: A. Gueudin, Statistics, 45h, L3, first year of ENSAIA, Université de Lorraine, France
- Licence: S. Ferrigno, Descriptive and inferential statistics, 60h, L2, second year of EEIGM, Université de Lorraine, France
- Licence: S. Ferrigno, Statistical modeling, 60h, L2, second year of EEIGM, Université de Lorraine, France
- Licence: S. Ferrigno, Mathematical and computational tools, 20h, L3, third year of EEIGM, Université de Lorraine, France
- Licence: S. Ferrigno, Training projects, 33.5h, L1/L2/L3, first, second and third year of EEIGM, Université de Lorraine, France
- Licence: A. Gégout-Petit, Permutation test, 20h, Université de Lorraine, France
- Licence: P. Vallois, Exercices in probability, 30h, Université de Lorraine, France
- Licence: C. Lacaux, Probability, 35h, Université de Lorraine, France
- Licence: S. Wantz-Mézières, Probability and Statistics, financial mathematics, 164h, I.U.T, Université de Lorraine, France
- Licence: S. Wantz-Mézières, Probability, 60h, first year in Telecom Nancy, Université de Lorraine, France
- Licence: J-M. Monnez, Probability and Statistics, financial mathematics, 136h, I.U.T, Université de Lorraine, France
- Licence: C. Lacaux, Probability, 35h, L3, first year of Mines Nancy, Université de Lorraine, France
- Licence: S. Tindel, Introduction to probability and statistics, 30h, 2nd year for Bioengineering majors (LVE CMI), Université de Lorraine, France
- Licence: T. Bastogne, Automatics, 70h
- Master: S. Tindel, Stochastic calculus, 60h, M2, Université de Lorraine, France
- Master: S. Tindel, Applied mathematics and probability, 60h, 1st year of Telecom Nancy engineering school, Université de Lorraine, France
- Master: C. Lacaux, Stochastic Differential Equations, 31h, M1, third year of Mines Nancy, Université de Lorraine, France
- Master: A. Gueudin, Probability and Statistics, 202 h, M1, second year of ENSEM and ENSAIA, Université de Lorraine, France

- Master: S. Ferrigno, Experimental designs, 3h, M1, fourth year of EEIGM, Université de Lorraine, France
- Master: S. Ferrigno, Data analyzing and mining, 63h, M2, third year of Ecole des Mines, Université de Lorraine, France
- Master: S.Ferrigno, Modeling and forecasting, 43h, M1, second year of Ecole des Mines, Université de Lorraine, France
- Master: S.Ferrigno, Training projects, 18h, M2/M3, second and third year of Ecole des Mines, Université de Lorraine, France
- Master: A.Gégout-Petit, Statistics, modeling, 20h, future teacher, Université de Lorraine, France
- Master: P.Vallois, Mathematical finance, 70h, Université de Lorraine, France
- Master: A.Gégout-Petit, Statistics, modeling, 150h, master in applied mathematics, Université de Lorraine, France
- Master: A.Gégout-Petit, Statistics, 20h, future engineer in informatics, Telecom Nancy, Université de Lorraine, France
- Master: C.Lacaux, Stochastic Differential Equations, 31,5h, Université de Lorraine, France
- Master: J-M.Monnez, Data analysis, statistical learning, Master 2 IMOI (Ingénierie Mathématique et Outils Informatiques), Université de Lorraine, France
- Master: J-M.Monnez, Multivariate analysis, Master 2 IFM (Ingénierie de la Finance de Marché), Université de Lorraine, France
- Master: R. Azais, 20h, Mines de Nancy (TD de Probabilités)
- Master: T. Bastogne 120h
- B.S: S. Tindel, Differential equations, 90h, 2nd year for various Engineering majors, Purdue University, USA
- Doctoral and research: B. Scherrer gave a course on stochastic optimal control at the Machine Learning Summer School organized by Centre International de Mathématiques et d'Informatique de Toulouse

### 10.2.2. *Diplomae management*

- J-M. Monnez: Until June 2015 : Head of the Master 2 "Ingénierie Mathématique et Outils Informatiques (Mathematical Engineering and Computer Tools)", Université de Lorraine
- A. Gégout-Petit: since June 2015 : Head of the Master 2 "Ingénierie Mathématique et Outils Informatiques (Mathematical Engineering and Computer Tools)", Université de Lorraine
- A. Gégout-Petit created and is now in charge of cursus CMI in applied mathematics for Lorraine University
- C. Lacaux is in charge of the cursus *Ingénierie Mathématique* of École Nationale Supérieure des Mines de Nancy, until 09/2015
- P. Vallois is head of the "Parcours Mathématiques Financières" of the master "Applied mathematics" of Université de Lorraine
- P. Vallois is head of the convention between "Université de Lorraine and Université Hammam Sousse" about master organization. Master ISC (Ingénierie de Systèmes Complexes)
- T. Bastogne is in charge of the spécialité Systèmes & TIC du master Ingénierie de Systèmes Complexes
- T. Bastogne created and is now in charge of professional master: CIIBLE (Cybernétique, Instrumentation, Image en Biologie et medecinE) en M2 with Medicine Faculty of Université de Lorraine
- T. Bastogne created and is now in charge research master « Biosanté Numérique » with engineering school "Telecom Nancy"



### 10.2.3. Supervision

- PhD : Shuxian Li, "Modélisation spatio-temporelle pour l'esca de la vigne à l'échelle de la parcelle", INRA- Université de Bordeaux , defence December, 15, 2015. Advisor : A. Gégout-Petit
- PhD in progress : Kévin Duarte, 2013, Jean-Marie Monnez and Eliane Albuison
- PhD : Marwa HAMZA "Caractérisations des familles exponentielles naturelles cubiques : étude des lois Beta généralisées et de certaines lois de Kummer", Université de Lorraine, Université de Sfax, defense May, 15, 2015. Advisors : P. Vallois and A. Hassairi
- PhD (2014- ), in progress, Lévy Batista, Grant CIFRE with Cybernano, "Identification de modèles dynamiques linéaires à effets mixtes. Applications aux dynamiques de populations cellulaires", Université de Lorraine, Advisor: T. Bastogne
- PhD, in progress, Paul Rétif, "Modélisation, simulation et analyses numériques de l'interaction nanoparticules-rayons X. Applications à la radiothérapie augmentée", Université de Lorraine, CHR Metz-Thionville, Advisor: T. Bastogne, defense expected in March 2016
- PhD, in progress, Yann Petot, "Modèle probabiliste d'aide à la décision multicritère pour les études médico-économiques", Université de Lorraine, Advisors : P. Vallois and T. Bastogne
- 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

### 10.2.4. Juries

- PhD: Marthe-Aline Jutand, Université de Bordeaux, "Etudes de phénomènes de transposition didactique de la statistique dans le champ universitaire et ses environnements", December, 15, 2015, Referee : A. Gégout-Petit
- PhD: Pierre Colin, AgroParistech, Sanofi, "Méthodes bayésiennes et adaptatives pour la recherche de dose optimale : le développement clinique précoce de thérapies ciblées en oncologie", December, 2015, Referee : A. Gégout-Petit
- PhD: Julien Riposo, Université Paris 6 "Computational and Mathematical Methods for Data Analysis in Biology and Finance", September, 2015, Referee: A. Gégout-Petit
- PhD: Yingjun DENG , Université Technologique de Troyes "Degradation modeling based on a time-dependent Ornstein-Uhlenbeck Process and Prognosis of system failures", February, 2015, Referee : A. Gégout-Petit
- PhD: Jérémy Rohmer, Université de Lorraine, "Importance ranking of parameter uncertainties in geo-hazard assessments ", November, 15, 2015, President: A. Gégout-Petit
- B. Scherrer was a reviewer <sup>0</sup> for the Phd committee of Romain Hollanders (Université Louvain La Neuve)
- HdR: Nicolas Champagnat Université de Lorraine, February, 15, 2015, President: P. Vallois
- PhD: Aurélie Beal, "Description et sélection de données en grandes dimensions", Université Aix-Marseille, February 2015. Referee: T. Bastogne

### 10.2.5. Selection Juries

Anne Gégout-Petit was member of four selection committies: CR2 Inria Bordeaux, PR Statistics Université Paris 6, MCF Statistics Toulouse, MCF Psychology and Statistics Grenoble.

<sup>0</sup>"Habilitation à diriger les recherches" is not required for reviewing a Phd in Belgium.

### 10.3. Popularization

- A. Gégout-Petit: manager of the project "ZOOM des métiers des mathématiques et de l'informatique" brochure and videos about 22 professionals in mathematics and computer science in order to promote these two domains with young people. <http://metiers-mathsinfo.fr/>
- S. Ferrigno: Advisor of a group of students, "La main à la Pâte" project, elementary schools, Nancy, January-June 2015
- S. Ferrigno: Advisor of a group of students, "La main à la Pâte" project, Institut médico-éducatif (IME), Commercy, September-December 2015
- R. Azaïs: Animation of a workshop "MATH.en.JEANS", Collège George Chepfer, Villers-lès-Nancy
- P. Vallois: popularizing talk at MJC de Toul

## **BIOCORE Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific events selection**

#### *10.1.1.1. Members of the conference program committee*

J.-L. Gouzé is a member of the program committee for the conference BIOMATH, held in Sofia (Bulgaria). He is in the editorial committee of the proceedings of the conference in honor of E. Benoît (La Rochelle 2013), and in the scientific committees of several summer schools.

O. Bernard is in the technical committee of the Computer Applied to Biotechnology (CAB) conferences, and of the FOSBE conference (Foundations of Systems Biology in Engineering). He is in the scientific committee of the French conference "Stic et Environnement".

#### *10.1.1.2. Reviewers*

All BIOCORE members have been reviewers for the major 2015 conferences in our field: CDC, ECC, MED,...

### **10.1.2. Journal**

#### *10.1.2.1. Members of the editorial board*

M. Chaves is an Associated Editor of SIAM Journal on Applied Dynamical Systems (SIADS), since January 2015

#### *10.1.2.2. Reviewers*

All BIOCORE members have been reviewers for the major journals in our field: Automatica, IEEE Transactions on Automatic Control, Journal of Mathematical Biology, Mathematical Biosciences, New Phytologist,...

### **10.1.3. Invited talks**

O. Bernard gave a lecture on control and observation of anaerobic digestion in the framework of the 14th World Congress on Anaerobic Digestion (Vina del Mar, December, 13th).

O. Bernard was invited to give a conference on microalgae at Ecole Centrale de Paris ("Biotechnological challenge") "Use of microorganisms for biofuel production" (January, 22nd, 2015).

O. Bernard was invited to give a conference for the 50th anniversary of the Society for Energy from Ardeche (June, 1st, 2015).

O. Bernard gave a presentation at the EABA conference "Combining photovoltaic panels and microalgae: How to deflect the excess of solar energy to ensure optimal conditions of light and temperature for growth" (Lisbon, December, 2nd)

### **10.1.4. Scientific expertise**

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

J.-L. Gouzé was in several evaluation committees: Stic Amsud, INSEP...

### **10.1.5. Research administration**

J.-L. Gouzé is in the Inria committee supervising the doctoral theses, and a member of the scientific committee of Labex SIGNALIFE of the University of Nice-Sophia-Antipolis, and of COREBIO PACA. He is a member of the board of the SFBT (French Speaking Society for Theoretical Biology).

M. Chaves is a member of the COST-GTRI (working group on International Relations at Inria's council for scientific and technological orientation). The group is charged with evaluating Inria's Associated Teams as well as some project proposals (EuroMed 3+3), and ERCIM post-docs. M. Chaves is a member of the CLHSCT (local committee for the safety of working conditions).

O. Bernard represents Inria at the ANCRE (Alliance Nationale de Coordination de la Recherche pour l'Energie), in the biomass committee. He is a member of the ADT (Technological Development Actions) at Inria.

S. Touzeau is an elected member of the scientific committee of the MIA departement at INRA (2011–2015). She is a member and a board member of the MBIA CSS (Specialised Scientific Commission), in charge of the research scientist evaluation at INRA (2011–2015). S. Touzeau was a member of a jury for the recruitment of junior research scientists at INRA in "Applied mathematics and computer science" (2 positions) and of a jury for the recruitment of a lecturer at Agroparistech in "mathematics applied to the analysis of deterministic models".

F. Grognard is a member of the NICE committee, which allocates post-doctoral grants and fundings for visiting scientists at Inria Sophia Antipolis. He is a member of the scientific committee of the doctoral school "Sciences de la Vie" at the University of Nice-Sophia Antipolis. F. Grognard is a member of the MBIA CSS since 2015.

L. Mailleret is the head of the M2P2 team (Models and Methods for Plant Protection) of ISA.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Bachelor: F. Grognard (45.5h ETD) and L. Mailleret (26h ETD), "Equations différentielles ordinaires et systèmes dynamiques", L3, 1st year Engineering in Modelling and Applied Mathematics, Polytech'Nice, Université of Nice Sophia Antipolis, France.

Bachelor: N. Bajeux (64h ETD), "Initiation to Scilab", L3, 1st year Engineering in Modelling and Applied Mathematics, Polytech'Nice, Université of Nice Sophia Antipolis, France.

Master: F. Grognard (21h ETD) and L. Mailleret (21h ETD), "Bio-Mathématiques", M1, 2nd year Engineering in Modelling and Applied Mathematics (eq. M1), Polytech'Nice, Université of Nice Sophia Antipolis, France.

Master: L. Mailleret (18h ETD) "Modélisation pour la biologie des populations et l'écologie". Université d'Oran.

Master: J.-L. Gouzé (9h ETD), M. Chaves (9h ETD), "Discrete and continuous approaches to model gene regulatory networks", Master of Science in Computational Biology (M2), University of Nice - Sophia Antipolis.

Master: J.-L. Gouzé (18h ETD), M. Chaves (12h ETD) "Modelling biological networks by ordinary differential equations", 4th year students, Génie Biologie, Polytech'Nice, University of Nice - Sophia Antipolis.

Master: O. Bernard (4.5h ETD), "Bioenergy from microalgae", M2, Master International Energy Management : alternatives pour l'énergie du futur, Ecole Nationale Supérieure des Mines de Paris, France.

Master: O. Bernard (18h ETD), "Modelling biotechnological processes", M2, Ecole Centrale de Paris, France.

Master: S. Touzeau (26.25h ETD), "Analyse de données", M1, 2nd engineering year in Génie Biologie, Polytech'Nice – Université Nice Sophia Antipolis, France.

O. Bernard together with F. Mairet and Q. Béchet supervised two projects for engineering school students. The first project involved 6 students of Ecole Nationale Supérieure des Mines de Paris (last year of engineering school, 1 week ("Combining photovoltaic panels and microalgae" ) and the second project involved three groups of 4 students from the Ecole Centrale de Paris (first year of engineering school), 4 months, to design a process with microalgae growing on a biofilm.

### 10.2.2. Supervision

PhD : I. Belgacem, "Modelling, analysis and control of biological networks", Univ. Nice, defended March 20, 2015. Supervisor: J.-L. Gouzé. [11]

PhD : H. Bonnefond, "Continuous improvement of microalgae for bioenergy production by selection pressure ", UPMC, defended December 9, 2015. Supervisors: A. Sciandra and O. Bernard. [12]

PhD : T. Morel Journal, "Stratégies d'introduction d'organismes dans un environnement spatialement structuré", Univ. Nice, defended December 9, 2015. Supervisors: E. Vercken (UMR ISA) and L. Mailleret. [13]

PhD in progress : G. Grimaud, "Controlled competition for the selection of microalgal species of interest ", since September 2012, Univ. Nice. Supervisors: O. Bernard, F. Mairet and S. Rabouille.

PhD in progress : C. Combe, "Effect of light spectrum and quality on microalgal growth ", since September 2012, UPMC. Supervisors: A. Sciandra, S. Rabouille and O. Bernard.

PhD in progress : D. Demory, "Impact of virus dynamics on microalgae mortality ", since September 2013, UPMC. Supervisors: A. Sciandra and O. Bernard.

PhD in progress : E. Rousseau, "Plant viruses adaptation to quantitative resistance: from the study of their impact on within-host viral evolutionary dynamics to their durable management in agroecosystems", since November 2012, Univ. Nice. Supervisors: F. Grogard, L. Mailleret, B. Moury, and F. Fabre (INRA Avignon).

PhD in progress : N. Bajoux, "Influence d'une densité dépendance dans les modèles impulsifs de dynamiques des populations", since October 2013, Univ. Nice. Supervisors: F. Grogard and L. Mailleret.

PhD in progress : S. Casagrande. "Analysis and control of cell growth models", since November 2013, Univ. Nice. Supervisors: J.-L. Gouzé and D. Ropers (Inria IBIS).

PhD in progress : S. Almeida. "Theoretical design of synthetic biological oscillators and their coupling", since October 2014, Univ. Nice. Supervisors: M. Chaves and F. Delaunay (Univ. Nice, iBV).

PhD in progress : M. Caña, "Characterization and modelling of a mixotrophic algae - bacteria ecosystem for waste recovery", since September 2015, University Montpellier. Supervisors: J.-P. Steyer and O. Bernard.

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

### 10.2.3. Juries

L. Mailleret was in the PhD jury of T. Morel Journal "Stratégies d'introduction d'organismes dans un environnement spatialement structuré", Univ. Nice, defended December 9, 2015.

O. Bernard was reviewer for the PhD of G. Van Vooren "Influence of environmental conditions on microalgae lipids profile for biodiesel production", University of Nantes, January 23, 2015.

O. Bernard was in the PhD jury of H. Bonnefond "Continuous improvement of microalgae for bioenergy production by selection pressure ", UPMC, December 9, 2015.

M. Chaves was in the PhD jury of P. Trairatphisan "Studying signal transduction networks with a probabilistic Boolean network approach", University of Luxemburg, July 16, 2015.

M. Chaves was reviewer for the PhD of Christian Breindl "Identification, analysis and control of discrete and continuous models of gene regulation networks", University of Stuttgart, Germany, December 7, 2015.

M. Chaves was in the PhD jury of Vincent Picard "Réseaux de réactions : de l'analyse probabiliste à la réfutation", Université de Rennes, December 16, 2015.

J.-L. Gouzé was reviewer for the HDR of J.J. Tewa "Modélisation et Analyse Mathématique des Systèmes Complexes : Applications en Epidémiologie, Immunologie et Ecologie", Université du Havre, November 10, 2015.

J.-L. Gouzé was in the PhD jury of P.J. Meyer "Invariance and symbolic control of cooperative systems for temperature regulation in intelligent buildings", Université Grenoble Alpes, September 24, 2015.

J.-L. Gouzé was in the PhD jury of I. Belgacem, "Modelling, analysis and control of biological networks", Univ. Nice, March 20, 2015.

F. Mairet was reviewer for the PhD of Diego De Pereda "Methods for the treatment of uncertainty in dynamical systems: Application to diabetes", Universitat Politecnica de Valencia, July 23, 2015.

F. Mairet was in the PhD jury of Micaela Benavides "Parameter identification and robust state estimation of microalgae cultures", Université de Mons, Feb. 24, 2015.

O. Bernard is in the thesis committees of N. Giordano (University of Grenoble), Valeria Villanova (University of Grenoble) and Julie Laniau (Univ. of Rennes).

S. Touzeau is in the thesis committees of David Demory (UPMC, 2013–2016) and Eric Breton (Université de Nantes, 2013–2016).

### 10.3. Popularization

The activities related to microalgae have generated many articles in national newspapers (Le Monde, Nice Matin, La Principauté, ...), and broadcasts on national TV (France 3, France 2, Arte). Several articles were written by the team members to explain the hurdles and potential of microalgae [77].

Biocore received an award from the Alpes-Maritimes department for its activities in sustainable development. Moreover, Biocore took part to the COP21 Inria stand, where the challenges for the use of mathematics dedicated to microalgae were presented. Biocore was involved in the "Spring of Researchers" and in the "Fête de la Science", the latter through Stefano Casagrande in the framework of his regional grant.

We have also made a short movie to explain the advantages of our supervision software ODIN and to present the pilot photovoltaic greenhouses which will be developed within the ANR Purple Sun project.

S. Touzeau, L. Mailleret, and F. Grogard gave talks on the importance of modelling during the Modelling day of UMT Fiorimed.

F. Mairet gave a talk during the Mediterranean Days (Feb 20, 2015; <http://leat.unice.fr/MEDDAYS2015>), to present Biocore's activities to various students from Greece, Italy, Spain, Algeria, Morocco...

P. Bernhard has given conferences in highschool Guillaume Appolinaire, in Nice, on February 5 ("Des insectes et des mathématiques", optimal foraging theory) and March 17 ("Un paradoxe en trafic automobile", Wardrop equilibrium and Evolutionary Stable Strategies in evolutionary biology), and in highschool Marcel Pagnol, in Marseille, on April 3rd ("Game theory", for a class of Social and Economic Sciences).

## BONSAI Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- workshop *3rd generation sequencing*, June 9, 117 attendees
- workshop *Bioinformatics tools for NRPS discovery, from genomic data to the products*, october 28-30, 32 attendees
- workshop *Drug design and virtual screening* November 30, 60 attendees

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- H. Touzet was PC chair of the international conference **WABI 2015** (Atlanta, USA, september 10-12)

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

- HiCOMB 2015 (M. Giraud)
- JOBIM 2015 (H. Touzet).
- RECOMB-seq 2015 (H. Touzet, L. Noé).
- SeqBio 2015 (H. Touzet).
- WABI 2015 (H. Touzet, L. Noé, R. Chikhi).

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing activities

- Bioinformatics (M. Pupin, L. Noé, R. Chikhi)
- BMC Bioinformatics (M. Salson, R. Chikhi)
- Genome Biology (R. Chikhi)
- GigaScience (R. Chikhi)
- Microbiology Open (V. Leclère)
- Nucleic Acids Journal (R. Chikhi)
- Synthetic and Systems Biotechnology (M. Pupin)

### 10.1.4. Scientific expertise

- Expert for Allistène (H. Touzet)
- Expert for the French-Brazilian program CAPES-COFECUB (H. Touzet)
- Expert for Département de l'Essone (H. Touzet)

### 10.1.5. Research administration

- Member of the CUB for Inria Lille (S. Blanquart)
- Member of the Charles Viollette Institute Laboratory council (V. Leclère)
- Member of the Charles Viollette Institute scientific committee (V. Leclère)
- Member of the scientific operational committee of Xperium, Univ. Lille 1 (V. Leclère)

- Member of the Inria local committee for technology development (M. Pupin)
- Member of the national evaluation committee of computer science for University members (M. Pupin)
- Member of the executive council of the IFB, Institut Français de Bioinformatique, (M. Pupin)
- Member of the Inria local committee for the IT users (M. Salson)
- Member of the national scientific committee of INS2I–CNRS (H. Touzet)
- Member of the Gilles Kahn PhD award national committee (H. Touzet)
- Member of the CRIStAL Laboratory council (H. Touzet)
- Member of the GRIOTE (Groupement de Recherche en Intégration de données Omics à Très grande Echelle, région Pays de Loire) scientific council (H. Touzet)
- Member of the scientific committee of the national program Environmics (H. Touzet)
- Member of the CRIStAL scientific council, representant of the thematic group “Modeling for life sciences” (J.-S. Varré)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching administration

- Head of the GIS department (Software Engineering and Statistics) of Polytech’Lille (S. Janot)
- Member of UFR Biologie council (V. Leclère)
- Head of the master “Innovations en biotechnologies végétales, enzymatiques et microbiennes”, univ. Lille 1 (V. Leclère)
- Member of UFR IEEA council (M. Pupin, J.-S. Varré)
- Head of the 3rd year of licence of computer science, univ. Lille 1 (J.-S. Varré)
- Head of the licence semester “Computer Science – S3 Harmonisation (S3H)”, univ. Lille 1 (L. Noé)

### 10.2.2. Teaching

Licence: S. Blanquart, R. Chikhi, M. Giraud *Bioinformatics*, 40h, L3 Computer Science, Univ. Lille 1

Master: S. Blanquart, *Algorithms and applications in bioinformatics*, 24h, M1 Computer Science, Univ. Lille 1

Master: Y. Dufresne, *Algorithmics and complexity*, 36h, M1 Computer Science, Univ. Lille 1

Master: M. Giraud, *Algorithms for RNA Analysis*, 12h, M2 Bioinformatique et Modélisation, Univ. Paris 6

Licence: S. Janot, *Introduction to programming (C)*, 50h, L3 Polytech’Lille, Univ. Lille 1

License: S. Janot, *Databases*, 30h, L3 Polytech’Lille, Univ. Lille 1

Master: S. Janot, *Databases*, 12h, M1 Polytech’Lille, Univ. Lille 1

Master: S. Janot, *Logic and Semantic Web*, 80h, M1 Polytech’Lille, Univ. Lille 1

Master: V. Leclère, *Bioinformatics*, 30h, M2 Transformation Valorisation Industrielles des Agro-ressources, Univ. Lille 1

Master: V. Leclère, *Secondary metabolites*, 20h, M1 Biology, Univ. Lille 1

Master: V. Leclère, *Biotechnology*, 20h, M1 Biology, Univ. Lille 1

Master: V. Leclère, *Microbiology*, 20h, M1 Biology, Univ. Lille 1

Master: L. Noé, *Bioinformatics*, 40h, M1 Biotechnologies, Univ. Lille 1

License: L. Noé, *Networks*, 42h, L3 Computer science, Univ. Lille 1

License: L. Noé, *Programming (Python)*, 54h, L3 Computer science’ S3H, Univ. Lille 1



License:L. Noé, *Coding and information theory*, 36h, L2 Computer science, Univ. Lille 1  
 License:P. Pericard, *Data structures*, 18h, L3 Polytech'Lille, Univ. Lille 1  
 License:P. Pericard, *Introduction to programming (C)*, 34h, L3 Polytech'Lille, Univ. Lille 1  
 License:M. Pupin *Introduction to programming (Python)*, 36h, L1 Computer science, Univ. Lille 1  
 License:M. Pupin, *Databases*, 36h, L3 Computer science, Univ. Lille 1  
 License:M. Pupin, *Professional project*, 18h, L3 Computer science, Univ. Lille 1  
 Master: M. Pupin, *Introduction to programming (JAVA)*, 24h, M1 Mathématiques et finance, Univ. Lille 1  
 Master: M. Pupin, M. Salson *Bioinformatics*, 40h, M1 Biology and Biotechnologies, Univ. Lille 1  
 License:T. Rocher, *Algorithmics and programming*, 28h, L3 Polytech'Lille, Univ. Lille 1  
 License:T. Rocher, *Algorithmics and programming (remedial course)*, 14h, L3 Polytech'Lille, Univ. Lille 1  
 License:T. Rocher, *Databases*, 24h, L3 Polytech'Lille, Univ. Lille 1  
 License: M. Salson, *Automata and language theories*, 36h, L3 Computer science, Univ. Lille 1  
 License: M. Salson, *Skeptical thinking*, 30h, L3 Computer science, Univ. Lille 1  
 License: M. Salson, *Coding and information theory*, 63h, L2 Computer science, Univ. Lille 1  
 Master: M. Salson, *Skeptical thinking*, 14h, M2 Journalist and Scientist, ESJ, Univ. Lille 1  
 Master: M. Salson, *Algorithms for life sciences*, 18h, M2 Complex models, algorithms and data, Univ. Lille 1  
 License: J.-S. Varré, *Web programming*, 36h, L2 (licence "Computer Science", Univ. Lille 1  
 License: J.-S. Varré, *Programming with Python*, 36h, L2 (licence "Sciences for Engineers", Univ. Lille 1  
 License: J.-S. Varré, *Algorithms and Data structures*, 50h, L2 (licence "Computer science", Univ. Lille 1  
 License: J.-S. Varré, *System*, 36h, L3 Computer science", Univ. Lille 1

### 10.2.3. Supervision

PhD in progress: Y. Dufresne, Modèles et algorithmes pour la gestion de la biodiversité des peptides non-ribosomiques et la mise en évidence de nouveaux peptides bioactifs, 2013/10/01, M. Pupin, L. Noé  
 PhD in progress: P. Pericard, Methods for taxonomic assignation in metagenomics, 2013/11/01, H. Touzet, S. Blanquart.  
 PhD in progress: T. Rocher, Indexing VDJ recombinations in lymphocytes for leukemia follow-up, 2014/11/01, J.-S. Varré, M. Giraud, M. Salson  
 PhD in progress: C. Saad, Caractérisation des erreurs de séquençage non aléatoires, application aux mosaïques et tumeurs hétérogènes, 2014/10/01, M.-P. Buisine, H. Touzet, J. Leclerc, L. Noé, M. Figeac  
 PhD in progress: L. Siegwald, Bionformatic analysis of Ion Torrent metagenomic data, 2014/01/03, H. Touzet, Y. Lemoine (Institut Pasteur de Lille)  
 PhD in progress: C. Vroland, Indexing data for microRNA and microRNA target site identification in genomes, 2012/10/01, H. Touzet, V. Castric (EEP), M. Salson

### 10.2.4. Juries

- Member of the thesis committee of Souhir Sabri (CIRAD, Montpellier, V. Leclère)
- Member of the PhD thesis jury of Laetitia Bourgeade (LABRI, Bordeaux, H. Touzet)
- Member of the thesis committee of Florian Plaza Onate (Ecole Centrale, Paris, R. Chikhi)

- Member of the thesis committee of Jérôme Audoux (INSERM, Montpellier, R. Chikhi, M. Salson)
- Member of the HDR jury of Fabien Jourdan (INRA, Toulouse, H. Touzet)
- Member of the hiring committee Professor of Université de Nantes (H. Touzet)
- Member of the hiring committee Professor of Université d'Evry (H. Touzet)
- Member of the hiring committee McF of Université Lille 1 (H. Touzet)
- Member of the hiring committee Professor of University of Montréal (H. Touzet)
- Member of the hiring committee ATER of Université Lille 1 (L. Noé, J.S. Varré)

### **10.3. Popularization**

- We made seven presentations, using dedicated “genome puzzles” in high schools during the “Science week” to popularize bioinformatics.
- During a whole day in June we made presentations on bioinformatics with our “genome puzzles” to several groups of high school students.
- V. Leclère has created a demonstration stand for Xperium, part of the Learning center Innovation of Lille 1 University.

## 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).

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

Marie-Dominique Devignes is organising a workshop (“Atelier Santé”) for the Fédération Charles Hermite.

#### 9.1.1.2. Member of Organizing Committees

Marie-Dominique Devignes co-organised a workshop on Structural Modeling of Type IV Secretion Systems.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of Conference Program Committees

Marie-Dominique Devignes was a member of the programme committee for KDIR-2015, NETTAB-2015, and MIVBM-2015.

#### 9.1.2.2. Reviewer

David Ritchie was a reviewer for IJCAI-2015.

### 9.1.3. Journal

#### 9.1.3.1. Member of Editorial Boards

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

#### 9.1.3.2. Reviewing Activities

The members of the team have reviewed manuscripts for Algorithms, AIMS Biophysics, Bioinformatics, Current Opinion in Structural Biology, Journal of Biomedical Semantics, Journal of Chemical Information and Modeling, Journal of Molecular Modeling, Molecules, and Proteins.

### 9.1.4. Invited Talks

David Ritchie gave a presentation to the *Plateau de Modélisation Moléculaire Multi-échelle* (University of Reims).

Seyed Alborzi presented the EC-DomainMiner approach at *JOBIM-2015* (Clermont-Ferrand, France).

Bernard Maigret gave presentations for the *11th International Symposium on Bioinformatics Applied to Health* (State University of Maringá, Brasil) and the *Workshop Franco-Brasileiro de programa Ciência sem Fronteira* (EMPBRAPA, Brasil).

Marie-Dominique Devignes gave a presentation to the *Institute for Structural and Molecular Biology* at Birkbeck College (London, UK).

### 9.1.5. Scientific Expertise

David Ritchie has reviewed grant proposals for the French ANR and the British BBSRC.

### 9.1.6. Research Administration

Marie-Dominique Devignes is Chargée de Mission for the CyberBioSanté research axis at the LORIA.

David Ritchie is a member of the Commission de Mention Informatique (CMI) of the IAEM doctoral school of the University of Lorraine.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: Marie-Dominique Devignes, *Relational Database Design and SQL*, 30 hours, L1, Univ. Lorraine.

Master: Marie-Dominique Devignes, *Biological Data Mining and Classification*, 12 hours, L3, Univ. Lorraine.

Doctorat: Bernard Maigret, *Virtual Screening*, 10-17 June, EMBRAPA, Brasil.

### 9.2.2. Supervision

PhD in progress: Gabin Personeni, *Exploration of linked open data in view of knowledge discovery. Application to the biomedical domain*, 01/10/2014, Marie-Dominique Devignes, Adrien Coulet.

PhD in progress: Seyed Ziaeddin Alborzi, *Large-scale exploration of 3D protein domain family binding sites*, 01/10/2014, David Ritchie, Marie-Dominique Devignes.

PhD in progress: Benoît Henry, *Probability theory applied to evolutionary biology*, 01/10/2013, Nicolas Champagnat, David Ritchie.

### 9.2.3. Juries

HdR: Julie Bernauer, *Méthodes géométriques et statistiques pour l'analyse et la prédiction des interactions structurales de biomolécules*, Université Paris Sud 11, 13/01/2015.

PhD: Romain Vasseur, *Développements HPC pour une nouvelle méthode de docking inverse : Application aux protéines matricielles*, Université de Reims – Champagne Ardennes, 29/01/2015, Pr Manuel Dauchez, Dr Stéphanie Baud, Dr Luiz-Angelo Steffanel.

PhD: Clovis Galiez, *Fragments structuraux : comparaison, prédictibilité à partir de la séquence et application à l'identification de protéines de virus*, Université de Rennes 1, 08/12/2015, Dr François Coste, Dr Jacques Nicolas.

PhD: Alicia Zhukov, *Knowledge-based generalization for metabolic models*, Université de Bordeaux, 18/12/2014, Dr David Sherman.

## 9.3. Popularization

An article on our KBDock software has been accepted for publication in ERCIM News (edition 104, January 2016) [18].

## **CARMEN Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Journal**

#### *9.1.1.1. Member of the editorial boards*

M. Potse: associate editor of *Frontiers in Cardiac Electrophysiology*.

#### *9.1.1.2. Reviewer - Reviewing activities*

- M. Potse: Heart Rhythm, *IEEE Transactions on Biomedical Engineering, Medical & Biological Engineering & Computing, Journal of Electrocardiology*.
- M. Potse is council member of the International Society of Electrocardiology.

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

### **9.2.1. Teaching**

IUT Orsay : P.E. Bécue - Discrete Mathematics, 64h.

IUT Orsay : P.E. Bécue - Introduction to modelling and Principal Component Analysis, 64h.

Engineering school: N. Zenzemi, (How to switch from a mathematical model to a numerical solution (examples with the cardiac activity of the heart in 2D)

### **9.2.2. Juries**

- Y. Coudière, PhD advertiser for the PhD thesis of G. Ravon obtained on 17 december 2015
- Y. Coudière, PhD advertiser for the PhD thesis of A. Davidovic expected on the first quarter of 2016.
- Y. Coudière, Rapporteur for the PhD thesis of Rocio Cabrera Lozoya

## **9.3. Popularization**

- G. Ravon and Y. Coudière obtained a financial support from Cap'Math for the game: "Heart Attack". It is destined to middle and high school students to introduce mathematical modelling.
- Poster price at the CNIC 2015 for A. Djokovic.

## CASTOR Project-Team

## 7. Dissemination

### 7.1. Promoting Scientific Activities

#### 7.1.1. Scientific events organisation

##### 7.1.1.1. Member of the organizing committees

- Journées CASTOR, Valberg, 26-27 janvier 2015.
- Rencontre NTM (Nice-Toulon-Marseille), Porquerolles, may 2015. <http://champion.univ-tln.fr/NTM/NTM2015.html>
- Journées numériques, Décomposition de domaine, Librairie de calcul parallèle, Nice, april 2015. [http://math.unice.fr/~minjeaud/Donnees/JourneesNumeriques\\_15-1/index.php](http://math.unice.fr/~minjeaud/Donnees/JourneesNumeriques_15-1/index.php)

#### 7.1.2. Journal

##### 7.1.2.1. Member of the editorial boards

- J. Blum is in the editorial board of Journal of Scientific Computing
- J. Blum is in the scientific committee of mathematics and statistics of ISTE books

##### 7.1.2.2. Reviewer - Reviewing activities

R. Pasquetti is reviewer for several journals including

- Journal of Computational Physics
- Computers and Fluids

J. Blum is reviewer for several journals including

- Journal of Computational Physics
- Fusion Science and Technology
- Mathematics and Computers in Simulations

#### 7.1.3. Invited talks

- J. Blum, Journée Mathématiques X-UPS, Des problèmes à N corps aux Tokamaks, May 2015
- Holger Heumann, An enhanced approximate cloaking scheme for the conductivity problem, Mathematics for Imaging, ENS, Paris, France, October 20-24, 2015.
- Holger Heumann, Quasi-static Free-Boundary Equilibrium of Toroidal Plasma: Computational Methods and Applications, Modeling and Numerical Methods for Hot Plasmas II, Institut de Mathématiques de Bordeaux, France, October 12-14, 2015.
- Hervé Guillard, “Asymptotic theory of reduced MHD models for fusion plasmas” : Oberwolfach Workshop: Recent Developments in the Numerics of Nonlinear Hyperbolic Conservation Laws, 13 September - 19 September 2015. Oberwolfach, Germany.
- Jacques Blum, Control methods for the optimization of plasma scenarios in a Tokamak, 27th IFIP TC7 Conference, Sophia Antipolis, June 29 - July 3rd, 2015

#### 7.1.4. Leadership within the scientific community

- J. Blum is president of thematic committee 6 (Mathematics, algorithmic and computer science) of GENCI
- J. Blum represents the University of Nice Sophia Antipolis in Alliance Nationale de Coordination pour la Recherche pour l’Energie (ANCRE).

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

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

Ecole d'ingénieur: D. Auroux, Méthodes numériques, 36h, M1, Polytech Nice Sophia, Université de Nice Sophia Antipolis, France

Master: B. Faugeras, Optimisation, 18h, M1, Université de Nice Sophia Antipolis, France

Master: J. Blum, Optimisation et contrôle, 20h, M2, Université de Nice Sophia Antipolis, France

Master: J. Blum, Optimisation, 18h, M1, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur: J. Blum, Commande Optimale, 37.5h, M2, Polytech Nice Sophia, Université de Nice Sophia Antipolis, France

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

Ecole d'ingénieur: C. Boulbe, Méthodes numérique - EDP, 66h, M1, Polytech Nice Sophia Antipolis, France

Licence: S. Minjeaud, Analyse Numérique, 18 h, L3, Université de Nice Sophia Antipolis, France.

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

Master: S. Minjeaud, Méthodes numériques en EDP, 18 h, M1, Université de Nice Sophia Antipolis, France.

Master: B. Nkonga, Analyse Numérique, 40h, M1, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur/Master: B. Nkonga, Méthode des éléments finis, 24h, M2, Polytech Nice Sophia, France

Ecole d'ingénieur/Master: B. Nkonga, Calcul Parallèle, 48h, M2, Polytech Nice Sophia, France

Licence: F. Rapetti, Analyse Numérique, 18h, L3, Université de Nice Sophia Antipolis, France

Licence: F. Rapetti, Analyse, 70h, L1, Université de Nice Sophia Antipolis, France

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

Licence: A. Sangam, Mathématiques 2, 30h, L1, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Modélisation, 10h, L1, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Analyse, 50h, L2, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Méthodes Numériques et Formelles, 40h, L2, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Mathématiques Appliquées, 50h, L3, Université de Nice Sophia Antipolis, France

Master: R. Pasquetti, module "Modèles de turbulence", 20 h, Masters MSC & IMAG2E, Université de Nice Sophia Antipolis, France.

### 7.2.2. Supervision

HdR : B. Faugeras, Modélisation, simulation numérique et problèmes inverses. Contributions en physique des plasmas de Tokamak, en écologie marine et autres travaux, Université de Nice Sophia Antipolis, 12 Oct. 2016

PhD : C. Le Touze, "Etude du couplage entre modèles à phase séparée et modèles à phase dispersée pour la simulation de l'atomisation primaire en combustion cryotechnique", Université de Nice Sophia Antipolis, Décembre 2015, Hervé Guillard.

PhD in progress : J. Costa, Modeling of Elms, Sep 2012 - Sep. 2016, B. Nkonga

PhD in progress : E. Estibals, “MHD réduite: Modélisation et Simulation numérique utilisant des éléments finis stabilisés d’ordre élevés sur un maillage courbe non-structuré. Application à l’injection de glaçons et de masse dans ITER”, 15th october 2013, Hervé Guillard, Afeintou Sangam.

### **7.2.3. Juries**

R. Pasquetti was referee for the thesis of:

- L. Cappanera, Nonlinear stabilization of magnetohydrodynamics equations and applications to multiphase flows, Université Paris-Saclay, Orsay (3-12-2015).
- R. Oguic, Une méthode multidomaine parallèle pour les écoulements incompressibles en géométrie cylindrique: application aux écoulements turbulents soumis à rotation, Aix-Marseille Université, Marseille (19-10-2015).
- C. Mimeau, Conception and implementation of a hybrid vortex penalization method for solid-fluid porous media: application to the passive control of incompressible flows, Université de Grenoble, Grenoble (07-07-2015).

J. Blum and H. Guillard were in the HDR jury of B. Faugeras.

B. Nkonga was referee in the PhD thesis jury of

- Jan Velechovsky (Prague),
- Fabien Rozard(Bordeaux)

B. Nkonga was in the PhD thesis jury of

- Xavier Lacoste (Bordeaux),
- Clément Le Touze(Nice),
- Matthias Mimault(Nice),
- Gauthier Brerhes(Nice).



## CLIME Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

- Vivien Mallet: Aristote seminar on “Le calcul scientifique pour la ville intelligente” (scientific computing for smart cities), IFSTTAR, Champs-sur-Marne, March 2015.

### 9.1.2. Scientific events selection

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

- Isabelle Herlin: ISPRS workshop on Image Sequence Analysis for Object Extraction (ISPRS Geospatial Week 2015).

#### 9.1.2.2. Reviewer

- Isabelle Herlin: International Conference on Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision (ICCV), International Conference on Image Processing (ICIP).

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing activities

- Julien Brajard: IEEE Transactions on Geoscience and Remote Sensing (TGRS).
- Isabelle Herlin: IEEE Transactions on Geoscience and Remote Sensing (TGRS).
- Vivien Mallet: Annals of Nuclear Energy. Environmental Science & Technology. Quaterly Journal of the Royal Meteorological Society.

### 9.1.4. Leadership within the scientific community

- Isabelle Herlin is a member of the Scientific Council of CSFRS (High Council for Strategic Education and Research in France).

### 9.1.5. Scientific expertise

- Isabelle Herlin participates to the scientific expertise on satellite observations for agriculture for CVT Allenvi.
- Isabelle Herlin is a member of the hiring committee for researchers at Inria - Rennes Bretagne Atlantique and for research directors at Inria.
- Isabelle Herlin is a member of the program committee of DIGITEO, french research cluster in science and technology of information.
- Isabelle Herlin is a member of the program committee of the interdisciplinarity mission at CNRS.
- Isabelle Herlin is a member of the Evaluation Committee at Inria.

### 9.1.6. Research administration

- Isabelle Herlin is a member of the Center Committee for Inria-Paris research center.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master OACOS/WAPE: Vivien Mallet; Introduction to Data Assimilation for Geophysics; 10.5 hours; M2; UPMC, X, ENS, ENSTA ParisTech, École des Ponts ParisTech; France.

Master SGE and 3rd-year class at École des Ponts ParisTech: Vivien Mallet; Air quality modeling; 9h; M2; Universities Paris Diderot- Paris 7, Paris 12 and École des Ponts ParisTech, France.

Training: Vivien Mallet; Uncertainty Quantification: Ensembles and Data Assimilation – Application to Climate and Geosciences; 5.25 hours; CERFACS; France.

### 9.2.2. Supervision

- HdR : Isabelle Herlin, “Images and Dynamics”, University Paris 6, June 2015.
- PhD : Paul Baudin, “Sequential prediction with ensemble aggregation: application to meteorological prediction with uncertainties”, University Paris-Sud, November 2015.
- PhD : Yann Lepoittevin, “Estimation of motion from observed structures in image sequences, University Paris 6, December 2015.
- PhD in progress: Ruiwei Chen, “Quantification d’incertitude en simulation des émissions du trafic routier”, November 2014, Vivien Mallet.
- PhD in progress : Pacôme Eberhart, “Génération automatique de codes performants et fiables pour l’assimilation de données”, September 2013, Fabienne Jezequel, Pierre Fortin and Julien Brajard
- PhD in progress : Jean Thorey, “Prévision d’ensemble du rayonnement solaire pour la production photovoltaïque du parc EDF”, November 2013, Vivien Mallet.
- PhD in progress: Raphaël Ventura, “Simulation numérique de la ville par couplage entre la modélisation et l’observation”, September 2014, Vivien Mallet.

### 9.3. Popularization

- Isabelle Herlin made a talk on the careers in image processing at GdR ISIS in November 2015.
- Vivien Mallet took part to a one-day introduction to Inria research at Sénat, in February 2015.
- Vivien Mallet and Raphaël Ventura took part to the UrbanDirtLab organized during the Futur-en-Seine digital festival, in June 2015.
- Vivien Mallet was auditioned by "l’Office parlementaire d’évaluation des choix scientifiques et technologiques" ("Assemblée nationale" and "Sénat") on big data and agriculture, in July 2015.

## COFFEE Project-Team

### 8. Dissemination

#### 8.1. Promoting Scientific Activities

##### 8.1.1. *Journal*

###### 8.1.1.1. *Member of the editorial boards*

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

##### 8.1.2. *Scientific expertise*

FONDECYT (Chili), CERG (Hong-Kong), National Evaluation and Foresight Agency (Espagne), FRS-FNRS (Belgique), ANR and AERES/HCERES.

##### 8.1.3. *Research administration*

Roland Masson is the head of the team PDE and Numerical Analysis of the laboratory J.A. Dieudonné.

Thierry Goudon is member of the Evaluation Committee of Inria. He is also member of Scientific Committees of CIRM and FSMP.

#### 8.2. Teaching - Supervision - Juries

##### 8.2.1. *Teaching*

Members of the team are faculties of University Nice Sophia Antipolis and they teach in all degrees of the University.

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

##### 8.2.2. *Supervision*

- PhD : Yumeng ZHANG, Modélisation et simulation des dispositifs de ventilation dans les stockages de déchets radioactifs, Université Nice Sophia Antipolis, 17/12/2015, encadrée par Roland Masson & Thierry Goudon

## DEMAR Project-Team

## 7. Dissemination

### 7.1. Promoting Scientific Activities

#### 7.1.1. Scientific events organisation

##### 7.1.1.1. General chair, scientific chair

D. Guiraud is the conference chair of IEEE EMBS Neural Engineering Conference to be held in Montpellier in April 2015.

M. Hayashibe is Co-Chair of IEEE Technical Committee on Human Movement Understanding at Robotics and Automation Society with E. Demircan (Univ. of Tokyo), D. Kulic (Univ. of Waterloo) and D. Oetomo (Univ. of Melbourne). <https://sites.google.com/site/ieeehmhu/>

##### 7.1.1.2. Member of the organizing committees

D. Andreu is organizer of the working group on Control Architectures of Robots of the french GdR Robotique.

D. Andreu is co-organizer of the "action transversale inter-GdR" ALROB (Architectures Logicielles pour la ROBotique autonome et les systèmes adaptables) of the CNRS, implying the french GdR Robotique and GdR Génie de la Programmation et du Logiciel

#### 7.1.2. Scientific events selection

All the team members are involved in reviewing articles for various conferences and journals both in engineering and biomedical fields.

##### 7.1.2.1. Chair of conference program committees

D. Andreu has been Chair of Corporate Partnerships & Exhibits, IEEE EMBS Conference on Neural Engineering (NERO15)

C. Azevedo Coste was program chair of IEEE EMBS Neural Engineering Conference held in Montpellier in April 2015.

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

Daniel Simon was member of the RTNS'15 (Real Time Networks and Systems), ETFA'15 (Emerging Technologies and Factory Automation) and ICINCO'15 (International Conference on Informatics in Control, Automation and Robotics) int. conference program committees.

Mitsuhiro Hayashibe was Associate Editor of IEEE ICRA'16 (International Conference on Robotics and Automation) in charge of handling reviews on 6 papers in Oct.2015.

##### 7.1.2.3. Reviewer

Daniel Simon was reviewer for the CDC'15 (Ieee Conf. on Decision and Control).

#### 7.1.3. Journal

##### 7.1.3.1. Member of the editorial boards

M. Hayashibe is member of the Editorial Board of the International Journal of Advanced Robotic Systems, in Rehabilitation Robotics. M. Hayashibe is Guest Associate Editor, Frontiers in Neuroprosthetics, Biosig- nal processing and computational methods to enhance sensory motor neuroprosthetics, with David Guiraud, Dario Farina, and Jose L. Pons. <http://journal.frontiersin.org/ResearchTopic/1639>

C. Azevedo Coste is Associate Editor of Paladyn Journal Behavioral Robotics (Assistive robotics).

### 7.1.3.2. Reviewer - Reviewing activities

The members of the team reviewed numerous papers for numerous international conferences. Daniel Simon was reviewer for the 'Simulation: Transactions of the Society for Modeling and Simulation International' journal.

### 7.1.4. Invited talks

Daniel Simon gave talks about "real-time simulation of hybrid systems" at ALROB meeting (LIP6, december 7) and about "Feedback control and slacken real-time" at the Inria meeting on probabilistic scheduling (Paris, december 8).

Mitsuhiro Hayashibe was invited to give a talk about "Personalized Neuroprosthetics and Personalized Home Rehabilitation" at Faculty seminar, Portsmouth University, UK on 11th March 2015.

Mitsuhiro Hayashibe was invited to give a talk about "Personalized Neuroprosthetics - Evoked EMG based Muscle Activation Closed-loop Control in Electrical Stimulation" at ERC (European Research Council) DEMOVE Symposium on 12th June 2015 at University Medical Center Gottingen, Germany (Prof. Dario Farina) <http://4th-demove-symposium.bccn.uni-goettingen.de/>.

Mitsuhiro Hayashibe was invited to give a talk about Personalized Neuroprosthetics and Synergetic Learning Control" at 3rd Symposium on Embodied- Brain Systems Science, University of Tokyo, Japan on 21th August 2015.

Christine AZEVEDO COSTE was invited by CEFIPRA (India) to a workshop "Understanding and facilitation of neural plasticity for enhancing post stroke recovery" in New Delhi in October 2015.

Christine AZEVEDO COSTE was invited to give a presentation during the "Simpósio Internacional em Eletroestimulação Aplicada a Tecnologia Assistiva" in Brasilia, Brazil in December 2015.

Christine AZEVEDO COSTE gave a talk during scientific seminar of the "Institut du Mouvement Humain et Cybernétique" (Montpellier, France) in November 2015 "Analyse, modélisation et assistance du mouvement".

Christine AZEVEDO COSTE gave a talk during "Journées scientifiques Inria", in June 2015 (Nancy, France) "Contrôle artificiel du mouvement humain : observer, interpréter, assister".

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

Master : D. Andreu, Software engineering, real time OS, discrete event systems, networks, neuro-prosthesis, 200h, master and engineers degrees, Polytech Montpellier, France;

Master: Christine Azevedo Coste, Ethics in bioengineering research, 3h, Master STIC pour la Sant, Univ. Montpellier 2, France;

Master: Mitsuhiro Hayashibe, Neuroprotheses I and II (module coordinator), EMG and EEG signal processing and other rehabilitation modeling issues, 12h, Master STIC pour la Sante, Univ. de Montpellier, France;

Christine AZEVEDO COSTE gave a lecture in December 2015 at University of Brasilia, "Functional Electro-stimulation (FES) and artificial control of Human Motion".

### 7.2.2. Supervision

HDR : Mitsuhiro Hayashibe, "Computational Modeling and Control for Personalized Neuroprosthetics and Rehabilitation", Oct. 12th 2015, Univ. de Montpellier

PhD : Yacine Berranen, "Modélisation volumique du muscle avec représentation des fonctions physiologiques", Dec. 2015, D. Guiraud, M. Hayashibe and B. Gilles

PhD : Mariam Abdallah, "Système d'acquisition de signaux bioélectriques multicanal, programmable et implantable", Dec. 2015, G. Cathébras and F. Soulier.

PhD in progress : Sijobert Benoît, Stimulation Electro-fonctionnelle pour l'assistance aux mouvements des membres inférieurs dans les situations de déficiences sensori-motrices , 01/12/2015, Christine Azevedo Coste, David Andreu

PhD in progress : Tigra Wafa, Assistance à la prehension par stimulation électrique fonctionnelle chez le patient tétraplégique, 11/2013, Christine Azevedo Coste, David Guiraud

PhD in progress: Thomas Guiho, "Stimulation électrique médullaire en vue de la restauration des fonctions urinaires, intestinales et sexuelles chez le patient blessé médullaire", Sept. 2013, C. Azevedo and D. Guiraud.

PhD in progress: Ibrahim Merzoug, "Validation formelle pour les systèmes embarqués critiques", Oct. 2014, K. Godary and D. Andreu.

PhD in progress: Melissa Dali, "Modle d'interaction électrode-nerf et optimisation en vue d'améliorer la stimulation sélective", Oct. 2014, O. Rossel and D. Guiraud.

PhD in progress: Marion Vincent, "Précision et modélisation des effets de la stimulation électrique directe lors des opérations de chirurgie éveillée des gliomes de bas-grade", Dec. 2013, F. Bonnetblanc and D. Guiraud.

Engineers : David Andreu supervises Baptiste Colombani. "HILECOP development". Computer engineering, Inria Expert Engineer (2 years contract, Inria).

David Andreu and David Guiraud supervise Milan Demarcq on "Implantable network design", Electronics, Engineer (1 year contract, Inria).

David Andreu and David Guiraud supervise Guillaume Souquet on "Design of implantable stimulator", Industrial Informatics Doctor, Research Engineer (1 year contract, Inria).

David Andreu supervises Arthur Haiarrassary on "Development of a stimulation real-time controller", Industrial Informatics Engineer, Research Engineer (2 years contract, UM).

David Andreu supervises Ronald Reboul on "Design of complex digital system". Electronics, Engineer (2 years contract, Inria).

### 7.2.3. *Juries*

Christine Azevedo Coste was member of the PhD thesis committee of Michelle RABELO, Universidade de Brasilia, "Confiabilidade das medidas de dinamometria isocinetica computadorizada para movimentos do tronco em sobreviventes de acidente vascular enceflico com hemiparesia crnica.", december 2015

Christine Azevedo Coste was member of the phd thesis committee of Franssis BARBOSA DE OLIVEIRA, Universidade de Braslia, "Opes diagnosticas no monitoramento de neuropatias diabeticas: em busca de parmetros para tomada de decises clinicas.", december 2015

D. Simon was reviewer and member of the PhD defense jury of Mohamed Ould Sass ("Le modèle BGW pour les systèmes temps réel surchargés", IRCCyN Nantes) and member of the jury for Mihaly Berekmeri ("Modeling and control of cloud services Application to MapReduce performance and dependability ",GIPSA-lab Grenoble).

Christine Azevedo Coste was reviewer of Nadia Khalfa Cheikh phd thesis "Ayant pour sujet : Détection de ruptures de signaux physiologiques en situation in vivo via la méthode FDpV : Cas de la fréquence cardiaque et de l'activité électrodermale de marathoniens" in september 2015 (UMPC Paris France / INSAT Tunis)

## DRACULA Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific events organisation

##### 9.1.1.1. Member of the organizing committees

- Conference "LyonSysBio" (Lyon Systems Biology), Lyon (France), 18 - 20 November 2015 (<http://lyonsysbio2015.sciencesconf.org/?lang=en>). Co-organizers : Fabien Crauste and Olivier Grandrillon.
- Regular Semovi seminar series ([http://www.biosyl.org/news/copy\\_of\\_semovi](http://www.biosyl.org/news/copy_of_semovi)), 4 seminars organized in 2015. Co-organizer : Olivier Grandrillon and Fabien Crauste.
- BioSyL (<http://www.biosyl.org>) workshops organization. Co-organizer : Olivier Grandrillon.
- Equadiff conference, Lyon (France), 6-10 July 2015 (<http://equadiff2015.sciencesconf.org/>). Co-organizers : Thomas Lepoutre and Laurent Pujo-Menjouet.

#### 9.1.2. Journal

##### 9.1.2.1. Member of the editorial boards

- Mostafa Adimy: Journal of Nonlinear Systems and Applications (JNSA); The Scientific World Journal; Chinese Journal of Mathematics.
- Fabien Crauste: Computational and Mathematical Methods in Medicine (HPG)
- Laurent Pujo-Menjouet: Mathematical modelling natural phenomena; Frontiers Mathematics and Computers in Simulation.
- Olivier Gandrillon: BMC research Notes.

##### 9.1.2.2. Reviewer

- Mostafa Adimy : Zeitschrift fuer Angewandte Mathematik und Physik (ZAMP); Funkcialaj Ekvacioj, Journal of Fixed Point Theory and Applications.
- Fabien Crauste : Journal of Mathematical Biology, Plos Comp Biol.
- Olivier Gandrillon : Genes, Gene, BioEssays, Nature, Journal of the Royal Society Interface, Plos Comp Biol.
- Thoms Lepoutre : Bulletin of mathematical biology, Communications in Mathematical Sciences, Networks and Heterogeneous Media, Kinetic and Related Models.

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

- Licence : Phillipe Michel, Analyse appliquée, 56h, L3, Ecole Centrale de Lyon.
- Licence : Phillipe Michel, Probabilités et statistique, 30h, L3, Ecole Centrale de Lyon.
- Licence: Samuel Bernard, Algèbre linéaire et matricielle, 45h, L3, INSA Lyon.
- Licence : Laurent Pujo-Menjouet, les réels et les fonctions, 36h, L1, Université Lyon 1.
- Licence : Laurent Pujo-Menjouet, suites et séries de fonctions, 36h, L1, Université Lyon 1.
- Licence : Laurent Pujo-Menjouet, Equations Différentielles, 18h, L2, Université Lyon 1.
- Licence : Laurent Pujo-Menjouet, Projet de l'étudiant de Licence, 14h, L2, Université Lyon 1.
- Licence : Laurent Pujo-Menjouet, Biomathématiques et modélisation, 10h, L3, Université Lyon 1.

- Licence : Laurent Pujo-Menjouet, Equations différentielles et aux dérivées partielles, 36h, L3, Université Lyon 1.
- Licence: Léon Matar Tine, Techniques mathématiques de base (TMB), 42h, L1, Université Lyon 1.
- Licence: Léon Matar Tine, Maths PMI-Analyse, 42h, L2, Université Lyon 1.
- Licence: Léon Matar Tine, Analyse Numérique, 36h, L3, Université Lyon 1.
- Master : Phillipe Michel, Algorithmes pour la décision en entreprise, 15h, M2, Ecole Centrale de Lyon.
- Master : Phillipe Michel, Méthodes variationnelles pour les EDP, 35h, M2, ECL, Ecole Centrale de Lyon.
- Master : Phillipe Michel, Systèmes embarqués collaboratifs, 14h, M1, Ecole Centrale de Lyon.
- Master: Fabien Crauste, Dynamique des populations cellulaires, 15h, M2, Université Lyon 1.
- Master: Samuel Bernard, Dynamique des populations cellulaires, 20h, M2, Université Lyon 1.
- Master : Laurent Pujo-Menjouet, Modélisation en biologie et médecine, 8h, M2, Université Lyon 1.
- Master : Laurent Pujo-Menjouet, Gestion de projet en ingénierie mathématique, 3h, M1, Université Lyon 1.
- Master : Laurent Pujo-Menjouet, Systèmes dynamiques, 66h, M1, Université Lyon 1.
- Master : Laurent Pujo-Menjouet, Projet tutoré en Mathématiques, 3h, M2, Université Lyon 1.
- Master: Léon Matar Tine, Dynamique des protéine, 18h, M2, Université Lyon 1.
- Master: Thomas Lepoutre, Dynamique des protéine, 18h, M2, Université Lyon 1.

### **9.2.2. Supervision**

- PhD in progress : Marine Jacquier, Contribution à l'étude de modèles à retards modélisant l'impact physiologique du comportement de prise alimentaire, Université Lyon 1, October 2012, Mostafa Adimy and Fabien Crauste.
- PhD in progress : Abdennasser Chekroun, Équations différentielles et aux différences à retard pour des modèles de dynamique des cellules souches hématopoïétiques, Université Lyon 1, October 2012, Mostafa Adimy.
- PhD in progress : Loïc Barbarroux, modélisation mathématique de la réponse immunitaire chez un individu en vue d'optimiser des stratégies de vaccination, Université de Lyon 1, October 2013, Mostafa Adimy and Phillipe Michel.
- PhD in progress : Raouf El Cheikh, Multiscale modelling of the interaction between the cell cycle and the circadian clock, Université Lyon 1, October 2011, Samuel Bernard and Vitaly Volpert.
- PhD in progress : Apollos Besse, The role of tumor-immune interaction in combined treatments for chronic myeloid leukemia, Université Lyon 1, October 2014, Samuel Bernard and Thomas Lepoutre.
- PhD in progress : Alvaro Mateso Gonzales, Models for anomalous diffusion, ENS Lyon, October 2014, Thomas Lepoutre, Hugues Berry and Vincent Calvez (Alvaro is not member of Dracula team).
- PhD in progress : Flavien Duparc, Etude d'un modèle mathématiques de régulation de l'hémoglobine chez les patients dialysés, Université Lyon 1, October 2014, Mostafa Adimy and Laurent Pujo-Menjouet.
- PhD in progress : Loïs Boullu, Modélisation de la mégacaryopoïèse et applications aux maladies liées à la production des plaquettes, Université Lyon 1, October 2014, Laurent Pujo-Menjouet and Jacques Bélair (co-tutelle avec l'Université de Montréal).
- PhD in progress : Simon Girel, Contribution à la modélisation multi-échelles de la réponse immunitaire : Analyse d'équations aux dérivées partielles et identifiabilité paramétrique, Université de Lyon (LabEx), Septembre 2015, Fabien Crauste



- PhD in progress : Ulysse Herbach, Modèles graphiques probabilistes pour l'inférence de réseaux de gènes, Université Lyon 1, October 2015, Olivier Gandrillon, Thibault Espinasse (ICJ) and Anne-Laure Fougères (ICJ).
- PhD in progress : Arnaud Bonnafoux, Vers une inférence automatique de réseaux de gènes dynamiques à partir de « mégadonnées » temporelles discrètes acquises sur cellules uniques, Université Lyon 1, November 2015, Olivier Gandrillon (CIFRE with the COSMO company).

### **9.2.3. Juries**

- Fabien Crauste was reviewer and member of the PhD of Ana Jarne Munoz (Université de Bordeaux), Modeling the effect of exogenous Interleukin 7 in HIV patients under antiretroviral therapy with low immune reconstitution.
- Mostafa Adimy was reviewer and member of the PhD of Patrice Ndambomve (University of Abuja, Nigeria), Contributions to control theory of nonlinear systems and split feasibility problems.
- Mostafa Adimy was reviewer of the PhD of Abdelkarim Nidal Akdad (University of Marrakesh, Morocco), Contribution to quantitative and qualitative analysis for neutral partial functional differential equations - Existence and regularity.

## **9.3. Popularization**

- Fabien Crauste : conference "grippe saisonnière, épidémie, pandémie : quel apport des mathématiques ?" à l'Université Ouverte, Lyon, 20 January 2015.
- Thomas Lepoutre is one of the organizer of Mathalyon (Mathematical exhibitions in highschool with 4 researchers, 20 days of intervention in 2015).

## DYLISS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events selection

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

- CMSB (2015): Computational Methods on Systems Biology [A. Siegel]
- BBCC (2015): Bioinformatica e Biologia Computazionale in Campania [O. Dameron]
- SIIM (2015): Symposium sur l'Ingénierie des Informations Médicales [O. Dameron]

### 9.1.2. Journal

#### 9.1.2.1. Member of the editorial boards

- Academic editor: Plos One [J. Bourdon]

#### 9.1.2.2. Reviewer - Reviewing activities

- Journal of Mathematical Biology. Theorie des Sciences Informatiques. [A. Siegel]
- Theoretical Computer Science, Fundamenta Informaticae. [F. Coste]
- 2014 O. Dameron: Bioinformatics, Cancer informatics, Journal of Biomedical Informatics, Journal of Biomedical Semantics.
- 2015 O. Dameron: Journal of Biomedical Semantics (x3).

### 9.1.3. Invited talks

- A. Antoine-Lorquin *Orthocis : Une base de données pour l'étude des facteurs de transcriptions. Identification in silico de gènes ciblés par un facteur de transcription donné.* UMR MIA. AgroParis-Tech (Sep. 2015)
- M. Chevallier *Systems biology : uses of the Mobyle and Galaxy platforms.* Bio-informatics day. e-Biogenouest and GRIOTE. (Avr. 2015).
- F. Coste *Learning efficiently (local) substitutable context-free languages from text.* XRCE seminar, Grenoble. (Jul. 2015)
- F. Coste *Learning protein languages.* Machine learning thematic trimester. CIMI, Toulouse. (Dec. 2015)
- O. Dameron *Knowledge-based selection of candidate metabolic networks.* CRC (équipe A Burgun). (Feb. 2015)
- C. Galiez *Sequence-structure relationship in protein sequences and applications to sequence annotation.* LBCQ (équipe A. Carbone), Paris. (Juil. 2015)
- C. Galiez *Apprentissage de prédictions structurales depuis la séquence pour l'annotation fonctionnelle.* LIRMM (équipe O. Gascuel), Montpellier. (Oct. 2015)
- C. Galiez *Structural fragments : comparison, predictability from sequence and application to identification of viral proteins.* MPI (équipe J. Söding), par Internet, Göttingen. (Dec. 2015)
- Y. Guitton *Metabolic profiling and control hypothesis through kinetic accumulation or elimination of secondary metabolites associated with phycotoxins of filter-feeding bivalves* RFMF 2015 (9. édition des Journées Scientifiques du Réseau Francophone de Métabolomique et Fluxomique ). Lille. June 2015.

- Y. Guitton *L'annotation automatisée des analyses métabolomiques en LC-MS : un challenge relevé par la plate-forme Corsaire*. Gen2Bio. Mars 2015.
- J. Laniau *Combinatorial optimization methods to complete and analyse a metabolic network*. Journée BIOS. Nantes. Septembre 2015
- J. Laniau *Combinatorial optimization methods to complete and analyse a metabolic network*. Journée MOABI. Paris. Novembre 2015.
- V. Picard *Asymptotic Analysis of Gillespie Algorithm under Steady-State Assumption*. Advanced Lecture Course on Computational Systems Biology. Aussois (Apr. 2015)
- V. Picard *Analyse stationnaire des réseaux de réactions : systèmes de contraintes en modélisation stochastique*. Paris. Journées du groupe de travail bioss (Nov. 2015).
- A. Siegel *Numeration, redundancy graphs and topological properties of fractals*. Department of Mathematics. Université Paris Sud (Jan. 2015)
- A. Siegel *Topological properties of generalized Rauzy fractals: which novel issues?*. FAN numeration meeting. Admont, Austria. (Jun. 2015).
- A. Siegel *Decidability problems for self-induced systems generated by a substitution?*. Conference MCU'2015. North Cyprus. (Sept. 2015).
- A. Siegel *Confronting knowledge networks on signaling networks with phosphoproteomics datasets using combinatorial optimization approaches*. Departement of computer sciences. Frei Berlin University. (Oct. 2015).
- A. Siegel *Data science and systems biology*. Data science meeting. IRISA, Rennes (Nov. 2015).

#### 9.1.4. Leadership within the scientific community

- Member of the steering committee of the International Conference on Grammatical Inference [F. Coste].
- The team was involved in the foundation of a national working group on the symbolic study of dynamical systems named bioss [[web access](#)]. The group gathers more 100 scientists, from computer science to biology. Three meetings were organized this year. The group is supported by two French National Research Networks: bioinformatics (GDR BIM : bioinformatique moléculaire) and informatics-mathematics (GDR IM : Informatique Mathématique). [A. Siegel]

#### 9.1.5. Scientific expertise

- Scientific Advisory Board of GDR BIM "Molecular Bioinformatics"[J. Nicolas].
- Inria National evaluation board [A. Siegel]
- Member (nominated) CNU section 65 [O. Dameron]
- Member of the Operational Legal and Ethical Risk Assessment Committee (COERLE) at Inria [J. Nicolas].
- Recruitment committees: Professor (CRISTAL, Lille) [A. Siegel], Professor (IRHS, Angers) [A. Siegel], Inria junior researcher (Nice) [A. Siegel].
- Member of the IRISA laboratory council [F. Coste].
- Member of the Inria Rennes center council [A. Siegel].
- Scientific Advisory Board of Biogenouest [J. Bourdon, A. Siegel].
- Member of SCAS (Service Commun d'Action Sociale) of Univ. Rennes 1 [C. Belleannée].
- Member of CUMIR (Commission des Utilisateurs des Moyens Informatiques, Inria Rennes) [F. Coste].

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Course and track responsibilities

F. Coste is coordinator of the track "From Data to Knowledge: Machine Learning, Modeling and Indexing Multimedia Contents and Symbolic Data" of the Master by research in Computer Science (2nd year), University of Rennes 1, France.

F. Coste is coordinator of the course "Extracting knowledge from symbolic data sequences" of the Master by research in Computer Science (2nd year), University of Rennes 1, France.

O. Dameron shares the coordination of the "Bioinformatique et génomique" Master degree, Univ. Rennes1, and of the "Méthodes et traitements de l'information biomédicale et hospitalière"

O. Dameron shares the coordination of the course "Bioinformatique expérimentale", Master1 in computer science, Univ. Rennes1 + ENS. He is the coordinator of the courses "Bases de mathématiques et probabilité" and "Méthodes en informatique" in Master1 in public health (Univ. Rennes 1), "Représentation des connaissances biomédicales" in Master2 in public health (Univ. Rennes 1), "Principes de programmation et d'algorithmique" and "Gestion de projets informatiques" in Master1 in bioinformatics (Univ. Rennes 1), "Standardisation des connaissances et bio-ontologies" in Master2 in bioinformatics (Univ. Rennes1), as well as of the course "e-Santé et réseaux hospitaliers" in the last year of engineering school ESIR (Univ. Rennes 1).

### 9.2.2. Teaching

Licence: C. Belleannée, Langages formels, 22h, L3 informatique, Univ. Rennes1, France.

Licence: C. Belleannée, bureautique et C2i, 40h, L1 informatique, Univ. Rennes1, France.

Licence: C. Belleannée, Algorithmique et Programmation Fonctionnelle, L1 informatique, Univ. Rennes1, France.

Licence: V. Delannée, Optique, 4h, PACES, Univ. Rennes 1, France.

Licence: V. Delannée, Biostatistiques, 24h, PACES, Univ. Rennes 1, France.

Licence: J. Coquet, Algorithmique et Programmation Fonctionnelle, 20h, L1 informatique, Rennes1, France.

Licence: J. Coquet, Bureautique, 10h, L1 informatique, Rennes1, France.

Licence: O. Dameron, Biostatistiques, 12h, PACES, Univ. Rennes 1, France.

Licence: V. Picard, Probability theory, 24h, L3, ENS Rennes, France.

Master: J. Coquet, Principes de programmation et d'algorithmique, 32h, M1 BioInformatique et génomique, Rennes1, France.

Master: A. Antoine-Lorquin, Principes de programmation et d'algorithmique, 32h, M1 BioInformatique et génomique, Univ. Rennes 1, France.

Master: A. Antoine-Lorquin, Bases de mathématiques, probabilités et statistiques, 32h, M1 Master STS - Mention Santé publique, Univ. Rennes 1, France.

Master: C. Belleannée, algorithmique du texte et bioinformatique, M1 informatique, Univ. Rennes1, France

Master: C. Belleannée, Préférences Logique et contraintes, 32h, M1 informatique, Univ. Rennes1, France

Master: F. Coste, Apprentissage Supervisé, 10h, M2 Informatique, Univ. Rennes 1, France

Master: F. Coste, Données Séquentielles Symboliques, 10h, M2 Informatique, Univ. Rennes 1, France

Master: O. Dameron, Bioinformatique expérimentale, 10h, M1 informatique, Univ. Rennes 1 and ENS Rennes, France

Master: O. Dameron, Gestion de projets informatiques, 23h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, Standardisation des connaissances et bio-ontologies, 22h, M2 bioinformatique et génomique, Univ. Rennes 1, France.

Master: C. Galiez, Compilation, 48h, M1 informatique, Rennes1 France

Master: V. Picard, Formal methods for safe development, 16h, M1, Univ. Rennes 1, France

Master: V. Picard, Agrégation de mathématiques option D, 16h, M1, ENS Rennes/Univ. Rennes 1, France.

Master: A. Siegel, Integrative and Systems biology, 20h, M2, Univ. Rennes 1, France

Engineer: O. Dameron, e-Santé et réseaux hospitaliers, ESIR, Rennes.

Engineer: O. Dameron, Bio-ontologies et Web Sémantique, ENSTBr, Brest.

### 9.2.3. Supervision

PhD : Clovis Galiez, *Structural fragments : comparison, predictability from sequence and application to identification of viral proteins*, 8 Dec. 2015, supervised by F. Coste and J. Nicolas. [11]

PhD: Vincent Picard, *Analyse dynamique d'algorithmes et dynamique symbolique pour l'étude de modèles semi-quantitatifs en biologie des systèmes*, 16 Dec. 2015, supervised by A. Siegel and J. Bourdon. [12]

PhD in progress : Aymeric Antoine-Lorquin, *Modèles grammaticaux au service de l'identification de marqueurs de régulation génétique dans les séquences biologiques*, started in Oct. 2013, supervised by C. Belleannée

PhD in progress : Jean Coquet, *Semantic-based reasoning for biological pathways analysis*, started in Oct. 2014, supervised by O. Dameron, N. Théret and J. Nicolas.

PhD in progress : Victorien Delannée, *Optimisation à différentes échelles pour étudier la variabilité de la toxicité de contaminants alimentaires*, started in Oct. 2014, supervised by A. Siegel and N. Théret.

PhD in progress : Julie Laniau, *Méthodes d'optimisation combinatoire pour reconstruire et analyser les systèmes métaboliques de microalgues*, started in Oct. 2013, supervised by A. Siegel and D. Eveillard.

PhD in progress : Clémence Frioux, *Using preferences in Answer Set Programming to decipher interactions within the species of an ecosystem at the genomic scale*, started in Oct. 2015, supervised by A. Siegel.

### 9.2.4. Juries

- *Member of Ph-D thesis jury*. T. Nguyen, LABRI, Bordeaux [A. Siegel, rapporteure]. N. Mobillia, IMAG, Grenoble [A. Siegel, présidente].
- *Member of medical thesis jury*. V. Margot, Rennes [O. Dameron, examinateur].

### 9.2.5. Internships

- Internship, from February until July 2015. Supervised by A. Siegel. Student: Clémence Frioux. Subject: Iterative reconstruction of functional metabolic networks for non-model organisms
- Internship, from April until July 2015. Supervised by O. Dameron and J. Coquet. Student: Pierre Vignet. Subject: Evaluation of a knowledge-based selection strategy for candidate metabolic pathways
- Internship, from January until July 2015. Supervised by F. Coste. Student: Maud Jusot. Subject: Syntactic modelling of viral genomes
- Internship, from April until July 2015. Supervised by A. Siegel. Student: Meziame Aite. Subject: Tools for the reconstruction of the metabolic network of *T. Lutea*
- Internship, from April until July 2015. Supervised by J. Nicolas. Student: Lucas Bourneuf. Subject: Model reduction with power graph algorithms
- Internship, from April until Aug 2015. Supervised by C. Belleannée. Student: David Picard-Druet. Subject: Coupling pattern discovery and pattern matching to design a composite signature for the Yeast polyadenylation site

### 9.3. Popularization

- *Organization of Sciences en Cour[t]s*. Popularization Festival where PhD students explain their thesis via short films. [J. Coquet, V. Delannée, A. Antoine-Lorquin, C. Bettembourg] [\[more info\]](#).
- *Production of Sciences en Cour[t]s film*. "Une rencontre percutante": A short movie about metabolic reconstruction. [J. Coquet, V. Delannée, A. Antoine-Lorquin] [\[more info\]](#).
- *Bioinfo-fr.net* Bioinfo-fr.net is a french web site where researchers, engineers and students talks about bioinformatics. We have written 6 articles for this web site on diverse subjects: metabolic networks, genome assembly, phylogenetics, network visualization, file versionning with GIT. [G. Collet, O. Dameron]. [\[more info\]](#).
- *Animation of Bioinformatics Atelier at Data Science Symposium (IRISA's 40th anniversary)* "De la bioinformatique aux tiques". [F. Coste]
- *Participation to the Data Science Symposium (IRISA's 40th anniversary)* "Science data ecosystem". [A. Siegel, O. Dameron]

## ERABLE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Pierluigi Crescenzi was co-chair of the 16th Italian Conference on Theoretical Computer Science, 9-11 September 2015, Florence, Italy.
- Alberto Marchetti-Spaccamela is member of the Steering committee of WG, Workshop on Graph Theoretic Concepts in Computer Science, and of ATMOS, Workshop on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems. He was Chair of the 12th Workshop on Models and Algorithms for Planning and Scheduling Problems (MAPSP), 8-12 June 2015, La Roche-en-Ardenne, Belgium.
- Marie-France Sagot is since 2010 member and since 2014 Chair of the Steering Committee of the International Conference *LATIN* (<http://www.latintcs.org/>). She is member of the Steering Committee of the *European Conference on Computational Biology (ECCB)* since 2002 and of the International Symposium on Bioinformatics Research and Applications (ISBRA) since 2008.

#### 9.1.1.2. Member of the organising committees

- Leen Stougie was co-organiser with Nikhil Bansal (TU Eindhoven) and Sem Borst (TU Eindhoven) of the *EURANDOM/Networks* workshop Scheduling under Uncertainty, 1-5 June, 2015, EURANDOM, Eindhoven, The Netherlands.
- Fabrice Vavre organised the symposium "Evolution and ecology of trait loss and dependency" at the 15th Congress of the European Society for Evolutionary Biology, Lausanne, August 9-14, 2015 in collaboration with J. Ellers (Amsterdam).

### 9.1.2. Scientific events selection

#### 9.1.2.1. Member of the conference program committee

- Pierluigi Crescenzi was a member of the program committee for the following international conferences in 2015: 30th IEEE International Parallel & Distributed Processing Symposium (IPDPS), 8th International Conference on Algorithms and Complexity (CIAC).
- Roberto Grossi was a member of the program committee for the following international conferences in 2015: 26th Annual Symposium on Combinatorial Pattern Matching (CPM), 26th International Workshop on Combinatorial Algorithms (IWOCA), ACM-SIAM Symposium on Discrete Algorithms (SODA).
- Alberto Marchetti-Spaccamela was a member of the program committee for the following international conferences in 2015: 40th International Symposium on Mathematical Foundations of Computer Science (MFCS), 14th International Symposium on Experimental Algorithms (SEA).
- Nadia Pisanti was a member of the program committee for the following international conferences in 2015: 11th International Symposium on Bioinformatics Research and Applications (ISBRA), 22nd International Symposium on String Processing and Information REtrieval (SPIRE), 4th International Symposium on Network Enabled Health Informatics, Biomedicine and Bioinformatics (Hi BI BI), 16th Italian Conference on Theoretical Computer Science (ICTCS), 15th Workshop on Algorithms in Bioinformatics (WABI), IEEE Conference on Information Reuse and Integration in Health Informatics (IEEE IRI-HI), 5th IEEE International Conference on Computational Advances in Bio and Medical Sciences (ICCABS).

- Marie-France Sagot was a member of the program committee for the following international conferences in 2015: 8th International Conference on Algorithms and Complexity (CIAC), 26th Annual Symposium on Combinatorial Pattern Matching (CPM), 17th Portuguese Conference on Artificial Intelligence (EPIA), 23rd Annual European Symposium on Algorithms (ESA), 23rd Annual International Conference on Intelligent Systems in Molecular Biology (ISMB), 40th International Symposium on Mathematical Foundations of Computer Science (MFCS), The Prague Stringology Conference 2015, 19th Annual International Conference on Research in Computational Molecular Biology (RECOMB), 13th RECOMB Satellite Workshop on Comparative Genomics (RECOMB-CG), The 15th Workshop of Algorithms in Bioinformatics (WABI).
- Blerina Sinimeri was a member of the program committee of the 10th International Workshop on Algorithms and Computation (WALCOM).

#### 9.1.2.2. Reviewer

Besides the above, various other members of ERABLE have been reviewer for other international conferences such as FAW, IWOCA, and WADS.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial board

- Pierluigi Crescenzi is member of the Editorial Board of *Journal of Computer and Systems Science* and *Electronic Notes on Theoretical Computer Science*.
- Roberto Grossi is member of the Editorial Board of *Theory of Computing Systems (TOCS)* and *RAIRO – Theoretical Informatics and Applications – Informatique Théorique et Applications*.
- Alberto Marchetti-Spaccamela is member of the Editorial Board of *Theoretical Computer Science* and *Transaction on Algorithms Engineering*.
- Nadia Pisanti is since 2012 member of Editorial Board of *International Journal of Computer Science and Application (IJCSA)*.
- Marie-France Sagot is member of the Editorial Board of *Lecture Notes in Bioinformatics* (subseries of *Lectures Notes in Computer Science*), *Journal of Discrete Algorithms*, *BMC Bioinformatics*, and *BMC Algorithms for Molecular Biology*.
- Leen Stougie is member of the Editorial Board of *Transactions on Algorithms Engineering* since 2010, *Surveys in Operations Research and Management Science* since 2011, and *Journal of Industrial and Management Optimization* since 2013.

Cristina Vieira is Executive Editor of *Gene*, and since 2014 member of the Editorial Board of *Mobile DNA*.

#### 9.1.3.2. Reviewer for Journals

Members of ERABLE have reviewed papers for the following journals: *Theoretical Computer Science*, *Algorithmica*, *IEEE/ACM Transactions in Computational Biology and Bioinformatics (TCBB)*, *Algorithms for Molecular Biology*, *Scientific Reports*, *Journal of Computational Biology*, *BMC Bioinformatics*, *Computing and Informatics*, *BMC Evolutionary Biology*, *Genetica*, *Gene*, *Genome Biology and Evolution*, *Genetical Research*, *Genome Research*, *Molecular Biology and Evolution*, *Insect Biochemistry and Molecular Biology*, *PLoS Genetics*, *Mutation research*, *mBio*, *Frontiers in Microbiology*, *Infection*, *genetics and evolution*, *PLoS Biology*.

#### 9.1.4. Invited talks

Pierluigi Crescenzi gave three seminars (University of Padova; FSMP, Paris; Istituto Stensen, Florence); Leandro Ishi Soares de Lima gave a talk at the SeqBio Meeting in Paris; Gunnar Klau gave four invited lectures (CS Colloquium of the Heinrich Heine University Düsseldorf, Germany; Bertinoro Computational Biology 2015, Italy; Amsterdam Data Science Seminar, The Netherlands; Integrated Systems Biology Symposium at Maastricht, The Netherlands); Vincent Lacroix made two invited presentations in the context of training meetings (Formation Bioinformatique pour les NGS Montpellier; Formation FC3Bio Lyon); Alberto



Marchetti-Spaccamela gave two seminars, one at TU Berlin, Germany, and the other at Laboratorio Nazionale CINI-InfoLife, Certosa di Calci, Italy; Nadia Pisanti gave four seminars (IMT Lucca; Laboratorio Nazionale CINI-InfoLife, Certosa di Calci, Italy; Glaxo-Novartis, Siena, Italy; Internet Festival 2015, Pisa, Italy); Blerina Sinimeri gave three seminars (LIRMM, Montpellier, France; Tor Vergata University of Rome, Italy; Sapienza University of Rome, Italy); Leen Stougje gave an invited plenary lecture at the MOABI-workshop in Paris; Fabrice Vavre gave two invited talks (Symposium Communication between genomes, and Symposium Mathematical modeling and new methods for dengue control, Paris in both cases) and one seminar (University of Groningen, The Netherlands).

### **9.1.5. Leadership within the scientific community**

Alberto Marchetti-Spaccamela is Member of the Council of EATCS, the European Association for Theoretical Computer Science.

Leen Stougje is Chairman of the Dutch Network on the Mathematics of Operations Research (Landelijk Netwerk Mathematische Besliskunde (LNMB)) and member of the Board of the research school ABRI-VU, Amsterdam.

Cristina Vieira is director of the GDRE “Comparative genomics” since the latter was renewed in 2010.

Marie-France Sagot and Fabrice Vavre are members of the Steering Committee of the LabEx Ecofect (<http://ecofect.universite-lyon.fr/>).

### **9.1.6. Scientific expertise**

Marie-France Sagot is member of the Advisory Board of the CWI, Amsterdam, The Netherlands, and chair of the “Commissions Scientifiques Spécialisées” (CSS) of the INRA for the Department of Applied Mathematics and Computer Science. She was also a Panel Member for the ERC.

Fabrice Vavre is member of the Section 29 of the Comité National de la Recherche Scientifique (CoNRS).

### **9.1.7. Research administration**

Hubert Charles is director of the Biosciences Department of the Insa-Lyon.

Alberto Marchetti-Spaccamela is Director of the Department of Computer, Control, and Management Engineering Antonio Ruberti at Sapienza University of Rome, Italy.

Nadia Pisanti is since 2013 member of the Board of the Regional PhD School of Computer Science at the University of Pisa, Italy; she was in 2015 member of the hiring committee of 2 Researcher positions at the University of Pisa.

Marie-France Sagot was until December 2015 member of the Scientific Advisory Board (“Conseil Scientifique (COS)”) for the Inria Grenoble Rhône-Alpes Research Center.

Alain Viari is since 2012 Deputy Scientific Director at Inria responsible for the domain “Digital Health, Biology and Earth”. He thus represents Inria at several national instances related to Life Sciences, Health and Environment.

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

### **9.2.1. Teaching**

Most of the members of ERABLE are Assistant / Associate or Full Professors and as such have a heavy load of teaching. Depending on the country, this represents between 150 to 192 hours in front of a class plus the additional work of preparing the courses and exams, and of correcting the latter. Many are also responsible for some of the university courses at the undergraduate or graduate levels.

More in detail:

- In France:
  - Hubert Charles is responsible for the Master of Modelling and Bioinformatics (BIM) at the Insa of Lyon. He teaches 192 hours per year in statistics and biology.
  - Pierluigi Crescenzi taught 120h (72h of Programming in Java for the undergraduate program in Computer Science and 48 of Distributed Algorithms for the Master in Computer Science) at the University of Florence.
  - Vincent Lacroix is responsible for several courses both at the University (L2: Bioinformatics, L3: Advanced Bioinformatics) and at the Insa (M1: Gene Expression, M2: Introduction to Bioinformatics for Biochemists). He teaches 192 hours per year in bioinformatics and statistics.
  - Arnaud Mary taught 110 hours in 2015 as a recently recruited personnel of the University of Lyon (L1: mathematics; L2: bioinformatics; M1: data analysis; M1: computer science, as well as 8h at the M2 in Computer Science at the ENS Lyon).
  - Cristina Vieira is responsible for the Evolutionary Genetics and Genomics academic career of the Master Ecosciences-Microbiology. She was awarded an IUF (Institut Universitaire de France) distinction and teaches genetics 64 hours per year at the University and ENS Lyon.
- In Italy:
  - Alberto Marchetti-Spaccamela taught 60 hours of Computing Models (undergraduate class) and 30 hours of Privacy in the electronic society (master class) at Sapienza University of Rome.
  - Nadia Pisanti taught 72h (24h of Programming in C for the undergraduate program in Computer Science and 42 of Algorithms for Bioinformatics for the Master in Computer Science) at the University of Pisa.
- In The Netherlands:
  - Gunnar Klau taught 40h (BSc course in Algorithm Engineering) at the Free University of Amsterdam, as well as one day of a two-day summer school for PhD students and postdocs on Biological Network Analysis at Free University Medical Center Amsterdam.

Inria or CNRS Junior and senior researchers as well as PhD students and postdocs are also involved in teaching. Notably Alice Julien-Laferrière (PhD student) taught 80 hours of Applied Mathematics and Bioinformatics at the Department of Biology (undergraduate students); H el ene Lopez-Maestre (PhD student) and Laura Urbini (PhD student) taught each 64 hours of Mathematics and Statistics at the Department of Biology (undergraduate students); Marie-France Sagot (Senior Inria Researcher) taught 6 hours at the Master 2 in Computer Science at the ENS Lyon; Blerina Sinimeri (Junior Inria Researcher) taught 8h in Discrete Mathematics at the Master of Modelling and Bioinformatics (BIM), INSA, and Master 1 MIV, University Lyon 1, as well as 10h at the Master 2 in Computer Science at the ENS Lyon; Fabrice Vavre taught 25h on symbiosis (L3, M1, M2, University Lyon 1, ENS Lyon, University of Poitiers).

### 9.2.2. Supervision

The following are the PhDs defended in ERABLE in 2015.

- Sandro Andreotti, FU Berlin, February 2015, supervisor: G. Klau.
- Mohammed El-Kebir, VU University Amsterdam, October 2015, supervisor: G. Klau.
- Mariana Galv o Ferrarini, University of Lyon 1, December 2015, supervisors: M.-F. Sagot and A. Zaha.
- Nela Lekic, University of Maastricht, December 2015, supervisor: L. Stougie, R. Peeters, S. Kelk.

### **9.2.3. Juries**

The following are the PhD or HDR juries to which members of ERABLE participated in 2015.

- Gunnar Klau: Reviewer of the PhDs of Timo Maarleveld, VU Amsterdam, The Netherlands; Kasper Dinkla, TU Eindhoven, The Netherlands; Martina Summer-Kutmon, Maastricht University, The Netherlands; Daniel Taliun, University of Bozen, Italy.
- Nadia Pisanti: Reviewer of the PhD of Michele Schimd, University of Padova, Italy.
- Leen Stougie: Member of the PhD committee of Ward Romeijnders, University of Groningen, The Netherlands; Mohammed El-Bekir, Free University of Amsterdam, The Netherlands.
- Fabrice Vavre: Reviewer of the PhDs of S. Gerritsma, Groningen University, The Netherlands, and Z.S. Wong, University of Queensland, Australia; member of the PhD committee of R. Stalinski, University of Grenoble Alpes, France; reviewer of the HDR of O. Kaltz, University of Montpellier 2, France; member of the HDR committee of F. Dedeine, University of Tours, France.
- Alain Viari: Reviewer of the HDR of Sarah Cohen-Boulakia and member of the HDR committee of Julie Bernauer, both University of Paris 11, France.

### **9.3. Popularisation**

Laura Urbini and Blerina Sinimeri participated at the Fête de la Science of Inria. The title of the workshop they presented was: “Du passé au présent : explorons l’évolution”. More information may be found at this address: <http://www.inria.fr/centre/grenoble/actualites/fete-de-la-science-les-coulisses-du-numerique>.

Fabrice Vavre participated to the “La foire aux savoirs”, Les Subsistances, Lyon on the topic of “Le savoir-faire de nos bactéries”, and to the “Université Ouverte” of the University Lyon 1 on the topic of “Quoi de neuf sur nos relations avec les bactéries”?

## **FLUMINANCE Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events selection**

#### *9.1.1.1. Member of the conference program committees*

Etienne Mémin was member of the ICCV'15 program committee

#### *9.1.1.2. Reviewer*

Cédric Herzet Reviewer for SPARS15

### **9.1.2. Journal**

#### *9.1.2.1. Member of the editorial boards*

Etienne Mémin

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

#### *9.1.2.2. Reviewer - Reviewing activities*

Dominique Heitz: Reviewer for Exp. in Fluids, ASME J. on Heat Transfer

Cédric Herzet: Reviewer for IEEE Tr. on Signal Processing, IEEE Tr. on Information Theor

Etienne Mémin: Reviewer for Tellus-A, IEEE Im. Proc., IEEE trans. Pat. Anal. Mach. Intel. , Im. Vis. Comp., Exp. in Fluids, Nonlinear Proc. in Geophysics., Journ. of Comp. Phys, Fluid Dynamics Research.

### **9.1.3. Invited talks**

Dominique Heitz

- Workshop on data assimilation – NIOPLEX, TU Berlin, February 2015.
- Cathala Letort XVII “L’usine agroalimentaire du futur”, Oniris, Nantes, November 2015.

Cedric Herzet

- Laboratoire d’Informatique Fondamentale de Marseille (LIF), Marseille, January 2015
- Workshop "Greed is Great" of the International Conference on Machine Learning (ICML), Lille, June 2015.

Etienne Mémin

- Workshop ANR COMODO, Port Bacares september 2015
- Seminar Laboratoire de Glaciologie et Géophysique de l’Environnement (LGGE, UMR5183), Grenoble, November 2015

### **9.1.4. Scientific expertise**

Cedric Herzet Project reviewer for the LEFE programm of the Institut National des Sciences de l’Univers

### **9.1.5. Research administration**

Dominique Heitz

- Responsible of the Irstea ACTA Team
- Member of Pôle Cristal scientific council

Etienne Mémin

- Responsible of the "Commission Développement Technologique" Inria Rennes
- Member of the "Commission Personnel" Inria-IRISA Rennes

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

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

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

Master : Cédric Herzet, Analyse de données, Mastere de Statistiques et Econométrie, 10h, niveau M1, Université de Rennes I

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

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

### 9.2.2. Supervision

PhD: Cordelia Robinson, Variational assimilation for 3D wake reconstruction, defended 18/12/2015, supervisors: Dominique Heitz, Etienne Mémin

PhD in progress : Benoit Pinier, Scale similarity and uncertainty for Ocean-Atmosphere coupled models, started 01/10/2014, supervisors: Roger Lewandowski, Etienne Mémin

PhD in progress : Valentin Resseguier, Oceanic models under uncertainty and image assimilation, started 01/10/2013, Bertrand Chapron (Ifremer), Etienne Mmin

PhD in progress : Pranav Chandamouli, Turbulent complex flows reconstruction via data assimilation in large eddy models, started october 2015, Dominique Heitz, Etienne Mémin.

### 9.2.3. Juries

Dominique Heitz

- Cordelia Robinson, Variational assimilation for 3D wake reconstruction, Université Rennes 1, Rennes, 18/12/2015, Supervisor.

Etienne Mémin

- Niels Oger, "Observation adaptative: limites de la prévision et du contrôle des incertitudes", Université Paul Sabatier, Toulouse, 10/07/2014, President
- Xu Chen, "New formulation of optical flow for turbulence estimation", Ecole Centrale de Lyon, 08/10/2015, Reviewer.
- Lucie Rotner, "Reconstruction de l'atmosphère turbulente à partir d'un lidar dopler 3D et étude du couplage avec Meso-NH", Université Paul Sabatier, Toulouse, 02/12/2015. Examiner.
- Raphael Legrand, "Utilisation des déformations spatiales en assimilation de données", Université Paul Sabatier, 10/12/2015, Examiner
- Cordelia Robinson, "Variational assimilation for 3D wake reconstruction", Université Rennes 1, Rennes, 18/12/2015, Supervisor.
- Dominique Heitz, "From wire to images the benefit of models to measure and reconstruct the motion of turbulent flows", HDR Université de Rennes I, 18/12/2015, Examiner
- Nicolas Papadakis, "Transport Optimal pour le Traitement d'Images", HDR Université de Bordeaux, 17/12/2015, Examiner.

## 9.3. Popularization

Cedric Herzet

- Volunteer at the "Journée sciences et musiques", Rennes 2015

## GALEN Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Kokkinos, Iasonas: (i) Co-Organizer of From Image Statistics to Probabilistic Deep Learning in conjunction with ICCV 2015, (ii) Co-Organizer of Search and Planning for Inference and Learning (SPIL), in conjunction with CVPR 2015
- Paragios, Nikos: (i) Organizer of 3rd Biomedical Image Analysis Summer School : Modalities, Methodologies & Clinical Research

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

- Blaschko, Matthew: British Machine Vision Conference (BMVC)
- Kokkinos, Iasonas: IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- Paragios, Nikos: Medical Image Computing and Computer Assisted Intervention (MICCAI)

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

- Blaschko, Matthew: International Conference on Computer Vision (ICCV), Annual Conference on Neural Information Processing Systems (NIPS)
- Kokkinos, Iasonas: International Conference on Computer Vision (ICCV), Neural Information Processing Systems (NIPS), International Conference on Learning Representations (ICLR)

#### 9.1.2.3. Reviewer

The members of the team reviewed numerous papers for several international conferences, such as for the annual conferences on Computer Vision and Pattern Recognition (CVPR), and Medical Image Computing and Computer Assisted Intervention (MICCAI)

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- Paragios, Nikos: Medical Image Analysis Journal (MedIA), SIAM Journal on Imaging Sciences
- Kokkinos, Iasonas: Image and Vision Computing Journal (IVC), Computer Vision and Image Understanding Journal (CVIU).
- Kumar, Pawan: Computer Vision and Image Understanding Journal (CVIU).

#### 9.1.3.2. Reviewer - Reviewing activities

- Blaschko, Matthew: IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI), Journal of Machine Learning Research (JMLR)
- Kokkinos, Iasonas: International Journal of Computer Vision, IEEE Transactions on Pattern Analysis and Machine Intelligence, Computer Vision and Image Understanding (CVIU)
- Ferrante, Enzo: IEEE Transactions on Medical Imaging (T-MI), Medical Image Analysis (MedIA), Computerized Medical Imaging and Graphics (CMIG)
- Zacharaki, Evangelia: IEEE Transactions on Medical Imaging (T-MI), Transactions on Biomedical Engineering
- Dokania, Puneet: Computer Vision and Image Understanding (CVIU)

### 9.1.4. Invited talks

- Paragios, Nikos: Hong Kong University of State and Technology, Chinese University of Hong Kong, Swiss Federal Institute of Technology in Zurich (ETHZ), Queen Mary University of London, Bayesian and Graphical Models in Biomedical Imaging (in conjunction with MICCAI), National Technical University of Athens

### 9.1.5. Scientific expertise

- Paragios, Nikos: (i) member of the Scientific Council of the SAFRAN Conglomerate, (ii) Member of the advisory board of the Data HealthCare Institute

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

#### Masters

Blaschko, Matthew:

- Master: Neural Information Processing, Spring, Ecole CentraleSupélec Paris, FR

Kokkinos, Iasonas

- Master: Machine Learning for Computer Vision, 24, M2, Ecole Normale Supérieure-Cachan, FR
- Master: Introduction to Deep Learning, 24, M2, CentraleSupélec, FR
- Master: Introduction to Signal Processing, 36, M1, CentraleSupélec, FR

### 9.2.2. Supervision

PhD in progress : Eugene Belilovsky, Structured Output Prediction on Large Scale Neuroscience Data, Université Paris-Saclay & KU Leuven, 2014-2017, M. Blaschko

PhD in progress : Jiaqian Yu, Structured Prediction Methods for Computer Vision and Medical Imaging, Université Paris-Saclay, 2014-2017, M. Blaschko

PhD in progress : Wacha Bounliphone, Statistical tools for Imaging-Genetics data integration, 2013-2016, Université Paris-Saclay & KU Leuven, M. Blaschko & A. Tenenhaus

PhD in progress : Amal Rannen, Deep Neural Networks for OCT image analysis, Yonsei University & KU Leuven, M. Blaschko & Y.M. Jung

PhD in progress : Jose Ignacio Orlando, Computer assisted fundus image analysis for eye disease detection, Universidad Nacional del Centro de la Provincia de Buenos Aires, M. Blaschko & M. del Fresno

PhD in progress : Puneet Kumar Dokania, Learning to Rank with Missing and High-Order Information, 2012-2015, M. Pawan Kumar

PhD in progress : Diane Bouchacourt, Large Scale Diverse Learning for Structured Output Prediction, 2014-2017, M. Pawan Kumar

PhD in progress: Haithem Boussaid, Efficient Inference and Learning in Graphical Models for Multi-organ Shape Segmentation, 2011-2015, I. Kokkinos

PhD in progress: Stavros Tsogkas, Learning structured mid-level representations for object recognition, 2011-2015, I. Kokkinos

PhD in progress: Siddhartha Chandra, Efficient Learning and Optimization for 3D Visual Data, 2013-2016, I. Kokkinos, Pawan Kumar

PhD in progress: Stefan Kinauer, Surface-based representations for high-level vision tasks, 2013-2016, I. Kokkinos.

PhD in progress: Alp Guler, Learning 3D representations for high-level vision, 2016-2018, I. Kokkinos.

PhD in progress : Stavros Alchatzidis, Message Passing Methods, Parallel Architectures & Visual Processing, 2011-2014, Nikos Paragios

PhD in progress : Enzo Ferrante, 2D-to-3D Multi-Modal Deformable Image Fusion, 2012-2015, N. Paragios

PhD in progress : Vivien Fecamp, Linear-Deformable Multi-Modal Deformable Image Fusion, 2012-2015, N. Paragios

PhD in progress : Evgenios Kornaropoulos, Diffusion Coefficient: a novel computer aided bio-marker, 2013-2016, N. Paragios

PhD in progress : Maxim Berman, Learning Higher Order Graphical Models, 2014-2017, N. Paragios, I. Kokkinos

PhD in progress : Hariprasad Kannan, Efficient Inference on Higher Order Graphs, 2014-2017, N. Paragios

PhD in progress : Huu Dien Khue Le, Graph-based Visual Perception : Theories and Applications, 2014-2017, N. Paragios

### 9.2.3. *Juries*

- **Matthew Blaschko**
  - **Grant Reviewing Services:** European Research Council (ERC), The French National Research Agency (ANR).
- **Iasonas Kokkinos**
  - **PhD Thesis Participation:** Mateusz Kozinski, Ecole des Ponts ParisTech (PhD).
- **Paragios, Nikos**
  - **PhD Thesis Participation**
  - **Grant Reviewing Services**

## 9.3. Popularization

- **Blaschko, Matthew**
  - **Presentations:** V Argentina Applied Maths Conference (MACI 2015)
- **Kokkinos, Iasonas**
  - **Presentations:** University of California at Los Angeles, Imperial College, Boston University, Xerox Research Center Europe



## GENSCALE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Workshop on Computational Optimization, Lodz, Poland [A. Mucherino]

### 10.1.2. Scientific events selection

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

- BIBM 2015: IEEE International Conference on Bioinformatics and Biomedicine [D. Lavenier]
- HPiC 2015: IEEE International Conference on High Performance Computing [D. Lavenier]
- PBC 2015: Workshop on Parallel Computational Biology [D. Lavenier]
- RECOMB-SEQ 2015: RECOMB Satellite Workshop on Massively Parallel Sequencing [D. Lavenier]
- WABI 2015: Workshop on Algorithms for Bioinformatics [D. Lavenier]
- BIOKDD 2015: Biological Knowledge Discovery and Data Mining [D. Lavenier]

#### 10.1.2.2. Reviewer

- WABI 2015 [C. Lemaitre]

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Discrete Applied Mathematics [A. Mucherino]

#### 10.1.3.2. Reviewer - Reviewing activities

- Advances in Bioinformatics [D. Lavenier]
- Algorithms for Molecular Biology [D. Lavenier]
- Bioinformatics [C. Lemaitre, D. Lavenier]
- BMC Bioinformatics [D. Lavenier]
- BMC Genomics [D. Lavenier]
- Briefing in Bioinformatics [D. Lavenier]
- Computers and Electronics in Agriculture [A. Mucherino]
- IEEE Transactions on Reconfigurable Technology and Systems [D. Lavenier]
- Journal of Biomedical and Health Informatics [D. Lavenier]
- Plos One [D. Lavenier]
- Journal of Computational and Applied Mathematics [A. Mucherino]
- International Transactions in Operational Research [A. Mucherino]
- Nature Scientific Reports [F. Legeai]
- Nucleic Acids Research [D. Lavenier]

### 10.1.4. Invited talks

- P. Peterlongo, *Reference-free NGS data analysis*, Litis, Rouen, March 2015.

- A. Mucherino, *Distance Geometry and Discretization Orders*, University of Aveiro, Portugal, May 2015.
- P. Peterlongo, *Mapping reads on de Bruijn graphs*, Bordeaux, Labri team, May 2015.
- A. Mucherino, *The several applications of the Distance Geometry*, University of Florianopolis, Brazil, June 2015.
- C. Lemaitre, *Reference-free detection of genomic variants: from SNPs to inversions*, "ABS4NGS", Institut Curie, Paris, France, June 2015.
- P. Peterlongo, *de Bruijn Graph usage and limitations*, Workshop on the future of algorithmic computational biology, Bertinoro, Italy, June 2015.
- D. Lavenier, *Genomic Data Processing*, "Journée Thématique GDR SoC-SiP", France, Nov. 2015.
- P. Peterlongo, *Prédiction de variants sans (ou avec) génome de référence*, MIA team, Toulouse, Nov. 2015.
- D. Lavenier, *Hybrid assembly based on long reads*, "Journée Scientifique Génomique et Bio-Informatique", France, on Dec. 2015.

### 10.1.5. Scientific expertise

- Expert for the MEI (International Expertise Mission), French Research Ministry [D. Lavenier]
- Member of the Scientific Council of BioGenOuest [D. Lavenier]
- Member of the Scientific Council of the Computational Biology Institute of Montpellier [D. Lavenier]

### 10.1.6. Research and teaching administration

- Member of « Conseil pédagogique de l'ISTIC » [R. Andonov]
- Responsible of the 3rd Year Computer Science BSc at ISTIC [R. Andonov]
- Member of the local Inria Rennes CDT (Technologic Transfer Commission) [D. Lavenier]
- Member of the steering committee of the INRA BIPAA Platform (BioInformatics Platform for Agroecosystems Arthropods) [D. Lavenier]
- Member of the steering committee of The GenOuest Platform (Bioinformatics Platform of BioGenOuest) [D. Lavenier]
- Representative of the environmental axis of UMR IRISA [C. Lemaitre]
- Inria center referee of Scientific mediation [P. Peterlongo]
- Member of the redaction committee Ouest Inria [P. Peterlongo]
- INRA Engineer recruitment committee [C. Lemaitre]
- Bordeaux University Engineer recruitment committee [C. Lemaitre]
- INRA Engineer recruitment committee, STLO, Rennes [F. Legeai]
- Assistant Professor recruitment committee, University of Brest [D. Lavenier]
- Professor recruitment committee, Polytech Montpellier [D. Lavenier]
- Scientific Responsible for International Relationships at ISTIC [A. Mucherino]
- Member of "Commission Affaires Internationales" at University of Rennes 1 [A. Mucherino]
- Member of the ISA Phd grant attribution jury [P. Peterlongo]
- AGOS first secretary [P. Peterlongo]

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Licence : A. Mucherino, Java basis, 80h, L1, Univ. Rennes 1, France.

- Licence : C. Lemaitre, Statistics for biology, 16h, L3, Univ. Rennes 1, France
- Master : A. Mucherino, Operational Research, 18h, M1, Univ. Rennes 1, France.
- Master : A. Mucherino, Introduction to Computational Systems and Networks, 42h, M1, Univ. Rennes 1, France. : A. Mucherino, Object Oriented Programming, 40h, M1, Univ. Rennes 1, France.
- Master : A. Mucherino, P. Peterlongo and R. Andonov, Algorithms on Sequences and Structures, 36h, M2, Univ. Rennes 1, France.
- Master : A. Mucherino, Parallel Computing (in English), 18h, M1, Univ. Rennes 1, France.
- Master : C. Lemaitre, P. Peterlongo, Text algorithmics for Bioinformatics, 43h, M1, Univ. Rennes 1, France.
- Master : C. Lemaitre, Dynamical systems for biological networks, 20h, M2, Univ. Rennes 1, France.
- Master : P. Peterlongo, Experimental Bioinformatics, 12h, M1, ENS Rennes, France.
- Master : D. Lavenier, Genomic Processing Data, 24h, M2, ESIR, Rennes, France.

### 10.2.2. Supervision

- PhD defense : Mathilde Le Boudic-Jamin, Similarités et divergences, globales et locales, entre structures protéiques, Univ. Rennes 1., 14/12/2015, supervised by R. Andonov.
- PhD defense : F. Moreews, Concevoir et échanger des workflows d'analyse de données. Application aux traitements intensifs en bioinformatique, Univ. Rennes 1, 11/12/2015, supervised by D. Lavenier and S. Lagarrigue.
- PhD in progress : G. Benoit, New algorithms for comparative metagenomics, start: 11/2014, D. Lavenier and C. Lemaitre
- PhD in progress : A. Limasset, Algorithm for Genomics, start: 09/2014, D. Lavenier and P. Peterlongo
- PhD in progress : C. Guyomar, Bioinformatic tools and applications for metagenomics of bacterial communities associated to insects, start: 10/2015, C. Lemaitre and F. Legeai
- PhD in progress : C. Marchet, Nouvelles méthodologies pour l'assemblage de données de séquençage polymorphes, start: 10/2015, P. Peterlongo
- PhD in progress : P. Hoan Son, Data mining and bioinformatics, start: 01/2015, D. Lavenier and A. Termier.

### 10.2.3. Juries

- *President of Ph-D thesis jury.* Julien Boutte, University of Rennes 1 [D. Lavenier]; Mouhamadou Ba, INSA Rennes [D. Lavenier], Clovis Galiez, University of Rennes 1 [R. Andonov]
- *Member of Ph-D thesis juries.* François Moreews, University of Rennes [D. Lavenier]
- *Referee of Ph-D thesis.* Nguyen, Thuy Diem, Nanyang Technical University, Singapor [D. Lavenier]; Andrea Radulescu, University of Nantes [D. Lavenier], Deepesh Agarwal, University of Nice [R. Andonov]
- *Member of Ph-D thesis comitees.* J. Laniau, University of Rennes [A. Mucherino]; A. Radulescu, university of Nantes [P. Peterlongo]; L. Siegwald, University of Lille [P. Peterlongo]; A. Mas, University of Rennes [P. Peterlongo]; H. Lopez, University of Lyon [C. Lemaitre]; T. Cumer, University of Grenoble [C. Lemaitre]; D. Eoche-Bosy, University of Rennes [F. Legeai]; H. Boulain, University of Rennes [F. Legeai]; Y., University of Rennes [F. Legeai]; M. Mulot, University of Colmar [F. Legeai].

## 10.3. Popularization

- Animation of Bioinformatics Atelier at Data Science Symposium (IRISA's 40th anniversary) "De la bioinformatique aux tiques". [P. Peterlongo]
- Open House day for IRISA's 40th anniversary: genomic puzzle [All members of GenScale]
- Participation to the event "A la decouverte de la recherche". [P. Peterlongo]
- Popularization paper in BioFutur [38]

## IBIS Project-Team

### 9. Dissemination

#### 9.1. Research

##### 9.1.1. Scientific events: organizing committees

###### 9.1.1.1. Member of organizing committees

IBIS members	Conference, workshop, school	Date
Hidde de Jong, Johannes Geiselmann	BEEsy Conference on Perspectives in Environmental and Systems Biology, Grenoble	April 2015
Hidde de Jong	CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	April 2015
Delphine Ropers	Séminaires de l'IXXI, Grenoble	2015
Delphine Ropers	Séminaire de Modélisation du Vivant (SeMoVi), Lyon and Grenoble	2015

##### 9.1.2. Scientific events: selection committees

###### 9.1.2.1. Chair of conference program committees

IBIS member	Conference, workshop, school	Role
Eugenio Cinquemani	European Control Conference (ECC) 2015 and 2016	Associate editor
Hidde de Jong	International Conference on Intelligent Systems in Molecular Biology (ISMB) jointly held with European Conference on Computational Biology (ECCB) 2015 and ISMB 2016	Area chair

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

IBIS member	Conference, workshop, program
Hidde de Jong	CMSB 2015, HSB 2015, FOSBE 2016

##### 9.1.3. Journals

###### 9.1.3.1. Member of editorial boards

IBIS member	Journal
Johannes Geiselmann	Frontiers in Microbiology (review editor)
Hidde de Jong	Journal of Mathematical Biology
Hidde de Jong	Biosystems
Hidde de Jong	ACM/IEEE Transactions on Computational Biology and Bioinformatics

**9.1.4. Scientific evaluation and expertise**

IBIS member	Organism	Role
Johannes Geiselmann	BGene	Member scientific advisory board
Johannes Geiselmann	ANR	Member of selection committee
Johannes Geiselmann	INRA	Member of scientific advisory committee Microbiology Microbiologie, Adaptation, Pathogénie
Johannes Geiselmann	UMR5240 CNRS-UCBL-INSA-BayerCropScience	Member scientific council
Johannes Geiselmann	ARC1, Rhône-Alpes region	Member scientific committee
Hidde de Jong	International Human Frontier Science Program (HFSP)	Member selection and review committees
Hidde de Jong	Microbiology and Food Chain Department, Inra	Member scientific council
Hidde de Jong	BGene	Member scientific advisory board
Delphine Ropers	IXXI, Complex Systems Institute in Lyon	Member scientific board

**9.1.5. Recruitment committees**

IBIS member	Organism	Recruitment
Johannes Geiselmann	INSA de Lyon	Professor
Delphine Ropers	Inria	Chargés de recherche (jury d'admission)
Delphine Ropers	INSA de Lyon	Assistant professor

**9.1.6. Invited talks****Eugenio Cinquemani**

Title	Event and location	Date
Reconstruction of promoter activity statistics from reporter protein population snapshot data	Presentation at 54th IEEE Conference on Decision and Control (CDC), Osaka, Japan	December 2015
Reconstructing statistics of promoter switching from reporter protein population snapshot data	Presentation at 4th International Workshop on Hybrid Systems Biology (HSB), Madrid, Spain	September 2015

**Hidde de Jong**

Title	Event and location	Date
Global physiological effects and the analysis of gene regulatory networks	Invited talk at Lorentz center workshop Integrated cell models, Leiden, the Netherlands	January 2015
Modeling gene regulatory networks by means of piecewise-linear models	Invited talk during Spring school on Sliding mode control: theory and applications, Aussois	June 2015
Integrated models of the cell: metabolism, gene expression, signalling	Tutorial at CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	March 2015
Analysis and control of bacterial regulatory networks	Seminar Centre for Research and Interdisciplinarity (CRI), INSERM, Paris, with Johannes Geiselmann and Delphine Ropers	June 2015
Accounting for global physiological effects in the analysis of gene regulatory networks	Seminar BrisSynBio, University of Bristol, UK	February 2015
Global physiological effects in the analysis of gene regulatory networks	Invited talk ETH Systems biology student retreat, Reichenau, Germany	September 2015

**Johannes Geiselmann**

Title	Event and location	Date
Analysis and control of bacterial regulatory networks	Seminar Centre for Research and Interdisciplinarity (CRI), INSERM, Paris, with Hidde de Jong and Delphine Ropers	June 2015
A synthetic growth switch and its biotechnological application	Presentation at BioSynSys Conference, Paris	September 2015
Control of bacterial growth	Seminar ENS Cachan	December 2015

**Nils Giordano**

Title	Event and location	Date
Understanding regulatory strategies for dynamical resource allocation in microorganisms	Presentation at CompSysBio (Advanced Lecture Course on Computational Systems Biology), Aussois	April 2015
Dynamical allocation of cellular resources as an optimal control problem: Novel insights into microbial growth strategies	Invited presentation at Séminaire de Modélisation du Vivant (SeMoVi), Grenoble	October 2015
Dynamical allocation of cellular resources as an optimal control problem: Novel insights into microbial growth strategies	Poster at Journée Annuelle des Doctorants de l'Ecole Doctorale CSV, Grenoble	October 2015

**Stéphane Lacour**

Title	Event and location	Date
Characterization of the Escherichia coli sigmaS core regulon by Chromatin Immunoprecipitation-sequencing (ChIP-seq) analysis: regulation of ncRNA by the alternative sigmaS factor	Regulating with RNA in Bacteria and Archaea Conference, Cancun, Mexico	December 2015

**Delphine Ropers**

Title	Event and location	Date
Analysis and control of bacterial regulatory networks	Seminar Centre for Research and Interdisciplinarity (CRI), INSERM, Paris, with Hidde de Jong and Johannes Geiselmann	June 2015
Adaptation of E. coli growth to environmental cues: global control of gene expression and post-transcriptional regulation	CEA Grenoble	November 2015

**9.1.7. Research administration**

IBIS member	Committee	Role
Eugenio Cinquemani	Inria Grenoble - Rhône-Alpes	Member Commission des Emplois Scientifiques
Eugenio Cinquemani	Comité des Utilisateurs des Moyens Informatiques (CUMI), Inria Grenoble - Rhône-Alpes	Member
Johannes Geiselmann	Department of Biology, Université Joseph Fourier	Member scientific council
Hidde de Jong	Grenoble - Rhône-Alpes research centre, Inria	Member scientific council
Hidde de Jong	Conseil d'Orientation Scientifique et Technique (COST), Inria	Member working group on International Relations
Delphine Ropers	Référente chercheurs, Inria Grenoble - Rhône-Alpes	
Delphine Ropers	Commission de Formation Permanente, Inria Grenoble - Rhône-Alpes	Member
Delphine Ropers	Inria	Member of Commission d'évaluation

**9.2. Teaching - Supervision - Committees****9.2.1. Teaching**

Four members of the IBIS team are either full professor, associate professor or assistant professor at the Université Grenoble Alpes. They therefore have a full teaching service (at least 192 hours per year) and administrative duties related to the organization and evaluation of the university course programs on all levels (from BSc to PhD). Besides the full-time academic staff in IBIS, the following people have contributed to courses last year.

**Eugenio Cinquemani**

Master: Identification of dynamical models of genetic networks, M2, BIM, INSA de Lyon (4 h)

Master: Statistics for biologists, M1, Master Approches Interdisciplinaires du Vivant, CRI/Université Paris Descartes (24 h)

Master: Modelling and identification of metabolic networks, M1, Phelma, INP Grenoble (4 h)

**Hidde de Jong**

Master: Modeling and simulation of gene regulatory networks, M2, BIM, INSA de Lyon (20 h)

Master: Integrated models of the cell: metabolism, gene expression, signalling, with Nils Giordano, M2, ENS Paris (8 h)

**Nils Giordano**

Master: Integrated models of the cell: metabolism, gene expression, signalling, with Hidde de Jong, M2, ENS Paris (8 h)

Master: Génétique des populations et biologie de la conservation, M1, Université Grenoble Alpes (6 h)

Bachelor: La bio-informatique : de l'analyse du génome à la modélisation, L2, Université Grenoble Alpes (24 h)

Bachelor: Génétique prokaryote, L2, Université Grenoble Alpes (40 h)

Bachelor: Génétique des populations, L2-L3, Université Grenoble Alpes (27 h)

**Delphine Ropers**

Master: Modelling in systems biology, M1, Phelma, INP Grenoble (16 h)

Master: Modeling and simulation of genetic regulatory networks, M1, Université Grenoble Alpes (7.5 h)

Master: Modeling and simulation of genetic regulatory networks, M2, INSA de Toulouse (5 h)

**François Rechenmann**

**E-learning:** MOOC Bioinformatics: Genomes and Algorithms (<http://www.inria.fr/actualite/actualites-inria/mooc-bioinformatique-genomes-et-algorithmes>)

**9.2.2. Supervision**

PhD: **Manon Morin**, Rôle du régulateur post-transcriptionnel CSR dans l'adaptation métabolique de la bactérie modèle *Escherichia coli*, November 2015. Supervisors: Muriel Coccagn-Bousquet (INRA) and Delphine Ropers

PhD: **Stéphane Pinhal**, Adaptation d'*E. coli* à la croissance sur acétate : une approche pluridisciplinaire, Université Grenoble Alpes, March 2015. Supervisors: Johannes Geiselmann, Delphine Ropers, and Hidde de Jong

PhD: **Valentin Zulkower**, Etude de la dynamique des mécanismes de la répression catabolique : des modèles mathématiques aux données expérimentales, Université Grenoble Alpes, March 2015. Supervisors: Hidde de Jong, Johannes Geiselmann, and Delphine Ropers

PhD in progress: **Stefano Casagrande**, Analysis and control of cell growth models. Supervisors: Jean-Luc Gouzé (BIOCORE) and Delphine Ropers

PhD in progress: **Nils Giordano**, Régulation de la croissance chez *Escherichia coli* : étude théorique et expérimentale à l'aide de modèles coûts-bénéfices. Supervisors: Hidde de Jong and Johannes Geiselmann

PhD in progress: **Bernard Chielli Ponce de Leon**, Stochasticity of gene expression in strains of *E. coli* with a controlled growth rate and number of chromosomes. Supervisors: Irina Mihalcescu (Université Grenoble Alpes) and Johannes Geiselmann

**9.2.3. PhD thesis committees, PhD advisory committees, and habilitation committees****PhD thesis committees**



IBIS member	Role	PhD student	University	Date
Johannes Geiselmann	Membre	Stéphane Pinhal	Université Grenoble Alpes	March 2015
Johannes Geiselmann	Membre	Valentin Zulkower	Université Grenoble Alpes	March 2015
Johannes Geiselmann	Rapporteur	Marie Carquet	Université Paul Sabatier, Toulouse	March 2015
Johannes Geiselmann	Membre	Marie-Cecilia Duvernoy	Université Grenoble Alpes	November 2015
Johannes Geiselmann	Membre	Christopher Swale	Université Paul Grenoble Alpes	November 2015
Johannes Geiselmann	Rapporteur	Aleksandra Delplanque	Université Paris-Saclay	December 2015
Hidde de Jong	Rapporteur	Thomas Todd	University of Bristol, UK	February 2015
Hidde de Jong	Rapporteur	Thomas Duigou	Université Paris Sud	May 2015
Hidde de Jong	Rapporteur	Abhishekh Gupta	Tampere University of Technology, Finland	June 2015
Hidde de Jong	Président	Adrien Richard	Université Paris Descartes	December 2015
Hidde de Jong	Invité	Stéphane Pinhal	Université Grenoble Alpes	March 2015
Hidde de Jong	Membre	Valentin Zulkower	Université Grenoble Alpes	March 2015
Stéphan Lacour	Examineur	Xuejiao Jiang	INSA de Lyon	September 2015
Delphine Ropers	Membre	Stéphane Pinhal	Université Grenoble Alpes	March 2015
Delphine Ropers	Membre	Valentin Zulkower	Université Grenoble Alpes	March 2015
Delphine Ropers	Examineur	Ismail Belgacem	Université de Nice-Sophia Antipolis	March 2015
Delphine Ropers	Membre	Manon Morin	Université de Toulouse	November 2015

**habilitation (HDR) committees**

IBIS member	Role	PhD student	University	Date
Johannes Geiselmann	Membre	Gilles Curien	Université Grenoble Alpes	February 2015

**PhD advisory committees**

IBIS member	PhD student	University
Eugenio Cinquemani	Artemis Llamosi	Université Paris Descartes
Johannes Geiselmann	Jean-Baptiste Lugagne	Université Paris Descartes
Stéphan Lacour	Alexandre Duprey	INSA de Lyon
Delphine Ropers	Alice Julien-Laferrière	Université de Lyon
Delphine Ropers	Martin Wannagat	Université de Lyon

**9.2.4. Teaching administration**

Yves Markowicz is director of the BSc department at Université Joseph Fourier.

Michel Page is coordinator of the master Systèmes d'information et d'organisation at the Institut d'Administration des Entreprises (IAE), Université Grenoble Alpes.

Delphine Ropers organizes a module on the mathematical modeling of biological systems at PHELMA, INP Grenoble.

Hidde de Jong organizes with Daniel Kahn a module on the modeling of genetic and metabolic networks at INSA de Lyon.

## LEMON Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events selection

#### 10.1.1.1. Member of the conference program committee

Fabien MARCHE is member of the scientific committee of [Advances in Numerical modeling of Hydrodynamics](#), 2015.

Fabien CAMPILLO is member of the scientific evaluation panels for the ANR's Generic Call for Proposals.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial board

Vincent GUINOT : Journal of Hydroinformatics.

Antoine ROUSSEAU : Discrete and Continuous Dynamical Systems, Series S.

#### 10.1.2.2. Reviewer

Fabien MARCHE : Advances in Applied Mathematics and Mechanics, International Journal for Numerical Methods in Fluids, Journal of Applied and Computational Mathematics, Journal of Computational Physics, Journal of Scientific Computing and SIAM Journal on Scientific Computing.

Vincent GUINOT : Journal of Hydrology and Journal of Hydroinformatics.

Antoine ROUSSEAU : Applied Numerical Mathematics, International Journal for Numerical Methods in Fluids.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

F. Campillo, Stochastic modelling of ecosystems, 20 h, M2R Biostatistics, Univ. Montpellier .

F. Campillo, Object oriented programming: probabilistic modeling and statistical numerics for biology, 20 h, Doctoral lectures, Univ. Montpellier.

V. Guinot, Mécanique des fluides, 72h ETD, L3, Polytech'Montpellier, France

V. Guinot, Hydraulique à surface libre, 60h ETD, L3, Polytech'Montpellier, France

V. Guinot, Méthodes Mathématiques pour l'Ingénieur, 18h ETD, M1, Polytech'Montpellier, France

V. Guinot, Hydraulique des Réseaux, 30h ETD, M1, Polytech'Montpellier, France

V. Guinot, Mécanique des Fluides, Master SPAE, 36h ETD, M1, UMontpellier, France

V. Guinot, Transitoires hydrauliques, 54 h ETD, M1, Polytech'Montpellier, France

V. Guinot, tutorat de stages ingénieur, 15h ETD, M1, Polytech'Montpellier, France

V. Guinot, Modélisation hydraulique à surface libre 2D, 6h ETD, M2, Polytech'Montpellier, France

V. Guinot, Projet Industriel de Fin d'Etudes (PIFE), 30h ETD, M2, Polytech'Montpellier, France

V. Guinot, Tutorat de Stage de fin d'études ingénieur, 18h ETD, M2, Polytech'Montpellier, France

F. Marche, Biomaths, 72h TD., L1, Université Montpellier, France

F. Marche, Analyse numérique des EDP, 24H CM, 12H TD, 15H TP., M1, Université Montpellier, France

F. Marche, Calcul scientifique avancé, 26H CM, M2R, Université Montpellier, France

### 10.2.2. Supervision

PhD in progress: Mehdi Pierre Daou, *Développement d'une méthodologie de couplage multi-modèles avec changements de dimension. Validation sur un cas-test réaliste en dynamique littorale*, May 2013, Eric Blayo (EPI MOISE) and Antoine Rousseau

PhD in progress: Mohsen Chebbi, Modélisation stochastique de procédés membranaires de traitement des eaux usées. September 2014, S. Toumi (ENIT, Tunis) and F. Campillo.

PhD in progress: Oussama Hadj-Abdelkader, Filtrage particulaire pour le chemostat. September 2014, A. Hadj-Abdelkader (Univ. Tlemcen) and F. Campillo.

### 10.2.3. Juries

Fabien CAMPILLO : President of the jury of the associate professor (Maitre de Conférence) at the university of Bordeaux (mathematics).

Fabien CAMPILLO : Referee and jury member: M. Étienne Descamps (AgroParisTech). *Approche de modélisation Monte-Carlo individu-centrée opérant par événements discrets appliquée à un procédé d'homogénéisation d'une émulsion laitière*

Antoine ROUSSEAU : CR2 competition in Inria Sophia-Antipolis, spring 2015.

## 10.3. Popularization

Antoine ROUSSEAU co-authored two outreach publications in Interstices, see [17] and [18].

Antoine ROUSSEAU gave several conferences for highschool students and their teachers in France, on the topics of mathematical modeling for environmental sciences:

*Fête de la Science*, Oct. 2015, Genopolys Montpellier

*Fête de la Science*, Oct. 2015, Centre International de Valbonne

Antoine ROUSSEAU is member of the national Inria network for scientific outreach *Médiation scientifique*

Antoine ROUSSEAU gave several informal conferences in Grand Palais for the COP21 week (December 3-10, Paris)

## LIFEWARE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Grégory Batt, Pascal Hersen, and Denis Thiéffry organized the 2nd International Conference on Design, optimization and control in systems and synthetic biology, **DOC'15**, November 12-13, 2015, ENS, Paris.
- François Fages was co-chair with Nicolas Beldiceanu of the 6th International Workshop on Bin Packing and Placement Constraints, **BPPC'15** associated to CP'15, 31st August 2015, Cork, Ireland.
- François Fages is member of the Steering Committee of the **International Conference on Computational Methods for Systems Biology** since 2008.

### 9.1.2. Scientific events selection

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

- Grégory Batt was member of the program committees of :
  - **HSB'15** Fourth International Workshop on Hybrid Systems Biology, Madrid, Spain, September 3-4, 2015
  - **CMSB'15**, 13th International Conference on Computational Methods in Systems Biology, Nantes, France, Sept. 16-18, 2015.
- François Fages was member of the program committees of :
  - **IJCAI'16** 25th International Joint Conference on Artificial Intelligence, New York, USA, 2016.
  - **CIE'16** Computability in Europe, Paris, 2016.
  - **HSB'15** Fourth International Workshop on Hybrid Systems Biology, Madrid, Spain, September 3-4, 2015
  - **CP'15** 21st International Conference on Principles and Practice of Constraint Programming, Cork, Ireland, Aug 31-Sep 4, 2015.
  - **ICLP'15** 31st International Conference on Logic Programming, Cork, Ireland, Aug 31-Sep 4, 2015.
  - **WCB'15** 11th Workshop on Constraint-based methods for Bioinformatics, associated to CP'15, Cork, Ireland, August 31st 2015.
  - **CMSB'15**, 13th International Conference on Computational Methods in Systems Biology, Nantes, France, Sept. 16-18, 2015.
  - **LMBS'15**, 1st International Workshop on Logical Modeling of Biological Systems, satellite workshop of CMSB'15, Nantes, France, Sept. 18, 2015.
  - **VEMDP'15**, Verification of Engineered Molecular Devices and Programs, July 19, 2015, San Francisco, USA.
  - **FroCoS'15**, Wroclaw, Poland, 15-19 Sep 2015.
- Sylvain Soliman was member of the program committee of:

- **WCB'15** 11th Workshop on Constraint-based methods for Bioinformatics, associated to CP'15, Cork, Ireland, August 31st 2015.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

François Fages is member of

- the Editorial Board of the Computer Science area of the Royal Society Open Science journal since 2014
- the Editorial Board of the journal RAIRO OR Operations Research since 2004

#### 9.1.3.2. Reviewer - Reviewing activities

- Grégory Batt and Jean-Baptiste Lugagne were reviewers for the journal *ACS Synthetic Biology*. Grégory Batt was reviewer for the *Journal of Molecular Biology*.
- Chiara Fracassi was reviewer for the journal *Epidemiology and Infection*.
- François Fages and Pauline Traynard were reviewers for *Theoretical Computer Science*. François Fages was reviewer for *PLoS Computational Biology*, *Transaction on Computational Biology and Bioinformatics*, *Theoretical Computer Science*, *Acta Biotheoretica*, *Transactions on Computational Logic*, and *Journal of Constraints*.

Sylvain Soliman was reviewer for *BMC Systems Biology*, *AMS Math Reviews*, *PLoS One*, and *Bioinformatics*.

### 9.1.4. Invited talks

- Virgile Andréani gave an invited talk at the Journée nationale du groupe de travail BIOSS, 23 Nov 2015.
- Grégory Batt gave invited talks at
  - workshop Integrative cell models: Bridging microbial physiology and systems biology, Leiden, the Netherlands (short talk), January 2015
  - Institute of Genetics and Development of Rennes, Reverse Engineering Cell Division team, February 2015
  - Interdisciplinary Computing and Complex BioSystems group, Newcastle University, UK, May 2015
  - Laboratoire de Biologie Moléculaire de la Cellule, ENS Lyon, October 2015
- François Bertaux gave an invited talk at the conference Design, Optimization and Control of Systems and Synthetic Biology, ENS Paris, Nov 2015.
- François Fages gave invited talks at
  - University of Bonn, Bioinformatics Seminar, Germany, 11 December 2015,
  - CNRS Sys2Diag lab, Montpellier, 8 December 2015,
  - Journée nationale du groupe de travail BIOSS, Paris, 23 November 2015,
  - National Taiwan University, Biology Dept., Taipei, Taiwan, 14 July 2015
  - National Taiwan University, Electrical Engineering Dept., Taipei, Taiwan, 15 July 2015
  - CIRM, “Méthodes de réduction de modèles discrets”, Marseille, 28 May 2015
  - aSSB'15 Thematic Research School, Strasbourg, 23-27 March 2015
- Artemis Llamasi gave an invited talk at the Conference **Lyon SysBio 2015**, November 2015
- Jean-Baptiste Lugagne gave an invited talk at the conference Design, Optimization and Control of Systems and Synthetic Biology, ENS Paris, Nov 2015.
- Chiara Fracassi gave an invited talk at BioSynSys'15, the first conference of the GDR Synthetic and Systems Biology, Paris Diderot U, Sept 2015.

### 9.1.5. Leadership within the scientific community

- Grégory Batt is a member of
  - the IEEE/CSS Technical Committee on Systems Biology,
  - the scientific board of the GDR de Biologie de Synthèse et des Systèmes
  - the GDR de Bioinformatique Moléculaire, in charge of the axis on Biological network modelling, systems biology and synthetic biology
- François Fages is a member of the Steering Committee of the international conference series Computational Methods in Systems Biology since 2008

### 9.1.6. Scientific expertise

Grégory Batt was member of the review and selection panels of ERASysAPP, an ERA-NET for Systems Biology Applications (Gothenborg, April 2015). He was also a reviewer for ANR blanc programme. He is a member of the scientific committee of the Advanced Lecture Course on Computational Systems Biology summer school. He has also served as a mentor in the workshop Teaching Through Research of the Leadership Program, organised by the Centre for Research and Interdisciplinarity under the auspice of the “learning science” UNESCO chair (April 2015, Paris).

François Fages is a member of the Scientific Council of the *Doctorate School “Frontières Du Vivant” at Center for Research and Interdisciplinarity*, Universities Paris Descartes and Paris Diderot (since 2010). He was a member of the *Comité de Sélection* for a Professorship position in Section 27 in Lille and member of the jury for the *Prix de thèse Gilles Kahn* of the *Société Informatique de France*.

### 9.1.7. Research administration

François Fages is member of the “Bureau du Comité des Projets” of Inria Paris-Rocquencourt.

Sylvain Soliman is president of the “Comité de Suivi Doctoral” and of the “Commission de Développement Technologique” of Inria Paris-Rocquencourt.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: Grégory Batt, *Computational Biology*, coordinator 48h, M1, Master Approches Interdisciplinaires du Vivant (AIV).

Master: Grégory Batt (6h), Denis Thieffry (coordinator), *Dynamical Modelling of Cellular Regulatory Networks*, M2, Interdisciplinary Master in Life Science at the Ecole Normale Supérieure, Paris.

Master: François Fages (coordinator module 48h, teaching 12h), Grégory Batt (12h), Denis Thieffry (12h), C2-19 *Computational Methods for Systemic and Synthetic Biology*, Master Parisien de Recherche en Informatique (MPRI), Paris.

Master: Chiara Fracassi, *Dynamics of Living Systems*, 24h, M1, Master Approches Interdisciplinaires du Vivant (AIV).

Master: Thierry Martinez, *Développement logiciel*, 17h, M1, Ecole des Ponts et Chaussée, Champs-sur-Marne.

Master: Sylvain Soliman, C2-35-1 *Constraint Programming*, coordinator and teaching 24h, M2, Master Parisien de Recherche en Informatique (MPRI), Paris.

Master: Pauline Traynard, *Introduction to Linux and Programming with Python and R*, M1, M2, 30h, master IMaLiS du département de biologie de l’ENS,

### 9.2.2. Supervision

PhD : Katherine Chiang, *Biomolecular Computing System Design: Architecture, Synthesis, and Simulation*, National Taiwan University, Taipei, Taiwan (Sep 2012), Dir. Jie-Hong Jiang and François Fages, 13 July 2015.

PhD : Steven Gay, *Subgraph Epimorphisms: Theory and Application to Model Reductions in Systems Biology*, Université Paris Diderot, Paris (Oct 2009), Dir. François Fages and Sylvain Soliman, 26 May 2015.

PhD : Artémis Llamosi, Université Paris Diderot, Paris (Nov 2012), Dir. Grégory Batt and Pascal Hersen (MSC), 15 Dec 2015.

PhD : Thierry Martinez, *Execution models for Constraint Programming: kernel language design through semantics equivalence*, Université Paris Diderot, Paris (Oct 2009), Dir. François Fages, 17 December 2015

PhD in progress : François Bertaux, Université Pierre et Marie Curie, Paris (Sept 2011), Dir. Dirk Drasdo (EPI MAMBA) and Grégory Batt

PhD in progress : Jean-Baptiste Lugagne, Université Paris Diderot, Paris (Oct 2012), Dir. Grégory Batt and Pascal Hersen (CNRS, MSC)

PhD in progress : Jonas Sénizergues, Université Paris Diderot, Paris (Oct 2015), Dir. François Fages and Sylvain Soliman

PhD in progress : Pauline Traynard, Université Paris Diderot, Paris (Oct 2012), Dir. François Fages and Denis Thieffry (ENS)

### 9.2.3. Juries

- PhD Alexis Courbet, “Engineering autonomous and programmable biosensors through synthetic biology: integrating multiplexed biomarker detection and biomolecular signal processing into next-generation diagnostics”, Univ. Montpellier, 7 December 2015, Invited Examiner: François Fages
- PhD Christopher Banks, “Spatio-temporal Logic for the Analysis of Biochemical Models”, 28 Jan 2015, Univ. of Edimburgh, Scotland, Reviewer: François Fages
- PhD Erwan Bigan, “Minimal conditions for protocell growth”, Dec 2015, Ecole Polytechnique, France, Reviewer: Gregory Batt

## 9.3. Popularization

Pascal Hersen and Artémis Llamosi are founders of the *OpenLab* at the *Center for Research and Interdisciplinarity* in Paris, and organizers of related events on product industrialization. They provide scientific expertise to hosted startups.



## **M3DISIM Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific events organisation**

#### *10.1.1.1. Member of the organizing committees*

Philippe Moireau

- Member of the CEMRACS-2016 organizing committee
- P. Le Tallec's 60th Birthday conference

### **10.1.2. Scientific events selection**

#### *10.1.2.1. Member of the conference program committees*

Dominique Chapelle

- Program committee of conference "Functional Imaging and Modeling of the Heart 2015"

#### *10.1.2.2. Reviewer*

Dominique Chapelle

- Reviewer for conference "Functional Imaging and Modeling of the Heart 2015"

### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

Dominique Chapelle

- Member of the editorial board of journal *Computers & Structures*
- Member of the editorial board of journal *ESAIM: M2AN*

#### *10.1.3.2. Reviewer - Reviewing activities*

The members of the team reviewed numerous papers:

- D. Chapelle: *Computers & Structures*, *CMAME*, *IJNME*, *BMMB*, etc.
- P. Moireau: *Computers in Biology and Medicine*, *ESAIM: COCV*, *ESAIM: M2AN*
- S. Imperiale: *ESAIM: M2AN*, et *Waves in Random and Complex Media*
- A. Aalto: *International Journal of Control*

### **10.1.4. Invited talks**

Philippe Moireau

- "Mechanisms of observers and observers in mechanics ", P. Le Tallec's 60th Birthday conference, Ecole Polytechnique, France

Dominique Chapelle

- Invited lecturer at International Workshop on Electroactivity of Biological Systems (Orsay Univ., November 18-19 2015)
- Seminar at CERMICS (Ecole des Ponts ParisTech, Nov. 10)

### **10.1.5. Leadership within the scientific community**

Dominique Chapelle

- Member of the Academic Senate of FCS Paris-Saclay
- Member of the board of directors of the VPH Institute

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Bachelor: S. Imperiale, “MA102 – Analyse pour les EDP”, 12h, (L3), ENSTA ParisTech, France

Bachelor: S. Imperiale, “MA104 – Analyse complexe”, 8h, (L3), ENSTA ParisTech, France

Master: S. Imperiale, “MA2610 Calcul Scientifique – Mécanique des solides”, 6h, (M1), Central/Supélec, France

Master: P. Moireau, “MA103 – Introduction aux EDP et à leur approximation numérique”, 14h, (L3), ENSTA ParisTech, France

Master: P. Moireau, “MAP-Ann1 – La méthode des éléments finis”, 21h, (M1), ENSTA ParisTech, France

Master: P. Moireau, “MAP 411 – Approximation numérique et optimisation”, (M1), Ecole Polytechnique, France

Master: D. Chapelle, “Biomechanical Modeling of Active Tissues”, 18h, (M2), Université Paris-Saclay, France

Master: P. Moireau, “Biomechanical Modeling of Active Tissues”, 17h, (M2), Université Paris-Saclay, France

Master: P. Moireau, “Méthodes et Problèmes inverses en dynamique des populations”, 6h, (M2), UPMC, France

Master: D. Chapelle, lecture on biomechanical modeling in Master BME, 3h, (M2), Paris 5 and ParisTech

#### E-learning

Mooc: Contributor: Main teacher Emmanuel De Langre, Title: Fundamentals of Fluid-Solid Interactions, 6 weeks long, Coursera, Ecole Polytechnique, About 2000 students, Level M1

Pedagogical resources: B. Burtschell, Poromechanical modelling and application to the myocardium perfusion, video

### 10.2.2. Supervision

PhD in progress: Bruno Burtschell. Title: Poromechanical modelling and application to the myocardium perfusion. Started: October 2013. Supervisors: Dominique Chapelle and Philippe Moireau.

PhD in progress: Aurora Armiento<sup>0</sup>. Title: Inverse problems for depolymerization models. Started: October 2013. Supervisors: Marie Doumic<sup>0</sup> and Philippe Moireau.

PhD in progress: Federica Caforio, Mathematical and numerical modelling of elastic waves propagation in the heart. Started: November 2015. Supervisors: Sébastien Imperiale, Dominique Chapelle.

PhD in progress: Geoffrey Beck, Mathematical modelling of electrical cables network. Started: September 2012. Supervisors: Patrick Joly<sup>0</sup>, Sébastien Imperiale.

### 10.2.3. Juries

- D. Chapelle was the chairman of the PhD jury of Fang Yao (Ecole Polytechnique, Nov. 25)
- D. Chapelle and P. Moireau have actively participated in the recruitment of an Ecole Polytechnique assistant professor intended to join the team (soon to become a joint team between LMS / Ecole Polytechnique and Inria). The selection process led to the recruitment of Martin Genet.

## 10.3. Popularization

D. Chapelle, Febr. 9th, article in “Le Figaro”: “A quoi sert de modéliser le fonctionnement du cœur ?”

P. Moireau, May 20th 2015, keynote entitled “The heart forecasting” at Créteil District Academy “Olympiade de Mathématiques” award ceremony.

<sup>0</sup>Mamba Team  
<sup>0</sup>Mamba Team  
<sup>0</sup>Poems Team

## **MAGIQUE-3D Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. Member of the organizing committees*

Hélène Barucq organized the Third Workshop of Strategic Action DIP in Pau, June 21-22, 2015, <http://dip.inria.fr/workshops/third-workshop-of-the-strategic-action-dip/>

Victor Péron and Hélène Barucq organized a series of courses at University of Pau in the framework of the GEAGAM project: Coding the FEM (A. Rodriguez), Seismic depth imaging (R. Baina), Discontinuous Galerkin methods for the simulation of wave propagation (J. Diaz), May 18-22, 2015

Victor Péron and Hélène Barucq organized the Workshop on Advanced Subsurface Visualization Methods: “Exploring the Earth”, Pau 26-27 May 2015, in the framework of the GEAGAM project <https://sites.google.com/site/geagamnetwork/workshop>.

Juliette Chabassier organized with Damien Fournier a Mini Symposium on Helioseismology at Waves 2015 conference (THE 12TH INTERNATIONAL CONFERENCE ON MATHEMATICAL AND NUMERICAL ASPECTS OF WAVE PROPAGATION), Karlsruhe, Germany, July 20-24, 2015. [http://waves2015.math.kit.edu/conf\\_program.html#minisymp](http://waves2015.math.kit.edu/conf_program.html#minisymp)

#### **9.1.2. Journal**

##### *9.1.2.1. Reviewer - Reviewing activities*

In 2015, the members of the team have been reviewers for ESAIM : Mathematical Modelling and Numerical Analysis, New York Journal of Mathematics, SIAM Journal on Scientific Computing, SIAM Journal on Numerical Analysis, Acta Acustica united with Acustica, Journal of the Acoustical Society of America, Journal of Sound and Vibration, Journal of Computational Physics, Mathematics of Computation, Wave Motion, Geophysical Journal International, Journal of Computational Acoustics.

#### **9.1.3. Research administration**

Hélène Barucq was vice-chair of the Inria evaluation committee until June 2015. She participated to the national jury of Inria competitive selection for Senior Researchers (DR2) and to the local jury of Inria competitive selection for Young Graduate Scientists (CR2) in Bordeaux. She participated to the selection committee for Research Positions (Junior and Senior). She participated to the selection committee for an Assistant Professor position at the University of Pau. She is member of the board of the Laboratory of Mathematics of Pau and of the research federation IPRA which are both under the administrative supervision of CNRS. She is the scientific head of the project DIP.

Julien Diaz is elected member of the Inria Technical Committee and of the Inria Administrative Board. He is appointed member of the CDT (Commission de Développement Technologique) and of the Center Committee of Inria Bordeaux Sud-Ouest.

Sébastien Tordeux is elected member of the 26th section of the CNU (Conseil National des Universités).

Victor Péron is appointed member of the CJC (Commission Jeunes Chercheurs) of Inria Bordeaux Sud-Ouest.

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

### **9.2.1. Teaching**

- Licence : Victor Péron, Mathématiques Appliquées, 15 Eq. TD, L1, UPPA, France
- Licence : Victor Péron, Compléments d'analyse, 19,5 Eq. TD, L2, UPPA, France
- Licence : Victor Péron, Calcul intégral, 19,5 Eq. TD, L3, UPPA, France
- Master : Julien Diaz, Transformées, 24h Eq. TD, M1, EISTIA, France
- Master : Marc Duruflé, Calcul scientifique en C++, 96h Eq. TD, M1, Bordeaux INP, France
- Master : Marc Duruflé, Equations Différentielles, 20h Eq. TD, L3, Bordeaux INP, France
- Master : Victor Péron et Sébastien Tordeux, Analyse numérique fondamentale, 87h Eq. TD, M1, UPPA, France
- Master : Victor Péron, Analyse, 23h Eq. TD, M1, UPPA, France
- Master : Sébastien Tordeux, Introduction aux phénomènes de propagation d'ondes, 38h Eq. TD, M2, UPPA, France
- Master : Sébastien Tordeux, Introduction aux phénomènes de propagation d'ondes, 20h Eq. TD, M2, ENS Kouba, Algérie

### 9.2.2. Supervision

- PhD : Jérôme Luquel, RTM en milieu hétérogène par équations d'ondes élastiques, UPPA, April 16th 2015, Hélène Barucq and Julien Diaz
- PhD : Théophile Chaumont-Frelet, High Order Methods for Helmholtz Problems in Highly Heterogeneous Media, INSA Rouen, December 11th 2015, Hélène Barucq and Christian Gout (INSA Rouen).
- PhD : Marie Bonnasse-Gahot, Simulation of elastic wave propagation in time harmonic domain using discontinuous Galerkin methods, Université de Nice Sophia Antipolis 15/12/2015, Julien Diaz and Stéphane Lantéri (EPI Nachos, Inria Sophia Antipolis-Méditerranée).
- PhD : Julen Alvarez-Aramberri, *hp*-adaptive inversion of magnetotelluric measurements, University of Basque Country and UPPA, December 18th 2015, Hélène Barucq and David Pardo.
- PhD in progress : Izar Azpiroz Iragorri, Approximation des problèmes d'Helmholtz couplés sur maillages virtuels, October 2014, Hélène Barucq, Julien Diaz and Rabia Djellouli.
- PhD in progress : Vincent Darrigrand, Etude d'erreur pour des problèmes d'Helmholtz approchés par des techniques de Petrov-Galerkin, October 2013, Hélène Barucq and David Pardo.
- PhD in progress : Aralar Erdozain, Fast inversion of 3D Borehole Resistivity Measurements using Model Reduction Techniques based on 1D Semi-Analytical Solutions, October 2013, Hélène Barucq, David Pardo and Victor Péron.
- PhD in progress : Florian Faucher, Méthodes d'inversion sismique dans le domaine fréquentiel, October 2014, Hélène Barucq.
- PhD in progress : Mamadou N'Diaye, "Analyse et développement de schémas temporels hybrides pour les équations hyperboliques du premier ordre", January 2015, Hélène Barucq and Marc Duruflé.
- PhD in progress : Elvira Shishenina, Approximations hybrides par éléments finis et éléments virtuels discontinus pour l'élasto-acoustique, October 2015, Hélène Barucq and Julien Diaz.
- PhD in progress : Vincent Popie, Modélisation asymptotique de la réponse acoustique de plaques perforées dans un cadre linéaire avec étude des effets visqueux, 2012, Estelle Piot (ONERA) et Sébastien Tordeux.
- PhD in progress : Hamza Alaoui Hafidi, Imagerie ultrasonore tridimensionnelle dans les milieux hétérogènes complexes, 2015, Encadrement : Marc Deschamps, Michel Castaings, Eric Ducasse, Samuel Rodriguez (I2M), Hélène Barucq, Marc Duruflé, Juliette Chabassier (Magique 3D).

### 9.2.3. Juries

Hélène Barucq : Antoine Rousseau (Université de Montpellier), “Modélisation mathématique et numérique de quelques problèmes issus des sciences de l’environnement”, HDR, December 3th 2015

Julien Diaz : Stojce Nakov (Université de Bordeaux) “Solveur hybrides très haute performance et multi seconds membres pour la simulation 3D en régime fréquentiel de propagation d’ondes dans des milieux avec hétérogénéité et topographie”, PhD thesis, December 14th 2015

Victor Péron : Julen Alvarez-Aramberri (UPV-EHU, Bilbao) “hp-Adaptative Simulation and Inversion of Magnetotelluric Measurements”, PhD thesis, December 18th 2015

## **MAMBA Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. General chair, scientific chair*

L. Almeida organiser: “Mathematical modeling and new methods for dengue control” meeting in Rio de Janeiro (Brazil), June 1 and 8, 2015

J. Clairambault and V. Volpert organisers: “Workshop on hybrid and multiscale models in cell and cell population biology”, UPMC, Paris, 16-18 mars 2015, <http://www.itm-conferences.org/articles/itmconf/abs/2015/02/contents/contents.html>

J. Clairambault organiser: Session #70 “Mathematical models and methods to investigate heterogeneity in cell and cell population biology”, 13th ICNAAM, Rhodes, Greece, Sep 23-29, 2015

M. Tournus organiser: mini-symposium at SMAI 2015 on ‘Coagulation/Fragmentation : stochastic and deterministic approaches’

#### **9.1.2. Scientific events selection**

##### *9.1.2.1. Member of the conference program committees*

J. Clairambault, member of the scientific committee of the conference “Present challenges of mathematics in oncology and biology of cancer”, CIRM, Luminy, Dec 7-11 2015

##### *9.1.2.2. Reviewer*

J. Clairambault for Indian Control Conference 2016

#### **9.1.3. Journal**

##### *9.1.3.1. Reviewer - Reviewing activities*

J. Clairambault in 2015 for Applicable Analysis, Bull Math Biol, BMC Biol, BMC Cancer, Cancer Research, J Theor Biol, Nonlinear Biomed Physics, Springer books, Stem Cells Intl

#### **9.1.4. Invited talks**

L. Almeida: Workshop on mathematical methods and modelling of biophysical phenomena, Cabo Frio, Brazil (March 2015); Workshop on Mathematical and Physical Methods for Biological Systems, Shanghai, China (June 2015); Workshop on biofilms modelling, Rouen (Octobre 2015); Workshop en Biomathématiques, Rabat, Maroc (Novembre 2015)

J. Clairambault: 1) Conferences “Sciences et société”, Nancy and Epinal (France), October 2015; 2) Seminar, Dept. of Mathematics, Duke University, Durham (NC), October 2015; 3) Workshop on Models in cancer therapy, WPI, Vienna (Austria), July 2015; 4) {MB}2 conference, Métabief (France), July 2015; 5) Fifth International Conference on Multiscale Modelling and Methods: Upscaling in Engineering and Medicine, Moscow, Bauman University, June 2015; 6) 15e journée “Calcul scientifique et modélisation mathématique”, Amiens (France), June 2015; 7) Seminar and courses, Dept. of Mathematics, Tlemcen University (Algeria), April 2015; 8) INCA seminar “Ciência extramuros”, Rio de Janeiro, February 2015; 9) Workshop “Mathematical Methods and Modelling of Biophysical Phenomena”, Cabo Frio, Brazil, March 2015; 10) BIRS workshop “Partial differential equations and cancer”, Banff (Alberta) and Mathematical Biology Seminar, University of Alberta, Edmonton (Alberta), February 2015.

M. Doumic: plenary speaker to MPDE15, Universidade Federal Fluminense (UFF Niteroi), Brazil; invitation to minisymposia in SIAM PD15, Phoenix, December 2015, by Piotr Gwiązda; in ICIAM, Beijing, August 2015, by Agnieszka Świerczewska; in Applied Inverse Problems Conference 2015, Helsinki, by Jan-F. Pietschmann. Invitation of Magali Tournus to a minisymposium by David Bortz in SMB 2015, Atlanta, June 30-July 3, 2015.

D. Drasdo: D. Drasdo: EASL conference, 4/2015 (I) (European Association for Study in the Liver, several thousand attendees) (hepatology); Workshop Edmonton (Canada) 2/2015 (not able to come); Workshop Ohio MBI 4/2015 (cancer invasion); Bordeaux, 5/2015; Workshop at ICMS, Edinburgh, on cancer invasion (mathematical biology) 5/2015; Conference CYTO 2015 (cytology), Glasgow 6/2015 (plenary speaker); Hepatinov workshop, 12/2015 (hepatology)

N. Vauchelet: Second Mokalien Meeting, Univ Paris-Dauphine (Nov. 2015); ICIAM 2015, Beijing, China (Aug. 2015); Workshop on Mathematical and Physical Methods for Biological Systems, Shanghai, China (June 2015); Workshop on mathematical methods and modelling of biophysical phenomena, Cabo Frio, Brazil (March 2015); Working group in biomathematics, Universidade Federal Fluminense (Niteroi), Brazil (Feb. 2015).

### 9.1.5. Scientific expertise

J. Clairambault in 2015 for Belgian FNRS, Swiss NSF

### 9.1.6. Research administration

L. Almeida: member CID 51 of Comité National de la Recherche Scientifique

L. Almeida and J. Clairambault: members of the bureau of the “Interfaces pour le Vivant” doctoral programme of UPMC

D. Drasdo member of scientific leadership team of virtual liver network

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: J. Clairambault, “Modélisation de la croissance cellulaire et tissulaire”, course 2 hours, L2 Parcours Médecine-Sciences UPMC, France, January 2015

Licence: N. Vauchelet, in charge of the double major academic course in mathematics and informatics: student followup, implementation of the Summer programme

Master: L. Almeida and T. Lorenzi, International course at the University of Verona (Italy): “Phenotype-structured equations” (24h).

Master: M. Doumic, course on inverse problems and applications in population dynamics (24 hours)

Master: D. Drasdo, Mathematical Biology, UPMC: “Agent-based models of tissue organisation” (24 hours)

Master: N. Vauchelet, “Introduction to mathematical modelling of biophysical phenomena” (24 hours) at UPMC and IMPA

Doctorat: J. Clairambault, course UFF Niteroi (Rio de Janeiro), “Continuous models of cell population growth dynamics to optimise anticancer treatments”, 3 hours, February 2015

Doctorat: J. Clairambault, course Tlemcen University, “Continuous models of cell population growth dynamics to optimise anticancer treatments”, 3 hours, April 2015 Clem

### 9.2.2. Supervision

PhD defence: Thibault Bourgeron, “Linear and nonlinear structured population models”, UPMC, June 29, 2015, supervision by M. Doumic and B. Perthame

PhD defence: Ján Eliaš, “p53 intracellular spatio-temporal dynamics”, UPMC, September 1, 2015, [2], supervision by J. Clairambault and B. Perthame

PhD defence: Adélaïde Olivier, “Analyse statistique des modèles de croissance-fragmentation”, Paris IX-Dauphine, November 27, 2015, [3], supervision by M. Doumic and M. Hoffmann (Prof. Univ. Paris-Dauphine)

PhD defence: Cristobal Quiñinao, “Mathematical modelling in Neuroscience: collective behaviour of neuronal networks and the role of local homeoproteins diffusion in morphogenesis”, UPMC, June 2, 2015, supervision by S. Mischler, B. Perthame and J. Touboul

PhD in progress: Aurora Armiento, “Inverse problems for aggregation kinetics”, UPMC, begun September 2013, supervision by M. Doumic and Ph. Moireau (Inria Saclay, M3DISIM team)

PhD in progress: François Bertaux (since September 2011, manuscript submitted October 2015), supervision by Dirk Drasdo and Gregory Batt

PhD in progress: Noémie Boissier (since November 2013), supervision by Dirk Drasdo and Irène Vignon-Clementel

PhD in progress: Géraldine Cellière (since October 2012), supervision by Dirk Drasdo, Andrei Zinovyev and Emmanuel Barillot (Institut Curie)

PhD in progress: Sarah Eugène, “Stochasticity in nucleation dynamics”, UPMC, begun September 2013, M. Doumic and Ph. Robert (Inria Paris-Rocquencourt, RAP project-team)

PhD in progress: Casimir Emako-Kazianou, UPMC, L. Almeida and N. Vauchelet

PhD in progress: Adrian Friebel (since June 2011), supervision by Dirk Drasdo and Stefan Hoehme

PhD in progress: Ghassen Haddad, “Optimisation of cancer treatments: application to bladder cancer”, UPMC in co-tutela with ENIT Tunis, begun October 2015, J. Clairambault and S. Ben Miled (Tunis)

PhD in progress: Shalla Hanson, “Modelling evolution of interactions between cancer and immune cells in solid tumours”, UPMC in co-tutela with Duke University, begun October 2015, J. Clairambault and M. Reed (Duke)

PhD in progress: Johannes Neitsch, Univ. Leipzig (since June 2011), supervision by Dirk Drasdo and Paul Van Liedekerke

PhD in progress: Camille Pouchol, “Modelling interactions between tumour cells and adipocytes in breast cancer”, UPMC, begun September 2015, J. Clairambault, M. Sabbah, and E. Trélat

PhD in progress: Antonin Prunet, UPMC, begun October 2014, L. Almeida and M. Sabbah

PhD in progress: Andrada Quillas Maran, “Modelling early leukaemogenesis”, UPMC, begun March 2014, J. Clairambault and B. Perthame

PhD in progress: Martin Strugarek, “Structured population dynamics for transmissible diseases”, UPMC, begun October 2015, N. Vauchelet and B. Perthame

PhD in progress: Cécile Taing, UPMC, begun October 2014, A. Lorz and B. Perthame

### 9.2.3. *Juries*

- J. Clairambault: Arnaud Poret, PhD defence, Jul 1, 2015, Lyon I (Computational biology) *member of the jury*
- J. Clairambault: Ján Eliaš, PhD defence, Sep 1, 2015, UPMC (Applied mathematics) *supervisor*
- M. Doumic: M. Doumic: Ján Eliaš, PhD defence, Sep 1, 2015, UPMC (Applied mathematics) *member of the jury*,
- M. Doumic: Adélaïde Olivier, PhD defence, Nov 27, 2015, Paris IX-Dauphine (Applied mathematics) *supervisor*,
- M. Doumic: Thibault Bourgeron, PhD defence, Jun 29, 2015, UPMC (Applied mathematics) *supervisor*

## 9.3. Popularisation



- Article J. Clairambault, “My personal journey in mathematical biology and medicine”. Society for Mathematical Biology Newsletter 28(1):11-12, January 2015 [36], <http://www.smb.org/publications/newsletter/vol28no1.pdf>
- Conferences “Sciences et société”, J. Clairambault, “Comment décrire et optimiser l’action des médicaments contre le cancer”, <https://numerique.univ-lorraine.fr/node/513>. IUT Nancy, October 8 and IUT Epinal, October 9, 2015.

## MIMESIS Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events selection

#### 9.1.1.1. Reviewer

Stéphane Cotin made reviews for the following conferences:

VRIPHYS

VCBM (Visual Computing in Biology and Medicine)  
and MICCAI.

David Cazier made reviews for the conference:

Computer Graphics International (CGI)

Nazim Haouchine made reviews for the conference:

International Symposium on Biomedical Imaging

### 9.1.2. Journal

#### 9.1.2.1. Reviewer - Reviewing activities

Stéphane Cotin made reviews for:

the Medical Image Analysis journal.

Hadrien Courtecuisse made reviews for:

IEEE Haptics Symposium,  
Transactions on Haptics,  
The Visual Computer,  
Medical & Biological Engineering & Computing.

David Cazier made reviews for:

the Computer-Aided Design (CAD) journal,  
the Visual Computer journal.

Huu Phuoc Bui made reviews for:

the Computational Mechanics journal,

Nazim Haouchine made reviews for the journal:

IET Computer Vision

Rosalie Plantefeve made reviews for the journal:

IJCARS

### 9.1.3. Invited talks

Stéphane Cotin has been invited speaker:

keynote lecture at "Open Your Mind" seminar series, ECAM (Paris, France),  
keynote lecture at the 10th MICCAI Computational Biomechanics Workshop (Munich, Germany)

keynote lecture at Visual Computing in Biology and Medicine (Chester, UK),  
invited talk at HCST Medical Robotics (Tel Aviv, Israel),

invited speaker at the International Conference on Augmented and Virtual Reality (Salento, Italy).

Hadrien Courtecuisse has been invited speaker:

in the legato team at the Computational Mechanics department of the Luxembourg University July 2015,

at SINTEF Technology and Society Medical Technology Department. Trondheim, Norway,

at HCST Medical Robotics symposium. Tel-Aviv, Israel.

Hugo Talbot has been invited speaker:

at the Karlsruhe Institute of Technology in July 2015, Germany.

at the AVR Salento conference in October 2015, Italy.



Figure 16. Presentation of SOFA at the conference AVR Salento in Lecce (Italy)

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Stéphane Cotin was in charge of the following course:

Course on real-time biomechanical simulation at École Catholique d'Arts et Métiers (Paris, France)

Hadrien Courtecuisse was in charge of the following courses:

Master TIC-Santé. Télécom Physique Strasbourg : Real time simulation (30h)

Master IRMC : (10 h) Real time simulation

David Cazier was in charge of the following course:

Licence : Web technologies and programming, 96hTD, DUT2, Université de Strasbourg, France

### 9.2.2. Supervision

Stéphane Cotin supervised

PhD defended (in co-direction with DEFROST team): Vincent Majorczyk, Modeling of the interactions between deformable bodies and fluids in the context of medical simulation in real-time, 1/01/2010 - 28/04/2015

PhD defended : Nazim Haouchine, Image-guided Simulation for Augmented Reality during Hepatic Surgery, 1/10/2011 - 16/01/2015

PhD in progress : Christoph Paulus, Modélisation et simulation temps-réel pour la prise en compte des changements topologiques dans les tissus mous, 1/01/2014

PhD in progress : Rosalie Plantefeve, Augmented reality and numerical simulations for resection of hepatic tumors, 1/01/2014

Hadrien Courtecuisse supervised:

PhD in progress: Yinoussa adagolodjo, Coupling between robotics and medical simulation for automated procedures in the scope of the CONECT project. University of Strasbourg, 1/02/2015

PhD in progress (in co-direction with the TIMC laboratory): Fanny Morin, Non linear simulation for intraoperative guidance for neurosurgery. Université de Grenoble, 1/10/2014

Internship : Asmaa Ait Hadouch, from Telecom Physique Strasbourg. Topic: communication protocol between Sofa, Mitsubishi MRV1A robot, and optitrack system for the project CONECT, 1/06/2015 - 31/08/2015

David Cazier supervised:

PhD defended: Thomas Pitiot, Multiresolution tools for the management of interaction in real time simulations (Outils multirésolutions pour la gestion des interactions en simulation temps-réel), Université de Strasbourg, 17/12/2015

PhD in progress : Christoph Paulus, Modélisation et simulation temps-réel pour la prise en compte des changements topologiques dans les tissus mous, 1/01/2014

Frédéric Roy and Rosalie Plantefeve co-supervised:

Internship : Santiago Camacho, from Universidad de Buenos Aires. Topic: software development around visualization for augmented reality applications, 1/07/2015 - 1/12/2015

Hugo Talbot supervised:

Internship : David John, from Karlsruhe Institute of Technology. Topic: research around simulation of thermal effect in living tissues, development of specific solvers, 1/11/2015

Christoph Paulus supervised:

Internship : Sabrina Izcovich, from Universidad de Buenos Aires. Topic: research around second-order finite element methods and simulation of cutting, 1/09/2015

### 9.2.3. Juries

Stéphane Cotin was part of the following juries:

PhD defense: Mariem Gargouri Osman : "Caractérisation des usagers de la route par imagerie médicale : Extraction fine des paramètres géométriques des côtes à partir de volumes d'images CT", 06/2015 (President)

PhD defense: Vincent Majorczyk "Modélisation des interactions entre solides déformables et films fluides pour la simulation médicale temps-réel", 04/2015 (Supervisor)

PhD defense: Chloe Audigier "Modélisation de l'ablation radiofréquence pour la planification de la résection de tumeurs abdominales", 10/2015 (President)

PhD defense: Pierre Chantereau "Caractérisation biomécanique et modélisation histologique des mécanismes de vieillissement et d'endommagement du système pelvien", 07/2015 (Reviewer)

David Cazier was part of the following juries:

PhD defense: Vincent Majorczyk, Modeling of the interactions between deformable bodies and fluids in the context of medical simulation in real-time, 4/11/2015 (Reviewer)

PhD defense: Evans Bohl, Modélisation de fruits de leurs structures internes et de leurs défauts, Université de Poitiers, 4/11/2015 (Reviewer)

PhD defense: Kevin Jordao, Interactive design of crowd animations in large environments, 21/12/2015 (Reviewer)

### 9.3. Popularization

#### 9.3.1. IHU Scientific Days

At the occasion of the 4 IHU Scientific days in 2015, the MIMESIS took part and organized several meetings, presentation and discussions around simulation in medicine.

#### 9.3.2. Journée Française de Radiologie, JFR

The MIMESIS team was part of the JFR 2015 event in Paris on the 16 and 17th October 2015. Hugo Talbot presented the work and the projects achieved by the team.



Figure 17. Our booth in the RII Health 2015 in Bordeaux

#### 9.3.3. Rencontre Inria Industrie, RII

Hugo Talbot presented the SOFA framework and our current work during the "Rencontre Inria Industrie" 2015 which took place in Bordeaux. We had many nice discussions and feedback about SOFA.

#### 9.3.4. Journée Alsacienne d'Ophtalmologie, JAO

In collaboration with the ophthalmologist Pr. Gauchet, several members of the team (Rémi Bessard, Bruno Marques and Stéphane Cotin) participated at the JAO (Journée Alsacienne d'Ophtalmologie) on the 28th and 29th of November 2015. They presented our prototype simulator for retinal surgery.

#### 9.3.5. Talk at Université Paris Descartes

On the 4th of December, Stéphane Cotin was invited as a speaker to the BME seminar at University Paris Descartes. His talk was entitiled "patient safety through real-time numerical simulation".

#### 9.3.6. Talk at MEDinISRAEL

Stéphane Cotin and Hadrien Courtecuisse were invited at the MedinISRAEL 2015 conference which took place in Tel Aviv. This event was the opportunity for the team to present our work to the community. Moreover, the university from Tel-Aviv strongly supports new collaborations with French laboratory.

#### 9.3.7. Science & You

In Nancy, Science & You opened its doors on the 2nd of June. The MIMESIS team participated on June 5th and 6th to present some of our simulations. This was a great success and a large audience came to our booth.



*Figure 18. Rémi Bessard presenting our simulation at JAO 2015*



*Figure 19. Presentation of Stéphane Cotin at MEDinISRAEL 2015*

**9.3.8. Pitch at B.E.S.T. Symposium**

B.E.S.T. (Business Engineering and Surgical Technologies) is an original education program proposed by the IHU Strasbourg dedicated to undergraduate, graduate and postgraduate students in medicine, engineering and management. In the context of the B.E.S.T. Symposium, Hugo Talbot presented a concept of start-up about medical training based on simulation which any student could afford. Rosalie Plantefevé also attended the B.E.S.T. Symposium.

## MNEMOSYNE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Nicolas Rougier: Program chair for the EuroScipy 2015 conference. Organization of the “Tentatives, Tentations, Intentions” conference (Nancy, December 2015).

#### 10.1.1.2. Member of the organizing committees

Frédéric Alexandre: Member of the organizing committee of the Conference “Cognition and Innovation”, Paris, November 5-6th, cf <http://fondation-cognition.org/?q=node/259>.

### 10.1.2. Scientific events selection

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

Frédéric Alexandre: Member of program committee of CAP 2015 (french conference on Machine Learning)

#### 10.1.2.2. Reviewer

- Nicolas Rougier: Reviewer for EuroScipy 2015, Scipy 2015, ICANN 2015.
- Frédéric Alexandre: Reviewer for the International IEEE EMBS Conference on Neural Engineering; for the International Conference on Development and Learning and on Epigenetic Robotics (ICDL-EPIROB 2015);

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Frédéric Alexandre: Review Editor for Frontiers in Neurorobotics;
- Nicolas Rougier: Editor in chief for ReScience, review editor for Frontiers in Neurorobotics.

#### 10.1.3.2. Reviewer - Reviewing activities

- Nicolas Rougier: Reviewer for PLOS ONE, Frontiers in Neuroscience, IEEE Transactions on Visualization and Computer Graphics, IEEE Transactions on Image Processing, Journal of Computer Graphics Techniques
- Frédéric Alexandre: Reviewer for Cognitive Computation, PlosOne, Applied Intelligence

### 10.1.4. Invited talks

- Nicolas Rougier: Invited tutorial (“Neural Fields and cognition”) at the 24th Annual Computational Neuroscience Meeting in Prague; Invited talk (“Distributed, Asynchronous, Numerical and Adaptive computing: from neurons to behavior.” at the first meeting of the BioComp initiative; Invited tutorial (“matplotlib for beginner”) at EuroScipy 2015.
- Frédéric Alexandre: invited talk at the symposium “Modeling the early visual system: From natural vision to numerical applications” of the 12th meeting of the French Neuroscience Society; Invited talk at the special day on modeling irrationality in cognition, organized jointly by the french society of Artificial Intelligence and the french society of Research on Cognition; Invited talk at the scientific council of IMB (institute of mathematics in Bordeaux, june 23rd);

### 10.1.5. Scientific expertise

Expert for the BBSRC research council (UK) (Nicolas Rougier)



### 10.1.6. Research administration

- F. Alexandre is member of the Inria Evaluation Committee; Vice-head of the Project Committee of Inria Bordeaux Sud-Ouest; Corresponding scientist for Bordeaux Sud-Ouest of the Inria COERLE ethical committee; Member of the national Inria committee for international chairs; Member of the local Inria committee for young researchers hiring; Member of the steering committee of the regional Cluster on Information Technology and Health; of the regional Cluster on Robotics; Expert of the ITMO 'Neurosciences, Sciences Cognitive, Neurologie, Psychiatrie'
- N. Rougier is vice-head of the Mnemosyne team-project; elected member of the Inria Evaluation Committee; Responsible of the local Inria committee for invited professors; Member of the steering committee for the BioComp CNRS consortium; Editor in chief and co-founder of ReScience.
- Thierry Viéville is in charge, at the Inria national level, of the institute science outreach actions and depends on the Direction Générale Déléguée à la Science for this part of his work. He is, for Inria, at the origin of the <http://classcode.fr> project, and drives it [18], [12].

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Many courses are given in universities and schools of engineers at different levels (LMD) by most team members, in computer science, in applied mathematics, in neuroscience and in cognitive science.

Thierry Viéville is since 2009 in charge of formations of high-school teachers in popular computer science.

### 10.2.2. Juries

We participate to many juries each year.

## 10.3. Popularization

For a multi-disciplinary team as Mnemosyne, science popularization is not only a nice and useful contribution to the dissemination of scientific knowledge but also a necessity since we work with colleagues from bio-sciences with whom sharing profound ideas in computer science is mandatory for a real collaboration.

- Thierry Viéville is for 80% of his time involved in popularization actions [35], both at a concrete level (including on Mnemosyne subjects [23]) and at the methodological level [34], [19]. This explains the amount of references to these external subjects in this document.
- Nicolas Rougier: Question/answers about Artificial Intelligence (AI) with the general public (NODE, Bordeaux); popularized article about AI on Interstices; invited talk for the "Pint of Science" festival; interview about AI in the #Thinoverly magazine; two articles in "The Conversation (FR)" about neurosciences and AI; "Unithé ou Café" at Inria BSO; Blog posts in "Binaires" (36 15 EULA) and "Scilogs" ("L'intelligence artificielle n'aura pas lieu.")
- Frédéric Alexandre: Blog post in Scilogs: "Rien de neuf sous le soleil de l'IA" ([www.scilogs.fr/intelligence-mecanique/rien-de-neuf-sous-le-soleil-de-lia/](http://www.scilogs.fr/intelligence-mecanique/rien-de-neuf-sous-le-soleil-de-lia/)); Conference at the Bordeaux museum of science (Cap Sciences, March 5th) "Modeling the brain to better understand neurodegenerative diseases"; Article in the french scientific magazine Pour la Science: "Where are the real dangers of Artificial Intelligence" ([http://www.pourlascience.fr/ewb\\_pages/a/article-ou-sont-les-vrais-dangers-de-l-apos-intelligence-artificielle-35148.php](http://www.pourlascience.fr/ewb_pages/a/article-ou-sont-les-vrais-dangers-de-l-apos-intelligence-artificielle-35148.php)); Conference at the Multimedia Library of Tulle "Modeling emotions to better understand neurodegenerative diseases" (March 28th); Participation to the french radio broadcast 3D on the national channel France Inter (<http://www.franceinter.fr/emission-3d-le-journal-robots-cops>, May 31st); Interview in the french scientific magazine Science et Vie Junior ("Must we fear super intelligences", issue of August); Interview in Inriality "Who is afraid about Artificial Intelligence" (<http://www.inriality.fr/communication/intelligence-artificielle/qui-peur-de/>); Responsible for the Masterclass "Think different" to the Biznext conference (december17th, Bordeaux, cf interview <http://objectifaquitaine.la Tribune.fr/innovation/2015-11-20/les-robots-intelligents-nous-poussent-ils-a-penser-le-monde-autrement.html> and announcement on TV <http://france3-regions.francetvinfo.fr/aquitaine/emissions/jt-1213-aquitaine>);

- PhD students participated to the regional exhibition Aquitec (C. Héricé and Maxime Carrere), to “Fête de la Science” (I. Chraïbi Kaadoud and C. Héricé), to “Printemps des filles” (I. Chraïbi Kaadoud and C. Héricé) and to the organizing committee of Pint of Science Bordeaux (C. Héricé).

## MODEMIC Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

The team has co-organized with UMR Eco& Sols a one-week Research School on resources-consumers models, in September 2015 (see <https://team.inria.fr/modemic/fr/francais-ecole-chercheur-modeles-ressources-consommateurs/>). The objectives of the school were

- filling the gap between lectures on dynamical population models given in theoretical ecology and the ones given in bioprocess or biochemical engineering,
- gathering biologists from different application fields (food fermentation, farming, marine ecosystems...) and mathematicians, about models that couple biotic and abiotic compartments.

Another similar school is scheduled in 2016, and we plan to propose later a methodological network on this subject.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Reviewer

European Control Conference, IEEE Conference on Decision and Control, International Conference on System Theory, Control and Computing, Mediterranean Conference on Control and Automation.

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing activities

Applied Mathematical Modelling, Automatica, Biotechnology & Bioengineering, Continuous and Distributed Systems, Computational and Applied Mathematics, European J. of Control, J. of Dynamical and Control Systems, J. of Process Control, J. of Membrane Science, Mathematical Biosciences and Engineering, SIAM J. on Optimization & Control.

### 9.1.4. Invited talks

Alain Rapaport has been invited to give a plenary session at the next CMPDE'16 (Conference in Mathematical Population Dynamics and Epidemiology), Marseille, Sep 2016.

### 9.1.5. Scientific expertise

Jérôme Harmand has been a member of the selection committee for the recruitment of a Junior Professor ("Maître de Conférences") at University Montpellier.

Alain Rapaport has been a member of the HCERES evaluation panel of the CHRONO-ENVIRONNEMENT research unit, Jan. 2016.

### 9.1.6. Research administration

J. Harmand is member of the steering committee of the Inra meta-program 'MEM' (Metagenomics of Microbial Ecosystems), and member of the INRA evaluation committee "commission scientifique spécialisée" STEA.

A. Rapaport is member of the scientific committee of BIOS dept. of CIRAD, and is member of the scientific committee of Ecotechnologies department of Irstea.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

#### Engineering degree

B. Cloez and A. Rapaport, "Introduction à la modélisation", 12 hours, 1st year, SupAgro Montpellier.

#### Master

T. Bayen and A. Rapaport, "Commande optimale: conditions nécessaires et suffisantes", 21 hours, Master 2R 'MANU' (Modélisation et Analyse Numérique), Univ. Montpellier.

#### PhD

T. Bayen and A. Rapaport have proposed a new doctoral module on control, observation and optimization tools for modelling (24 hours) that will be launched in March 2016 at the Doctoral School 'I2S' (Information, Structures, System), Univ. Montpellier.

### 9.2.2. Supervision

#### Guilherme Pimentel

PhD: Modélisation dynamique, analyse et supervision d'un réacteur membranaire. cotutelle Univ. Montpellier II/Univ. Mons (Belgique), defended in Feb. 2015.  
Advisors: A. VandeWouwer (Univ. Mons) and A. Rapaport.

#### Sonia Hassam

PhD: Réduction de modèles biotechnologiques : application à la digestion anaérobie. Univ. Tlemcen, defended in Dec. 2015.  
Advisors: B. Cherki (Univ. Tlemcen) and J. Harmand.

#### Amel Ghouali

PhD: Analyse et commande optimale d'un bioréacteur de dépollution des eaux usées cotutelle Univ Montpellier II/Univ. Tlemcen (Algeria), defended in Dec. 2015.  
Advisors: J. Harmand and T. Sari (UMR ITAP, Montpellier).

#### Walid Bouhafs

PhD in progress: Commande optimale des réacteurs biologiques séquentiels discontinus. ENIT (Tunis), since 2010.  
Advisors: N. Abdellatif (ENIT-LAMSIN, Tunis), F. Jean (ENSTA) and J. Harmand.

#### Victor Riqueleme

PhD in progress: Commande optimale pour la préservation de ressources hydriques exploitées. cotutelle Univ. Montpellier II/Univ. Chile, since Sept. 2013.  
Advisors: H. Ramirez (Univ. Chile) and A. Rapaport.

#### Alejandro Rojas-Palma

PhD in progress: Etude de quelques problèmes dans la modélisation et l'optimisation de bioprocédés. cotutelle Univ. Montpellier II/Univ. Chile, since Sept. 2014.  
Advisors: H. Ramirez (Univ. Chile) and A. Rapaport.

#### Yessmine Daoud

PhD in progress: Analyse de modèles de la digestion anaérobie : application à l'optimisation de la production du biogaz.

cotutelle ENIT (Tunis)-Univ. Montpellier II, since sep. 2014.

Advisors: N. Abdellatif (ENIT, Tunis) and J. Harmand.

Zeyneb Khedim

PhD in progress: Modélisation et contrôle de la digestion anaérobie : vers une meilleure prise en compte des phénomènes d'inhibition.

cotutelle Univ. Tlemcen - Univ. Montpellier II, since nov. 2014.

Advisors: B. Benyahia (Univ. Tlemcen) and J. Harmand.

Anne Bisson

PhD in progress: Modélisation probabiliste du fonctionnement d'écosystèmes considérés comme des assemblages de communautés.

Univ. Montpellier II, since Dec. 2014 until Sep 2015

Advisors: B. Jaillard (UMR Eco & Sols, Montpellier) and A. Rapaport.

Maha Hmissi

PhD in progress: Contribution à l'élaboration d'un modèle de simulation d'un procédé de biométhanisation- Application à la digestion des boues résiduaires et au prétraitement d'un effluent industriel

ENIT, Tunisia, since 2011

Advisors: Hedi Shayeb (ENIT) and J. Harmand

Nesrine Kalboussi

PhD in progress: Détection précoce et contrôle du colmatage dans les réacteurs à membranes

INSAT, Tunisia, since 2014

Advisors: Nihel Benamar (INSAT) et J. Harmand

The team has supervised MsC and Engineering School internships [50], [44].

### 9.2.3. *Juries*

S. Martin. "D'oxymore en oxymore : du développement durable au contrôle complexe." Habilitation à diriger des recherches, Univ. B. Pascal (Clermont-Ferrand), Jan 2015 (referee : A. Rapaport).

J. Qian. "Identification paramétrique en boucle fermée par une commande optimale basée sur l'analyse d'observabilité." Thèse de doctorat, Univ. C. Bernard (Lyon), Sep 2015 (examinator : A. Rapaport).

N. Lebaz "Modélisation de l'hydrolyse enzymatique de substrats lignocellulosiques par bilan de population" Thèse de Doctorat, Université Toulouse, Sep 2015 (referee : A. Rapaport).

A. Hammoudi "Modélisation et analyse mathématique de la dynamique du carbone organique dans le sol" Thèse de Doctorat, Université Montpellier, Sep 2015 (examinator : A. Rapaport).

M. Diaby "Analyse globale de quelques modèles épidémiologiques: application à des modèles de la bilharziose" Thèse de Doctorat, Université Gaston Berger (Saint-Louis du Sénégal), Jan 2016 (referee : A. Rapaport).

## Monc Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific events organisation

##### 9.1.1.1. Chair of conference program committees

- S. Benzekry: member of the scientific committee of the "Journées de modélisation BioMathématique de Besançon" (<http://mb2.univ-fcomte.fr/>).

#### 9.1.2. Journal

##### 9.1.2.1. Member of the editorial boards

- Th. Colin - SIAM News, Mathematical Biosciences and Engineering, SMAI Mathématiques et Applications

##### 9.1.2.2. Reviewer - Reviewing activities

- S. Benzekry - biomathematical modeling journals: Journal of Theoretical Biology, Mathematical Biosciences, Bulletin of Mathematical Biology, Theoretical Biology and Medical Modeling, Mathematical Biosciences and Engineering, Journal of Biological Informatics, Journal of Biological Systems, ESAIM:Proc, Mathematics and Computers in Simulation; and medical/biological journals about cancer: Clinical Pharmacokinetics, BMC Cancer
- C. Poignard - SIAM Journal on Mathematical Analysis, IEEE Trans on Mag, J. Math. Biology, J. Theoretical Biology
- O. Saut - IEEE Trans. Med. Imaging, PLOS Computational Biology, Medical Image Analysis, Nature Comm.

#### 9.1.3. Invited talks

- Th. Colin - Congrès de la société Francophone de Biologie Théorique (Poitiers, June 2015), Present challenges of mathematics in oncology and biology of cancer (CIRM, Dec 2015).

#### 9.1.4. Leadership within the scientific community

- O. Saut is the head of the CNRS GDR 3471 Metice (<http://metice.math.cnrs.fr>).

#### 9.1.5. Scientific expertise

- O. Saut is an expert for the French Ministry of Research (PHC and EGIDE programs)

#### 9.1.6. Research administration

- C. Poignard is elected member of the Inria evaluation committee.
- O. Saut is a member of the Steering Committee of Labex TRAIL (<http://trail.labex.u-bordeaux.fr>).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : T. Michel, *Travaux encadrés de recherche*, 41h, L3, ENSEIRB-Matmecca, France

Licence : T. Michel, *TD Probabilités/Statistiques*, 32h, L3, ENSEIRB-MATMECA, France

Licence : T. Michel, *Harmonisation Maths (cours-TD Séries, Intégrales)*, L3, ENSEIRB-MATMECA, France

Licence : C. Poignard, *TD Équations Différentielles Ordinaires*, 30h, L3, ENSEIRB-Matmeca, France

Licence : E. Baratchart, *Initiation au calcul scientifique*, 64h, L3, ENSCBP, France

Licence : O. Gallinato, *Méthodes numériques linéaires*, 64h, L3, Université de Bordeaux, France

Licence : G. Lefebvre, *Mathématiques pour les sciences de l'environnement*, 48h, L1, Université de Bordeaux, France

Licence : G. Lefebvre, *Mathématiques et représentation des phénomènes physiques*, 35h, L1, Université de Bordeaux, France

Licence : G. Lefebvre, *Fondamentaux pour les mathématiques et l'informatique*, 35h, L1, Université de Bordeaux, France

Licence : S. Benzekry, *Equations Différentielles*, 20h, L3, ENSEIRB-MATMECA, France

Licence : A. Collin, *TD Equations Différentielles*, 20h, L3, ENSEIRB-MATMECA, France

Master : C. Poignard, *Modélisation électromagnétique des cellules*, 36h, M2, Université Bordeaux, France

Master : C. Poignard, *CM-TD Analyse Numérique*, 50h, L3, Formation SC - ENSCPB, France

Master : O. Saut, *TD Analyse des Equations aux dérivées partielles*, 30h, M1, ENSEIRB-Matmeca, France

Master : A. Collin, *TD Analyse des Equations aux dérivées partielles*, 30h, M1, ENSEIRB-MATMECA, France

Master : O. Saut, *TP C++*, 44h, M1, ENSEIRB-Matmeca, France

Master : A. Collin, *TP C++*, 44h, M1, ENSEIRB-MATMECA, France

DAEU-B : P. Berment, *Mathématiques pour le DAEU-B*, 64h, DAEU-B, Université de Bordeaux, France

### 9.2.2. Supervision

PhD : J. Jouganous, Lung metastases growth modeling and simulation, Université de Bordeaux, 23rd Sep 2015

PhD : G. Lefebvre, Modeling and analysis of tumor heterogeneity during treatments resistance: case of GIST liver metastases, Université de Bordeaux, 3rd Dec 2015

PhD in progress : P. Berment, Mathematical modelling evaluating radiotherapy outcome for colorectal tumor with Pet Scan, Oct 2013, Thierry Colin and Olivier Saut

PhD in progress : E. Baratchart, Quantitative study of the dynamics and spatial aspects of metastatic development using mathematical models, Dec 2012, S. Benzekry, Th. Colin and O. Saut

PhD in progress : M. Deville, Modeling of electroporation and gene transfection across tissue. Theoretical and numerical aspects., Sep 2014, C. Poignard and R. Natalini (IAC, CNR Roma)

PhD in progress : O. Gallinato, Invasive process modeling of the tumor metastatic cells, Nov 2013, C. Poignard and T. Suzuki (Osaka University)

PhD in progress : T. Kritter, Primary tumors modelling with a view to the gliomas and adenocarcinomas study, Sep 2015, C. Poignard and O. Saut

PhD in progress : T. Michel, Analysis of mathematical growth tumor models, Sep 2013, C. Poignard and Th. Colin

PhD in progress : A. Perreti, Anti-angiogenic traitements modeling using medical imaging, Oct 2014, Th. Colin and O. Saut

### 9.2.3. Juries

- O. Saut was a reviewer of the PhD of Baptiste Bedessem "Influence des contraintes environnementales (mécaniques, stérique, hypoxique, acidité) sur la durée du cycle cellulaire dans un contexte tumoral Approche par la modélisation computationnelle et par l'expérimentation", Univ. Grenoble, Oct 2015.
- O. Saut was a reviewer of the PhD of Joris Costes "Développement de méthodes de résolution d'équations aux dérivées partielles : du schéma numérique à la simulation d'une installation industrielle", ENS Cachan, June 2015.

### **9.3. Popularization**

- C. Poignard gave a lecture at IREM "Des décharges électriques contre le cancer" (April 2015)
- O. Saut is a regular speaker at Entretien de l'Excellence (<http://www.lesentretiens.org>)
- O. Gallinato gave a lecture at "la nuit des chercheurs" (Sep 2015)
- P. Berment is participating at a "Math en jean" project with the "collège Chambéry" of Villenave d'Ornon since December 2015
- A. Perreti and C. Perier represented Inria to the Aquitec forum (Jan 2015)
- S. Benzekry gave an interview to "radio campus" in June 2015 (<http://www.c-yourmag.net/article/2015-06-03/il-modelise-levolution-des-tumeurs-avec-les-mathematiques-16763>)



## MORPHEME Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

Xavier Descombes was member of the organization board for the "OPTITECH Event 2015".

### 9.1.2. Scientific events selection

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

Laure Blanc-Féraud was associate editor of the workshop on New Computational Methods in Inverse Problems - NCMIP 2015 (NCMIP ) in ENS Cachan.

Eric Debreuve was the Area Chair of the topic "Image and video processing" for the conference European Signal Processing Conference (EUSIPCO).

#### 9.1.2.2. Reviewer

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

Eric Debreuve was a reviewer for the conferences ISBI, ICIP, and ACIVS.

Xavier Descombes was reviewer for the conferences ISBI, ICIP, and ICASSP.

Grégoire Malandain was reviewer for the conferences ISBI, MICCAI, EMBC and TAIMA.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

Laure Blanc-Féraud is Associate Editor of SIAM Journal Imaging Sciences and Traitement du Signal Journal.

Xavier Descombes is associated editor of DSP (Digital Signal Processing).

#### 9.1.3.2. Reviewer - Reviewing activities

Eric Debreuve was reviewer for the journals Journal of Computational Physics (Elsevier), Pattern Recognition (Elsevier) and Revue de Traitement du Signal.

Xavier Descombes was reviewer for the journals IEEE TMI, IEEE IP, and IEEE SP.

Grégoire Malandain was reviewer for the journals MedIA, NeuroImage, IEEE TMI, and Medical Physics.

### 9.1.4. Invited talks

Grégoire Malandain was invited to give a talk at the *journées* "Bioimage-informatics", organized by the GDR 2588, and at "OPTITECH Event 2015".

### 9.1.5. Leadership within the scientific community

Laure Blanc-Féraud is director of GdR 720 ISIS of CNRS, a group for the animation of research at national french level on the thematic Signal Image and Vision. This group includes around 160 academic laboratories and twenty industrial partners totaling almost 3,000 members. She is member of the IEEE BISP (Biomedical Imaging Signal Processing) Technical Committee.

Xavier Descombes is member of the Scientific Committee of the competitiveness pole Optitech, member of IEEE BISP (Biomedical Imaging Signal Processing) Technical Committee and member of the Scientific Committee of Labex SIGNALIFE.

Grégoire Malandain is member of the IEEE/EMB Technical Committee on Biomedical Imaging and Image Processing (BIIP). He is an invited member of the Scientific Committee of the MIA department of INRA.

### 9.1.6. Scientific expertise

Laure Blanc-Féraud is part of the scientific committee of laboratory GreyC (UMR CNRS 6072) and of "Institut des Technologies Avancées en sciences du Vivant" (ITAV, USR CNRS 3505). She was part of the AERES expert committee of LJK Lab in Grenoble and part of the recruitment panel of a MCF at ISAE Toulouse and a "Comité de sélection" of a professor at the institute of Mathematics in Toulouse (IMT). She was external expert for the CPER Région Poitou-Charentes, and expert for PES applications for Région Franche-Comté. She was member of the jury of the price "La Recherche" She was member of the CNRS admission for chargé de recherche at INS2I of CNRS. She is expert member of the MIUR: Italian Ministry for Education, University and Research (Italie).

Eric Debreuve was a reviewer of a "Jeune chercheur" ANR proposal.

Xavier Descombes is expert for the MESR within the CIR program, and reviewer for three ANR proposals.

### 9.1.7. Research administration

Xavier Descombes is member of the "comité des projets" and the "comité de centre" of Inria CRI-SAM.

Grégoire Malandain is the head of the committee "Comité de suivi doctoral" of the Inria CRI-SAM.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : Xavier Descombes, Traitement d'images, Analyse de données, Techniques avancées de traitement d'images, 30h Eq. TD, Niveau M2, ISAE, France.

Master : Xavier Descombes, Traitement d'images, master ISAB, 12h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.

Master : Xavier Descombes, Traitement d'images, master VIM, 12h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.

Master : Xavier Descombes, Bio-imagerie, master IRIV, 6h Eq. TD, Niveau M2, Université de Strasbourg, France

Master : Xavier Descombes, Bio-imageire, 9h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.

Master : Agustina Razetti, Traitement d'images, master ISAB, 6h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.

IUT : Agustina Razetti, Initiation à la mesure du signal, 18h Eq. TD, IUT Nice Côte d'Azur, Université de Nice Sophia Antipolis, France.

Master : Laure Blanc-Féraud, Fluorescence image restoration, 18h Eq. TD, M2 Computational Biology, University Nice Sophia Antipolis, France

Master : Laure Blanc-Féraud, Image restoration, 12h Eq. TD, M2 ISAB, University Nice Sophia Antipolis, France

Master : Laure Blanc-Féraud, Traitement numérique des images, 12h Eq. TD, M2 VIM, EPU University Nice Sophia Antipolis, France

Master 2: Eric Debreuve, Introduction to Inverse Problems in Image Processing, 28h Eq. TD, International Master "Computational Biology and Biomedicine", University Nice Sophia Antipolis.

Engineer 5th year: Eric Debreuve, 3D Computer Vision with the Kinect sensor, 32h Eq. TD , Polytech'Nice Sophia, University Nice Sophia Antipolis.

Master: Emmanuel Soubies, Traitement Numérique des Images, 10h Eq. TD, Niveau M2, EPU, Université de Nice Sophia Antipolis, France.

Licence: Emmanuel Soubies, Images et Filtres, 54h Eq. TD, Niveau L3 , EPU, Université de Nice Sophia Antipolis, France.

### **9.2.2. Supervision**

PhD: Alexis Zubiolo, Statistical Machine Learning for Automatic Cell Classification, Nice Sophia Antipolis university, defended december the 11th., Eric Debreuve (advisor).

PhD in progress: Lola Baustista, DIC microscopy image reconstruction, 1st november 2013, Laure Blanc-Féraud.

PhD in progress: Gaël Michelin, Quantitative tools for morphogenesis study, 1st october 2013, Grégoire Malandain (advisor).

PhD in progress: Agustina Razetti, Modelling and characterizing axon growth from in vivo data, 1st november 2014, Xavier Descombes (advisor), Florence Besse (co-supervisor).

PhD in progress: Emmanuel Soubies, MA-TIRF reconstruction and sparse l2-l0 optimization problem, 1st october 2013, Laure Blanc- Féraud and Sébastien Schaub.

### **9.2.3. Internships**

Nicolas Cedilnik: L3 UNS. Detection and Classification of Cells Nuclei. Supervisors: X. Descombes, F. Besse.

Yaqun Liu: LM1 UNS. Tracking Growing Axons in 3D+t Microscopy Images. Supervisors: G. Malandain and C. Medioni.

Wei Shen: M2 Univ. Caen, RNA complex detection from confocal microscopy images. Supervisors: F. Besse, X. Descombes

Sen Wang: M2 Univ. Caen, Multiple Births and Cut algorithm including attractive interactions. Supervisors: E. Soubies, X. Descombes.

### **9.2.4. Juries**

Laure Blanc-Féraud participated as chair to the PhD thesis committee of G. Tartavel (LTICI, Télécom ParisTech), as reviewer of the HDR of Anne Keonig (CEA LETI Grenoble) and reviewer of the 4 PhD theses: L. Gharsalli (Supelec, L2S, Gif sur Yvette), P. Irrera (LTICI, Télécom ParisTech), C. Soutour (IMB Bordeaux), O. Chabiron (IRIT Toulouse).

Xavier Descombes was examiner in the jury of A. Zubiolo and P. Cracium PhD defenses at University of Nice Sophia Antipolis and in the jury of Y. Quéau PhD defense at Paul Sabatier University (Toulouse) . He was reviewer for two PhD dissertations (M. Alsheh Ali at Paris V and R. Ben Salah, university of Poitiers) and one HdR (S. Chafik, university of Clermont Ferrand). He was president of three PdH juries (C. Meillier, university of Grenoble, S.G. Yeong, university of Nice Sophia Antipolis and R. Ben Salah, university of Poitiers).

Grégoire Malandain participated as chair to the PhD thesis committee of L. Guignard (Montpellier univ.), as reviewer to the PhD thesis of I. Melki (Paris Est univ.), H. Mi (Rouen univ.), M. Mustafa (Nottingham univ.), M. Vandenberghe (UPMC), W. Zhu (Strasbourg univ.), and as reviewer to the HdR of T. Delzescaux (UPMC).

## **9.3. Popularization**

Gaël Michelin, Emmanuel Soubies, and Alexis Zubiolo participated as exhibitors to the "Fête de la science 2015" manifestation in Juan-les-Pins (palais des congrès).

## MYCENAE Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

#### 8.1.1.1. Member of the organizing committees

- **Reprosciences 2015**, April 13-15, Rennes, co-organized by Frédérique Clément, Yves Combarrous, Florian Guillou, Joëlle Cohen-Tannoudji and Olivier Kah.  
2 oral presentations were given by the team
  1. Aymard B, Clément F, Monniaux D, Postel. *Multiscale modeling of terminal folliculogenesis*.
  2. Clément F, Monniaux D, Michel P, Stiehl T. *Mathematical model of the basal follicular development*
- **“Modeling in Cell and Developmental Biology”**, ITMO BCDE annual workshop. Dec 1st, Paris, co-organized by Frédérique Clément, Kaurent Héliot, Nadine Peyrieras and Sylvie Schneider-Maunoury. 3 posters were presented by the team
  1. Fernández-García S, Desroches M, Krupa, Vidal A, de Vico Fallani F, Clément F. *Modeling ionic and secretory rhythms in adult and embryonic neural networks with multiple time scale dynamical systems*.
  2. Köksal Ersöz E, Vidal A, Clément F. *Complex oscillatory rhythms in neurohormone secretion : the instance of the GnRH neurosecretory system*.
  3. Postel M, Karam A, Latbi M, Pezeron G, Tran L, Clément F, Schneider-Maunoury S. *Designing a mathematical model of the dynamics of progenitor cell populations in the mouse cerebral cortex*.

Organization of mini-symposia at the SIAM Conference on the Application of Dynamical Systems May 17-21, SnowBird

- Mathieu Desroches co-organized (with Morten Brøns) the *Model Reduction and Epsilon-free Methods in Singular Perturbation Problems* minisymposium
- Jonathan Touboul co-organized (with Zack Kilpatrick and Bard Ermentrout) the *Stochastic neuronal dynamics* minisymposium

Thematic sessions organized within the framework of the CIRB

- **Troisième journée “Biologie & Mathématiques sur la Montagne”**, November 4th, 2015, co-organization Jonathan Touboul Amaury Lambert and Alain Prochiantz
- Colloquium *Mathematics of the brain*, Dec. 8th 2015, co-organization Jonathan Touboul and Khashayar Pakdama

### 8.1.2. Journal

#### 8.1.2.1. Member of the editorial boards

Jonathan Touboul is Associate Editor of *PloS One* and *Frontiers in Neuronal Circuits*

### 8.1.2.2. Reviewer - Reviewing activities

*Electronic Journal of Probability, Physica D, Frontiers in Neuroscience, Journal of Statistical Physics, Mathematical Biosciences, Mathematics and Computers in Simulation, Nonlinear Dynamics, Nonlinearity, PloS Computational Biology, SIAM Journal on Applied Dynamical Systems, SIAM Journal on Applied Mathematics*

### 8.1.3. Scientific expertise

Frédérique Clément belongs to the expert board of the **BCDE** (Cell Biology, Development and Evolution) ITMO (Multi Organization Thematic Institute) of the French National Alliance for Life and Health Sciences **Aviesan**.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

M. Desroches

M1 course on “Mathematical and Computational Neuroscience” as part of the Master program in Bioinformatics (BIM) of the University Pierre et Marie Curie (UPMC, Paris)

This teaching has been organised over a five-week period (January-February 2015) with a total of 30 hours, including lectures, example classes and computer labs (2 hours per week each). This first half of the course was focused on an introduction to mathematical slow-fast models of spiking and bursting neurons using bifurcation theory, slow-fast dissection and numerical analysis (simulation and continuation) with the software package XPPAUT.

### 8.2.2. Supervision

Tanguy Cabana, Limits of randomly connected networks and their dynamics, since September 2013, Université Pierre & Marie Curie (ED386), supervisors: Raphaël Krikorian, Jonathan Touboul and Gilles Wainrib

Yi Cui, Role of Pax6 in neurodevelopment: experiments and models, since September 2014, Université Pierre & Marie Curie (ED158), supervisors: Jonathan Touboul, Alain Prochiantz and Alessandra Pierani

Elif Köksal Ersoz, Synchronization of GnRH neurons: a multiscale mathematical study, since November 2013, Université Pierre & Marie Curie (ED386), supervisors: Frédérique Clément and Jean-Pierre Françoise, with the involvement of Mathieu Desroches.

Lucile Megret, Mathematical analysis of complex oscillations in models with multiple time scales, since October 2013, Université Pierre & Marie Curie (ED386), supervisors: Jean-Pierre Françoise and Frédérique Clément, with the involvement of Mathieu Desroches.

Kim Long Tran, Reduction and calibration of multiscale models for structured cell populations, since October 2014, Université Pierre & Marie Curie (ED386), supervisors: Marie Postel and Frédérique Clément.

Luis Carlos García del Molino, Dynamics of randomly connected networks and spectral theory of random matrices, Université Denis Diderot (ED393), October 1st, supervisors: Khashayar Pakdaman and Jonathan Touboul.

Cristóbal Quiñinao, Mathematical modeling in Neuroscience: collective behavior of neuronal networks & the role of local homeoproteins diffusion in morphogenesis. Université Pierre & Marie Curie (ED386), June 2nd, 2015, supervisors: Benoît Perthame, Stéphane Mischler (CEREMADE) and Jonathan Touboul.

Mérina Latbi, Modélisation mathématique de la neurogenèse corticale, Centrale Lyon and Master M2 Maths en action (Lyon 1), co-supervisors Frédérique Clément & Marie Postel.

### 8.2.3. Juries

Jonathan Touboul participated in the selection committee of the Bernstein Award for Computational Neuroscience (BPCN)

Frédérique Clément participated in the admission committee of the Inria Senior Researcher (DR2) open competition

### **8.3. Popularization**

- *The hipster effect: when anticonformists all look the same*. Popularization on the synchronization of random elements inspired from a simplification of brain dynamics. International press coverage in scientific (Science, AMS news, Science et Vie, . . . ) and general information journals (Washington post, JDD, Le soir, . . .)
- *La recherche sur la reproduction animale et humaine*. Booklet edited by GdR REPRO, including an interview of Alexandre Vidal and a dedicated chapter on "Reproduction, biomathématiques et bioinformatique"

## NEUROMATHCOMP Project-Team

### 8. Dissemination

#### 8.1. Promoting Scientific Activities

##### 8.1.1. Scientific events organisation

###### 8.1.1.1. General chair, scientific chair

Olivier Faugeras was the General Chair of the **1st International Conference on Mathematical Neuroscience**, held in Antibes-Juan les Pins, June 8-10 2015.

###### 8.1.1.2. Member of the organizing committee

Romain Veltz and James Inglis are members of organizing committee of the **1st International Conference on Mathematical Neuroscience**, held in Antibes-Juan les Pins, June 8-10 2015.

We have co-organized the conferences:

- **Confronting mean-field theories to measurements a perspective from neuroscience**, Paris 14-15 January 2015 (Bruno Cessac, Olivier Faugeras).
- **Modeling the early visual system: From natural vision to numerical applications**. Satellite of the **12eme colloque societe des neurosciences**, Montpellier, 19-22 May 2015 (Bruno Cessac).
- **Mathematical Modeling and Statistical Analysis in Neuroscience workshop**, Nice 8-10 September, (Bruno Cessac).
- **Workshop on Heteroclinic Dynamics in Neuroscience**, Nice 17-18 December, (Pascal Chossat, Mathieu Desroches, Maciej Krupa).

##### 8.1.2. Scientific events selection

###### 8.1.2.1. Chair of conference program committees

Pierre Kornprobst was area Chair of the 23rd edition of the European Signal Processing Conference (EUSIPCO 2015) for the theme Bio-inspired image and signal processing.

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

Pierre Kornprobst was a member of the program committee of the Conference of "Groupement de Recherche en Traitement du Signal et des Images" (GRETSI 2015) and of the Conference on Computer Vision and Pattern Recognition (CVPR 2015).

##### 8.1.3. Journal

###### 8.1.3.1. Member of the editorial boards

Olivier Faugeras is the co-editor in chief of the open access **Journal of Mathematical Neuroscience**.

###### 8.1.3.2. Reviewer - Reviewing activities

Olivier Faugeras acts as a reviewer for the Journal of Mathematical Neuroscience, the Journal of Computational Neuroscience, the SIAM Journal on Applied Dynamical Systems (SIADS).

Maciej Krupa acts as a reviewer for Nonlinearity, Proceedings of the National Academy of Sciences of the USA (PNAS), the SIAM Journal of Applied Dynamical Systems (SIADS).

Mathieu Desroches acts as a reviewer for Journal of Nonlinear Science, Physica D, the SIAM Journal of Applied Dynamical Systems (SIADS).

#### 8.1.4. Invited talks

Pierre Kornprobst gave an invited talk at the workshop entitled “From Retina to Robots – Connecting the Neural Computations of Early Vision to Neuromorphic Engineering and Artificial Vision” at the Bernstein Conference for Computational Neuroscience in Heidelberg, Germany, on September 14, 2015 (organized by Tim Gollisch and Stefano Panzeri).

#### 8.1.5. Research administration

Pierre Kornprobst is an elected member of the Conseil Académique de l’UCA, member of the editorial committee of the Sophia Antipolis internal letter and "représentant de l’administration suppléant".

### 8.2. Teaching - Supervision - Juries

#### 8.2.1. Teaching

##### E-learning

Master 2: Bruno Cessac, *Neuronal dynamics*, 36 hours, Master of Computational Biology and Biomedicine, Université Nice Sophia Antipolis, France.

Summer school: Bruno Cessac, *Mean Field Methods in Neuroscience*, 3h, Lecture given in the conference *Dynamics of Multi-Level Systems*, Jun 2015, Dresde, Germany .

##### Chalk-learning

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

#### 8.2.2. Supervision

PhD in progress: Kartheek Medathati, "Motion perception: from neuroscience to computer vision", started in September 2013, co-supervised by Pierre Kornprobst and Guillaume S. Masson (Institut de Neurosciences de la Timone, Marseille, France).

PhD in progress: Theodora Karvouniari, «Retinal waves in the retina: theory and experiments», defence planned in October 2017, supervised by Bruno Cessac.

#### 8.2.3. Juries

- Bruno Cessac. Reviewer of Luis Garcia Del Molino’s thesis, "Non-Hermitian random matrices and applications to randomly connected firing rate neuronal network" (supervision Jonathan Touboul, Khashayar Pakdaman). Paris, 01-10-15.



## NEUROSYS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of Organizing Committees

- NETT workshop about *Neural Engineering in Medicine and related fields* in Nancy, 2-3 July 2015 (A. Hutt, L. Bougrain)
- BCI competition, IEEE Neural Engineering Conference, Montpellier, 2015 (L. Bougrain).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

Chair of the international workshop *Neural Engineering in Medicine and Related Fields*, July 2-3, Nancy

#### 10.1.2.2. Member of Conference Program Committees

- Workshop *Neural Engineering in Medicine and Related Fields*, July 2-3, Nancy (A. Hutt, L. Bougrain)
- French conference on machine learning CAP 2015 (L. Bougrain)
- IEEE International Conference on Systems, Man, and Cybernetics (SMC) special sessions on Brain-Machine Interfaces, Hong Kong, 2015 (L. Bougrain)
- International Joint Conference on Artificial Intelligence (IJCAI) 2015 (L. Bougrain)

#### 10.1.2.3. Reviewer

- French conference on machine learning CAP 2015 (L. Bougrain)
- IEEE International Conference on Systems, Man, and Cybernetics (SMC) special sessions on Brain-Machine Interfaces, Hong Kong, 2015 (L. Bougrain)
- International Joint Conference on Artificial Intelligence (IJCAI) 2015 (L. Bougrain)

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing Activities

Nonlinearity, Neurocomputing, Journal of Computational Neuroscience, SIAM Journal of Applied Dynamical Systems, Journal of Mathematical Neuroscience, Frontiers in Neurology, Physical Review E, Physical Review Letters, Journal of Neuroscience (A. Hutt); PLoS Computational Biology, Frontiers in Computational Neuroscience (L. Buhry); Reviewing activities: IEEE Transactions on Signal Processing, ACM Transactions on Sensor Networks, Signal Processing: Image Communication (T. Tomic)

### 10.1.4. Invited talks

- Tutorial "Fundamentals in Neural Field and Neural Mass models", Computational Neuroscience Conference, July 17 and 18, Prague (A. Hutt);
- Seminar talk "Noise-induced neural oscillations", Max Planck Institute for Brain Research, May 26, Frankfurt am Main (A. Hutt);
- Seminar talk "Brain Signals Analysis for Brain-Machine Interfaces", UCL-France Workshop *Virtual reality in rehabilitation, accessibility and mobility*, Univ. College London, May 21-22, London (L. Bougrain)
- Seminar talk "EEG-based control of a Jaco robotic arm", International workshop *Neural Engineering in Medicine and Related Fields*, July 2-3, Nancy (L. Bougrain);
- Tutorial "Time-frequency analysis", Ludwig-Maximilians-Universität (LMU), Nov. 2015, Munich (M. Fedotenkova)
- Seminar talk "Distinguishing between pre- and post-incision under general anesthesia by spectral and recurrence analysis of EEG", Ludwig-Maximilians-Universität (LMU), Nov. 2015, Munich (M. Fedotenkova)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Engineering School: L. Bougrain, *Artificial Intelligence*, 109h, 3rd year, Telecom Nancy, France

Engineering School: L. Bougrain, *Brain-Computer interfaces*, 4.5h, 3rd year, Supelec, France

Engineering School: T. Totic, *Process and knowledge modeling*, 27h, 3rd year, École des Mines Nancy, France

Engineering School: T. Totic, *Informatique I*, 20h, 2nd year, École des Mines Nancy, France

Engineering School: T. Totic, *Techniques et solutions informatiques*, 24h, 3rd year, École des Mines Nancy, France

Engineering School: T. Totic, *ARTEM workshop ABCD Web*, 40h, 3rd year, ICN, Ecole d'art et design, École des Mines, France

Engineering School: A. Hutt, *Pépites Algorithmiques*, 9h, niveau M1, École des Mines Nancy, France

Engineering School: F. Giovannini, *Artificial Intelligence*, 32h, 3rd year, Telecom Nancy, France

Engineering School: F. Giovannini, *Techniques and tOols for Programming*, 32h, 1st year, Telecom Nancy, France

Licence: L. Buhry, *Applications en Sciences Cognitives*, 3h, niveau L1 MIASHS, University of Lorraine, France

Licence: L. Buhry, *Programmation Python*, 37h, niveau L1 MIASHS, University of Lorraine, France

Licence: L. Buhry, *IA et Résolution de problèmes*, 25h, niveau L3 MIASHS, University of Lorraine, France

Licence: L. Bougrain, *mobile development*, 35h, Licence of computer science (3st year), University of Lorraine, France

Licence: L. Bougrain, *artificial intelligence*, 35h, Licence of computer science (3st year), University of Lorraine, France

Licence: L. Bougrain, *optimization*, 37.5h, Licence of computer science (3st year), University of Lorraine, France

Master: L. Buhry, *Algorithmique pour l'intelligence artificielle*, 31h, niveau Master 1 SCA (Sciences Cognitives et Applications), University of Lorraine, France

Master: L. Buhry, *IA fondamentale et fouille de données*, 18h, niveau Master 1 SCA (Sciences Cognitives et Applications), University of Lorraine, France

Master: L. Buhry, *Formalismes de Représentation et Raisonnement*, 25h, niveau Master 1 SCA (Sciences Cognitives et Applications), University of Lorraine, France

Master: L. Buhry, *Memory and Machine Learning (in English)*, 38h, niveau Master 1 SCA (Sciences Cognitives et Applications), University of Lorraine, France

Master: L. Buhry, *Neurosciences Computationnelles*, 25h, niveau Master 2 SCMN, University of Lorraine, France

Master: L. Bougrain, *Machine learning*, 18h, Master of computer science, 2st year, University of Lorraine, France

Master: L. Bougrain, *Human factors*, 30h, Master of computer science 1st year, University of Lorraine, France

### 10.2.2. Supervision

- PhD in progress: Meysam Hashemi, Analytical and numerical studies of thalamo-cortical neural population models during general anesthesia, May 2012, A. Hutt
- PhD in progress: Mariia Fedotenkova, Detection of EEG-signal features for pain under general anaesthesia, November 2013, A. Hutt
- PhD in progress: Cecilia Lindig-Leon, Multilabel classification for a 3D control of a robotic arm using band-specific EEG markers associated with a motor task, November 2013, L. Bougrain and A. Hutt
- PhD in progress: Francesco Giovannini, Mathematical modelling of the memory system under general anesthesia, October 2014, L. Buhry and A. Hutt
- Winter 2015 Internship: Jean-Baptiste Jordan Schneider (M1 Biology, univ. de Lorraine), *Investigating the Effects of Propofol-Induced Tonic Inhibition on Rhythmic Neural Activity in a Hippocampal Interneuron Network* (F. Giovannini, L. Buhry)
- Master research project (2nd year): Louis Viard (Engineering School Ecole des Mines de Nancy), *Detection of micro-awake episodes in sleep signal using time-frequency descriptors* (T. Tomic)
- Master thesis: Sébastien Rimbart (master of cognitive science, univ. de Lorraine) *Study of the dynamics of brain motor components during anesthesia* (L. Bougrain)
- Master thesis: Benjamin Le Golvan (master of biomedical engineering, univ. de Lorraine) *Longitudinal study of motor activities* (L. Bougrain)

### 10.2.3. Juries

- Axel Hutt was member of PhD committee of Arnaud Legendre, University of Mulhouse, as reviewer. He has participated in the candidates defence October 28 2015.

### 10.2.4. Commitees

- Member of the IES committee (Commission Information et Edition Scientifique) at Inria Nancy–Grand-Est (Laurent Bougrain)
- Member of Inria committee COST-GTRI to evaluate Inria Associate Teams (Axel Hutt).

## 10.3. Popularization

- Talks at Science and You: atelier scolaire “Femmes et sciences : une équation facile à résoudre !” – June 5th 2015 (L. Buhry)
- Talk during the National Brain week: Brain, Consciousness and Anesthesia, March 24th 2015, central hospital, Nancy (D. Schwartz, A. Hutt, L. Bougrain)
- Exhibit at Loria’s open day for master students: controlling a robotic arm using EEG, April 9th, 2015 (L. Bougrain, B. le Golvan)

## NUMED Project-Team

## 7. Dissemination

### 7.1. Promoting Scientific Activities

#### 7.1.1. Scientific events organisation

##### 7.1.1.1. General chair, scientific chair

Emmanuel Grenier: scientific chair: conference on tumor modeling, Marseille, december 2015.

##### 7.1.1.2. Member of the organizing committees

- Vincent Calvez and Paul Vigneaux: Co-organizers of the maths seminar (since September 2008) Modelling, PDE and Scientific Computing, joint between Institut Camille Jordan and UMPA.
- Alvararo Mateos Gonzalez, Nils Caillerie: PhD student seminar (Lyon I - ENSL).

#### 7.1.2. Scientific events selection

##### 7.1.2.1. Reviewer

Vincent Calvez is reviewever for the Deutsche Forschungsgemeinschaft (DFG).

#### 7.1.3. Journal

##### 7.1.3.1. Member of the editorial boards

Vincent Calvez: Journal of Mathematical Biology (Springer)

##### 7.1.3.2. Reviewer - Reviewing activities

- Vincent Calvez is reviewer for Comm. Part. Diff. Eq. (CPDE), J. Comp. Phys., J. Funct. Anal., J. Math. Biol., Nonlinearity, Duke Math. J.
- Paul Vigneaux is reviewer for Journal of Computational Physics, Elsevier ; Journal of Scientific Computing, Springer ; ESAIM: M2AN, Mathematical Modelling and Numerical Analysis ; International Journal for Numerical Methods in Fluids, Wiley ; Computers & Fluids international journal, Elsevier ; ZAMP, Springer (Zeitschrift fuer Angewandte Mathematik und Physik – J. of Appl. Math. and Physics) ; Biomicrofluidics American Institute of Physics

#### 7.1.4. Invited talks

- Alvaro Mateos Gonzalez: Colloque Interactions 2015 (Grenoble)
- Thibault Bourgeron: Journées EDP Rhône Alpes Auverge, Clermont-Ferrand, november 2015
- Thibault Bourgeron: Modelling Seminar in Biology, ENS Lyon, october 2015
- Paul Vigneaux: CEMRACS 2015 "Coupling Multi-Physics Models involving Fluids". Small scale fluid dynamics, interfaces and numerics. PhD lecture at the 20th CEMRACS Summer School. July 20 - August 28, 2015. CIRM, Marseille.
- Paul Vigneaux: International Workshop on Intracranial Tumors Modeling. Bordeaux, France. September 21-22, 2015. Invited speaker.
- Paul Vigneaux: Applied Analysis Seminar, LAGA, Paris 13 University, april 2015.

#### 7.1.5. Research administration

Paul Vigneaux is a member of the Board of UMPA (since October 2009), of the Board of the Numerical Modelling Center of Lyon (PSMN), representing UMPA (since September 2008)

## **7.2. Teaching - Supervision - Juries**

### **7.2.1. Teaching**

- Alvaro Mateos Gonzalez at ENS Lyon (PDEs, introduction to Latex, oral exams)
- Paul Vigneaux at ENS Lyon: Agrégation, L3 (numerical methods), M2 (Level set methods)
- Paul Vigneaux is member of the Board of MILYON, the Laboratory of Excellence (Labex) in Mathematics of Lyon (Since September 2011). This Labex aims at federating international research, higher education and society activities. In charge of evaluation and grant attribution for foreign students for M1, M2 and PhD in Lyon, since 2011.
- Paul Vigneaux Membre du Conseil du Département de mathématiques, ENS de Lyon (Janvier 2010 - aujourd'hui).  
Responsable c2i2e pour les mathématiques, ENS de Lyon (Janvier 2011 - aujourd'hui).
- Emmanuel Grenier at ENS Lyon: L3 (Topology, PDE) and Agrégation.

### **7.2.2. Supervision**

- Vincent Calvez: Alvaro Mateos Gonzalez, Nils Caillerie
- Paul Vigneaux: Arthur Marly
- Emmanuel Grenier: Edouard Ollier

### **7.2.3. Juries**

- Vincent Calvez: PhD juries of Ariane Trescases (ENS Cachan) and Claire Guerrier (ENS Ulm)
- Vincent Calvez: assistant professor juries: Ecole Centrale Marseille, Ceremade (Dauphine)

## **7.3. Popularization**

- Paul Vigneaux is a member of the board of "Images des Maths", a pedagogic website of CNRS.
- Vincent Valvez is coordinator of Math à Lyon, a monthly two-days mathematical exhibition in public highschools.

## PARIETAL Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- **Bertrand Thirion**: STAMLINS workshop (ICML 2015)
- **Gaël Varoquaux**: MLOSS workshop (ICML 2015)

### 10.1.2. Scientific events selection

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

- **Philippe Ciuciu**: Member of the programm committe for the GRETSI 2015 conference located in Lyon.
- **Philippe Ciuciu**: Organizer of the special session dedicated to Signal processing for Neurosciences
- **Bertrand Thirion**: Organization for Human Brain Mapping.

#### 10.1.2.2. Reviewer

- **Bertrand Thirion**: IPMI, MICCAI, NIPS, ISBI, PRNI
- **Gaël Varoquaux**: IPMI, MICCAI, NIPS, ICASSP, Scipy
- **Philippe Ciuciu**: IEEE ICASSP, IEEE ISBI, IEEE ICIP, PRNI.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- **Bertrand Thirion**: Medical Image Analysis, Frontiers in brain imaging
- **Gaël Varoquaux**: Frontiers in NeuroInformatics, Frontiers in brain imaging methods, NeuroImage

#### 10.1.3.2. Reviewer - Reviewing activities

- **Bertrand Thirion**: Human Brian Mapping, IEEE TMI, MedIA, NeuroImage, PNAS
- **Gaël Varoquaux**: NeuroImage, JSTSP, PNAS
- **Philippe Ciuciu**: IEEE Signal Processing letters, IEEE Trans on Medical Imaging, IEEE Trans on Selected Topics in Signal Processing, NeuroImage, Human Brain Mapp, The Journal of Neuroscience, Frontiers in Neuroscience - Brain Imaging Section, The Journal of Neuroscience Methods. Reviewer for the following international conferences in 2015: The first three are commitments due to my involvement to the IEEE BioImaging Signal Processing committee since 2013. Reviewer for the following national conference: GRETSI

### 10.1.4. Invited talks

#### 10.1.4.1. Bertrand Thirion

- Seminar QBIN, Montreal (Jan 30th)
- Invited talk MILM workshop, ICML, Lille (July 11th)
- Seminar Lear, Inria GRA (Sept 3rd)
- Seminar Univ. Liège (Sept 23rd)
- Seminar INT, Marseille (Sept 24th)
- Invited talk, Big Data Convention, Saclay (Nov 30th)
- Invited Talk, Seminar 'Horizon Math', FSMP (Dec 15th)

#### 10.1.4.2. Gaël Varoquaux

- Seminar Max Planck Institute Tuebingen (Oct 8th)
- Seminar fMRIB Oxford (Sept 24th)
- Invited talk MLOSS workshop, ICML, Lille (July 7th)
- Seminar OECD Paris, (July 1st)
- Invited talk ODSC (Boston May 30th)
- Keynote: workshop on machine learning at Society for Affective Neuroscience (Oakland, April 9th)
- Invited talk IRT Système X, (Palaiseau, May 19th)
- Keynote Pycon Russia (Yekaterinburg, Sept 18th)
- Keynote Pydata Paris (Paris, April 4th)
- Invited talk, Feindel Brain Imaging Lecture (McGill, Montreal): <http://www.mcgill.ca/bic/channels/event/feindel-brain-imaging-lecture-methods-resting-state-connectome-biomarkers-dr-gael-varoquaux-256587>
- Invited speaker BioImage Informatics GDR, Paris <http://gdr-miv.fr/en/events/bioimageinformatics2015/>
- Invited speaker, workshop LHCb, Paris <https://indico.cern.ch/event/337568/session/1/contribution/32>

#### 10.1.4.3. Philippe Ciuciu

- European Institute of Theoretical Neuroscience: March, 13 2015: Convergence to Asymptotic Multifractal Dynamics Predicts Learning
- IXXI Rhône Alpes, Grenoble Dec, 8 2015: Complexity Measures in Brain Activity: The functional Role of Scale-Free Brain Dynamics

#### 10.1.4.4. Loïc Estève

- Scipy 2015 (July 9th), <http://scipy2015.scipy.org/ehome/115969/297898/>
- Open Software Initiative (October 26th), <https://indico.lal.in2p3.fr/event/2987/other-view?view=standard>

#### 10.1.5. Leadership within the scientific community

- Gaël Varoquaux: Chair of the steering committee, IEEE PRNI
- Philippe Ciuciu: Member of the newly founded Biomedical Image & Signal Analytics Special Area Teams in the EURASIP society. Chairman: Dimitri Van De Ville.
- Bertrand Thirion: member of the *Committee on Best Practices in Data Analysis and Sharing* for the OHBM community.

#### 10.1.6. Scientific expertise

Gaël Varoquaux:

- Member of the working group on big data for the Paris-Saclay university
- Member of the working group on smart data in the "TIC & Santé" commission

Philippe Ciuciu:

- Expert for funding agencies: 1st round for ANR, annual call of FWO (Flanders universities), Fond National Suisse de la Recherche, Wellcome Trust (UK), NSERC (Canada).
- Participation to the CEA scientific council on Nov/Dec 2015 on High Performance Computing.

### 10.1.7. Research administration

Bertrand Thirion:

- Comex Labex Digicosme
- Comex Lidex PIM
- Comex department STIC Paris-Saclay University
- DSA Saclay.

Gaël Varoquaux:

- Member of "Comité de suivi doctoral", Inria Saclay
- Member of "Comité cluster", Inria Saclay

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : Bertrand Thirion, Brain Computer interface and Functional Neuroimaging, 12 heures équivalent TD, niveau M2, ENS Cachan

Master : Bertrand Thirion, Analysis of functional connectivity, 3 heures équivalent TD, niveau M2, Université Paris 5

Master : Gaël Varoquaux, Advanced Neuroimaging Data Analysis, 7.5 heures équivalent TD, niveau M2, Télécom ParisTech, Paris

Master : Gaël Varoquaux, Python for data science, 3 heures équivalent TD, niveau M2, ENSAE, Paris

Master : Michael Eickenberg, Loïc Estève, Practical sessions on scikit-learn, 6 hours, M2, Paris-Saclay University, France

Doctorat : Gaël Varoquaux, nilearn: machine learning for neuroimaging, 12 heures équivalent TD, Max Planck Institute Leipzig, Allemagne

Doctorat : Gaël Varoquaux, nilearn: machine learning for neuroimaging, 12 heures équivalent TD, Stanford, Etats Unis

Doctorat : Gaël Varoquaux, pattern recognition for neuroimaging, 1 heures équivalent TD, OHBM, Honolulu, Etats Unis

Doctorat : Gaël Varoquaux, statistics in Python, 3 heures équivalent TD, Euroscipy, Cambridge, Angleterre

Doctorat : Loïc Estève (helper), Software Carpentry Bootcamp, 12 hours, European Institute for Theoretical Neuroscience, France <https://btel.github.io/2015-11-19-eitn/>

#### E-learning

Pedagogical resources : Gaël Varoquaux, Scipy lecture notes, ebook, niveau master ou plus, <http://www.scipy-lectures.org>

### 10.2.2. Supervision

PhD : Nicolas Chauffert, "Physically plausible k-space trajectories for compressed sensing in MRI", Université de Paris-Sud, ED EOBE, 28/9/2015, Philippe Ciuciu (Directeur) & Pierre Weiss

PhD : Yannick Schwartz, "Large-scale functional MRI analysis to accumulate knowledge on brain functions" Université de Paris-Sud, ED STIC, 21/4/2015, Bertrand Thirion (Directeur) & Gaël Varoquaux

PhD : Fabian Pedregosa, "Feature extraction and supervised learning on fMRI: from practice to theory" Université de Paris-Sud, ED STIC, 21/4/2015, Bertrand Thirion (Directeur) & Alexandre Gramfort



PhD : Michael Eickenberg,” Université de Paris-Sud, ED STIC, 21/4/2015, Bertrand Thirion (Directeur) & Alexandre Gramfort

PhD : Alexandre Abraham,” “ Université de Paris-Sud, ED STIC, 21/4/2015, Bertrand Thirion (Directeur) & Gaël Varoquaux

### **10.2.3. Juries**

Bertrand Thirion:

- Rapporteur de la thèse de Raphael Liégeois (Liège University, Belgium)
- Rapporteur de la thèse de Loïc Le Folgoc (Université Nice Sophia-Antipolis)
- Directeur du jury de thèse de Sylvain Takerkart (Université Aix-Marseille)

Gaël Varoquaux:

- Rapporteur de la thèse de Siina Pamila (Aalto University, Finlande)
- Examineur de la thèse de Yoann Isaac (Université Paris Sud, directrice de thèse Michèle Sébag)

## **10.3. Popularization**

Gaël Varoquaux: La tête au carré, on Junarury 13th, 2015: <http://www.franceinter.fr/emission-la-tete-au-carre-big-data-quand-les-donnees-servent-a-predire>

Stand à la Fete de la science CRI Saclay, 9 octobre (Alexandre Abraham, Arthur Mensch, Bertrand Thirion).

## PLEIADE Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Journal

#### 8.1.1.1. Member of the editorial boards

Pascal Durrens is a member of the editorial board of the journal ISRN Computational Biology. David Sherman is a member of the editorial board of the journal Computational and Mathematical Methods in Medicine.

#### 8.1.1.2. Reviewer - Reviewing activities

Pascal Durrens was reviewer for the journal BMC Genomics.

### 8.1.2. Scientific expertise

Pascal Durrens is an expert in Genomics for the Fonds de la Recherche Scientifique-FNRS (FRS-FNRS), Belgium. David Sherman is an expert for INRA's "Microbial Ecosystems and Metaomics" program.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Supervision

PhD: Razanne Issa, *Analyse symbolique et inférence de modèles métaboliques*, Université de Bordeaux, July 10, 2015. Thesis director: David Sherman.

### 8.2.2. Juries

Mid-term PhD review: Julie Laniau, Université de Rennes, October 1, 2015. Thesis director: Anne Siegel. Examiner: David Sherman

## 8.3. Popularization

David Sherman participated in popularization activities based on Thymio-II mobile robots for education, coordinated by the Mobsya association and EPFL (Switzerland). He contributed code to the Aseba project for piloting Thymio-IIs from the Scratch programming language, assisted in teaching at the Flornoy elementary school, and organized a team in the R2T2 event (<http://r2t2.org>) on November 4, 2015.

## **POPIX Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Invited talks***

Marc Lavielle was invited speaker at Bayes 2015 (Basel).

### ***10.1.2. Scientific expertise***

Marc Lavielle is member of the Scientific Committee of the High Council for Biotechnologies

### ***10.1.3. Research administration***

Marc Lavielle is member of

- the Scientific Programming Committee (CPS) of the Institute Henri Poincaré (IHP),
- the Executive Board (CA) of SMAI.

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

### ***10.2.1. Teaching***

Miscellaneous: Marc Lavielle, Population approach and Mixed effects models: PAGE meeting 2015 (Crete);

Miscellaneous: Marc Lavielle, SFdS Workshop about mixed effects models, Paris 2015.

### ***10.2.2. Juries***

- Marc Lavielle was referee for PhD of Artemis Llamosi (Paris Diderot)

## REO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- Matteo Aletti
  - Co-organizer of the monthly Junior Seminar of Inria Paris-Rocquencourt
- Laurent Boudin
  - Member of the scientific committee of the “EDP Normandie 2015” conference.
- Sanjay Pant
  - Program committee member for the Australasian Conference on Artificial Life and Computational Intelligence (ACALCI), 2016.
- Jessica Oakes
  - ISAM Student Leader and 2015 Student Activity Conference Organizer
- I. Vignon-Clementel
  - Organizer of a minisymposium at the 4th International Conference on Computational & Mathematical Biomedical Engineering, July 2015, Cachan, France
  - Organizer of the monthly seminar at Inria Paris-Rocquencourt on “modeling and scientific computing”

### 10.1.2. Scientific events selection

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

- J-F. Gerbeau
  - Scientific Committee of the ENUMATH 2015 conference. Ankara, Turkey.
  - International Advisory Committee of the 2nd International Workshop on Latest Advances in Cardiac Modeling, 2015. Munich, Germany.

#### 10.1.2.2. Reviewer

- J-F. Gerbeau
  - Expert evaluator for Horizon2020 FET OPEN RIA Call 2015/2.
  - Member of the Mathematics panel of the FCT, the national funding agency of Portugal (*Fundação para a Ciência e a Tecnologia*).
- M. Thiriet
  - European Research Council - Advanced Grant (run 2)
  - ANRT
  - Fund for Scientific Research - FNRS, Belgium

### 10.1.3. Journal

#### 10.1.3.1. Member of editorial boards

- Jean-Frédéric Gerbeau
  - Editor-in-Chief of Mathematical Modelling and Numerical Analysis (M2AN).
  - Series editor of “SEMA SIMAI Springer Series”.

- Member of the editorial board of International Journal for Numerical Methods in Biomedical Engineering (IJNMBE).
- Member of the editorial board of Communications in Applied and Industrial Mathematics.
- Member of the editorial board of Journal for Modeling in Ophthalmology.
- I. Vignon-Clementel
  - Editor of Frontiers in Pediatric Cardiology
- M. Thiriet
  - Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization.

#### **10.1.4. Research administration**

- Laurent Boudin
  - Member of the Board of Mathematics Licence (EFU de Licence de mathématiques), UPMC
  - Member of the think-tank for third-year programs in Mathematics at UPMC.
  - Member of the IREM (Institutes for Research on Mathematics Teaching) Scientific Committee.
  - Member of the SMAI (French Society for applied and industrial mathematics) Teaching Committee.
- Muriel Boulakia
  - Supervisor of the teaching of mathematics at the engineer school Polytech Paris-UPMC
- Miguel Ángel Fernández Varela
  - Co-president of the Scientific Positions Commission, Inria Paris-Rocquencourt
- Jean-Frédéric Gerbeau
  - Service activity at Inria: Délégué Scientifique / Chairman of the project-teams' committee of Inria Paris-Rocquencourt research center; Member of the Inria Evaluation Committee; Member of the Inria International Chairs committee.
  - Service activity in other French institutions: member of the research committee of Sorbonne Universités; member of the scientific committee of Labex NUMEV, Montpellier.
  - Service activity abroad: member of the Reference Committee of the PhD program Mathematical Models and Methods in Engineering (Politecnico di Milano, Italy).
- Céline Grandmont
  - Member of the CNU 26 (2011–2015). Member of the CNU extended board.
  - Member of the Evaluation Committee Inria (2015-...)
- I. Vignon-Clementel
  - Mediator between PhD students and their supervisors for Inria Paris-Rocquencourt

#### **10.1.5. Conferences**

- Matteo Aletti
  - Minisymposium talk, 4th International Conference on Computational & Mathematical Biomedical Engineering (CMBE2015), June 29 - July 1, 2015, Cachan, France
  - Minisymposium talk, 13th U.S. National Congress on Computational Mechanics (US-NCCM13), July 27 - July 30, 2015, San Diego, CA
  - Presentation at REVAMMAD (EU Marie Curie ITN) meeting, September 2015, Padova, Italy
- Chloé Audebert

- Minisymposium talk, 4th International Conference on Computational and Mathematical Biomedical Engineering - CMBE2015, June 29th - July 1st, 2015, Cachan, France
- PhD students seminar, Inria-Rocquencourt Junior Seminar, October 20th, 2015, Paris, France
- Seminar, Laboratoire de mathématiques de Besançon, Université de Franche-Comté, November 12th, 2015, Besançon, France
- PhD students seminar, Laboratoire de mathématiques de Versailles, Université Versailles St-Quentin, December 3rd, 2015, Paris, France
- Laurent Boudin
  - Seminar, Analysis, LMPT, Univ. Tours, France, March 2015.
  - Seminar, Applied Mathematics, LMNO, Univ. Caen, France, March 2015.
  - Invited speaker, Workshop "From opinion dynamics to voting, conflict and terrorism", Sciences Po Paris, France, March 2015
  - Invited speaker, Labex SMART Summer School on "Computational Social and Behavioral Sciences", UPMC, France, September 2015
  - Seminar, Numerical analysis and PDEs, LMO, Univ. Paris-Sud, France, December 2015
- Muriel Boulakia
  - November 2015 : Seminar at University College London
  - August 2015 : Workshop PDE, optimal design and numerics, Benasque (Spain)
  - April 2015 : Seminar at Université d'Orsay Paris-Sud
- Miguel Ángel Fernández Varela
  - Invited speaker, Workshop on fluid-structure interactions: an asymptotic approach, A Coruña, Spain, October 8-9, 2015
  - Minisymposium talk, X-DMS 2015 eXtended Discretization MethodS conference, Ferrara, Italy, September 9-11, 2015
  - Invited speaker, Workshop on Control and Numerics for Fluid-Structure Interaction Problems, TFIR CAM, Bangalore, India, June 29-July 1, 2015
  - Invited speaker, Numerical analysis week of Besançon on XFEM, Nitsche FEM, adaptive FEM and artificial boundary conditions, Besançon, France, June 15-19, 2015
  - Seminar, Modeling and Scientific Computing Seminar, Inria Paris-Rocquencourt, March 3, 2015
- Benoit Fabrèges
  - Seminar, MOX Seminar at Politecnico di Milano, Milan, Italy, July 28, 2015
- Jean-Frédéric Gerbeau
  - Invited lecture at the Edinburgh Mathematical Society, 2015
  - Invited lecture, 2d International Workshop on Latest Advances in Cardiac Modeling (LACM), Munich, 2015
  - Invited lecture, 3rd Workshop on Model Reduction (MORE), Pilsen, Czech Republic, 2015
  - Seminar, MOX, Politecnico di Milano, Italy, March, 2015
  - Seminar, ENS Rennes, Dec 16, 2015
  - Minisymposium talk, USNCCM, San Diego, USA, 2015
- Céline Grandmont
  - Invited speaker, Lions-Magenes day, April 2015, Pavia, Italy

- Invited Speaker, Workshop on Control and Numerics for Fluid-Structure Interaction Problems, TFIR CAM, Bangalore, India, June 29-July 1, 2015
- Mikel Landajuela
  - Contributed talk, 13th U.S. National Congress on Computational Mechanics, San Diego, USA, July 26–30, 2015
  - Seminar, 2nd UCL/Inria Workshop on embedded interfaces, UPMC, Paris, France, April 8, 2015
  - Seminar, MOX, Milano, Italy, December 10, 2015
- Damiano Lombardi
  - Invited talk, Optimal Transport workshop, Bordeaux, October 16 2015
  - Seminar, Bordeaux, *On the Backward Uncertainty Quantification problem*, March 2015
  - Seminar, Laboratoire Jacques Louis Lions, UPMC, December, Paris, 2015
  - Minisymposium talk, 1st Pan-American Congress on Computational Mechanics, Buenos Aires, Argentina, April 27-29, 2015
- Jessica Oakes
  - Invited talk, Computational Fluid Dynamics in Medicine and Biology. Albufeira, Portugal. September 2015
  - Seminar, University at Buffalo, December 2015
  - Seminar, University of California, Los Angeles. November 2015
  - Seminar, University of California, Irvine. October 2015
  - Seminar, University of Arizona, Tucson. February 2015
  - Seminar, University of California, Davis. January 2015
  - Contributed talk 13th U.S. National Congress on Computational Mechanics. San Diego, California. July 2015
  - Contributed talk 4th International Conference on Computational and Mathematical Biomedical Engineering. June 2015
  - Poster, International Society of Aerosol Medicine. Munich, Germany. June 2015
- Sanjay Pant
  - Seminar, King's College London, UK, October 2015
  - Seminar, Great Ormond Street Hospital, London, UK, October 2015
  - Contributed talk, 13th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, CMBBE, Montreal, Canada, September 2015
  - Contributed talk, 4th International Conference on Computational & Mathematical Biomedical Engineering, CMBE, Cachan, France, June–July, 2015
- Nicolas Pozin
  - Poster, 20th International Congress on Aerosols in Medicine and Pulmonary Drug Delivery, May 30 - June 3, 2015, Munich, Germany
- Marc Thiriet
  - Invited speaker, Second Tbilisi-Salerno Workshop on Modeling in Mathematics, Tbilisi, Mars 16-18, 2015
  - Keynote speaker, First Computational Mechanics Conference in Taiwan (ACMT), minisymposium MS017. Computational Biomedicine and Biomechanics, October 21–23, 2015, National Taiwan University, Taipei

- Invited speaker, First Computational Mechanics Conference in Taiwan (ACMT), minisymposium MS017. Computational Biomedicine and Biomechanics, October 21–23, 2015, National Taiwan University, Taipei
- Elliott Tixier
  - Invited speaker, Lions-Magenes Days Scientific Meeting, April 13-14, 2015, Pavia, Italy.
  - Minisymposium talk, 1st International Conference on Uncertainty Quantification in Computational Sciences (UNCECOMP 2015), May 25-27, 2015, Crete Island, Greece.
  - Minisymposium talk, 4th International Conference on Computational & Mathematical Biomedical Engineering (CMBE 2015), June 29 - July 1, 2015, Cachan, France.
- Marina Vidrascu
  - Invited speaker, Workshop on numerical approximations of PDEs Honoring the 60th birthday of Frédéric Hecht, Málaga, April 20-22
  - Invited speaker, Progrès récents en mécanique des fluides numérique. Colloque en l'honneur d'Alain Dervieux, april 10, Inria Sophia-Antipolis
- Irène Vignon-Clementel
  - Invited talk, Workshop DHU Hepatinov, Dec. 4th, Paul Brousse Hospital, Villejuif, France
  - Invited talk, CEA-GAMNI workshop, Feb. 5th, Paris, France
  - Invited talk, Computational Fluid Dynamics (CFD) in Medicine and Biology II, Sept. 2nd, Albufeira, Portugal
  - Seminar, Laboratoire Jacques Louis Lions, UPMC, April 3rd, Paris, France
  - Seminar, Paul Brousse Hospital meeting with ESPCI, March 16th, Villejuif, France
  - Talk, 4th International Conference on Computational & Mathematical Biomedical Engineering, July, Cachan, France
  - Evaluation seminar, ANR iFLOW midterm review, Nov 3rd, Paris, France

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence :

- Chloé Audebert
  - Sequences and series of functions, series, generalised integrals, 20h, L2-CNED, UPMC
- Laurent Boudin
  - Introduction to series for signal theory, 18h, L2, UPMC
  - Shared studies supervision in mathematics licence for approximately 500 students, 30h, L2-L3, UPMC
  - Mathematics licence supervision of all the “Double majeure” intensive bi-disciplinary curriculum, 4h, L2, UPMC
- Muriel Boulakia
  - Scilab, 35h, L2, UPMC
  - Hilbertian analysis, 30h, L3, Polytech'Paris
  - Oral tests in numerical analysis, 20h, L3, UPMC
- Miguel Ángel Fernández Varela
  - Scientific Computing, 32h, L3, ENPC
  - Analysis and Scientific Computing, 31h, L3, ENPC



- Céline Grandmont
  - Professional insertion and orientation, 24h, L2, UPMC
  - EDO, 24h, L3, UPM
- Damiano Lombardi
  - Numerical methods, 48h, L3, Polytech'Paris
- Elliott Tixier
  - Matrix calculus, 36h, L1, UPMC
  - Linear algebra, 60h, L2, UPMC
- Irène Vignon-Clementel
  - Mathematics for biology, 54h, L1, Université de Versailles Saint Quentin
  - Numerical simulations of blood flow, 1,5h, as part of the undergraduate "continuum mechanics", AgroParisTech

Master :

- Laurent Boudin
  - Basics for numerical methods, 36h, M1, UPMC
- Muriel Boulakia
  - Preparatory course for teaching admission examination "Agrégation", 15h, M2, UPMC
- Jean-Frédéric Gerbeau
  - Numerical methods in hemodynamics (20h), M2, UPMC / Univ Paris-Sud / Ecole Polytechnique.
  - Seminar for the M2 students of the master "Math SV" (1h), M2, Univ Paris-Sud, December, 2015
  - Seminar for the Ecole des Mines students (3h), M2, Paris, February, 2015

Thematic schools:

- Laurent Boudin
  - Invited lecturer: "Aerosol in the lung: what mathematics can bring", Univ. Pavia, Italy. 4h. Doctoral level
- Miguel Ángel Fernández Varela
  - Invited lecturer: Summer school on "Control and numerics in fluid-structure interaction problems", TFIR CAM, Bangalore, India, June 22-26, 2015. 10h. Master and doctoral level
  - Invited lecturer: Autumn School on "Data driven computations in the life sciences", IST, Lisbon, Portugal, November 9-13, 2015. 7,5h. Master and doctoral level
- Céline Grandmont
  - Invited lecturer: Summer school on "Control and numerics in fluid-structure interaction problems", TFIR CAM, Bangalore, India, June 22-26, 2015. 10h. Master and doctoral level
  - Invited lecturer: CEMRACS "Coupling multi-physics models involving fluids", July 20 - August 28, 2015, CIRM, Marseille. 6h. Master and doctoral level

### 10.2.2. Supervision

PhD: Justine Fouchet-Incaux, Mathematical and numerical modeling of the human breathing,  
Supervisors: C. Grandmont & B. Maury, Defended on April 2015, Orsay.

PhD in progress: Chloé Audebert, *Modeling of liver hemodynamics*, since October 2013. Supervisors: J.-F. Gerbeau & I. Vignon-Clementel.

PhD in progress: Francesco Bonaldi, *Modélisation Mathématique et Numérique de Multi-Structures avec couplage Magnéto-Electro-Thermo-Elastique*, since October 2013, Supervisors: F Krasucki & M. Vidrascu

PhD in progress: Mikel Landajuela, *Coupling schemes and unfitted mesh methods for fluid-structure interaction*, since October 2012, Supervisor: M.A. Fernández Varela.

PhD in progress: Matteo Aletti, *Multiscale retinal vascular modeling*, since January 2014 Supervisors: J.-F. Gerbeau & D. Lombardi.

PhD in progress: Eliott Tixier, *Stem cells electrophysiology*, since September 2014 2014. Supervisors: J-F. Gerbeau & Damiano Lombardi.

PhD in progress : Nicolas Pozin Multiscale lung ventilation modeling in health and disease, since March 2014. Supervisors: C. Grandmont & I. Vignon-Clementel.

PhD in progress : Andrea Bondesan, Kinetic and fluid models, numerical and asymptotic analysis, since October 2015, Supervisors: L. Boudin, B. Grec & S. Martin.

### 10.2.3. Juries

- Laurent Boudin
  - Member of the PhD committee of Justine Fouchet-Incaux, Univ. Paris-Sud, April 2015
- Muriel Boulakia
  - Member of the PhD committee of Gwladys Ravon, Inria Bordeaux Sud-Ouest (referee)
- Jean-Frédéric Gerbeau
  - PhD committees: Francesco Ballarin, Politecnico di Milano (referee); Romain Lacroix, SupTelecom (referee); Alessandra Menafoglio, Politecnico di Milano; Victorien Menier, UPMC (chairman); Simone Palamara, Politecnico di Milano; Alexander Serov, Ecole Polytechnique (referee).
  - Hiring committee: Inria Rennes (CR2); UTC (Assistant Professor).
- Céline Grandmont
  - Hiring committee: Toulouse Univ. (Professor position), Bordeaux Univ. (Head of the hiring committee, Professor position), Orleans Univ. (Professor position).
  - Phd Referee: Philipp Nägele, Friburg University, Germany, June 2015
  - HDR Committee: Muriel Boulakia, UPMC, October 2015
- Marc Thiriet
  - Member of the PhD committee of Sami Hached, Ecole Polytechnique de Montréal (referee)
  - Member of the PhD committee of Tamara El Bouti, Université de Versailles Saint Quentin en Yvelines (referee)
  - Member of the PhD committee of Mohammad Haddadi, Université Paris Est-Créteil (referee)
  - President of thematic comittee CT3 (Biomedical Simulation and Applications to Health) of GENCI (Grand Equipement National de Calcul Intensif – National Large Equipment for Intensive Computation).
  - Member of Evaluation Groups of the Canadian Granting Agency NSERC
- Irène Vignon-Clementel
  - Member of the PhD committee of Damon Afquari, Universidad Politecnica de Madrid, Spain, December 2015

- Member of the PhD committee of Stephanie Lindsey, Cornell University, USA, August 2015
- Member of the PhD committee of Tamara El Bouti, Université Versailles Saint Quentin, July 2015

### 10.3. Popularization

- Matteo Aletti
  - presentation, "Raconte-moi ta thèse", Fête de la science, October 10th, 2015, Paris, France
- Chloé Audebert
  - poster session, Journée "Correspondances", Projet PEPS-égalité "Correspondances de Langlands", April 10th, 2015, Paris, France
  - presentation, "Raconte-moi ta thèse", Fête de la science, October 10th, 2015, Paris, France
- Jessica Oakes
  - Tutor and mentor to an under-represented minority student struggling in mathematics (1h per week)
  - SECO: Visit local elementary schools to assist students with hands on science activities (1h per month)
- Irène Vignon-Clementel
  - Intervention at the conference "Research: challenges and adventures", at which the research national strategic plan was presented to the French Prime Minister, in presence of the Minister for Education, Higher Education and Research, Dec 14th., Paris, France <https://www.inria.fr/actualite/actualites-inria/la-strategie-nationale-de-recherche-presentee-au-premier-ministre>

## SAGE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organization

- J. Erhel organized with T. Faney and A. Michel, from IFPEN, an international MoMaS workshop on reactive transport (Paris, France, November 2015).

### 10.1.2. Scientific events selection

- J. Erhel is a member of the international advisory committee of the parallel CFD conferences (Trondheim, Norway, May 2014).
- J. Erhel was a member of the scientific committee of the international conference MAMERN 2015 (Pau, France, June 2015).
- J. Erhel was a member of the program committee of the workshop Visualization in Environmental Sciences 2015 (co-event of EuroVis 2015, Cagliari, Italy, May 2015)

### 10.1.3. journals: editorial Boards

- J. Erhel is member of the editorial board of ETNA.
- J. Erhel is member of the editorial board of ESAIM:Proceedings and Surveys.
- J. Erhel is the scientific coordinator of the website Interstices (since June 2012). See <https://www.interstices.info>.

### 10.1.4. Journals: Reviewing

- J. Erhel was reviewer for the journals ADWR, CONHYD, GMDD, LAA.
- L. Lenôtre was reviewer for the journal ETNA.
- M. Oumouni was reviewer for the journal JOMP.
- G. Pichot was reviewer for the journal Computers & Geosciences.

### 10.1.5. Review of proposals

- J. Erhel was reviewer for a proposal submitted to ICT15, Vienna Science and Technology fund.

### 10.1.6. Research administration

- É. Canot is member of the CLHSCT (Comité Local Hygiène Sécurité Conditions de Travail), of Inria-Rennes, from September 2010.
- J. Erhel is the correspondent of Maison de la Simulation for Inria Rennes.
- J. Erhel is the AMIES correspondent for Inria Rennes, from September 2015.
- J. Erhel was a member of the Inria local committee Post-Doc 2015.
- G. Pichot is responsible for the domain "environment" at IRISA, from June 2013 until August 2015.
- G. Pichot is member of the Conseil de département MAM of Polytech Lyon.
- G. Pichot was a member of the Inria local committee CORDI-S 2015.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

J. Erhel: Master M2; title: Cours de modélisation et calcul scientifique; 12 hours; INSA, Rennes, France.

É. Canot: Master M2; title: TP de modélisation et calcul scientifique; 12 hours; INSA, Rennes, France.

### 10.2.2. Supervision

PhD: L. Lenôtre, University of Rennes 1, November 2015, co-advisors A. Lejay (Inria Nancy) and G. Pichot, with J. Erhel.

PhD: S. Mansour, University of Rennes 1 with LIU and AUB (Beiruth, Lebanon), December 2015, co-advisors É. Canot, M. Muhieddine and N. Nassif.

PhD in progress: B. Delfino, University of Rennes 1, November 2015, co-advisors J.-R. de Dreuzy and J. Erhel.

PhD in progress: P.-M. Gibert, University of Lyon, October 2015, co-advisors D. Tromeur-Dervout and J. Erhel.

PhD in progress: M. ben Refifa, University of Tunis, October 2013, advisors R. Bouhlila and É. Canot.

### 10.2.3. Juries

- PhD: A. Abeduwia, University of Littoral Côte d'Opale (Calais), Mathematics, December 2015. Reviewer J. Erhel.
- PhD: C. Robinson, University of Rennes 1, Mathematics, December 2015. Committee member J. Erhel.
- HdR: A. Beaudoin, University of Poitiers, Geosciences, December 2015. Committee member J. Erhel.

## 10.3. Popularization

- J. Erhel is co-author of two documents published in Intersitces, about modelling ice sheet evolution and estimating the contribution of Antarctica and Greenland to sea-level rise. [30], [29]
- J. Erhel was one of the coordinators of the Interstices publications devoted to climate change and COP21. She is co-author of the quiz on this subject. [28]
- J. Erhel gave a talk at the show "solutions COP21", held in Grand Palais, Paris, December 2015.
- J. Erhel contributed to the new version of the spelling book for computer science (l'informatique de A à Z), published in November 2015. She was one of the coordinators of the project and she wrote several cards.
- J. Erhel gave a talk in 180 seconds entitled "Enjeux pour les Eaux souterraines: Energie et Environnement", during the Inria scientific days, Nancy, June 2015.
- J. Erhel presented the challenges for groundwater at the meeting between Inria and Sénat, January 2015.
- L. Lenôtre gave a talk at "Lycée René Descartes de Rennes" on the diffusion phenomena and their underlying stochastic processes, February 2015.
- L. Lenôtre participated in the "Fête de la science de Rennes" at Inria stand.

## SERENA Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

M. Vohralík co-organizes, together with Irène Vignon-Clementel from the project-team **REO**, the monthly *Modeling and Scientific Calculation Seminar* of the Inria Paris-Rocquencourt research centre, see the web page [https://iwww.inria.fr/modelisation\\_et\\_calcul\\_scientifique/en/](https://iwww.inria.fr/modelisation_et_calcul_scientifique/en/).

### 10.1.2. Scientific events selection

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

M. Kern and M. Vohralík both served on the Scientific Committee of *SimRace, Conference on numerical methods and High Performance Computing for industrial fluid flows* <http://www.rs-simrace.com/> in 2015.

M. Vohralík served in the scientific committee of *ENUMATH 2015* <http://enumath2015.iam.metu.edu.tr/>.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

M. Vohralík is a member (from December 2013) of the editorial board of *SIAM Journal on Numerical Analysis*, see <http://www.siam.org/journals/sinum/board.php>.

#### 10.1.3.2. Reviewer - Reviewing activities

G. Pichot served as a reviewer for *Journal of Computational Physics*.

M. Kern served as a reviewer for the journals *Electronic Transactions on Numerical Analysis*, *Computational Geosciences*, *Transport in Porous Media*, and *Oil & Gas Science and Technology*.

M. Vohralík served as a reviewer for *SIAM Journal on Numerical Analysis*, *Mathematics of Computation*, *Numerische Mathematik*, *Computer Methods in Applied Mechanics and Engineering*, *SIAM Journal on Scientific Computing*, *M2AN. Mathematical Modelling and Numerical Analysis*, *Numerical Methods for Partial Differential Equations*, *IMA Journal of Numerical Analysis*, and *Comptes rendus de l'Académie des sciences (mathématique)*, as well as for *Mathematical Reviews* of the American Mathematical Society.

### 10.1.4. Invited talks

“The current landscape of energy a posteriori error estimators”, 29 September 2015, 28th Chemnitz FEM symposium, Germany, by M. Vohralík.

“Polynomial-degree-robust a posteriori estimates in a unified setting”, 14 January 2015, 8th Chilean Numerical Analysis and Partial Differential Equations Meeting, La Serena, Chile, by M. Vohralík.

“Discrete reduced models for flow in porous media with faults and barriers”, 30 June 2015, SIAM Geosciences (GS15), Stanford, June 29 - July 2, 2015. This lecture was given at the award ceremony for the SIAM Geosciences Senior Career prize awarded to Jérôme Jaffré.

“Global in time domain decomposition methods for flow and transport in porous media”, 16 October 2015, ENIT LAMSIN, Tunis, M. Kern

### 10.1.5. Scientific expertise

J. E. Roberts is a member of the External Advisory Board for **CFSES** (Center for Frontiers of Subsurface Energy Security), University of Texas at Austin and SANDIA National Laboratories, Albuquerque, New Mexico.

J. E. Roberts is a member of the selection committee for recruiting professors in the department of maths of the University of Bergen, and a member of the national Norwegian committee for the promotion of professors.

M. Kern is a member of the Scientific Committee of **Orap** (ORganisation Associative du Parallélisme), of the Scientific Board of **GDR Calcul**, and of the jury and executive board of **Label C3I**.

### 10.1.6. Research administration

F. Clément is the *correspondant Inria-entreprise* of the center of Paris-Rocquencourt for **AMIES** (from September 2015).

G. Pichot is member of the Conseil de département MAM of Polytech Lyon.

M. Kern is the Deputy Director of **Maison de la Simulation**, a joint project between CEA, CNRA, Inria, Université de Paris 11, and Université de Versailles, focused on applications of high end computing.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : M. Vohralík, *A posteriori error estimates for efficiency and error control in numerical simulations*, 36 hours/year, 2nd year master, Laboratoire Jacques-Louis Lions (University Paris VI), France.

Master : M. Vohralík, *A posteriori error estimates for efficiency and error control in numerical simulations*, 36 hours/year, 2nd year master, Department of Numerical Mathematics, Charles University in Prague, Czech Republic.

Doctorat: M. Kern, *Méthodes numériques pour les problèmes inverses*, 18 hours, ENIT, Tunis

Master: M. Kern, *Modélisation et simulation des écoulements de fluides dans la géosphère*, 18 hours/year, 2nd year master “Mathématiques et Applications” (parcours Analyse, Modélisation et Simulation), Université Paris Saclay, France

École d’Ingénieurs: M. Kern, *Éléments finis* (avec D. Ryckelynck), *Problèmes inverses*, 40 hours/year, 2nd year students, École Mines-ParisTech, France.

### 10.2.2. Supervision

PhD: L. Lenôtre, University of Rennes 1, November 2015, co-advisors A. Lejay (Inria Nancy) and G. Pichot, with J. Erhel.

PhD in progress: S. Ali Hassan, *Estimations d’erreur a posteriori et critères d’arrêt pour des solveurs par décomposition de domaine et avec des pas de temps locaux (A posteriori error estimates and stopping criteria for domain decomposition solvers with local time stepping)*, University Paris VI, November 2013, advisor M. Vohralík, co-advisors C. Japhet and M. Kern.

PhD in progress: P. Daniel, *Adaptive multilevel solvers with a posteriori error control for porous media flows*, University Paris VI, October 2015, advisor M. Vohralík, co-advisor A. Ern.

PhD in progress: J. Dabaghi, *Modélisations adaptives par complémentarité d’apparition et de disparition de phases en milieux poreux et fracturés (Adaptive modeling via complementarity of phase appearance and disappearance in fractured and porous media)*, University Paris VI, November 2015, advisor M. Vohralík, co-advisor V. Martin.

PhD in progress : N. Birgler, *Écoulements souterrains, méthodes numériques, et calcul haute performance*, University Paris VI, October 2012, advisor J. Jaffré, co-advisor J. E. Roberts.

PhD in progress : F. Cheikh, *Identification de failles dans un milieu poreux par une méthode d’indicateurs*, University Paris VI and University of Tunis El Manar, December 2011, advisors J. E. Roberts and H. Ben Ameer, co-advisors V. Martin and F. Clément.

PhD : E. Ahmed, *Décomposition de domaines pour quelques problèmes de transmission des fluides dans les milieux poreux : Applications en hydrogéologie et en biologie*, University of Tunis El Manar, ENIT-LAMSIN, Defended on April 30, Advisors J. Jaffré, J. E. Roberts and A. Ben Abda.

PhD in progress : M. H. Riahi, *Identification de paramètres hydrogéologiques dans un milieu poreux*, University Paris VI and University of Tunis El Manar, December 2011, advisors J. Jaffré and H. Ben Ameer.

### **10.2.3. Juries**

F. Clément was member of the PhD thesis committee of Julien-Pierre Offret, Université Paris Ouest Nanterre La Défense (December 2nd, 2015).

M. Kern was member of the PhD thesis committees of

- Zifan Liu, Université de Versailles (January 2015);
- Thomas Applencourt, université de Toulouse (November 2015);
- Rudi Leroy, université de Lille (December 2015).

[1] [2] [3] [4] [5] [6] [7] [8] [9] [10]



## SERPICO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Charles Kervrann was member of the organizing committee of the international “Quantitative BioImaging” (QBI’15) conference, Institut Pasteur, Paris, January 2015 (180 participants).

Frédéric Lavancier and Charles Kervrann are head of the organizing committee of the international workshop “Spatial Statistics and Image Analysis in Biology” (SSIAB’16), Inria Rennes, May 2016.

Frédéric Lavancier is head of the workshop “Spatio-temporal models and statistics”, IRMAR University of Rennes 1, LMJL University of Nantes, ENSAI, University of Rennes 2, INRA Rennes, Inria Rennes.

### 10.1.2. Scientific events selection

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

Charles Kervrann: Associated Editor for the conference ISBI’2015, member of the program committee of JOBIM’15 (Clermont-Ferrand), member of the scientific committee “Journées d’Imagerie Optique Non-Conventionnelle” (JIONC’2015, JIONC’2016).

Patrick Bouthemy: Associate Editor for the conference ISBI’2016.

Thierry Pécot: member of the program committee of BIOIMAGING’2016.

#### 10.1.2.2. Reviewer

Charles Kervrann: reviewer for ICIP’2015, ICASSP’2015, SSVM’2015, EMMCPRV’2015, NIPS’15, ICASSP’2016, ISBI’2016.

Patrick Bouthemy: reviewer for ICIP’2015, ISBI’2015.

Frédéric Lavancier: reviewer for “Spatial Statistics: Emerging Patterns” 2015.

Thierry Pécot: reviewer for ISBI’2015, ISBI’2016, BIOIMAGING’2016.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Charles Kervrann is Guest Editor of the special issue entitled “Advanced Signal Processing in Microscopy and Cell Imaging” of the IEEE Selected Topics in Signal Processing Journal (publication in February 2016).

Charles Kervrann is Associate Editor of the IEEE Signal Processing Letters journal (since January 2015).

Patrick Bouthemy is co-editor in chief of the open access journal Frontiers in ICT, specialty Computer Image Analysis.

#### 10.1.3.2. Reviewer - Reviewing activities

Charles Kervrann: BMC Bioinformatics, IEEE Transactions on Image Processing, Journal Mathematical Imaging and Vision, Medical Image Analysis, Traitement du Signal.

Patrick Bouthemy: IEEE Transactions on Image Processing, Medical Image Analysis, Mathematical Problems in Engineering.

Frédéric Lavancier: Applications of Mathematics, Bernoulli, Computational Statistics and Data Analysis, Journal of the Royal Statistical Society Series B, R Journal, Médecine/Sciences, Metrika, Statistics.

Thierry Pécot: Bioinformatics.

#### 10.1.4. Invited talks

Charles Kervrann:

Seminar Mine-Telecom & University of Paris Descartes, PEWA: Patch-based Exponentially Weighted Aggregation for image denoising, Paris, December 2015.

Seminar IBC LIRMM, Imagerie biologique à l'échelle cellulaire: enjeux et défis en traitement d'images, Montpellier, December 2015.

GdR Plasmonique Moléculaire et Spectroscopies Exaltées (PMSE), Imagerie biologique à l'échelle cellulaire: analyse quantitative de la diffusion, Inria Rocquencourt, November 2015.

GdR Microscopie et Imagerie du Vivant (MIV), A statistical test to detect non Brownian diffusion adapting to the length of the observed trajectory (with V. Briane), ENS Lyon, Novembre 2015.

Seminar INSA Rouen, PEWA: Patch-based Exponentially Weighted Aggregation for image denoising, Rouen, November 2015.

Invited talk Researcher School "Biophysics: from Measurements to Models in Biology", Biological imaging: context and challenges in image processing, 2 hours, Les Houches, Octobre 2015.

Seminar Telecom-Physique Strasbourg, Imagerie biologique à l'échelle cellulaire: enjeux et défis en traitement d'images, Strasbourg, June 2015.

Invited talk PhD School I2S LIRMM, Imagerie biologique: enjeux et défis en traitement d'images, 3 hours, Montpellier, April 2015.

Invited talk "Quantitative BioImaging" (QBI'15) conference, Joint localization estimation and classification of membrane dynamics in TIRF microscopy image sequences (with J. Salamero), Paris, January 2015.

Thierry Pécot:

Invited talk "Cycle de vie des images en microscopie", Mobylye@SERPICO: Image processing methods on a Mobylye Web Portal (with C. Kervrann), Paris, December 2015.

GdR Microscopie et Imagerie du Vivant (MIV) (Mini-symposium on BioImage Informatics), Counting-based particle flux estimation for traffic analysis in live cell imaging (with C. Kervrann, J. Salamero and J. Boulanger), Paris, November 2015.

Invited talk FBI Annual Meeting, Particle flux estimation for traffic analysis in live cell imaging (with C. Kervrann, J. Salamero and J. Boulanger), Paris, September 2015.

Contributed talk "Quantitative BioImaging" (QBI'15) conference, A quantitative approach for space-time membrane trafficking orientation (with J. Boulanger, P. Bouthemy, S. Bardin, J. Salamero and C. Kervrann, Paris, January 2015.

Invited talk European BioImage Analysis Symposium (EuBIAS'15), Mobylye@SERPICO: Image processing methods for the temporal analysis of moving particles on a Mobylye Web Portal (with C. Kervrann), Paris, January 2015.

Frédéric Lavancier:

Seminar of University of Paris 6, A general procedure to combine estimators, Paris, March 2015.

Seminar of University of Toulouse 3, Determinantal point process models and statistical inference, Toulouse, October 2015.

Seminar Institut Henri Poincaré (IHP), Determinantal point process models and statistical inference, Paris, October 2015.

Invited talk Journées STAR, A general procedure to combine estimators, Rennes, October 2015.

Seminar of University of Torino, Determinantal point process models and statistical inference, Turin, Italy, October 2015.

Contributed talk at "Spatial Statistics: Emerging Patterns" conference, Combining estimators in spatial statistics, Avignon, June 2015.

Invited talk at "Geometric Science of Information" (GSI'15), A two-color interacting random balls model for co-localization analysis of proteins (with C. Kervrann), Palaiseau, October 2015.

### 10.1.5. Scientific expertise

Charles Kervrann:

Member of the IEEE BISP “Biomedical Image and Signal Processing” committee.

Member of executive board of the GdR MIV (2588 - Microscopie Fonctionnelle du Vivant) CNRS.

Member of the scientific committee of the Interdisciplinary MiFoBio School CNRS (<http://www.mifobio.fr>).

Patrick Bouthemy:

Member of the board of AFRIF (Association Française pour la Reconnaissance et l’Interprétation des Formes).

Member of the board of the GRETSI (Groupement de Recherche en Traitement du Signal et des Images).

Member of the Research Committee of Telecom Bretagne.

Frédéric Lavancier:

Elected member of CNU section 26.

Expert for the project evaluation in the framework of FNRS (Fonds de la Recherche Scientifique), Belgium.

### 10.1.6. Research administration

Charles Kervrann:

Member of the executive board of the project committee of the Inria Rennes - Bretagne Atlantique centre.

Member of the Scientific Council of the INRA Rennes Research Centre.

Co-head of the “BioImage Informatics” node (ANR France-BioImaging project, National Infrastructure en Biologie et Santé).

Patrick Bouthemy:

Head of Excellence Lab CominLabs since April 2014.

Deputy member of the board of directors and member of the Selection and Validation Committee of the Images & Réseaux competitiveness cluster.

Deputy member of the board of directors of IRT (Technological Research Institute) b<>com.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Charles Kervrann:

Master: From BioImage Processing to BioImage Informatics, 5 hours, coordinator of the module (30 hours), Master 2 Research IRIV, Telecom-Physique Strasbourg & University of Strasbourg.

Master: Geometric Modeling for Shapes and Images, 6 hours, Master 2 Research SISEA, University of Rennes 1.

Engineer Degree and Master 2 Statistics and Mathematics: Statistical Models and Image Analysis, 37 hours + 15 hours (TP, Hoai Nam Nguyen), 3rd year, Ecole Nationale de la Statistique et de l’Analyse de l’Information (ENSAI), Rennes.

Patrick Bouthemy:

Master: Analysis of Image Sequences, 18 hours, Master 2 Research SISEA, ISTIC & University of Rennes 1.

Master: Video Indexing, 9 hours, Master 2 Research Computer Science, ISTIC & University of Rennes 1.

Engineer Degree and Master 2 Research IRIV: Motion Analysis, 12 hours, Telecom-Physique Strasbourg & University of Strasbourg.

Frédéric Lavancier:

Master: Linear Models, 36 hours, Master 2 Mathematics & Engineering, option Statistics, University of Nantes.

Licence: Descriptive Statistics, 12 hours, Licence 3 Mathematics & Economy, University of Nantes.

### **10.2.2. Supervision**

*PhD*: Christophe Biscio, Contribution to the modeling and the parametric estimation of determinantal point processes, University of Nantes, September 2015, supervised by Frédéric Lavancier.

*PhD*: Antoine Basset, Detection and characterization of dynamical events recognition in image sequences: application to membrane fusion in TIRF microscopy, University of Rennes 1, December 2015, supervised by Patrick Bouthemy and Charles Kervrann in collaboration with Jérôme Boulanger and Jean Salamero (UMR 144 CNRS-Institut Curie).

*PhD in progress*: Hoai Nam Nguyen, Methods and algorithms for tissue microarrays image analysis, started in October 2013, supervised by Charles Kervrann and Vincent Paveau (Innopsys).

*PhD in progress*: Vincent Briane, Statistical methods and models for motion analysis in microscopy, started in October 2014, supervised by Charles Kervrann and Myriam Vimond (ENSAI-CREST).

*PhD in progress*: Bertha Mayela Toledo Acosta, Methods and algorithms for 3D image registration and correlative microscopy, started in October 2014, supervised by Patrick Bouthemy and Charles Kervrann.

*PhD in progress*: Emmanuel Moebel, New strategies for the nonambiguous identification and enumeration of macromolecules in cryo-electron tomograms, started in November 2015, supervised by Charles Kervrann.

*PhD in progress*: Juan Manuel Perez Rua, Semantically meaningful motion descriptors for video understanding, started in January 2015, supervised by Patrick Bouthemy in collaboration with Tomas Crivelli and Patrick Pérez (Technicolor).

### **10.2.3. Juries**

*Referee of Habilitation thesis*: S. Jonic (University of Pierre and Marie Curie) [C. Kervrann].

*Referee of PhD thesis*: X. Wang (Ecole Centrale de Lyon, supervised by L. Chen) [P. Bouthemy].

*Chair of PhD thesis juries*: Y. Karpate (University of Rennes 1, supervised by C. Barillot) [P. Bouthemy], H. Mi (University of Rouen, supervised by S. Ruan) [P. Bouthemy].

## SISTM Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

The practical part of "Atelier INSERM", *Big Data in clinical research*, was organized at Bordeaux by the team in Oct 2015.

#### 9.1.1.1. Member of the organizing committee

BMW (Bordeaux Modeling Workshop), a two days workshop was organized (with 30 participants).

8th French Clinical Epidemiology Conference EPICLIN

Colloque Francophone International sur l'Enseignement de la Statistique - CFIES'2015, Janv 2015  
Bordeaux

### 9.1.2. Scientific events selection

#### 9.1.2.1. Member of the conference program committee

RT is a member of the scientific committee of IWHOD International Workshop on HIV Observational Databases from 2013,

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial board

Lifetime Data Analysis (DC)

Stat Surveys (DC)

Journal de la Société Française de Statistique (DC)

#### 9.1.3.2. Reviewer

The members of the team reviewed numerous papers for the following international journals :

AIDS (RT)

Biometrical (BL)

Biometrics (DC)

Health Services and Outcome Methodology (DC)

International Journal of Epidemiology (DC)

Journal of Applied Statistics (MA)

Journal of Multivariate Analysis (RG)

Journal of the Royal Statistical Society: Series A (DC)

Statistical Methods and Applications (MA)

Statistics in Medicine (DC, RT)

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : MA teaches in the two years of the Master of Public Health at ISPED, Univ. Bordeaux, France. Furthermore, she is head of the first year of the master.

Master : DC, teaches occasionally in the Biostatistics specialty of the second year of the Master of Public Health.

Master : RG, teaches in the two years of the Master of Public Health.

BL teaches at the School of Mathematics and Physics (The University of Queensland, Australia).

Master : RT, teaches in the two years of the Master of Public Health, and he is head of the Epidemiology specialty of the second year of the Master of Public Health.

#### E-learning

MA is head of the first year of the e-learning program of the Master of Public Health, and teaches in it.

RG teaches in the first year of the e-learning program of the Master of Public Health.

RT is head of the Epidemiology specialty of the second year of the e-learning program of the Master of Public Health, and teaches in it.

RG and Perrine Soret participate to the IdEx Bordeaux University "Défi numérique" project "Begin'R".

### 9.2.2. Supervision

PhD defended in Dec 2015 : Ana Jarne, *Modélisation de la réponse à l'IL-7*, co-directed by Daniel Commenges & Rodolphe Thiébaud

PhD defended in Mar 2015 : Boris Hejblum, *Analyse intégrative de données de grande dimension appliquée à la recherche vaccinale*, co-directed by Rodolphe Thiébaud & François Caron

PhD defended in Oct 2015 : Marie-Quitterie Picat, *Méthodes pour l'analyse intégrative des marqueurs immunologiques*, directed by Rodolphe Thiébaud

PhD in progress : Perrine Soret, *Modélisation de données longitudinales en grande dimension*, from Oct 2014, directed by Marta Avalos

PhD in progress : Chloé Pasin, *Modelling the immune response to HIV vaccine*, from Sep 2015, co-directed by Rodolphe Thiébaud and François Dufour

PhD in progress : Laura Villain, *Analysing and modeling the effect of interleukin 7 in HIV-infected patients*, from Sep 2015, co-directed by Rodolphe Thiébaud and Daniel Commenges

PhD in progress : Mélanie Née *Recherche et caractérisation de profils attentionnels : mieux comprendre la place de l'attention dans la survenue des accidents de la vie courante*, from Oct 2015, co-directed by Emmanuel Lagarde (60%), Cédric Galera (20%), Marta Avalos (20%)

Master internship : Chariff Alkhasim, *Reconnaissance automatique de populations cellulaires à l'aide de processus de Dirichlet*, from Feb 2015 to Sep 2015, co-directed by Rodolphe Thiébaud & François Caron

Master internship : Edouard Lhomme, *Analyse de la réponse immunologique au vaccin Ad5 dans un essai américain (HVTN 068)*, from Feb 2015 to Sep 2015, directed by Rodolphe Thiébaud

Master internship : Marina Travanca *Prédiction des accidents de la vie courante à partir de facteurs environnementaux et comportementaux : comparaison de méthodes d'apprentissage statistique adaptées aux données de l'observatoire MAVIE* from Apr 2015 to Jun 2015, co-directed by Marta Avalos and Ludivine Orriols

Master internship : Gaëlle Lefort *Développement d'un outil statistique d'aide à la décision pour l'organisation de l'entraînement chez des sportifs de haut niveau*, directed by Marta Avalos

Master internship : Emilie Chanfreau, *Etude de l'élagage dans la méthode des forêts aléatoires*, from Apr 2015 to Jun 2015, directed by Robin Genuer

Master internship : Maëva Kyeng, *ETUDE DE L'EVOLUTION DE LA CHARGE VIRALE CHEZ LES PATIENTS ATTEINTS Du VIH : COMPARAISON DE DEUX METHODES STATISTIQUES*, from Apr 2015 to Jun 2015, directed by Perrine Soret

### **9.2.3. Juries**

Members of the team were involved in 6 PhD juries, 2 professorships and 2 HDR.

## **9.3. Popularization**

MA and Perrine Soret animate "Les maths sont bonnes pour la santé" for high school students through the "Fête de la Science" organized at Inria, Oct 2015.

## STEPP Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

Peter Sturm co-chaired, together with François Sillion, the program committee of the annual edition of the Inria Science Days, held in Nancy.

### 9.1.2. Scientific events selection

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

Peter Sturm was a member of the program committees of the German Conference on Pattern Recognition and the Journées Jeunes Chercheurs ORASIS.

Emmanuel Prados was a member of the program committees of IJCAI 2015 CompSust track (International Joint Conference on Artificial Intelligence), Buenos Aires, Argentina, 2015.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

Until 2015, Peter Sturm was member of the editorial boards of the IEEE Transactions on Pattern Analysis and Machine Intelligence, the Image and Vision Computing Journal, and the Journal on Mathematical Imaging and Vision.

### 9.1.4. Invited talks

Peter Sturm gave seminars at Lund University and the Université de Bourgogne.

Denis Dupré gave a conference at the special event of COP 21 called “SOLUTIONS COP21 Paris 2015” [Grand Palais, Paris, France]. Conference title: “Les outils économiques et financiers du développement durable en débat”, December 10, 2015.

Denis Dupré gave a conference at the “journées scientifiques de l’Inria” Conference title: “Les hommes maitres du chaos climatique ? Citoyens et institutions face à la simulation scientifique”, Nancy, June 18, 2015.

Emmanuel Prados gave a conference at the Séminaire In’Tech “*Inventer de nouveaux produits et services répondant à l’évolution de la société*”. Conference title: “*Outils d’analyse des pressions environnementales des territoires pour une mise en oeuvre de politiques de développement durable*”, Montbonnot, 5th of Oct, 2015.

### 9.1.5. Scientific expertise

Peter Sturm is member of the scientific council of the Barcelona Media foundation.

Emmanuel Prados is member the GICN (“*Groupe Interdisciplinaire sur les Contributions Nationales*”), the group of scientific experts mandated by french ministry of Sustainable Development to prepare the **climate change conference COP21** in December 2015.

### 9.1.6. Research administration

Since mid-2015, Peter Sturm is one of the five Deputy Scientific Directors of Inria. Until mid-2015, he was a member of the Scientific Committee of Inria Grenoble Rhône-Alpes.



## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

License : E. Arnaud, Mathematics for engineer, 50h, L1, University of Grenoble, France.

License : E. Arnaud, Mathematics upgrade, 14h, L1, University of Grenoble, France.

Master : E. Arnaud, Advising students on apprenticeship, 28h, M2, University of Grenoble, France.

Master : E. Arnaud, Programming project in image processing, 20h, M1, University of Grenoble, France.

Master : E. Arnaud, Image processing, 18h, M2, University of Grenoble, France.

GRETSI Summer school : E. Prados, “*Les véritables enjeux environnementaux, modélisations et outils quantitatifs*”, 3-hour course, France, 21-27th of June, 2015. <http://www.gretsi.fr/peyresq15/>

Pedagogical resources : Elise Arnaud, Mathematics for engineer, L1, University of Grenoble, France. (video <http://tinyurl.com/youtube-mat126>, all documents for problem-based learning)

### 9.2.2. Supervision

PhD in progress: Thomas Capelle, “LUTI Calibration as Optimization Problem and Algorithms for Solving them”, 2013, Peter Sturm and Arthur Vidard (AIRSEA).

PhD in progress: Luciano Gervasoni, “Data mining for integrated land use and transportation models”, 2015, Peter Sturm and Serge Fenet (LIRIS, Lyon).

PhD in progress: Laurent Gilquin, “Sensitivity analysis of a macroeconomic LUTI model”, started in October 2013, E. Arnaud and C. Prieur (MOISE).

PhD in progress: Jean-Yves Courtonne, “Analyse d’impacts environnementaux et aide à la décision sur des territoires locaux, du bassin d’emploi à la région”, started in Spring 2014. Denis Dupré (CERAG/UGA and STEEP/Inria) and Pierre-Yves Longaretti (IPAG/UGA and STEEP/Inria), PhD advisors.

PhD in progress: Coline Byczek, “Analyse de réseaux de services écosystémiques dans le bassin d’emploi grenoblois”, started in 2012. Sandra Lavorel (LECA/UGA) and Pierre-Yves Longaretti (IPAG/UGA and STEEP/Inria), PhD advisors.

PhD in progress: Rémy Lasseur, “Modélisation et cartographie multi-échelles des faisceaux de services écosystémiques”, started in Fall 2014. Sandra Lavorel (LECA/UGA) and Pierre-Yves Longaretti (IPAG/UGA and STEEP/Inria), PhD advisors.

Internship: Bérangère Deforche work objective was to characterize the potential of organic farming in the Grenoble area. The motivation of this work was to evaluate if the growing demand on this front could be supplied locally, and more generally assess the extent of potential autonomy of the Grenoble area in terms of basic staple supply. The internship included a component on the potential of urban agricultural production, which eventually became the most important part of the work due to lack of time. The results obtained in this work are disappointing, due to a lack of mastery of GIS tools on the part of the student, and her slow learning curve.

Internship: Bappa Muktar worked on the development of software Wassily for environmental-extended input-output analysis. In particular, he documented the existing code and the installation process of the various modules needed on both PC and Mac platforms. He then worked on the database and matrix computation modules and tested them with real datasets (e.g. French Input-Output table coupled with CO2 emissions by economic sector).

Internship: Solange developed animations for explaining 3D computer vision algorithms, a work related to the previous research domain of Peter Sturm who supervised this internship.

Internship: Patricio developed the QGIS\_Transus\_Reports software, see above.

### 9.2.3. Juries

Peter Sturm was reviewer for the following PhD theses:

- Danda Pani Paudel, Université de Bourgogne.
- Dongming Chen, Ecole Centrale de Lyon.
- Sebastian Haner, Lund University, Sweden.

### **9.3. Popularization**

Peter Sturm coordinated, together with Antoine Rousseau (LEMON) and the Direction for Communication, Inria's involvement in the general audience fair dedicated to public research institutions, associated with the COP21 Climate Summit held in December 2015 in Paris. Denis Dupré gave a talk at this event and he and Peter Sturm were part of Inria's delegation at the French research institution's booth, presenting the work of STEEP and Inria to the public.

Emmanuel Prados gave a conference-debat at "Marie Reynoard" High school on "Sustainable development, territorial governance and democracy" (Villard-Bonnot, France, 21th of December, 2015).

In the context of the GICN ("*Groupe Interdisciplinaire sur les Contributions Nationales*") and the climate change conference COP21, Emmanuel Prados have participated in the writing of various newspaper articles [17], [18], [15], [16].

## TONUS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Journal

#### 10.1.1.1. Member of the editorial boards

Philippe Helluy is member of the editorial board of IJFV <http://ijfv.org/>

#### 10.1.1.2. Reviewer - Reviewing activities

Emmanuel Franck participates in reviewing for

- ENUMATH 2015 Proceedings
- Comptes Rendus Mathematique

Philippe Helluy participates in reviewing for

- Mathematical reviews
- ESAIM Procs
- Computers and fluids
- Computational physics paper
- International Journal for Numerical Methods in Fluids
- SINUM
- Computer Physics Communications
- Journal of Mechanical Science and Technology

Sever Adrian Hirstoaga participates in reviewing for

- Discrete and Continuous Dynamical Systems-Series S
- ESAIM Procs.

Michel Mehrenberger participates in reviewing for

- Electronic Journal of Qualitative Theory of Differential Equations (EJQTDE)
- ESAIM Procs
- SISC
- Zeitschrift fuer Angewandte Mathematik und Physik (ZAMP)
- Abstract and Applied Analysis (AAA)

Laurent Navoret participates in reviewing for

- ESAIM Procs
- J. Comp. Phys.

### 10.1.2. Invited talks

Emmanuel Franck was invited at

- Congrès SMAI 2015", Mini-symposium "Numerical method for Plasma physic", Karellis, June 2015.
- "Multi-scale Numerical Methods for the Vlasov Poisson system with strong magnetic field", <http://www.ipp.mpg.de/3874888/Program>, October, 26th 2015.
- " Workshop JOEREK ", Garching, May 2015.
- Seminar Nantes, October 2015

Philippe Helluy was invited at:

- Numkin 2015, Max Planck Institute for Plasma Physics, Munich, Germany, October 2015, <http://www.ipp.mpg.de/3874888/Program>
- JLESC workshop, Barcelona, June 2015, <http://jlesc.bsc.es/>
- Forum ORAP, November 2015, [http://orap.irisa.fr/?page\\_id=129](http://orap.irisa.fr/?page_id=129)

Sever Adrian Hirstoaga was invited at

- the workshop Modeling and Numerical Methods for Hot Plasmas II, Bordeaux, October 12-14, 2015
- the "Séminaire d'Analyse", IRMA Strasbourg, December 10, 2015.

Michel Mehrenberger was invited at

- IFIP Nice June 30, 2015, Mini Symposium "Oscillation, Degeneracy and Controllability".

Laurent Navoret was invited at

- Séminaire LAMA, Université de Savoie
- Séminaire Calcul Stochastique, IRMA, Université de Strasbourg
- Workshop "Collective dynamics of active particles, swimmers, motile cells", IMFT, Toulouse

### 10.1.3. Scientific expertise

Sever Adrian Hirstoaga, expertises for:

- computational project proposal at the Swiss National Supercomputing Centre

Philippe Helluy, expertises for:

- ANR
- U.S. Army Research Office
- Defence Institute of Advanced Technology (India)
- Energy research call CNRS (France).

### 10.1.4. Research administration

Michaël Gutnic is member of the National Commity for Scientific Research (from september 2012).

Philippe Helluy:

- head of the "Modélisation et Contrôle" research team at IRMA Strasbourg,
- chargé de mission calcul scientifique at CNRS.

Michel Mehrenberger is partly responsible of the seminar MOCO (MOdelisation et COntôle, IRMA, Université de Strasbourg).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: Michaël Gutnic, Mathématiques pour les sciences du vivant, 84h eq. TD, L1 Sciences du Vivant, Université de Strasbourg, France

Licence: Michaël Gutnic, Statistiques pour les biologistes, 117h eq. TD, L2 Sciences du Vivant, Université de Strasbourg, France

Licence: Philippe Helluy, Calcul scientifique, 54h eq. TD, L2 Maths, Université de Strasbourg, France

Licence: Michel Mehrenberger, Fonctions de plusieurs variables et analyse vectorielle, 30 h eq. TD, L2, Université de Strasbourg, France

Licence: Laurent Navoret, Calcul scientifique, 65 h eq. TD, L3, Université de Strasbourg, France

Licence: Laurent Navoret, Optimisation Non-Linéaire, 54h eq. TD, Cours et TD, L3 Maths-Eco, Université de Strasbourg, France

Master: Michaël Gutnic, Probabilités et Statistiques, 30h eq. TD, Formation d'ingénieur en informatique en apprentissage, Institut des Techniques d'Ingénieur de l'Industrie, Centre de Formation d'Apprentis de l'Industrie, Conservatoire national des arts et métiers, France.

Master: Philippe Helluy, Recherche opérationnelle, 45h eq. TD, ENSIIE, Université de Strasbourg, France

Master: Philippe Helluy, Contrôle Optimal, 26h eq. TD, M2, Université de Strasbourg, France

Master: Philippe Helluy, Méthode des volumes finis, 26h eq. TD, M2, Université de Strasbourg, France

Master: Philippe Helluy, Calcul scientifique, 10h eq. TD, M2 Agrégation, Université de Strasbourg, France

Master: Michel Mehrenberger, Cours avancé math fonda, 20 h eq. TD, M1, Université de Strasbourg, France

Master: Michel Mehrenberger, PIP certification Python, 13 h eq. TD, M1, Université de Strasbourg, France

Master: Laurent Navoret, PIP : certification python, 13h eq. TD, M1 Mathématiques, Université de Strasbourg, France.

Master: Laurent Navoret, Calcul scientifique, 54 h eq. TD, M2 Agrégation, Université de Strasbourg, France.

Master: Laurent Navoret, Correction de devoir, 26 h eq. TD, M2 Agrégation, Université de Strasbourg, France.

Master: Laurent Navoret, Basics in Maths, 24h eq. TD, Cours, M2 Cell Physics, Université de Strasbourg, France.

### 10.2.2. Supervision

PhD : Thomas Strub, "Résolution des équations de Maxwell tridimensionnelles instationnaires sur architecture massivement multicoeur", Université de Strasbourg, March 2015, Advisor: Philippe Helluy.

PhD in progress: Thi Trang Nhung Pham, "Méthodes numériques pour Vlasov", October 2012, Advisors: Philippe Helluy, Laurent Navoret.

PhD in progress: Pierre Gerhard, "Résolution des modèles cinétiques. Application à l'acoustique du bâtiment.", October 2015, Advisor: Philippe Helluy, Laurent Navoret.

PhD in progress: Bruno Weber, "Optimisation de code Galerkin Discontinu sur ordinateur hybride. Application à la simulation numérique en électromagnétisme", March 2015, Advisor: Philippe Helluy.

PhD in progress: Nicolas Bouzat, "Fine grain algorithms and deployment methods for exascale codes", October 2015, Advisor: Michel Mehrenberger, Jean Roman, Guillaume Latu.

PhD in progress: Michel Massaro, "Méthodes numériques pour les plasmas sur architectures multicœurs", December 2012, Advisor: Philippe Helluy.

### 10.2.3. Juries

Michel Mehrenberger was invited member of the jury of the PhD of Fabien Rozar (CEA Cadarache).

Philippe Helluy, PhD defence of: Lauriane Schneider (Strasbourg), Rémi Chauvin (Toulouse).

## 10.3. Popularization

Philippe Helluy participated to the redaction of an ONISEP brochure about the jobs related to Mathematics or computer sciences <http://www.onisep.fr/Toute-l-actualite-nationale/Decouvrir-les-metiers/Mars-2015/Zoom-sur-les-metiers-des-mathematiques-et-de-l-informatique>

Michel Mehrenberger is in the IREM ("Instituts de recherche sur l'enseignement des mathématiques") team "Modélisation" for the year 2015-2016.

## VIRTUAL PLANTS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Christophe Godin was Session chair and organizer of the e-session "from plant cells to plant fields" (<http://cs-dc-15.org/e-tracks/organisms>) at the World e-Conference on Complex Systems, Tempe Arizona, Sept 30 - Oct 1 2015, and was a session chair at the International Conference on Arabidopsis Research (ICAR), Paris, France 5-9 July;

### 9.1.2. Scientific events selection

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

- Christophe Godin is a member of the FSPM International Conference Board.
- Frédéric Boudon was member of the program committee of the Xe ISHS International Symposium on modelling in Fruit Research and Orchard Management.
- Yann Guédon was member of the program committee of the 47<sup>m</sup>e journées de statistique de la SFdS.
- S. Cohen-Boulakia has been members of the following program committees: ACM SIGMOD conf 2015, 2016, IEEE Int. Conf. on Data Engineering (ICDE) 2015, BPM 2015 (Business Process Management, ICDT workshop on Algorithms and Systems for MapReduce and Beyond (BeyondMR) 2015.

#### 9.1.2.2. Reviewer

- Frédéric Boudon was referee for papers submitted to the SIGGRAPH and Eurographics conferences and of the Journée Française d'Informatique Graphique (AFIG).

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- Christophe Godin is an associate editor of the Journal *Frontiers in Plant Science*.
- S. Cohen-Boulakia is member of the editorial board of the *Journal of Data Semantics* (Springer).

#### 9.1.3.2. Reviewer - Reviewing activities

- Christophe Godin was referee for papers submitted to *Frontiers in Plant Science*
- Frédéric Boudon was referee for papers submitted to *Computer Graphics Forum*, *Computer and Electronics in Agriculture*, *Sensors*, *Remote Sensing and Environment*, *Robotics and Autonomous Systems*.
- Yann Guédon was referee for papers submitted to *Computational Intelligence and Neuroscience*, *Frontiers in Plant Science* and *PLoS ONE*.
- Christian Fournier was referee for papers submitted to *Computer and Electronics in Agriculture*

### 9.1.4. Invited talks

- C. Godin gave invited talks at: "CompSysBio: Advanced lecture course on computational systems biology", Aussois, France (April); Embo Practical Course on "In vivo Plant Imaging" Heidelberg, Germany (March); International Conference on Arabidopsis Research (ICAR);

- S. Cohen-Boulakia gave invited tutorials at the « DigiCosme Spring School 2015 on Data Management » (Saclay, May 2015) and at the summer school « Cumulo-Numbio : Cloud computing for the life sciences » (Aussois, June 2015).
- C. Pradal gave an invited talk at the "Nimbios Morphological Plant Models Workshop" (Knoxville, Tennessee, USA, September 2015) and at the "8th plenary meeting of the European TTO Circle" during the Expo Milan 2015 (Milano, Italy, June 2015).

### 9.1.5. Scientific expertise

- Christophe Godin was the external member of the mentoring and review committee of James Locke's group at the Sainsbury Laboratory, University of Cambridge. He is also a member of the Scientific Committee of INRA Environment/Agronomy department. Christophe Godin also participated in a concours for several CR2 positions at INRA, a concours of Professor in computer science at the University of Montpellier, to 2 thesis committee, to 2 PhD defences (1 as Jury president) and 2 HDR defences as a reviewer.
- Christophe Pradal is a member of the INRA expert scientific commissions (CSS Ecophysiologie, génétique et biologie intégrative des plantes) that assesses INRA individual researcher activities. He is also a member of the HCERES expert scientific commissions that assesses national research organisations.
- Christian Fournier is a member of of the INRA engineer evaluation commission (CEI Méthodes Pour la Recherche : Biologie végétale / Domaine Informatique, bio-informatique, statistiques et calcul scientifique) that assesses INRA individual engineer activities.

### 9.1.6. Research administration

- Christophe Godin is a member of the "bureau of comité des projets" at Inria Sophia-Antipolis Méditerranée research center. He is also a member of the Scientific board of the modeling axis of Labex NUMEV and a member of the direction board of the institut de biologie computationnelle de Montpellier (IBC) and the scientific co-coordinator with Patrick Lemaire of IBC 4th research axis on imaging and omics data.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master in Life Sciences "IMaLis" of ENS Paris. Christophe Godin co-organizes with Patrick Lemaire of a 35 hours module on Plant and animal morphogenesis.

Master Plant Ecophysiology, Christian Fournier, Introduction to architectural plant modelling, 4h, M1, Montpellier University

Master Computer Science: Frédéric Boudon (resp.), Christophe Godin, Christophe Pradal, Benjamin Gilles [ICAR, LIRMM] and David Vanderhaege and Loïc Barthe [IRIT, Toulouse], Computer graphics, 45h, M2, University Montpellier, France.

Master Biostatistics : University Montpellier.

Yann Guédon teaches the stochastic modeling course (<http://www.agro-montpellier.fr/um2/um1/masterbiostatistique>). This involves 21h of M2 classes.

Master of bioinformatic and biomathematics (University Cheikh AntaDiop, Dakar, Sénégal). Christophe Godin and Yann Guédon participated to the module iPlant (M2 - 12h).

Master of Biology Fonctionnelle. Christophe Godin gave a class of Master 2 on 'Phyllotaxis' in the at the University of Montpellier 2 (M2 - 4h).

Engineering Degree: SupAgro Montpellier. Christophe Pradal and Christian Fournier. "Introduction to modelling" (1st year, 12h).

### 9.2.2. Supervision

- PhD : Léo Guignard, "*Segmentation, visualization and mechanical modeling of embryonic development in the ascidian*", Montpellier University, 9 Dec. 2015, C. Godin, P. Lemaire.
- PhD : Guillaume Garin, "*Développement d'un cadre générique de modélisation du couple plante – agent pathogène dans OpenAlea et d'une méthodologie de transfert vers un Outil d'Aide à la Décision*", 11 Dec. 2015, ANRT Ciffre ITK, C. Robert, B. Andrieu, C. Pradal, C. Fournier.
- PhD in progress : Jean-Philippe Bernard, "*Adaptive mechanical model of early flower development based on 4D imaging*", Montpellier University, C. Godin, B. Gilles.
- PhD in progress : Beatriz Moreno Ortega, "*Analysis and modeling of metabolic and hormonal controls of lateral root growth during their ontogeny. Application to the impact of water stress on the root architecture*", Montpellier SupAgro, B. Muller, Y. Guédon.
- PhD in progress : Sixtine Passot, "*Adaptation of millet root architecture : Phenotyping and spatio-temporal analysis of growing root systems*", Montpellier University, L. Laplaze, Y. Guédon.
- PhD in progress : Severine Persello, "*Structural-Functional modeling of yield and fruit quality build-up of the mango, and integration of the effects of cultural practices*", Montpellier University, F. Normand, I. Grechi, F. Boudon.
- PhD in progress : Marc Labadie, "*Study of the alternation between vegetative and floral development in strawberry: spatio-temporal architecture and analysis of key flowering genes*", Bordeaux University, Béatrice Denoyes, Y. Guédon.
- PhD in progress : Adama Ndour, "*Role of root architecture of pearl millet for tolerance to water stress*", Montpellier University, L. Laplaze, M. Lucas, C. Pradal.

### 9.2.3. Juries

- S. Cohen-Boulakia has been reviewer and member of the defense committee for the two following PhD thesis: Francois Moreews (U. Rennes 1), Mouhamadou Ba (INSA Rennes)

## 9.3. Popularization

- Christophe Godin and Frédéric Boudon presented the Secret Code of Flowers in the context of an Inria initiative at the Science Festival in October.
- Christophe Godin gave several classes at Lycée Pompidou, Castelnau Le Lez, at Terminal level and gave a "Café-in" seminar on "Comment les plantes font-elles des mathématiques ?"



## VISAGES Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- C. Barillot was Chair of the MAPPING Miccai Workshop, Munich, Germany, 2015 <https://project.inria.fr/fli/en/mapping-workshop/>

#### 10.1.1.2. Member of the organizing committees

- C. Barillot is member of the Board of Directors of IPMI conference series (Information Processing in Medical Imaging)
- C. Barillot was member of the Scientific Program Board of ESMRMB 2015 (Edinburgh, UK)
- G. Edan is founder and co-organizer of the annual ARSEP-MRI symposium since 2015
- G. Edan is co-chair of the executive board of the “European charcot foundation” symposium since 2000

### 10.1.2. Scientific events selection

- C. Barillot is area chair of SPIE Medical Imaging 2015

#### 10.1.2.1. Chair of conference program committees

- C. Barillot was Chair of MAPPING Miccai Workshop, Munich, Germany, 2015

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

- C. Barillot was TPC member of MICCAI workshops (Patch-MI 2015, MCV 2015), CCGrid - Life 2015
- O. Commowick was TPC member of MICCAI 2015
- O. Commowick was TPC member of IEEE ISBI 2015
- P. Maurel was TPC member of IEEE ISBI 2015
- E. Bannier reviewed for ISMRM 2015

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- C. Barillot is member of Editorial Boards of Medical Image Analysis, Current Medical Imaging Reviews, ISRN Signal Processing
- C. Barillot is Editor-in-Chief of Frontiers in ICT: Computer Image Analysis.

#### 10.1.3.2. Reviewer - Reviewing activities

- IEEE TIP (CB), IEEE TMI (OC, PM), Medical Image Analysis (CB, SP, OC), NeuroImage (CB, OC, IC), Neuroimage clinical (CB), Hum. Brain Map. (CB), Phys. Med. Biol. (CB), Computer Methods and Programs in Biomedicine (CB), Comput. Med Im & Graph (CB), Comp Meth & Prog in Biomed (CB), IEEE Signal Proc. Let. (CB), Magnetic Resonance in Medicine (EC), Plos-ONE (CB, EC), IJCT (CB), IJSISE (CB), IJCVR (CB), Journal of Mathematical Imaging and Vision (CB, PM), Magma (CB), Trans on Parallel and Dist. Sys. (CB), Neurobiology of Aging (IC).

### 10.1.4. Invited talks

- G. Edan - "Natural history of Multiple Sclerosis", International congress of Multiple Sclerosis, Porto, Feb 2015 (Porto)2015
- I. Corouge and J. Guillaumont - "Shanoir: a solution for neuro-imaging data management", Gen2bio National congress, La Baule, March 2015
- B Carsin-Nicol and J. Guillaumont - "Présentation du protocole IRM recommandé par l'OFSEP et du projet Shanoir", CIRGO - Colloque inter-régional du Grand Ouest, Nantes, December 2015
- C. Barillot - "Science Data Ecosystem in Medical Imaging", Data Science symposium : Science Data Ecosystem workshop, IRISA, Nov. 19th
- C. Barillot - "Imagerie de population: Noeud FLI-IAM", Journées Françaises de Radiologie, Paris, Oct. 15th, 2015

### 10.1.5. Leadership within the scientific community

- G. Edan was elected Fellow of the European Academy of Neurologie. Member of the EAN teaching committee in 2015
- C. Barillot is member of the Scientific Council of the INS2I Institute of CNRS since 2011 and is Chairman of the Board since 2015 (<http://csins2i.irisa.fr>)
- C. Barillot is member of the C3N committee (CNRS)
- C. Barillot is member of the scientific board of "GIS France Grilles"
- C. Barillot is member of the Governing Board of the "Pole de compétitivité Images & Réseaux"

### 10.1.6. Scientific expertise

- C. Barillot chaired an evaluation committee for the FET-Flagship "Human Brain Project"
- C. Barillot reviewed for the Vienna Business Agency Foundation
- C. Barillot reviewed for the National Medical Research Council (NMRC), Singapore
- C. Barillot reviewed for the Research Council of KU Leuven
- C. Barillot reviewed for the Royal Netherlands Academy of Arts and Sciences.
- C. Barillot was member of the admission committee for the Research Director competition of CNRS

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Teaching on 3D medical imaging (visualization, segmentation, fusion, management, normalization) in the following tracks:

Master 2 SIBM, University of Angers-Brest-Rennes: 26h (C. Barillot, E. Bannier, E. Caruyer, O. Commowick, I. Corouge, J.-Y. Gauvrit, S. Prima):

C. Barillot is responsible for one semester.

J.-Y. Gauvrit is the coordinator for the Master.

Master 1 SIBM, University of Rennes: 5h (S. Prima)

Ecole Supérieure d'Ingénieur de Rennes (ESIR): 60h in medical imaging (P. Maurel)

Other topics:

Ecole Supérieure d'Ingénieur de Rennes (ESIR): 60h in general image processing (P. Maurel), 60h in algorithmics and complexity (P. Maurel) and 14h in graphical user interface programming (B. Combès)

ENS Rennes: 24h in introduction to image processing (P. Maurel)

ISTIC - Université de Rennes 1: 12h in Software Engineering (E. Caruyer)

G. Edan: regular seminar of university Cambridge UK: "From epidemiological data to therapeutic strategies in MS" June 2015

G. Edan – Milan (Italy), Preceptorship on MRI in Multiple Sclerosis - "MRI in clinical trial" (2012-2015)

### 10.2.2. Supervision

PhD Hrishikesh Deshpande, Dimensionality Reduction and Statistical Learning for Computational Modeling of Natural Evolution of Brain Pathologies, Inria, from December 2012, Christian Barillot, Pierre Maurel

PhD Renaud Hédouin, Biomarker discovery in brain imaging by using diffusion MRI, Inria/Inserm, from November 2013, Christian Barillot, Olivier Commowick

PhD Yogesh Karpate, Quantitative analysis of MRI in Multiple Sclerosis in the context of the clinically isolated syndrome, INSERM, from December 2011, Christian Barillot, Olivier Commowick. Defended in September 2015.

PhD Lea Itmi, Quantitative Analysis Of Arterial Spin Labeling MRI For Robust Parametric Information Of Perfusion Maps, Inria / Siemens, from Mar 2014, Christian Barillot, Pierre Maurel

PhD Lorraine Perronnet, Neurofeedback Using Virtual Reality And Combining Eeg-Mri For Brain Rehabilitation, Inria/CominLabs Hemisfer project, from Dec 2013, Christian Barillot, Maureen Clerc (Inria Sophia-Antipolis), Anatole Lecuyer (HYBRID project), Fabien Lotte (Inria Bordeaux)

PhD Haykel Snoussi, Diffusion MRI detection of early occurring spine lesions in relapsing-remitting multiple sclerosis with late physical impairment, from Nov 2015, Christian Barillot, Gilles Edan, Emmanuel Caruyer

PhD Pierre-Yves Jonin, Relationships between context-free and context-rich memory : cognitive and neural substrates. Inria/Inserm/CNRS from Oct 2014, Christian Barillot (co-supervisor)

PhD Maia Proisy, Perfusion in neonates and in pediatric diseases. Univ. Rennes /CHRU Rennes from Oct 2014, Jean-Christophe Ferre (supervisor)

PhD Anne Kerbrat, Quantitative MR imaging in MS for Brain and Spine. Univ. Rennes /CHRU Rennes from Oct 2014, Gilles Edan (supervisor)

### 10.2.3. Juries

- O. Commowick: PhD, Yogesh Karpate, Inserm, Sep. 2015
- S. Prima: PhD, Reviewer, Sophie Maingault, Université de Bordeaux, mai 2015
- C. Barillot: PhD, Committee Chair: Aurélie Emilien, Univ. Bordeaux, Dec. 2014; Charlotte Dutilleul, Univ. Toulouse 3-Paul Sabatier, Jul. 2015; Nicolas Cordier, Univ. Nice-Sophia Antipolis, Nov. 2015
- C. Barillot: PhD, Reviewer: Zehan Wang, Imperial College London, Dec. 2014 ; Alia Lemkaddem, EPFL - CH, Feb. 2015; Vikash Gupta, Univ. Nice-Sophia Antipolis, Mar. 2015

## 10.3. Popularization

- Conference/public debate : C. Barillot "Imagerie de population: Noeud FLI-IAM", Journées Françaises de Radiologie
- Exposition : Stand démonstration Inria, Journées Françaises de Radiologie
- Exposition : Stand démonstration FLI-IAM, SFRMBM
- Press : G. Edan "Les maladies du cerveau, un enjeu majeur à relever", Ouest-France
- Popularization Web site: C. Barillot "Neurofeedback to Leverage EEG and MRI Simultaneously", lettre d'information Emergences Inria ([http://emergences.inria.fr/2015/Newsletter36/L36\\_NEUROFEEDBACK](http://emergences.inria.fr/2015/Newsletter36/L36_NEUROFEEDBACK))
- Audiovisual: "MedInria", France 3 Cote d'Azur ([http://pluzz.francetv.fr/videos/jt\\_1920\\_cote\\_dazur.html](http://pluzz.francetv.fr/videos/jt_1920_cote_dazur.html))
- Conference/public debate : JY Gauvrit, "Les progrès de l'image du cerveau", Espace des Sciences, Rennes, March 17th

## ALPINES Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Frédéric Hecht: Organizing the 7th FreeFem++ days (December 2015, Paris)
- Frédéric Hecht: Organizing Contributions to PDE for Applications, September 2015, Paris

#### 10.1.1.2. Member of the organizing committees

- Laura Grigori: Member of Scientific Committee of Ecole CEA-EDF-Inria on Efficacité Énergétique dans le Calcul Haute Performance / Green HPC, 2015.

### 10.1.2. Scientific events selection

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

- Laura Grigori: Member of Program Committee of IEEE International Parallel and Distributed Processing Symposium, IPDPS 2015.
- Laura Grigori: Member of Program Committee of IEEE/ACM SuperComputing SC15 Conference, November 2015.
- Laura Grigori: Member of Program Committee of HiPC 2015, IEEE Int'l Conference on High Performance Computing.
- Laura Grigori: Member of Program Committee of International Conference on Parallel Processing and Applied Mathematics PPAM15, 2015.
- Laura Grigori: Member of Program Committee of Workshop on Parallel Symbolic Computation (PASCO 2015), University of Bath, UK, 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Laura Grigori: Area editor for Parallel Computing Journal, Elsevier, since June 2013.
- Laura Grigori: Member of the editorial board for the SIAM book series Software, Environments and Tools. See [http://bookstore.siam.org/software-environments-and-tools/?\\_ga=1.57283618.921241804.1409909401](http://bookstore.siam.org/software-environments-and-tools/?_ga=1.57283618.921241804.1409909401). Since March 2014.
- Frédéric Nataf: Member of the editorial board of Journal of Numerical Mathematics

### 10.1.4. Invited talks

- Laura Grigori: Invited speaker (plenary), ACM/IEEE Supercomputing'15, International Conference for High Performance Computing, Networking, Storage, and Analysis, Austin, November 2015, [http://sc15.supercomputing.org/schedule/event\\_detail?evid=inv103](http://sc15.supercomputing.org/schedule/event_detail?evid=inv103). This is the major conference of high performance computing, attended by 12,000 people.
- Laura Grigori: Invited plenary speaker, Emerging Technology Conference, June 2015, University of Manchester, <http://emit.manchester.ac.uk/>.
- Frédéric Nataf: Invited plenary speaker, XXIII International Conference on Domain Decomposition Methods, 6-10 July 2015, South Korea.

- Frédéric Nataf: Invited plenary speaker, International Conference on Preconditioning Techniques for Large Sparse Matrix Problems, 17-19 June 2015, at the University of Technology, Eindhoven, Netherlands.
- Xavier Claeys: invited talk in the Seminar on PDE, LMV, Univ. Versailles, 15th of Jan. 2015.
- Xavier Claeys: invited talk in the Seminar on Applied Math., CMAP, École Polytechnique, 8th of Dec. 2015.

#### **10.1.5. Leadership within the scientific community**

- Laura Grigori: Program Director of the SIAM SIAG on Supercomputing (SIAM special interest group on supercomputing), January 2014 - December 2015. Nominated by a Committee and elected by the members of this SIAG. One of the roles is to Co-Chair the SIAM Conference on Parallel Processing and Scientific Computing 2016.

#### **10.1.6. Scientific expertise**

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

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

- Frédéric Hecht: President of the selection committee of the opening 0254 MCF 26, Université de Technologie de Compiègne.

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

### **10.2.1. Teaching**

- Master: Laura Grigori, Guest lecture in a class on Randomized Linear Algebra taught by Ravi Kanan, UC Berkeley, November 2015. The slides of the lecture on *Algorithms for computing low rank approximations* can be found on Laura Grigori's webpage.
- Master: Laura Grigori, Spring 2015, UC Berkeley, Creation of a reading group and lectures on randomized linear algebra that gathers together students and experts interested in learning more and working on fast linear algebra algorithms for machine learning applications. More details are available at <https://who.rocq.inria.fr/Laura.Grigori/RandNLA.html>, including the videos of the lectures. The co-organizers of this reading group are Prof. J. Demmel (CS Department), Prof. M. Gu (Math Department), Prof. M. Mahoney (Statistics Department).
- Master: Laura Grigori, Spring 2015, UC Berkeley, Guest lecturer in CS267 Class of J. Demmel on *Applications of Parallel Computing* (lectures 13 to 16). The slides are available on L. Grigori's website, videos can be found here [https://www.youtube.com/playlist?list=PLkFD6\\_40KJIyX8nEjk6oTLWohdVhjjP3X](https://www.youtube.com/playlist?list=PLkFD6_40KJIyX8nEjk6oTLWohdVhjjP3X).
  - Lecture 13 on Communication Avoiding Algorithms in Linear Algebra
  - Lecture 14 on Graph partitioning
  - Lecture 15 on Sparse Direct Solvers
  - Lecture 16 on Iterative Solvers
- Master : Frederic Nataf, Course on Domain Decomposition Methods, 30 hours, Master 2, UPMC, France.
- Master : Frederic Nataf, Course on Domain Decomposition Methods, 15 hours, Master 2, ENSTA, France.
- Textbook published by SIAM: AN INTRODUCTION TO DOMAIN DECOMPOSITION METHODS: ALGORITHMS, THEORY, AND PARALLEL IMPLEMENTATION, V. Dolean, P. Jolivet and F. Nataf, 2015.

- Licence : Xavier Claeys, Calculus, 12hrs, L1, Université Pierre-et-Marie Curie Paris 6, France
- Licence : Xavier Claeys, Orientation et Insertion Professionnelle, 40hrs, L2, Université Pierre-et-Marie Curie Paris 6, France
- Master : Xavier Claeys, Informatique de base, 72hrs, M1, Université Pierre-et-Marie Curie Paris 6, France
- Master : Xavier Claeys, Informatique Scientifique, 44hrs M1, Université Pierre-et-Marie Curie Paris 6, France
- Master : Xavier Claeys, Résolution des EDP par éléments finis, 18hrs M2, Université Pierre-et-Marie Curie Paris 6, France
- Master : Frédéric Hecht , Informatique de base, 24hrs, M1, Université Pierre-et-Marie Curie Paris 6, France
- Master : Frédéric Hecht , Des EDP à leur résolution par la méthode des éléments finis (MEF), 24hrs, M2, Université Pierre-et-Marie Curie Paris 6, France
- Master : Frédéric Hecht , Numerical methods for fluid mechanics, 10hrs, M2, Université Pierre-et-Marie Curie Paris 6, France
- Master : Frédéric Hecht , Calcul scientifique 3 / projet industriel Freefem++, 28hrs, M2, Université Pierre-et-Marie Curie Paris 6, France
- Master : Frédéric Hecht , Ingénierie 1 / Logiciel pour la simulation (Freefem++), 21hrs, M2, Université Pierre-et-Marie Curie Paris 6, France
- Master : Frédéric Hecht , Ingénierie 2 / Projet collaboratif, 21hrs, M2, Université Pierre-et-Marie Curie Paris 6, France

### **10.2.2. Supervision**

- PhD: Pierre-Henri Tournier, Absorption de l'eau et des nutriments par les racines des plantes : modélisation, analyse et simulation, Univ. Paris VI, February 2015, co-advisors M. Compte and F. Hecht.
- PhD in progress: Alan Ayala, since October 2015 (funded by NLAFFET H2020 project), co-advisors Xavier Claeys and Laura Grigori.
- PhD in progress : Sebastien Cayrols, since October 2013 (funded by Maison de la simulation), advisor Laura Grigori.
- PhD in progress: Hussam Al Daas, since February 2015 (funded by contract with Total), advisor Laura Grigori.
- PhD in progress: Olivier Tissot, since October 2015 (funded by NLAFFET H2020 project), advisor Laura Grigori.
- PhD in progress : Ryadh Haferssas, since October 2013 (funded by Ecole Doctorale, UPMC), advisor F. Nataf
- PhD in progress : Mireille El-HAddad, since March 2014 (Cotuelle l'Université Saint-Joseph de Beyrouth, Liban et UPMC) , advisors F. Hecht and T. Sayah.
- PhD in progress : Guillaume Verger El-HAddad, since Sept. 2013 (funded by ANR Becasim, Université de Rouen), advisors F. Hecht and I. Danaila.

### **10.2.3. Juries**

- Laura Grigori: PhD thesis of Florian Dang, Examiner, president of the jury, Université de Versailles, July 2015.
- Laura Grigori: PhD thesis of Hamza Jeljeli, Examineur, Université de Lorraine, Juillet 2015.
- Xavier Claeys: PhD thesis of Mathieu Lecouvez, Examineur, École Polytechnique, Juillet 2015
- Xavier Claeys: PhD thesis of Simon Marmorat, Examineur, École Polytechnique, Novembre 2015
- Frédéric Hecht: HDR of Laurence Moreau , Rapporteur, UTT, Troyes, june 2015
- Frédéric Hecht: PhD thesis of Arnaud BERTRAND , Rapporteur, Université de Strasbourg, November 2015
- Frédéric Hecht: PhD thesis of Moussa Diédhiou , Examineur, Université de la Rochelle, December 2015

## ASAP Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

George Giakkoupis will be the General Chair of the 35th ACM Symposium on Principles of Distributed Computing (PODC 2016), Chicago, Illinois, USA, July 2016.

#### 9.1.1.2. Member of the organizing committees

Davide Frey served as workshop and tutorial co-chair for the ACM/IFIP/USENIX International Conference on Middleware (Middleware).

George Giakkoupis served in the conference committee and the steering committee of the 34th ACM Symposium on Principles of Distributed Computing (PODC 2015), Donostia-San Sebastián, Spain, July 2015.

Anne-Marie Kermarrec is the vice-chair of ACM Eurosys.

Anne-Marie Kermarrec has been a member of the Inria Parity committee (and leader of the recruitment group) since September 2015.

Anne-Marie Kermarrec is a member of the steering committees of ACM Eurosys, Middleware, and the Winter School on Hot Topics in Distributed Systems.

Anne-Marie Kermarrec is a member of the technical committee of the ACM Conference on Online Social Networks.

François Taïani has been a member of the Steering Committee of *the annual ACM/IFIP/USENIX Middleware conference* since 2014.

François Taïani has been a member of the Steering Committee of *the IFIP International Conference on Distributed Applications and Interoperable Systems (DAIS)* since 2013.

### 9.1.2. Scientific events selection

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

Davide Frey served in the program committees of the following conferences.

*14th IEEE International Conference on Peer-to-Peer Computing (P2P)*, Cambridge, MA, USA, Sep 2015.

*ACM/IFIP/USENIX International Conference on Middleware (Middleware)*, Vancouver, Canada, Dec 2015.

*High Performance Computing (HiPC) 2015*, Bangalore, India, Dec 2015.

George Giakkoupis served in the program committee of the 17th International Conference on Distributed Computing and Networking (ICDCN 2016), Singapore, Jan 2016.

Anne-Marie Kermarrec was a program committee member of the conferences.

*Middleware 2015*, Vancouver, BC, Canada, December 2015.

*Eurosys 2015*, Bordeaux, France, April 2015.

*SRDS 2015*, Montreal, Canada, October 2015.

*Systor 2015*, Haifa, Israel, May 2015.

*Netys 2015*, Agadir, Morocco May 2015.

François Taïani was a program committee member of the conferences.

*Middleware 2015*, Vancouver, BC, Canada, December 2015.

*IEEE International Conference on Peer-to-Peer Computing (P2P)*, Cambridge, MA, USA, Sep. 2015.

*IEEE 34th Symposium on Reliable Distributed Systems (SRDS 2015)*, Montreal, Canada, October 2015.

*The 45th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2015)*, Rio do Janeiro, Brazil, June 2015.

*ICDCS 2015, The 35th IEEE International Conference on Distributed Computing Systems (ICDCS 2015)*, Columbus, Ohio, USA, June-July 2015.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

Anne-Marie Kermarrec is an associate editor of IEEE Internet Computing.

Anne-Marie Kermarrec is an associate editor of the Springer Computing Journal.

#### 9.1.4. Invited talks

George Giakkoupis. *Vertex connectivity under sampling*. Seminar of the Computer Science and Telecommunications Department, Ecole Normale Supérieure, Rennes, France, Sep 15 2015.

George Giakkoupis. *Bounds on the voter model in terms of graph expansion*. Random Walks on Random Graphs and Applications Workshop, Eurandom, TU Eindhoven, The Netherlands, Apr 14 2015.

George Giakkoupis. *Rumor spreading: Techniques and results*. Tutorial, 8th Winter School on Hot Topics in Distributed Computing (HTDC), Flaine, France, Mar 18 2015.

George Giakkoupis. *Vertex connectivity under vertex sampling*. PIMS Algorithmic Theory of Networks Seminar, University of Calgary, Canada, Mar 6 2015.

Anne-Marie Kermarrec, *TM Recommenders*, Invited speaker at the 7th workshop on the Theory of Transactional Memory, Donostia, Spain 2015.

Anne-Marie Kermarrec, *Scalable personalization infrastructures*, IST Austria, April 2015.

Anne-Marie Kermarrec, *TM Recommenders*, Rennes, November 2015

Nupur Mittal, *Privacy-Conscious Information Diffusion in Social Networks*, Rennes, November 2015.

Michel Raynal, *Concurrent Systems: Hybrid Object Implementations and Abortable Objects*. at Euro-Par 2015.

Michel Raynal, *Communication Patterns and Input Patterns in Distributed Computing* at SIROCCO 2015.

François Taïani. *Engineering Scale: Software and Distribution for Tomorrow's World*. Keynote presentation at the Journées Nationales 2015 of the GDR GPL (France's research federation on software engineering and programming), Bordeaux, France, 9-12 June 2015.

François Taïani. *Large-Scale Systems And Self-Organization*. Invited lecture at the Doctoral School "Interoperability and automatic adaptation for novel generation middleware systems" of Doctoral Program in Computer Science of CUSO (Conférence Universitaire de Suisse Occidentale), Neuchâtel, Switzerland, November 26th - 27th, 2015.

#### 9.1.5. Leadership within the scientific community

Anne-Marie Kermarrec has been a member of the *Academia Europea* since 2013.



Anne-Marie Kermarrec co-organized the *Workshop Inria/Technicolor on workshop on storage and data analytics*, Rennes, Nov. 2015.

Anne-Marie Kermarrec is a member of the scientific committee of the Société Informatique de France.

Anne-Marie Kermarrec was a member of the Inria scientific board (Bureau du comité des projets) in Rennes until July 2015.

François Taïani was the chair of the hiring committee for the position of *Professor at University of Rennes 1 - ESIR*.

### 9.1.6. Research administration

Davide Frey is scientific correspondent for the DPEI in Rennes.

Anne-Marie Kermarrec has been a member of the ERC panel for Consolidator Grants since 2013.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Simon Bouget, APF (Algorithmique et Programmation Fonctionnelle), 40 HEQTD (2 x 10 séances de 2 heures de TP), L1, Université de Rennes 1 (ISTIC), France.

Licence : Simon Bouget, SYS1 (Introduction aux Systèmes d'exploitation), 10 HEQTD (5 séances de 2 heures de TP), ESIR1 (L3), Université de Rennes 1 (ESIR), France.

Master : Simon Bouget, TLC (Techniques Logicielles pour le Cloud computing), 14 HEQTD (7 séances de 2 heures de TP), M2 Génie Logiciel Alternance, Université de Rennes 1 (ISTIC), France.

Master: Davide Frey, Scalable Distributed Systems, 10 hours, M1, EIT/ICT Labs Master School, Univ. Rennes 1, France.

Engineering School: François Taïani, Synchronization and Parallel Programming, 48h, 2nd year of Engineering School ( M1), ESIR / Université of Rennes 1, France.

Engineering School: François Taïani, Distributed Systems, 24h, 3rd year of Engineering School ( M2), ESIR / Université of Rennes 1, France.

Engineering School: François Taïani, Parallel Algorithms for Big Data, 24h, 3rd year of Engineering School ( M2), ESIR / Université of Rennes 1, France.

Engineering School: François Taïani, Introduction to Operating Systems, 24h, 1st year of Engineering School ( L3), ESIR / Université of Rennes 1, France.

Master: François Taïani, Programming Technologies for the Cloud, 32h, M2, Université of Rennes 1, France.

Michel Raynal, Introduction to distributed computing, 20h, M1, Univ. Rennes, France.

Michel Raynal, Distributed Computability, 20h, M2, Univ. Rennes, France.

### 9.2.2. Supervision

PhD: Ali Gouta *Caching and prefetching for efficient video services in mobile networks* [11]. Université de Rennes 1, January 15, 2015. Supervised by Anne-Marie Kermarrec.

PhD: Julien Stainer. *Computability Abstractions for Fault-tolerant Asynchronous Distributed Computing* [13]. Université de Rennes 1, March 18, 2015. Supervised by Michel Raynal.

PhD: Eleni Kanellou. *Data Structures for Current Multi-core and Future Many-core architectures* [12]. Université de Rennes 1, December 14, 2015. Supervised by Michel Raynal.

PhD in progress : Antoine RAULT, *User privacy in collaborative filtering systems*. Started on 1st October 2012. Supervised by Anne-Marie Kermarrec, Davide Frey.

PhD in progress : Stéphane Delbruel, Towards a Decentralized Embryomorphic Storage System, 1st October 2013, François Taïani and Davide Frey (since 1st October 2014).

PhD in progress : Resmi Ariyattu Chandrasekharannair, Towards Decentralized Federations for Plug-based Decentralized Social Networks, 1st December 2013, François Taïani.

PhD in progress : Simon Bouget, EMILIO: Emergent MiddleWare for extra-Large-scale self adaptation, 1st September 2014, François Taïani.

PhD in progress : Pierre-Louis Roman, Epidemic Distributed Convergence for Decentralized Social Networking, 1st October 2014, François Taïani, Davide Frey.

PhD in progress: Javier Olivares, A peer-sourcing infrastructure for personalized privacy-aware event processing, 1st October 2013, Anne-Marie Kermarrec.

PhD in progress : Olivier Ruas, Dynamic learning and recommendations in very large distributed computing infrastructures, 1st October 2015, Anne-Marie Kermarrec, François Taïani.

PhD in progress: Nupur Mittal. *Infrastructure et algorithmes pour la recommandation de contenus cross application*, December 1 2013, George Giakkoupis and Anne-Marie Kermarrec.

### 9.2.3. Juries

Anne-Marie Kermarrec was in the HDR juries of Vincent Gramoli (June 2015) and Sebastien Monnet (November 2015) (LIP 6).

François Taïani was a reviewer of the PhD for Raluca Diaconu. *Scalability for Virtual Worlds*. Université Pierre et Marie Curie, January 23, 2015.

François Taïani was the chair of the PhD jury for Julien Stainer. *Computability Abstractions for Fault-tolerant Asynchronous Distributed Computing*, Université de Rennes 1, March 18, 2015.

François Taïani was a reviewer of the PhD for Camille Fayollas. *Architecture logicielle générique et approche à base de modèles pour la sûreté de fonctionnement des systèmes interactifs critiques*. Université Toulouse 3 Paul Sabatier, July 21, 2015.

François Taïani was a reviewer of the PhD for Pierre André. *Test de systèmes ubiquitaires avec prise en compte explicite de la mobilité*. Université Toulouse 3 Paul Sabatier, November 17, 2015.

François Taïani was the chair of the PhD jury for Erwan Bousse. *Execution Trace Management to Support Dynamic V&V for Executable DSMLs*. Université de Rennes 1, December 3, 2015.

François Taïani was the chair of the PhD jury for Eleni Kanellou. *Data Structures for Current Multi-core and Future Many-core architectures*. Université de Rennes 1, December 14, 2015.

François Taïani served as external examiner on the PhD committee of Xi Li. *Workload Consolidation in Large-scale Data Centers*. University College Dublin (UCD), Ireland, December 16, 2015.

François Taïani was a member of the HDR jury for Benoît Parrein. *Le code à effacement Mojette : Applications dans les réseaux et dans le Cloud*. Université de Nantes, June 16, 2015.

François Taïani was a reviewer of the HDR of Gerson Sunyé. *A Model-Based Approach for Testing Large Scale Systems*. Université de Nantes, November 10, 2015.

## 9.3. Popularization

Anne-Marie Kermarrec wrote three articles on women in computer science: on the blog of the SIF Binaire in March 2015.

## ASCOLA Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- A. Lebre co-organized cloudDays@Paris. Supported by the GDR RSD consortium, the DISCOVERY Inria Project Labs, the LIP6 labs and Telecom Sud Paris, this national event gathered 80 researchers and phd students to discuss about latest results in Virtualization and Cloud Computing<sup>0</sup> from the network and distributed system communities.
- A. Lebre was general chair of the ACM VTDC<sup>0</sup> 2015 workshop collocated with HPDC (30 participants).

#### 9.1.1.2. Member of the organizing committee

- T. Ledoux is member of the board of the Green Lab Center association. This association promotes and disseminates Green IT practices and research prototypes to the world of education, research and companies<sup>0</sup>.
- M. Südholt has been a member of the steering committee of the international conference Modularity since 2011.
- J.-M. Menaud member of GIS (Groupement d'intérêt scientifique) PERLE - Pôle d'Excellence de la Recherche Ligérienne en Energie.
- J.-M. Menaud member of GIS (Groupement d'intérêt scientifique) SyMeTRIC.
- J.-M. Menaud is the animator of "Pôle Science du Logiciel et des Systèmes Distribués" in Laboratoire des Sciences du Numérique à Nantes (LS2N) since June 2015.
- A. Lebre is member of the executive committee of the GDR CNRS RSD (Reseau et Système distribué). He is also co-leading the transversal action Virtualization and Clouds of this GDR.
- A. Lebre is member of the executive and architect committees of the Grid'5000 GIS (Groupement d'intérêt scientifique).
- N. Tabareau has co-organized with Peter LeFAnu Lumsdaine the HoTT-UF workshop, satellite to the RDP conferences.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Member of the conference program committee

- A. Lebre was member of the program committees of ACM/IEEE CCGRID 2015, IEEE IC2E 2015, SCRAMBL 2015, EuroPar 2015, IEEE CloudCom 2015, and DSDIS 2015.
- T. Ledoux was member of the program committees of the following conferences: Int. Conf. on Eco-friendly Computing and Communication Systems (ICECCS'15), Int. Workshop on Green and Sustainable Software (GREENS'15) @ ICSE, Workshop on Adaptive and Reflective Middleware (ARM'15) @ Middleware, ACM Symposium On Applied Computing (SAC'15)- track Software Engineering Aspects of Green Computing.
- J.-M. Menaud has served on the program committee of SMARTGREENS 2015, ENERGY 2015, VHPC'15, CFSE-10, CLOUD COMPUTING 2015, 11th AICT 2015, 4th E2DC 2015, Green-Com2015.

<sup>0</sup>CloudDays@Paris, 2015.

<sup>0</sup><http://people.rennes.inria.fr/Adrien.Lebre/VTDC/vtdc15.html>

<sup>0</sup>Green Lab Center

- J.-C. Royer was a member of the program committees of WETICE 2015, CAL 2015, and ICIS 2015.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial board

- M. Südholt has been a member of the editorial board of the Springer journal “Transactions of Aspect-Oriented Software Development” (TAOSD) since 2010 and has been appointed co-editor-in-chief since April 2015.
- A. Lebre is associate editor for the IEEE Transactions on Big Data journal.

#### 9.1.3.2. Reviewer

- A. Lebre has been a reviewer for the Software: Practice and Experience and IEEE TPDS Journals.
- T. Ledoux has been a reviewer for the Journal of Parallel and Distributed Computing (JPDC)-Elsevier (2015).
- J.-M. Menaud has been a reviewer for IEEE Transactions on Parallel and Distributed Systems (TPDS).
- M. Südholt has been a reviewer for IEEE “Transactions in Software Engineering” (TSE) and the Springer journal “Transactions on Aspect-Oriented Software Development” (TOASD).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

The team is involved in the following undergraduate and graduate-level programs at Mines Nantes and University of Nantes (the institutions all of eaching staff belongs to):

- The team is a main contributor to the **engineering program of EMN**.
- Within this engineering program, the team is steering, chairing and the main contributor to a two-year **graduate-level informatics specialization**. H. Grall is managing this program.
- Since 2011 our team has defined and set up a new three-year **engineering program on software engineering**. T. Ledoux is managing this program.

The team has also been involved in the following MSc programs that have been carried out with partners from French and foreign universities:

- The team participates in the **MSc program “Alma”** on software architecture and distributed systems, a joint program steered by colleagues from University of Nantes. In this context, we are responsible for a 48-hour module on advanced software composition and take part in the program’s governing board. M. Südholt is managing the participation of Mines Nantes in this program.
- Members of the team have taught different **courses at different study levels in Rennes** mainly organized by University of Rennes and the research institutes IRISA and Inria.

m members have taught for about 220 hours on average in 2015 (hours of presence in front of students). Hereby, we have taken into account that researchers and some professors have not taught at times. In addition, another significant part of the program is taught by temporary staff, whose participation is managed by ASCOLA members.

In addition, J. Noyé has been interim head of the DAPI department of École de Mines de Nantes until Oct. 2015 and has been its vice-head since then.

### 9.2.2. Supervision

The team has been supervising 18 PhD thesis (at least partially) in 2015, of which four have been co-supervised with external academic partners (one with partners from TU Darmstadt, Germany, and VU Brussel, Belgium) and two with another Inria team (Myriads from Rennes). Four PhDs have been co-supervised with industrial partners (Orange group, Sigma group, and the EasyVirt SME).

One PhD thesis has been defended this year: Jurgen Van Ham has presented a model and corresponding extension of Scala integrating event-based, aspect-oriented and object-oriented programming features. Three PhD students are preparing her defense for end of the first quarter 2015.

Rémi Douence has defended his habilitation (HDR) on the topic: “Composition non modulaire modulaire” presenting new means for the modularization of composition problems.

### **9.2.3. Juries**

- J.-C. Royer was a member of the HDR committee of Mohamed Graiet (Université Paris Dauphine), July 2015.
- A. Lebre was a member of the PhD committee of Houssemed Medhioub, “Architectures et mécanismes de fédération dans les environnements Cloud Computing et Cloud Networking”, University Pierre et Marie Curie/TelecomSud Paris, April 2015.
- J. Noyé was a member of the PhD committee of Dries Harnie: "Blame Prediction: Early detection of type errors in dynamically typed programming languages", Vrije Universiteit Brussel, Aug. 2015.
- J.-M. Menaud was a reviewer of the PhD of : Christina Herzog (Nov. 26, 2015) "Contributions à la modélisation avec un Système Multi Agent du transfert technologique en Green IT", Reviewer, Toulouse. Ibrahim Safieddine (Oct. 29, 2015) "Optimisation d'Infrastructures de Cloud Computing dans des Green Datacenters", Reviewer, Grenoble. Ge LI (Jull. 22, 2015) "Contrôle des applications fondé sur la qualité de service pour les plateformes logicielles dématérialisées (Cloud)", Reviewer, Annecy. Ahmed El Rheddane (Fev. 25, 2015) "Elasticité dans le Cloud Computing", Member, Grenoble.
- J.-M. Menaud was a reviewer of the **HdR** committee of Patricia Stolf (Nov. 13, 2015) "La gestion des ressources pour des infrastructures vertes par la reconfiguration", Reviewer, Toulouse.

## ATLANMODELS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- M. Tisi has coorganized the Scalable Model Driven Engineering Workshop (BigMDE'15) within the STAF federated conference.

### 10.1.2. Scientific events selection

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

- Gerson Sunye:
  - International: International Conference on IT Convergence and Security, International Conference on Software Engineering and Knowledge Engineering, International Workshop on Large-Scale Testing, International Workshop on Testing The Cloud, BigMDE Workshop
- Massimo Tisi:
  - International: International Conference on Software Language Engineering, International Conference on Model Transformation, International Conference on Current Trends in Theory and Practice of Computer Science, Transformation Tool Contest, Model Driven Requirement Engineering Workshop, Executable Modeling Workshop, BigMDE Workshop

#### 10.1.2.2. Reviewer

- Hugo Brunelière
  - Maintenance and Evolution of Service-Oriented Systems and Cloud-Based Environments, MESOCA (ICSME 2015).
- Gerson Sunyé
  - International Conference on Software Engineering, ACM SIGSOFT Symposium on the Foundations of Software Engineering.

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing activities

- Hugo Brunelière
  - Journal of Information and Software Technology (Elsevier), Journal of Software: Evolution and Process (Wiley), International Journal of Software and Systems Modeling (Springer).
- Gerson Sunyé
  - IEEE Transactions on Software Engineering, Journal of Systems and Software (2x), Software and Systems Modeling.
- Massimo Tisi
  - IEEE Transactions of Software Engineering, IEEE Software, Journal of Software: Evolution and Process, Journal of Systems and Software, Science of Computer Programming, Software and Systems Modeling, Software: Practice and Experience, Transactions on Software Engineering, Journal on Web Engineering, Journal of Logic and Algebraic Programming.

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

### **10.2.1. Teaching**

License: M. Tisi, Projet Integrateur PRIME, 12h, L3, Ecole des Mines de Nantes  
License: M. Tisi, Projet IPIPIP, 8h, L3, Ecole des Mines de Nantes  
Master: M. Tisi, Bases de Données, 30h, M1, Ecole des Mines de Nantes  
Master: M. Tisi, Interaction Homme-Machine, 14h, M1, Ecole des Mines de Nantes  
Master: M. Tisi, Model-Driven Engineering II, 45h, M2, Ecole des Mines de Nantes, Formation par Apprentissage  
Master: M. Tisi, Sensibilisation Recherche, 12h, M2, Ecole des Mines de Nantes, Formation par Apprentissage  
Master: G. Sunye, Model-Driven Engineering, 30h, M2, Université de Nantes  
Master: G. Sunye, Software Engineering, 48h, M1, Université de Nantes  
Master: G. Sunye, Software Testing, 48h, M1, Université de Nantes  
Master: G. Sunye, Software Development, 24h, M1, Université de Nantes  
License: S. Martínez, Bases de Données, 28h, L3, Ecole des Mines de Nantes  
License: S. Martínez, Interaction Homme-Machine, 14h, L3, Ecole des Mines de Nantes  
Master: S. Martínez, Master MIAGE - Model Transformations, 6h, Université de Nantes  
License: S. Martínez, Domain Specific Languages, 3h, L3, Ecole des Mines de Nantes

### **10.2.2. Supervision**

PhD in progress: Amine Benellanem, Scalability of model transformations, Jordi Cabot, Massimo Tisi and Gerson Sunyé.  
PhD in progress: Gwendal Daniel, Efficient storage of large models, Jordi Cabot, Massimo Tisi and Gerson Sunyé.  
PhD in progress: Michel Albonico, Model-driven testing of cloud environments, Jordi Cabot and Gerson Sunyé.  
PhD in progress: Mohamed Boussaa, An Architecture for Testing Large-Scale Dynamic Distributed Systems, Université de Rennes 1, Benoit Baudry, Olivier Barais, Gerson Sunyé.  
PhD in progress: Kevin Corre, Model-based Trust, Université de Rennes 1–Orange, Olivier Barais, Gerson Sunyé, Jean-Michel Crom, Vincent Frey

## **AVALON Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific events organisation**

#### *10.1.1.1. General chair, scientific chair*

L. Lefevre: Co-Workshop chair of ExtremeGreen 2015 : Extreme Green & Energy Efficiency in Large Scale Distributed Systems , Shenzen, China, May 2015

L. Lefevre: Co-organizer of the Green Days Toulouse event: "From energetic to thermic, GreenIT really green ?", Toulouse, March 16-17, 2015

#### *10.1.1.2. Member of the organizing committees*

C. Pérez: Program committee member of SUCCES'2015 (*Rencontres Scientifiques des Utilisateurs de Calcul intensif, de Cloud Et de Stockage*)

### **10.1.2. Scientific events selection**

#### *10.1.2.1. Chair of conference program committees*

- G. Fedak: Program chair of COMPAS'15 (Conférence en Parallélisme, Architecture et Systèmes), Lille, France.
- G. Fedak: co-tracke chair, GECON, Conference on the Economics of Grids, Clouds, Systems, and Services, Track "Economically Efficient Resource Allocation and Service Level Agreements", Cluj-Napoca, Romania.

#### *10.1.2.2. Member of the conference program committees*

E. Caron: CNRIA 2015, SETCAC'15, HCW'2015, CLOSER 2015, CLOUDTECH 2015, Compas'15

C. Pérez: CCGRID 2015, ParCo 2015

F. Suter: CloudCom'15, EuroMPI'15, EuroPar'15, FICloud'15, VTDC'15

G. Fedak: CCGRID'15, CloudCom'15, HPDC'15

O. Glück: PDP 2015, ExtremeGreen 2015

### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

- G. Fedak: Co-editor of Elsevier Journal of Cluster Computing

#### *10.1.3.2. Reviewer - Reviewing activities*

E. Caron: IEEE Transactions on Services Computing (TSC), Cluster Computing

F. Suter: Concurrency and Computation: Practice and Experience, The Computer Journal, Journal of Parallel and Distributed Computing

### **10.1.4. Invited talks**

- G. Fedak, Big Data, Beyond the Data Center, Hunan University of Sciences and Technology, September 2015, Changsha, China, Department Seminary.
- G. Fedak, Active Data, Managing Big Data Lifecycle, Computer Network Information Center, Chinese Academy of Sciences, August 2015, Beijing, China, Seminary



- G. Fedak, Big Data, Beyond the Data Center, Séminaire LIG, 11 Juin 2015, Grenoble, France, Seminary.
- A. Simonet, G. Fedak, M. Ripeanu, S. Al-Kiswany, K. Chard, I. Foster, Active Data: Data Life Cycle Management Across Heterogeneous Systems and Infrastructures. Hot Topics in High-Performance Distributed Computing Workshop, IBM Almaden Research Center, San Jose, California, March 12, 2015, Invited Speaker
- O. Glück, Efficacité énergétique dans les réseaux et centres de calcul haute performance, Journées Scientifiques Inria 2015, 18 Juin 2015, Nancy, France.
- T. Gautier, Le runtime XKA-API, Ecole Thématique "Signal Images : Architecture et Programmation des GPUs", 17 décembre 2015, Grenoble, France.

### **10.1.5. Scientific expertise**

- G. Fedak: Mission of expertise in Big Data for the French Embassy in China

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

### **10.2.1. Teaching**

Licence: Eddy Caron, ASR1, 48h, niveau L3, Ecole Normale Supérieure de Lyon, France.

Licence: Eddy Caron, Projet 1, 48h, niveau L3, Ecole Normale Supérieure de Lyon, France.

Master: Eddy Caron, Systèmes Distribués, 30h, niveau M1, Ecole Normale Supérieure de Lyon, France.

Master: Eddy Caron, Projet Intégré, 42h, niveau M1, Ecole Normale Supérieure de Lyon, France.

Master: Eddy Caron, Gilles Fedak, Laurent Lefèvre, and Christian Perez, Distributed Computing: Models and Challenges, 36h, niveau M2, Ecole Normale Supérieure de Lyon, France.

Licence: Olivier Glück, Initiation Réseaux, 2x9h, niveau L2, Université Lyon 1, France

Licence: Olivier Glück, Réseaux, 2x70h, niveau L3, Université Lyon 1, France

Licence: Olivier Glück, Réseaux, 45h, niveau L3, Université des Sciences de Ho Chi Minh Ville, Vietnam

Master: Olivier Glück, Réseaux par la pratique, 20h, niveau M1, Université Lyon 1, France

Master: Olivier Glück, Services et Protocoles Applicatifs sur Internet, 40h, niveau M2, Université Lyon 1, France

Master: Olivier Glück, Services et Protocoles Applicatifs sur Internet, 24h, niveau M2, IGA Casablanca, Maroc

Master : Olivier Glück, Administration des Systèmes et des Réseaux, 16h, niveau M2, Université Lyon 1, France

Master Informatique: Laurent Lefevre, "Parallelism", Université Claude Bernard, France (18h), M1

Master Systèmes Informatique et Réseaux: Laurent Lefevre, "Advanced Networks", IGA Casablanca, Maroc (20h), M2

Master: Jean-Patrick Gelas, Analyse de performance, 6h, niveau M2, Université Lyon 1, France

Master: Jean-Patrick Gelas, Réseaux, 48h, niveau M2 (CCI), Université Lyon 1, France

Master: Jean-Patrick Gelas, Système d'exploitation, 30h, niveau M2 (CCI), Université Lyon 1, France

Master: Jean-Patrick Gelas, Architecture des routeurs, 6h, niveau M2, Université Lyon 1, France

Master: Jean-Patrick Gelas, Systèmes embarqués (GNU/Linux, Android), 85h, niveau M2, Université Lyon 1, France

Master: Jean-Patrick Gelas, Routage et IPv6, 45h, niveau M2, Université Lyon 1, France

Master: Jean-Patrick Gelas, Introduction aux IaaS (Cloud), 5h, niveau M2, Université Lyon 1, France

### E-learning

MooC : Jean-Patrick Gelas, MooC Cloud, 7 semaines, Claroline Connect, Université Lyon 1 (<http://claco.univ-lyon1.fr/workspaces/7816/open/tool/home>)

MooC : Jean-Patrick Gelas, MooC Capps (Conception et valorisation d'applications mobiles), 6 semaines, Claroline Connect, Université Lyon 1 (<http://claco.univ-lyon1.fr/workspaces/7812/open/tool/home>)

MooC : Jean-Patrick Gelas, Vet4Apps (Conception et valorisation d'applications mobiles), 7 semaines, versal, Nebula European project (<https://versal.com/c/jq29wt>)

### 10.2.2. Supervision

PhD in progress: Daniel Balouek-Thomert, *Ordonnancement et éco-efficacité dans les environnements virtualisés*, 09/2013, Eddy Caron (dir), Laurent Lefevre (co-dir), Gilles Cieza (NewGen society, co-dir)

PhD in progress: Radu Carpa, *Efficacité énergétique des échanges de données dans une fédération d'infrastructures distribuées à grande échelle*, 10/2014, Laurent Lefèvre (dir), Olivier Glück (co-dir).

PhD in progress: Hadrien Croubois, *Étude et conception d'un système de gestion de workflow autonome conçu pour l'animation 3D*, 10/2015, Eddy Caron.

PhD defended: Maurice Djibril Faye, *Déploiement auto-adaptatif d'intergiciel sur plateforme élastique*, ??/2015, Eddy Caron (dir), Ousmane Thiaré (Université Gaston Berger, St Louis, Sénégal, co-dir)

PhD defended: Sylvain Gault, *Improving MapReduce Performance on Clusters*, Mar 2015, Frédéric Despez (dir), Christian Pérez (co-advisor)

PhD defended: Vincent Lanore, *On Scalable Reconfigurable Component Models for High-Performance Computing*, Dec 2015, Christian Pérez (dir)

PhD defended: Arnaud Lefray, *Mission fonctionnelle et de sécurité dans une informatique en nuage*, Nov. 2015, Eddy Caron (dir), Christian Toinard (ENSIB, co-dir)

PhD canceled nov 2015: Semen Marchuk, *Contribution pour la conception d'algorithmes d'ordonnancement de tâches de calcul dans le domaine de l'animation 3D*, 10/2014, Eddy Caron (dir), Pierre Biecher (CapRézo society, co-dir) and Rodolphe De Carini (CapRézo society, co-dir)

PhD in progress: Pedro Silva, *Application model and co-scheduling algorithm for dynamic and evolutive data-intensive application*, 10/2014, Christian Perez (dir), Frédéric Desprez (co-dir).

PhD defended: Anthony Simonet, *Active Data - Enabling Smart Data Life Cycle Management for Large Distributed Scientific Data Sets*, Jul. 2015, Gilles Fedak (dir)

PhD in progress: Issam Rais, *Multi criteria scheduling for exascale infrastructures*, 10/2014, Laurent Lefevre (dir), Anne Benoit (Roma Team, LIP, ENS Lyon, co-dir) and Anne-Cécile Orgerie (CNRS, Myriads team, Irisa Rennes, co-dir)

PhD in progress: Jérôme Richard, *Conception of a software component model with task scheduling for many-core based parallel architecture, application to the Gysela5D code*, 11/2014, Christian Perez (dir), Julien Bigot (CEA, co-dir).

PhD in progress: Violaine Villebonnet, *Proportionnalité énergétique dans les systèmes distribués à grande échelle*, 9/2013, Laurent Lefevre (dir), Jean-Marc Pierson (IRIT, Toulouse, co-dir)

PhD in progress: Hayri Acar, *Towards a green and sustainable software*, 09/2014, Parisa Ghodous (dir), Gulferm Alptekin (co-dir), Jean-Patrick Gelas (co-dir)

### 10.2.3. Juries

Eddy Caron has been member of the following PhD Juries:

- Aleila Abidi. "Revisiter les Grilles de PCs avec des technologies du Web et le Cloud Computing ?". Université Paris 13, March 2015, Reviewer.
- Karine Pirez. "Distribution et Transcodage des Systemes a Grande Echelle de Flux en Direct". Université Pierre et Marie Curie, March 2015, Reviewer
- Etienne Michon. "Allocation dynamique sur cloud IaaS. Allocation dynamique d'infrastructure de SI sur plateforme de Cloud avec maîtrise du compromis coûts/performances". Université de Strasbourg, June 2015, Reviewer.

Thierry Gautier has been member of the following PhD Jury:

- Farouk Mansouri : "Modèle de programmation des applications de traitement du signal et de l'image sur cluster parallèle et hétérogène", Université de Grenoble, October 2015, Examineur

Laurent Lefevre has been member of the following PhD Juries:

- Davide Morelli : "Theory of benchmarking", University of Pisa, Italy, September 2015, Rapporteur
- Richard Ewelle Ewelle : "Adapting Communications in Cloud Games", University of Montpellier, August 2015, Examineur

Christian Pérez has been member of the following PhD Juries:

- Emmanuel Cieren: "Molecular Dynamics for Exascale Supercomputers", University of Bordeaux, France, Oct 2015, Reviewer
- Quang The Bui: "Criblage virtuel sur grille de composés isolés au Vietnam", University of Blaise Pascal Clermont-Ferrand II, France, Jun 2015, Reviewer
- Matthieu Dreher: "Méthodes In-Situ et In-Transit: vers un continuum entre les applications interactives et offines à grande échelle", University of Grenoble, France, Feb 2015, jury member
- François Tessier: "Placement d'applications parallèles en fonction de l'affinité et de la topologie", University of Bordeaux, France, Jan 2015, Reviewer

## 10.3. Popularization

Eddy Caron has participated to the following interview:

- Interview for NSmag N°9, Editeur: Imaginove. «Pipeline de production: Optimisation des temps de calcul et parallélisme». January 2015.

Laurent Lefevre has participated to the following interviews and publications :

- Interview for Sciences pour tous, "Le numérique écologique, c'est possible ?", "A digital ecological world, is it possible ?", September 2015.
- Interview : "Internet au bord de la saturation ?", Le MAG de la Science, Science et Vie TV, 26 Septembre 2015
- Interview : "Comment Internet pollue (vraiment) la planète", BFM Business, May 29, 2015
- Interview Industrie et Technologies : "Un blackout d'Internet en 2023 ? 5 raisons de ne pas y croire", May 13, 2015
- Interview in "Le Monde" NewsPaper : "Internet congestionné d'ici à 2023 ? Pas si vite !", May 12, 2015
- Interview in "#2020 program", "Internet Crunch" : "La mort du web est pour 2023", Mouv' Radio, May 12, 2015
- Combined Short papers in "Liberation NewsPaper" and "CNRS Le Journal" : "Le Big Data est il polluant ?", Laurent Lefevre, Jean-Marc Pierson, April 3, 2015
- Interview in Sciences et Avenir Journal : "Coup de chaud sur les data centers", Number 816, February 2015

Olivier Glück has participated to the following interview:

- Interview for Radio France Mouv in LE 20#20 radio broadcasting on "La mort du web & Naruto", 12 mai 2015 20h30. Podcast <http://www.mouv.fr/player/reecouter?play=198336>

## CIDRE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Emmanuelle Anceaume is General chair of the 19-th edition of the International Conference on Principles of Distributed Systems (OPODIS 2015).

#### 10.1.1.2. Member of the organizing committees

Emmanuelle Anceaume served as a member of the organization committee of the following conference

- International Conference on Principles of Distributed Systems (OPODIS 2015)

Sébastien Gambis served as a member of the organization committee of the following events:

- Journées thématiques: Respect de la vie privée et services mobiles sans contact (27-28 May, Issy-les-Moulineaux).
- Journée thématique: Sécurité et respect de la vie privée dans les systèmes mobiquitaires (24 September, Rennes).
- Entretien Jacques Cartier : La vie privée à travers les cultures. Convergences et divergences dans un monde globalisé (30 November 2015)

Nicolas Prigent served as a member of the organization committees of the following conferences and workshops:

- SSTIC 2015 (Symposium sur la Sécurité des Systèmes d'Information et des Communications 2015).
- VizSec 2015 (12th IEEE International Symposium on Visualization for Cyber Security).

Frédéric Tronel served as a member of the organization committee of the following conference:

- SSTIC 2015 (Symposium sur la Sécurité des Systèmes d'Information et des Communications 2015).

Ludovic Mé served as a member of the organization committee of the following conference:

- C&ESAR 2015 (Computers & Electronics Security Applications Rendez-vous),
- RESSI 2015 (Rendez-Vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information).

Christophe Bidan served as a member of the organization committee of the following conference:

- ICISSP 2015 (International Conference on Information Systems Security and Privacy 2015).

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

Emmanuelle Anceaume served as a co-chair of the following conference

- 4-th IEEE Symposium on Network Cloud Computing and Applications (NCCA15)

Nicolas Prigent was the program chair of the following conference

- 12th IEEE International Symposium on Visualization for Cyber Security (VizSec 2015).

### 10.1.2.2. Member of the conference program committees

Emmanuelle Anceaume served a member of the program committee of the following conferences:

- 5-th International Conference on Pervasive and Embedded Computing and Communication Systems (PECCS 2015) (<http://www.peccs.org/Home.aspx?y=2015>)
- 14th IEEE International Symposium on Network Computing and Applications (IEEE NCA15)
- 14th IEEE International Conference on Trust, Security and Privacy in Computing and Communications (IEEE TrustCom-15)
- 17eme Rencontres Francophones sur les Aspects Algorithmiques de Télécommunications (ALGO-TEL 2015)

Sébastien Gambs served a member of the program committee of the following conferences:

- 13th International Conference on Privacy, Security and Trust (PST'15),
- 15th IFIP TC 6/TC 11 International Conference on Communications and Multimedia Security (CMS'15),
- 10th International Workshop on Data Privacy Management (DPM'15),
- 8th International Symposium on Foundations and Practice of Security (FPS'15).

Michel Hurfin served as a member of the program committee of the following conference:

- 7-th IEEE International Symposium on UbiSafe Computing (Ubisafe 2015)

Ludovic Mé served as a member of the program committee of the following conferences:

- C&ESAR 2015 (Computers & Electronics Security Applications Rendez-vous),
- RESSI 2015 (Rendez-Vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information).

Guillaume Piolle served as a member of the program committee of the following conference:

- ACySe 2015 (Second International Workshop on Agents and CyberSecurity).

Christophe Bidan served as a member of the program committee of the following conference:

- IWTRCC 2015 (Second International Workshop on Trust in Cloud Computing).

Nicolas Prigent served as a member of the program committee of the following conferences:

- SSTIC 2015
- 12th IEEE International Symposium on Visualization for Cyber Security (VizSec).

Eric Totel served as a member of the program committee of the following conferences:

- C&ESAR 2015 (Computers & Electronics Security Applications Rendez-vous),
- 7-th IEEE International Symposium on UbiSafe Computing (Ubisafe 2015)

Frédéric Tronel served as a member of the program committee of the following conferences:

- SSTIC 2015.

### 10.1.2.3. Reviewer

- Gilles Guette as a reviewer for the International Conference on Information System Security and Privacy (ICISSP).

## 10.1.3. Journal

### 10.1.3.1. Member of the editorial boards

Michel Hurfin belongs to the editorial board of the Springer open access journal of Internet Services and Applications.

### 10.1.3.2. Reviewer - Reviewing activities

- Ludovic Mé and Valérie Viet Triem Tong act as reviewers for the following journal: IEEE Transactions on Network and Service Management (TNSM),
- Gilles Guette acts as a reviewer for the following journals: Security and Communication Networks (SCN),
- Gilles Guette acts as a reviewer for the following journals: Sensors.
- Emmanuelle Anceaume acts as a reviewer for the following journals: IEEE Transactions on Parallel and Distributed Systems (TPDS), IEEE Transactions on Dependable and Secure Computing (TDSC), and the Theoretical Computer Journal (TCS).
- Guillaume Piolle acts as a reviewer for the following journal: International Journal on Information Security (IJIS).
- Frédéric Tronel acts as a reviewer for the following journals: IEEE Transactions on Dependable and Secure Computing (TDSC).

### 10.1.4. Invited talks

Valérie Viet Triem Tong has been invited at the 3rd International Symposium on Information Systems Security, Kenitra Morocco (CISSI'2015). She has given a talk entitled *Capture de signatures comportementales de malware Android par suivi de flux d'information – Behavioral Signatures of Android Malware using information flow monitoring*.

Ludovic Me and Guillaume Hiet were invited at the 6th Assises du domaine Cyber Défense et SIEM organized by the R2GS (*Recherche et Réflexion en Gestion opérationnelle de la Sécurité*) club. They gave a talk entitled *Travaux de recherches en supervision de sécurité : tendances actuelles*.

Sébastien Gambbs was invited to give a tutorial on “inference attacks on location data” at the Shonan Seminar on Logic and Verification Methods in Security and Privacy in November in Japan. He has also given an invited talk on “Implementing the right to be forgotten” at the Workshop on Ethics and Artificial Intelligence held in Rennes in June as well as a talk on “Privacy challenges in the Information Society” at the French-Japanese workshop on cybersecurity held in Tokyo in April.

### 10.1.5. Research administration

Ludovic Mé acts as Scientific Officer for the Rennes - Bretagne Atlantic Inria Research Center.

Emmanuelle Anceaume acts as member of the

- Inria Commission d’Evaluation
- Université Rennes 1 Comité de selection

Sébastien Gambbs is a member of the committee for the Gilles Kahn award, which is given each year to the best PhD thesis in computer science in France by the Société d’Informatique de France. He is also the co-chair of Cybersecurity research axis of the IRISA laboratory as well as a member of the Inria-CNIL committee.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: Ludovic Mé, *Software Engineering*, 15h, L3 - first year of the engineer degree, Supélec, France

Master: Ludovic Mé, *Information systems*, 4,5 hours, M1 - second year of the engineer degree, Supélec, France

Master: Ludovic Mé, *Supervision of student project*, 1 project, M1 - second year of the engineer degree, Supélec, France

Master: Ludovic Mé, *Supervision of student project*, 1 project, M2 - mastère cybersecurity degree, Supélec, France

Master: until September 2015, Ludovic Mé was responsible for the module “Secured information systems”, M2 - third year of the engineer degree, Supélec, France

Master: Sébastien Gambs, *Protection of Privacy*, 16 hours of lectures, M2 - Master Pro SSI, Université de Rennes 1, France.

Master: Sébastien Gambs, *Topics on Authentication*, 16 hours of lectures, M2 - Master Pro SSI, Université de Rennes 1, France.

Master: Sébastien Gambs, *Introduction to Computer Security*, 8 hours of lectures and 4 hours of practical works, M2 - Master Pro SSI, Université de Rennes 1, France.

Licence: Gilles Guette, *Network Initiation*, 27h, L3 - Licence, ISTIC/University of Rennes 1, France

Licence: Gilles Guette, *Network Initiation*, 43h, L3 - first year of the engineer degree, ESIR, France

Master: Gilles Guette, *Network Routing*, 28h, M1 - second year of the engineer degree, ESIR, France

Master: Gilles Guette, *Mobile Network Routing*, 5h, M1 - second year of the engineer degree, ESIR, France

Master: Gilles Guette, *Advanced Network Services*, 13h, M1 - second year of the engineer degree, ESIR, France

Master: Gilles Guette, *Network Project*, 24h, M1 - second year of the engineer degree, ESIR, France

Master: Gilles Guette, *Security*, 26h, M1 - second year of the engineer degree, ESIR, France

Master: Gilles Guette, *Network and System Security*, 12h, M2 - third year of the engineer degree, ESIR, France

Master: Gilles Guette, *Network Modeling*, 10h, M2 - third year of the engineer degree, ESIR, France

Master: Gilles Guette, *Network*, 6h, M2 - third year of the engineer degree, Supélec, France

Master: Gilles Guette, *Supervision of student project*, 1 project, M2 - third year of the engineer degree, ESIR, France

Master: Gilles Guette, *Supervision of student internship*, M1 - second year of the engineer degree, ESIR, France

Licence : Guillaume Piolle, *Algorithms*, 21 hours, L3 - first year of the engineer degree, CentraleSupélec, France

Licence : Guillaume Piolle, *Software engineering*, 24 hours, L3 - first year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Modelling, Algorithms and Programming*, 22 hours, M1 - second year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Computer security and privacy*, 9 hours, M1 - second year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Software project*, 14 hours, M1 - second year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Security Policies*, 4.5 hours, M2 - third year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Java programming*, 4.5 hours, M2 - third year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Computer networks*, 13.5 hours, M2 - third year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Software engineering*, 22 hours, M2 - third year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Symbolic Artificial Intelligence*, 4.5 hours, M2 - third year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Network Access Control*, 9 hours, M2 - third year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Web development*, 12 hours, M2 - third year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Privacy protection*, 4.5 hours, M2 - third year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Computing project*, 40 hours, M2 - third year of the engineer degree, CentraleSupélec, France

Master : Guillaume Piolle, *Java EE*, 21 hours, Mastère spécialisé, CentraleSupélec, France

Licence : Eric Totel, *Models and programming languages*, 19.5 hours including 10.5 hours of lecture, L3 - first year of the engineer degree, Supélec, France

Licence : Eric Totel, *Foundations of computer science, data structures and algorithms*, 6 hours, L3 - first year of the engineer degree, Supélec, France

Master : Eric Totel, *Computer systems' architecture*, 30 hours, M1 - second year of the engineer degree, Supélec, France

Master : Eric Totel, *C language*, 24 hours including 6 hours of lecture, M2 - master CS (Cyber Security), Supélec, France

Master : Eric Totel, *C language and C++ language*, 12 hours including 6 hours of lecture, M2 - third year of the engineer degree, Supélec, France

Master : Eric Totel, *Dependability*, 9 hours including 7.5 hours of lecture, M2 - third year of the engineer degree and master research, Supélec, France

Master : Eric Totel, *Dependability*, 3 hours of lecture, M2 - third year of the engineer degree (ingénierie des systèmes automatisés), Supélec, France

Master : Eric Totel, *Dependability*, 4.5 hours of lecture, M2 - post-graduate training (master Architecture des Réseaux de Communication), Supélec, France

Master : Eric Totel, *Intrusion Detection*, 6 hours of lecture, M2 - M2 - master CS (Cyber Security), Supélec, France

Master : Eric Totel, *Intrusion Detection*, 8 hours of lecture, M2 - master 2 degree, University of Rennes 1, France

Master : Eric Totel, *Intrusion Detection*, 4 hours of lecture, M2 - master 2 degree, University of Rennes 1, France

Master : Eric Totel, *Supervision of student project*, 4 projects, M1 - second year of the engineer degree, Supélec, France

Master : Eric Totel, *Supervision of student project*, 1 project, M2 - third year of the engineer degree, Supélec, France

Licence: Frédéric Tronel, *Software engineering*, 49h, L3 - first year of the engineer degree, Centrale-Supélec, France.

Master: Frédéric Tronel, *Operating systems*, 18h, M2 - third year of the engineer degree, Centrale-Supélec, France .

Master: Frédéric Tronel, *Compilers*, 37h, M2 - third year of the engineer degree, CentraleSupélec, France.

Master: Frédéric Tronel, *Automatic reasoning*, 7h, M2 - third year of the engineer degree, Centrale-Supélec, France.

Master: Frédéric Tronel, *Assembly Language*, 4h30, M2 - third year of the engineer degree, CentraleSupélec, France.



Master: Frédéric Tronel, *Buffer overflow vulnerabilities (theory and practice)*, 7h, M2 - third year of the engineer degree, CentraleSupélec, France.

Master: Frédéric Tronel, *Firewall*, 8h, M2 - third year of the engineer degree, CentraleSupélec, France.

Master: Frédéric Tronel, *Calculability in distributed systems*, 9h, M2, jointly with University of Rennes 1 and CentraleSupélec, France.

Licence: Valérie Viet Triem Tong, *Algorithms and Data Structures*, 36 hours of lecture including 7 hours of lectures, L3 - first year of the engineering degree, CentraleSupélec, France;

Master: Valérie Viet Triem Tong, *Games Theory*, 18 hours, M1 - second year of the engineering degree, CentraleSupélec, France;

Master: Valérie Viet Triem Tong, *Formal Methods*, 9 hours, M2 - third year of the engineering degree, CentraleSupélec, France;

Master: Valérie Viet Triem Tong, *Intrusion detection using information flow control*, 9 hours, M2 / third year of the engineering degree, CentraleSupélec, France;

Master: Valérie Viet Triem Tong, *Programming in Java*, 12 hours, M1 - international students (NplusI) second year of the engineering degree, CentraleSupélec, France;

Master: Valérie Viet Triem Tong, *Small elements of decidability*, 7h30 hours, M2 - third year of the engineering degree, CentraleSupélec, France;

Master : Valérie Viet Triem Tong, *Supervision of student project*, 1 project, mastere CS (Cyber Security), CentraleSupélec, France

Master : Valérie Viet Triem Tong, *Supervision of student project* , 8 projects, M1 - second year of the engineer degree, Supélec, France

Master: Emmanuelle Anceaume, *computer science (MRI) specialism - BIB - Colq*, 36h, M2, Istic, France.

Master: Nicolas Prigent, *Operating systems*, 18h, M2 - third year of the engineer degree, Centrale-Supélec, France;

Master: Nicolas Prigent, *Automatic reasoning*, 8h, M2 - third year of the engineer degree, Centrale-Supélec, France;

Master: Nicolas Prigent, *Web development*, 12 hours, M2 - third year of the engineering degree, CentraleSupélec, France;

Master: Nicolas Prigent, *Python Programming*, 6 hours, M2 - third year of the engineering degree, CentraleSupélec, France;

Master : Nicolas Prigent, *Advanced Java Programming*, 1,5 hours, M2 - third year of the engineering degree, CentraleSupélec, France;

Master: Nicolas Prigent, *Penetration Testing*, 18 hours, M2 - third year of the engineering degree, CentraleSupélec, France;

Master : Nicolas Prigent, *IDS and Visualization*, 2 hours, M2, ESIR, France.

Master : Nicolas Prigent, *Virtualization and Cloud Computing*, 4 hours, M2, ESIR, France.

Master : Nicolas Prigent, *MS Windows Configuration and Administration*, 16 hours, Mastère CS - Specialization year, CentraleSupélec, France.

Master : Nicolas Prigent, *MS Windows Configuration and Administration*, 16 hours, CQP - Specialization year, CentraleSupélec, France.

Master : Nicolas Prigent, *Cryptography, Cryptographic Protocols and Applications*, 32 hours, CQP - Specialization year, CentraleSupélec, France.

Master : Nicolas Prigent, *Supervision of student project* , 2 projects, M1 - second year of the engineer degree, CentraleSupélec, France.

Master : Nicolas Prigent, *Supervision of student project*, 2 project, M2 - third year of the engineer degree, CentraleSupélec, France.

Master : Nicolas Prigent, *Supervision of student project*, 1 project, Mastère CS - Specialization year, CentraleSupélec, France.

Licence: Guillaume Hiet, *Algorithms and Data Structures*, 12.5h, L3 - first year of the engineer degree, CentraleSupélec, France

Master: Guillaume Hiet, *Computer security and privacy for the engineer*, 8h, M1 - second year of the engineer degree, CentraleSupélec, France

Master: Guillaume Hiet, *Buffer overflow vulnerabilities*, 16h, M2 - third year of the engineer degree, CentraleSupélec, France

Master: Guillaume Hiet, *Buffer overflow vulnerabilities*, 16h, M2 - Mastère Spécialisé CS (Cyber Security), CentraleSupélec, France

Master: Guillaume Hiet, *Pentest*, 19h, M2 - third year of the engineer degree, CentraleSupélec, France

Master: Guillaume Hiet, *Pentest*, 3h, M2 - Mastère Spécialisé CS (Cyber Security), CentraleSupélec, France

Master: Guillaume Hiet, *Introduction to Linux*, 3h, M2 - Mastère Spécialisé CS (Cyber Security), CentraleSupélec, France

Master: Guillaume Hiet, *Java Security*, 4.5h, M2 - Mastère Spécialisé CS, CentraleSupélec, France

Master: Guillaume Hiet, *Linux Security*, 18h, M2 - Mastère Spécialisé CS, CentraleSupélec, France

Master: Guillaume Hiet, *Linux Security*, 7.5h, third year of the engineer degree, CentraleSupélec, France

Master: Guillaume Hiet, *LDAP*, 7.5h, third year of the engineer degree, CentraleSupélec, France

Master: Guillaume Hiet, *Intrusion Detection*, 15h, M2 - Mastère Spécialisé CS, CentraleSupélec, France

Master: Guillaume Hiet, *Intrusion Detection*, 13.5h, M2 - third year of the engineer degree, M2 research degree of University of Rennes 1, CentraleSupélec, France

Master: Guillaume Hiet, *Security Monitoring*, 3h, M2, cycle "Sécurité Numérique", INHESJ, France

Master: Guillaume Hiet, *Computer Security*, 31.5h, M2, Mastère Spécialisé Architecte des Systèmes d'Information, CentraleSupélec, France

Master: Guillaume Hiet, *Intrusion Detection*, 16h, M2, University of Rennes 1, France

Master: Guillaume Hiet, *Intrusion Detection*, 10h, M2 - third year of the engineer degree, ESIR, France

Master: Guillaume Hiet, *Intrusion Detection*, 9h, M2, Université of Limoges, France

Master: Guillaume Hiet, *Firewall*, 6h, M2, University of Rennes 1, France

Master: Guillaume Hiet, *Supervision of student project*, 4 projects, M1 - second year of the engineer degree, CentraleSupélec, France

Master: Guillaume Hiet, *Supervision of student project*, 2 projects, M2 - third year of the engineer degree, CentraleSupélec, France

Master: Guillaume Hiet, *Supervision of student project*, 2 projects, M2 - Mastère Spécialisé CS (Cyber Security), CentraleSupélec, France

Master: Christophe Bidan is responsible for the module "Secured information systems", M2 - third year of the engineer degree, CentraleSupélec, France;

Master: Christophe Bidan, *Applied cryptography*, 6 hours of lecture, M2 - master 2 degree, University of Rennes 1, France;

Master: Christophe Bidan, *Applied cryptography*, 15h including 6 hours of lecture, M2 - third year of the engineer degree, CentraleSupélec, France

Master: Christophe Bidan, *Introduction to security*, lab work (4h30), M2 - third year of the engineer degree, CentraleSupélec, France

Licence: Christophe Bidan, *Algorithms and Data Structures*, 36 hours of lecture including 7,5 hours of lectures, L3 - first year of the engineering degree, CentraleSupélec, France;

Master : Christophe Bidan, *Cryptographic Protocols*, 6 hours of lecture, mastère CS (Cyber Security), CentraleSupélec, France

### 10.2.2. Supervision

PhD : Christopher Humphries, User-centred Security Event Visualisation, Université de Rennes 1, Defense 8/12/2015, supervised by Christophe Bidan, Nicolas Prigent and Frédéric Majorczyk

PhD : Paul Lajoie-Mazenc, Réputation et respect de la vie privée dans les réseaux dynamiques et auto-organisés, Université de Rennes 1, Defense 25/09/2015, supervised by Emmanuelle Anceaume and Valérie Viet Triem Tong

PhD : Regina Paiva Melo Marin, Enhancing Privacy Protection in Social Network Systems Through Decentralization and Policy Conflict Management, CentraleSupélec, Defense 7/09/2015, supervised by Christophe Bidan and Guillaume Piolle

PhD : Mounir Assaf, From Qualitative to Quantitative Program Analyses: Permissive Enforcement of Secure Information Flow, Université de Rennes 1, Defense 06/05/2015, supervised by Eric Total and Frédéric Tronel and Julien Signoles

HdR: Valérie Viet Triem Tong, "Apport du suivi de flux d'information pour la sécurité des systèmes", Université de Rennes 1, Defense 03/12/15.

PhD in progress : Pierre Obame Meye, Sûreté de fonctionnement dans le nuage de stockage, 01/02/2011, supervised by Emmanuelle Anceaume and Frédéric Tronel

PhD in progress: Erwan Godefroy, "Corrélation d'alertes dirigée par la connaissance de l'environnement", started in November 2012, supervised by Eric Total (50%), Ludovic Mé (30%), and Michel Hurfin (20%);

PhD in progress: Mouna Hkimi, "Détection d'intrusion dans les systèmes distribués", started in October 2013, supervised by Eric Total (50%) and Michel Hurfin (50%);

PhD in progress: Laurent Georget, "Validation Formelle d'un moniteur de flux d'information pour le noyau Linux", started in October 2014, supervised by Mathieu Jaume (MdC LIP6, 25%), Guillaume Piolle (25 %), Frédéric Tronel (25 %), Valérie Viet Triem Tong (25 %) ;

PhD in progress: Mourad Leslous, "Déclenchement automatique de codes jugés suspects dans les applications Android", started in October 2015, supervised by , Thomas Genet (Celtique Inria project 20 %), Jean François Lalande (40 %), Valérie Viet Triem Tong (40 %) ;

PhD in progress: Simon Boche, "Respect de la vie privée dans les réseaux ubiquitaires", started in October 2012, supervised by Christophe Bidan (30 %), Nicolas Prigent (35 %), Gilles Guette (35 %) ;

PhD in progress: Antoine Guellier, "Utilisation de la cryptographie homomorphe pour garantir le respect de la vie privée", started in October 2013, supervised by Christophe Bidan (50 %), Nicolas Prigent (50 %) ;

PhD in progress: Deepak Subramanian, "Multi-level Information Flow Monitoring", started in January 2013, supervised by Christophe Bidan (20 %), Guillaume Hiet (80 %) ;

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

PhD in progress: Kun He, “Mise en œuvre de technique de droit à l’oubli pour les contenus numériques”, started in October 2013, supervised by Christophe Bidan (50 %) and Gaëtan LeGuelvouit (IRT B-Com 50 %) ;

PhD in progress: Julien Lolive, “Entwining identification and privacy mechanisms”, started in December 2012, supervised by Caroline Fontaine (50% - Télécom-Bretagne) and Sébastien Gams (50%).

PhD in progress: Solenn Brunet, “Privacy-preserving location-based services”, started in October 2014, supervised by Sébastien Gams (50%) and Jacques Traoré (50% - Orange Labs Caen).

PhD in progress: Florian Grandhomme, “Étude de protocoles de routage dynamique externe de type BGP dans un environnement réseaux tactiques adhoc mobiles : faisabilité, performances, qualité de service et passage à l’échelle.”, started in October 2014, supervised by Adlen Ksentini (Dionysos Inria project 30%), Gilles Guette (70%) ;

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

PhD in progress: Thomas Letan, “Contribution à la sécurité des couches basses des systèmes d’information”, started in January 2015, supervised by Guillaume Hiet ( 50 %), Pierre Chifflier (ANSSI, 25 %), and Ludovic Mé (25 %) ;

PhD in progress: Oualid Koucham, “Détection d’intrusions pour les systèmes de contrôle industriels ”, started in January 2015, supervised by Stéphane Mocanu (Gipsa-lab, 50 %), Guillaume Hiet ( 25 %), and Jean-Marc Thiriet (Gipsa-lab, 25 %) .

### 10.2.3. Juries

- Sébastien Gams was a member of the PhD committee (reviewer) for the PhD of Thibaud Antignac titled « Méthodes formelles pour le respect de la vie privée par construction », prepared at INSA de Lyon, February 2015.
- Sébastien Gams was a member of the PhD committee (reviewer) for the PhD of Marco Stronati titled « Designing Location Privacy Mechanisms for flexibility over time and space », prepared at Ecole Polytechnique, September 2015.
- Sébastien Gams was a member of the PhD committee (reviewer) for the PhD of Ali Kassem titled « Automated Verification of Exam, Cash, Reputation, and Routing Protocols », prepared at Université de Grenoble, September 2015.
- Sébastien Gams was a member of the PhD committee (reviewer) for the PhD of Iraklis Leontiadis titled « Privacy Preserving Data Collection and Analysis », prepared at Eurecom, October 2015.
- Ludovic Mé was a member of the PhD committee (reviewer) for the PhD of Ivan Studnia entitled « Détection d’intrusion pour des réseaux embarqués automobiles : une approche orientée langage », prepared at INSA de Toulouse, Septembre 2015.
- Ludovic Mé was a member of the PhD committee (reviewer) for the PhD of Eric Freyssinet entitled « Lutte contre les botnets : analyse et stratégie », prepared at Université Pierre et Marie Curie, Paris, November 2015.
- Ludovic Mé was a member of the HDR committee (reviewer) for the HDR of Yves Roudier entitled « Advances in the Design and Engineering of Secure Distributed Systems », prepared at Université Nice Sophia-Antipolis, Decembre 2015.
- Eric Totel was a member of the PhD committee (reviewer) for the PhD of Yosra Ben Mustapha entitled « Corrélation d’alertes: un outil plus efficace d’aide à la décision pour répondre aux intrusions », prepared at Telecom Sud Paris, Avril 2015.
- Eric Totel was a member of the PhD committee (reviewer) for the PhD of Samuel Marchal entitled « DNS and Semantic Analysis for Phishing Detection », prepared at Université de Lorraine, Juin 2015.

- Eric Totel was a member of the PhD committee (reviewer) for the PhD of Thibault Probst entitled « Evaluation et analyse des mécanismes de sécurité des réseaux dans les infrastructures virtuelles de cloud computing », prepared at Université fédérale de Toulouse, Septembre 2015.
- Valérie Viet Triem Tong was a member of the PhD committee for the PhD of Aurélien Thierry entitled « Désassemblage et détection de logiciels malveillants auto-modifiants », prepared at Université de Lorraine, March 2015.

### **10.3. Popularization**

Guillaume Piolle has participated to two scientific popularization activities, both oriented towards secondary education pupils. In both cases, his participation consisted in presentations about the objectives, methods and results of research activities in computer security and privacy (including, but not limited to our activities in CIDRE):

- Les cordées de la réussite : national program aimed at facilitating access to higher education for pupils from various social backgrounds ;
- Bilateral scientific mediation action between CentraleSupélec and the Joliot-Curie high school in Rennes.

Other kinds of popularization activities have taken place in the form of communications aimed at non-academic computing professionals, on the topic of personal data protection regulations and techniques [24], [20].

Sébastien Gambs was also involved in several events dedicated to the public at large such as a presentation at le Pouce (<https://www.inria.fr/ouest-inria/le-pouce-bilan-et-perspectives/>).

## COAST Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events selection

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

- Claude Godart was PC member of the conference program committee of BPM (Business Process Management), BPMDS (Business Process Modeling, Development and Support), CBI (IEEE Conference on Business Informatics), EDOC (The enterprise computing conference), ICSOC (International Conference on Services Computing), IEEE CLOUD Computing, ICWS (IEEE International Conference on Web Services), SCC (IEEE International Conference on Services Computing), IEEE/WIC/ACM WI (Web Intelligence conference), WISE (Web Information Systems Engineering) conferences.
- Claudia-Lavinia Ignat was PC member of CSCW (International Conference on Computer Supported Cooperative Work and Social Computing) 2015 and 2016, CDVE (International Conference on Cooperative Design, Visualization and Engineering) 2015, ICEBE (International Conference on e-Business Engineering) 2015, Best paper awards committee at CSCW 2016
- Olivier Perrin was PC Member of ICSOC 2015, I3E 2015 (14th IFIP Conference on e-Business, e-Services and e-Society), VECOS 2015 (9th International Workshop on Verification and Evaluation of Computer and Communication Systems), SITIS 2015.
- François Charoy was PC Member of ICEBE (International Conference on Business Engineering) 2015, CTS 2015 (International Symposium on Collaborative Technologies and Systems), DG.O (International Conference on Digital Government Research) 2015, IEEE International Conference on Business Information Systems and of several workshops.
- Khalid Benali was PC Member of IWEI 2015 (International IFIP Working Conference on Enterprise Interoperability), COLLA 2015 (International Conference on Advanced Collaborative Networks, Systems and Applications), WorldCIST'15 (World Conference on Information Systems and Technologies), ICDS 2015 (The International Conference on Digital Society), MEDES 2015 (ACM/IFIP International Conference on Management of Emergent Digital EcoSystems), INFORSID'2015, INNOV 2015 (International Conference on Communications, Computation, Networks and Technologies), I3E 2015 (The 14th IFIP Conference on e-Business, e-Services and e-Society), and AFIN 2015 (The Seventh International Conference on Advances in Future Internet).
- Gérald Oster was a PC member of CoopIS 2015 (International Conference on Cooperative Information Systems).

#### 8.1.1.2. Member of the editorial boards

- Claude Godart is member of the editorial board of "IEEE transaction 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).

#### 8.1.1.3. Reviewer - Reviewing activities

- In 2015, Olivier Perrin reviewed papers for IEEE Transactions on Services Computing journal and Elsevier Computers & Security journal.

- In 2015, Claudia-Lavinia Ignat reviewed papers for IEEE Transactions on Software Engineering.

### 8.1.2. Invited talks

- François Charoy has been invited as a keynote Speaker at the Pro-VE Conference in Albi [5] on Collaborative Networks and Crisis Management.
- François Charoy has been invited as a keynote Speaker at the ISCRAM Med conference in Tunis [6] on Web Scale collaboration and Crisis Management.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Permanent members of the COAST project-team are leading teachers in their respective institutions. They are responsible of lecture in disciplines like software engineering, database systems, object oriented programming and design, distributed systems, service computing and even more advanced topics at all levels and in all kind 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.

- G r me Canals is the head of the Computer science department of the Nancy-Charlemagne University Institute of Technology (IUT Nancy Charlemagne) since sept. 2010, and is responsible for the professional licence degree “Web application programming” since sept. 2001.
- 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.
- Fran ois Charoy is responsible of the Software Engineering specialisation at the TELECOM Nancy Engineering School of University of Lorraine.
- G rard Oster is responsible of the 3rd year internship program at the TELECOM Nancy Engineering School of University of Lorraine.
- Pascal Urso is responsible for the “Security, Services, Systems and Network” track of the master degree in computer science at University of Lorraine since September 2013.

### 8.2.2. Supervision

PhD (in progress): Quang Vinh Dang, Trust-based large scale collaboration, started in 10/2014, Claudia-lavinia Ignat and Fran ois Charoy

PhD (in progress): Hoai Le Nguyen, Study of group performance and behavior in collaborative editing, started in 9/2015, Claudia-Lavinia Ignat and Fran ois Charoy

PhD (in progress): Hoang Long Nguyen, A Trust Based Authorization Model and Framework for the Cloud, started in 11/2015, Claudia-Lavinia Ignat and Olivier Perrin

PhD (in progress): Luc Andr , Replication and Consistency Maintenance in Peer-to-Peer Collaborative Environment, started in 9/2011, Fran ois Charoy and G rard Oster

PhD (in progress): Victorien Elvinger, Secured Replication for Peer-to-Peer Collaborative Infrastructures, started in 10/2015, Fran ois Charoy and G rard Oster

PhD (in progress): Ahmed Bouchami , S curit  des donn es collaboratives d’une plateforme PaaS, started in 11/2012, Olivier Perrin

PhD (in progress): Adrien Devresse , Study of effective sharing and analysis of very large metadata repositories: application to the High Energy Physics computing community, started on 11/2011, Olivier Perrin

PhD (in progress): Jordi Martori i Adrian, Data constraints for large-scale collaboration, started in 10/2013, François Charoy and Pascal Urso

PhD (in progress): Guillaume Rosinoski, Elastic BPM and the Cloud, started in 10/2014, François Charoy and Samir Youssef

PhD (defended): Mehdi Ahmed Nacer ended 5/2015, François Charoy and Pascal Urso.

### 8.2.3. *Juries*

- Claudia-Lavinia Ignat was a member of the jury for the recruitment in 2015 of permanent Inria junior researchers at Inria Nancy-Grand Est.
- François Charoy was head of the Selection committee at TELECOM Nancy, Université de Lorraine

COAST members were members of the following PhD and HdR defense committees:

- Amina Saoutal, PhD, Université de Technologie de Troyes, December 2015 (François Charoy et Claudia-Lavinia Ignat)
- Laurent Cailleux, PhD, Telecom Bretagne, January 2015 (François Charoy)
- Mehdi Ahmed Nacer, PhD, Université de Lorraine, May 2015 (François Charoy and Pascal Urso)
- Victor Codecedo, PhD, Université de Lorraine, September 2015 (François Charoy)
- Aurélie Montarnal, PhD, Ecoles des Mines D'Albi, October 2015 (François Charoy)
- Houssemed Medhioub, PhD, Université Pierre et Marie Curie, Paris, April 2015 (Olivier Perrin)
- Akram Bedoui, PhD, Université de Lorraine, Nancy, November 2015 (Olivier Perrin)
- Kevin Royer, PhD, ENSMA Poitiers, March 2015 (Claude Godart)
- Saoussen Cheikhrouhou, PhD, Université de Sfax, June 2015 (Claude Godart)
- Samuel Marchal, PhD, Université de Lorraine and Université du Luxembourg, June 2015 (Claude Godart)
- Mustapha Aznag, PhD, Université Aix-Marseille, Juillet 2015 (Claude Godart)
- Mohamed Bentounsi, PhD, Université Paris-Descartes, Juillet 2015 (Claude Godart)
- Elio Goettelmann, PhD, Université de Lorraine, October 2015 (Claude Godart)
- Kahina Gani, PhD, Université Blaise Pascal, Clermont-Ferrand, December 2015 (Claude Godart)

### 8.3. Popularization

- In 2015, Claudia-Lavinia Ignat participated at “Le Village des Sciences” at Loria.
- François Charoy has been invited to participate to a panel at Grand Est Numérique 3

### 8.4. Institutional commitment

- 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 member of the Inria Nancy-Grand Est COMIPERS committee. She led a working group called GT Europe that had to come up with certain propositions that could reinforce the participation of Inria Nancy-Grand Est researchers at european project calls. She participated to the working group “Livret d'accueil” that was in charge with the design of a booklet for newcomers at Inria Nancy-Grand Est. She is responsible with the activity kindergarten at AGOS Inria Nancy-Grand Est.

### 8.5. Collective Responsibilities outside Inria

- François Charoy is head of the “Commission de choix” of TELECOM Nancy and member of the Administration Council of TELECOM Nancy.
- François Charoy is elected member of CNU.
- Gérald Oster is member of the Administration Council of TELECOM Nancy and of the “Commission de choix” of TELECOM Nancy.
- Claude Godart is member of the Administration Council of the engineering school ESSTIN and member of the recruitment committee of the engineering school ESSTIN.



## COATI Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Jean-Claude Bermond :

Mediterranean Days 2015 : February 18-20 (<http://campus.sophiatech.fr/meddays2015/>).

Frédéric Havet :

SGT 2015 : 2nd French School on Graph Theory, Porquerolles, France, May 18-22 2015;

15th JCALM : 15th Journées Combinatoire et Algorithmes du Littoral Méditerranéen. Sophia Antipolis, France, March 10-11, 2015.

Nicolas Nisse :

GRASTA-MAC : joint Workshops 7th Workshop on GRaph Searching, Theory and Applications and 5th workshop on Moving And Computing, Montréal, Canada, October 19-23rd, 2015. Organizers: G. Hahn and N. Nisse.

#### 10.1.1.2. Member of the organizing committees

David Coudert, Frédéric Havet (chair), Michel Syska : SGT 2015, 2nd French School on Graph Theory, Porquerolles, France, May 18-22 2015;

Frédéric Havet (chair) : 17th Journées Graphes et Algorithmes (JGA 2015), Orléans, France, November 4-6, 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

Frédéric Giroire

Algotel'15: 17es Rencontres Francophones sur les Aspects Algorithmiques de Télécommunications, Beaune, France, June 2-5, 2015; Chairs: L. Blin and F. Giroire.

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

David Coudert :

ONDM'15 : 19th International Conference on Optical Networking Design and Modeling, Pisa, Italy, May 11-14, 2015;

PHYSComNet : International Workshop on Physics Inspired Paradigms in Wireless Communications and Networks, Bombay, India, May 29, 2015;

IEEE ICC'15 : IEEE International Conference on Communications, London, UK, June 8-12, 2015;

SEA'15 : 14th International Symposium on Experimental Algorithms, Paris, France, June 29 - July 1, 2015;

USRR'15 : 3rd International Workshop on Understanding the Inter-play between Sustainability, Resilience and Robustness in networks, Munich, Germany, October 7, 2015;

IEEE Globecom'15 : IEEE Global Communications Conference, San Diego, CA, USA, December 6-10, 2015.

Nicolas Nisse :

International Conference on Ad Hoc Networks and Wireless (Ad-Hoc Now), track on Mobile Agents, Athens, Greece (June 29-July 1st 2015).

VIII Latin-American Algorithms, Graphs and Optimization Symposium (LAGOS), Praia das Fontes, Beberibe, Ceará, Brazil (11-15 May, 2015).

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Jean-Claude Bermond :

Combinatorics Probability and Computing (Cambridge University Press);  
 Computer Science Reviews (Elsevier);  
 Discrete Applied Mathematics (Elsevier);  
 Discrete Mathematics (ScienceDirect);  
 Discrete Mathematics, Algorithms and Applications (World Scientific);  
 Journal of Graph Theory (Wiley);  
 Journal of Interconnection Networks (Advisory Board, World Scientific);  
 Mathématiques et Sciences Humaines (<http://msh.revues.org>);  
 Networks (Wiley);  
 Parallel Processing Letters (World Scientific);  
 SIAM's Discrete Mathematics and Applications Book Series (SIAM).

David Coudert :

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

Frédéric Havet :

Discrete Mathematics and Theoretical Computer Science (<http://dmtcs.episciences.org/>).

#### 10.1.3.2. Reviewer - Reviewing activities

Members of COATI have reviewed numerous manuscripts submitted to international journals, including: Algorithmica, Bulletin of the Malaysian Mathematical Sciences Society, Computer Communications, Computer Networks, Computers & Operations Research, Discrete Applied Mathematics, IEEE/OSA Journal of Light-wave Technology, Networks, Photonic Network Communications, The Computer Journal, Theoretical Computer Science, IEEE/ACM Transactions on Communications, IEEE/ACM Transactions on Networking, etc

### 10.1.4. Invited talks

Frédéric Havet :

VIII Latin-American Algorithms, Graphs and Optimization Symposium (LAGOS 2015), Beberibe, Brazil (May 11-15, 2015), "Induced subdigraphs of digraphs with large chromatic number";

2015 Barbados Graph Theory Workshop, Holetown, Barbados (March 27-April 3), "Subdigraphs of digraphs with large chromatic number".

Nicolas Nisse :

Journées du GDR IM, Bordeaux (Feb. 2nd, 2015), "Cops and robber games in graphs";  
 Réunion ANR Displexity, Arcachon (September 3rd, 2015), "Allowing each node to communicate only once in a distributed system";  
 GRASTA-MAC'15, Montréal, Canada (October 19th, 2015), "Cops and Robber Games";  
 Journées Graphes et Algorithmes (JGA) 2015, Orléans (November 4th, 2015), "Jeux de Gendarmes et Voleur dans les Graphes".

### **10.1.5. Leadership within the scientific community**

David Coudert :

Member of the steering committee of *Pôle ResCom du GDR RSD du CNRS* (since 2005);  
Member of the steering committee of *Rencontres francophones sur les aspects algorithmiques des télécommunications* (AlgoTel).

Frédéric Giroire :

Member of the steering committee of *Action GREEN du GDR RSD du CNRS*.

Frédéric Havet :

Member of the steering committee of *GT Graphes du GDR IM du CNRS*;  
Member of the steering committee of *Journées Graphes et Algorithmes (JGA)*;  
Member of the steering committee of *Journée Combinatoire et Algorithmes du Littoral Méditerranéen (JCALM)*.

### **10.1.6. Scientific expertise**

Jean-Claude Bermond :

Expert for *DRTT-MESR (Crédit Impôt Recherche CIR)*;  
Expert for an *Eurostars* application *POF* transceiver;  
Evaluation of *PISCOPIA Fellowship Programme Marie Curie Action*, for the University of Padua (Italia).

Christelle Caillouet :

Member of the comité de sélection MCF of 27<sup>e</sup> section of Univ. Nice Sophia Antipolis;  
Member of the comité de sélection MCF of 27<sup>e</sup> section of Univ. Toulon.

David Coudert :

Expert for the *Future and Emerging Technologies Open Scheme (FET-Open)* European program, and the ANR;  
Member of the comité de sélection MCF of 27<sup>e</sup> section of *LIRMM*, Univ. Montpellier.

Frédéric Havet :

Expert for the ANR.

Joanna Moulhierac :

Member of the comité de sélection MCF of 27<sup>e</sup> section of Univ. Nice Sophia Antipolis.

Nicolas Nisse :

Expert for the ANR.

Michel Syska :

Expert for *DRTT PACA*.

### **10.1.7. Research administration**

Jean-Claude Bermond :

Member of the doctoral school of the Univ. of Marseille;  
Responsible of the Attractivity for *Inria Sophia Antipolis - Méditerranée* and more generally for the *Campus Sophia Tech* (in particular signature of bilateral agreements, contacts with French Embassies and creation of join grants).

Frédéric Giroire :

Elected member of *I3S* laboratory committee since 2012.

Frédéric Havet :

Responsible of Pôle ComRed of I3S laboratory.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

The members of COATI are strongly involved in teaching with more than 1200 hours in various university levels.

#### Licence

- Christelle Caillouet, *IT Tools*, 53h ETD, Level L1, IUT Nice Côte d'Azur, UNS;
- Christelle Caillouet, *Database and advanced information system*, 36h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Christelle Caillouet, *Operations Research*, 81h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Christelle Caillouet, *Delivery Optimization*, 30h ETD, Level L3, IUT Nice Côte d'Azur, UNS;
- Guillaume Ducoffe, *Introduction au Web*, 39h ETD, L2, Polytech'Nice, Univ. Nice Sophia Antipolis (UNS), France;
- Guillaume Ducoffe, *Programmation Objet*, 25.5h ETD, L2, Polytech'Nice, UNS, France;
- Guillaume Ducoffe, *Algorithmique et Structures de Données*, 39h ETD, L2, Polytech'Nice, UNS, France;
- Nicolas Huin, *Networks*, 42h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Alvinice Kodjo, *Interfaces Homme Machine*, 24h ETD, Level L1, UNS;
- Alvinice Kodjo, *Réseaux*, 15h ETD, Level L2, UNS;
- Dimitris Letsios *Algorithmique et Programmation Impérative*, 36h ETD, Level L1, UNS;
- Dimitris Letsios *Programmation Web*, 8h ETD, Level L1, UNS;
- Dimitris Letsios *Informatique Fondamentale*, 36h ETD, Level L1, UNS;
- Dimitris Letsios *Algorithmique et Programmation Objet*, 54h ETD, Level L2, UNS;
- Dimitris Letsios *Programmation Orientée Objet Java*, 18h ETD, Level L2, UNS;
- Dimitris Letsios *Mathématiques*, 18h ETD, Level L3, UNS;
- Dimitris Letsios *Mathématiques*, 18h ETD, Level M1, UNS;
- Fatima Zahra Moataz, *Programmation avec Python*, 12h ETD, Level L1, UNS;
- Fatima Zahra Moataz, *Systèmes Informatiques*, 24h ETD, Level L1, UNS;
- Benjamin Momège, *Mathématiques Discrètes*, 75h ETD, Level L3, Polytech'Nice, UNS;
- Joanna Moulierac, *Introduction to Operating Systems*, 60h ETD, Level L1, IUT Nice Côte d'Azur, UNS;
- Joanna Moulierac, *Networks*, 100h ETD, Level L1, IUT Nice Côte d'Azur, UNS;
- Joanna Moulierac, *Algorithmics*, 60h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Nicolas Nisse, *Introduction à l'informatique*, 24h ETD, Classe préparatoire MPSI (Lycée international de Valbonne), France;
- Michel Syska, *Operating Systems : Advanced Programming*, 90h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Michel Syska, *Algorithmics*, 90h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Michel Syska, *Distributed Programming*, 30h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

Michel Syska, *Bash Scripting*, 40h ETD, Level L3, IUT Nice Côte d'Azur, UNS;  
 Michel Syska, *Introduction to Algorithms and Complexity*, 30h ETD, Level L3, IUT Nice Côte d'Azur, UNS;  
 Michel Syska, *Linux System Administration*, 40h ETD, Level L3, IUT Nice Côte d'Azur, UNS.

#### Master

David Coudert, *Algorithms for Telecoms*, 32h ETD, stream UbiNet of Master 2 IFI and Master RIF, UNS;  
 Frédéric Giroire, *Algorithmics of Telecommunications*, 18h ETD, stream UbiNet of Master 2 IFI, UNS;  
 Frédéric Giroire, *Green Networks*, 18h ETD, stream UbiNet of Master 2 IFI, UNS;  
 Frédéric Giroire, *Introduction to probability and statistics*, 15h ETD, International Master 1, UNS;  
 Frédéric Havet, *Combinatorial optimisation*, 24h ETD, M1 international, UNS, France;  
 Nicolas Nisse, *Resolution Methods*, 15h ETD, M1 international, UNS, France;  
 Nicolas Nisse, *Graph Algorithms*, 18h ETD, M2 IFI, parcours UBINET, UNS, France.

#### Doctorate

Nicolas Nisse, *Graph Theory and Optimization*, 27h ETD, University of Oulu, Finland, September 15-18th, 2015.

### 10.2.2. Internships

Paul Bertot : Nov 2014 - Feb 2015, IUT Nice Côte d'Azur, France  
 Flavian Jacquot : Nov 2014 - Feb 2015, IUT Nice Côte d'Azur, France  
 Bogdan Sirenko : March - Aug 2015, Master IFI, Ubinet, Univ. of Nice, France  
 Theodoros Karagkioulos : Oct 2015 - March 2016, National and Kapodistrian Univ. of Athens, Greece  
 Konstantinos Priftis : Oct 2015 - March 2016, Univ. of Patras, Greece  
 Steven Roumajon : March - Aug 2015, Master RIF, Univ. of Nice, France

### 10.2.3. Teaching Administration

Stream Ubinet, Master 2 IFI (<http://ubinet.unice.fr>)  
 Jean-Claude Bermond, member of the scientific committee;  
 Frédéric Giroire, responsible of the Internships, since October 2011.  
 International Master 1 (<http://computerscience.unice.fr/master1>)  
 Jean-Claude Bermond, member of the scientific committee of the international track of the M1, responsible of the recruiting committee and of the winter school.  
 IUT Nice Côte d'Azur  
 Christelle Molle-Caillouet, Co-Responsible of QLIO Department, since September 2015;  
 Joanna Moulhierac, Co-Responsible of the DUT Informatique en Alternance, Computer Science Department, since January 2014;  
 Joanna Moulhierac, member of the Conseil de D épartement Informatique at IUT Nice.

### 10.2.4. Supervision

PhD : Fatima Zahra Moataz, *Towards Efficient and Fault-Tolerant Optical Networks: Complexity and Algorithms* [14], Université Nice Sophia Antipolis, October 30, 2015. Supervisor : David Coudert;

PhD : Mohamed Amine Bergach, *Adaptation of the Fast Fourier Transform processing on hybrid integrated CPU/GPU architecture* [13], Université Nice Sophia Antipolis, October 2, 2015. Supervisors : Robert de Simone (AOSTE) and Michel Syska;

PhD in progress : Steven Roumajon, *Regional competitiveness and innovation networks*, since November 2015. Supervisors : Frédéric Giroire and Patrick Musso (GREDEG);

PhD in progress : Nicolas Huin, *Energy-Efficient Software Defined Networks*, since October 2014. Supervisors : Frédéric Giroire and Dino Lopez (I3S);

PhD in progress : Guillaume Ducoffe, *Metric properties of large graphs*, since September 2014. Supervisor : David Coudert;

PhD in progress : William Lochet, *Cliques and independent sets in graph classes, generalisation to the oriented case*, since September 2015, co-supervised by Frédéric Havet and Stéphan Thomassé (ENS Lyon).

### 10.2.5. Juries

Jean-Claude Bermond :

Member of the PhD jury of Fatima Zahra Moataz, Univ. Nice Sophia Antipolis, October 30, 2015.

David Coudert :

Member of the PhD jury of Fatima Zahra Moataz, Univ. Nice Sophia Antipolis, October 30, 2015;

Referee and member of the PhD jury of Benjamin Momège, Univ. Blaise Pascal, Clermont-Ferrand, July 8, 2015.

Frédéric Havet :

Referee and member of the PhD jury of M. Bonamy, Univ. of Montpellier, February 9 2015;

Referee and member of the PhD jury of R. Letourneur, Université of Orléans, July 9 2015;

Member of the PhD jury of Hang Zhou, ENS Paris, July 6 2015.

Michel Syska :

Member of the PhD jury of Mohamed Amine Bergach, Univ. Nice Sophia Antipolis, October 02, 2015.

## 10.3. Popularization

- Vulgarization talk : N. Nisse presented a talk on "Combinatorial Games", Lycée des Remparts (classes de seconde), Marseille (April 17th, 2015).
- Fête de la Science : F. Havet presented the stand "Pavage, art et preuves" et "Magie mathématique" at Vinon-sur-Verdon, France (October 12-16, 2015); F. Havet gave the talk "La science du ballon de football" at Vinon-sur-Verdon, France (October 16, 2015).
- Semaine des Mathématiques : F. Havet presented the stand "Les maths c'est magique" at Mouans Sartoux (March 18, 2015).
- Vendredis de la Science : F. Havet conducted scientific workshops for school children (6-11 year old) on friday afternoon in Rians, France. Once a month in March, April, May, June 2015, and weekly since November 2015.
- Jean-Claude Bermond presented a talk on the impact of big data on the telecommunications services and networks for banks investors at Paris, France (April 10 2015).

## CTRL-A Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Bogdan Robu, Stéphane Mocanu and Eric Rутten organized the 3rd Grenoble Workshop on Autonomic Computing and Control Wednesday October 7th, 2015, GIPSA-lab, Seminary room (2nd floor B208 - Grenoble campus)

<https://team.inria.fr/ctrl-a/members/eric-rутten/autoctrl/>

Eric Rутten organized the DCDS 2015 Special Session on Dependable Discrete control for adaptive and reconfigurable computing systems <http://www.gdl.cinvestav.mx/dcds2015/> may 2015

proposed the WODES 2016 Special Session on Discrete Control for Adaptive and Reconfigurable Computing Systems, with H. Marchand <http://wodes2016.diee.unica.it/home1-6-7.html>

organized the Seminar (Grenoble and Rhône-Alpes region, Lyon, Valence, Annecy) on Supervisory control Techniques for Autonomic, Adaptive and Reconfigurable computing Systems <https://team.inria.fr/ctrl-a/members/eric-rутten/labex/staars-labex.html>

#### 10.1.1.2. Member of the organizing committees

Eric Rутten was workshops co-chair for the 12th IEEE International Conference on Autonomic Computing. ICAC'2015, July 7-10, 2015 in Grenoble, France. <http://icac2015.imag.fr>

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

Eric Rутten was program co-chair of the IEEE International Conference on Cloud and Autonomic Computing, CAC 2015, MIT, USA, September 2015 [19] (<http://autonomic-conference.org>), Part of FAS\* - Foundation and Applications of Self\* Computing Conferences, Collocated with: the IEEE Self-Adaptive and Self-Organizing System Conference, the IEEE Peer-to-Peer Computing Conference.

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

Eric Rутten is PC member for:

- 13th IEEE International Conference on Autonomic Computing (ICAC 2016) Wuerzburg, Germany, July 19-22, 2016 (<http://icac2016.uni-wuerzburg.de/>) ;
- 13th International Workshop on Discrete Event Systems (WODES 2016), Xi'an, China on May 30 - June 1, 2016 (<http://wodes2016.diee.unica.it>) ;
- SEfSAS Book 3 (Software Engineering for Self-Adaptive Systems: Assurances) Volume 3 to be published by Springer ;
- CTSE2015 (First International Workshop on Control Theory for Software Engineering), in conjunction with 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering BERGAMO, ITALY, August 31 – September 4 (<http://www.softwarecontrol.org/>) ;
- MSR 2015, 10ème Colloque Francophone sur la Modélisation des Systèmes Réactifs, Nancy, du 18 au 20 Novembre 2015 (<http://msr2015.loria.fr/>) ;
- 2nd International Workshop on Adaptive Discrete Event Control Systems (ADECS 2015) that will be held June 22, 2014 at Brussels (<http://adecs2015.cnam.fr/>) A satellite event of PETRI NETS 2015 and ACSO 2015, Brussels, Belgium, Monday June 22, 2015 ;

- 3rd INTERNATIONAL WORKSHOP ON SELF-AWARE INTERNET OF THINGS 2015, in conjunction with ICAC 2015, The 12th IEEE International Conference on Autonomic Computing, July 7-10 2015, Grenoble, France (<http://clout-project.eu/international-workshop-on-self-aware-internet-of-things-2015/>) ;
- 5th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS) October 14-16, 2015, Georgia Tech, Atlanta, Georgia, USA (<http://adhs15.gatech.edu>) ;
- 12th IEEE International Conference on Autonomic Computing. ICAC 2015, July 7-10, 2015 in Grenoble, France (<http://icac2015.imag.fr>) ;
- 5th IFAC international workshop on Dependable Control of Discrete Systems , DCDS, Cancun, Mexico, may 27-29, 2015 (<http://www.gdl.cinvestav.mx/dcds2015>) ;
- The 2015 Electronic System Level Synthesis Conference, ESLsyn 2015, co-located with the Design Automation Conference (DAC), San Francisco (CA), USA, June 10-11th, 2015. (<http://www.ecsi.org/eslsyn>)

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing activities

Eric Rutten is reviewer for Journal of Systems and Software ; j. Microprocessors and Microsystems ; and guest co-editor with P. Shenoy for a ICCAC 2015 Best Papers special issue of the Cluster Computing journal (The Journal of Networks, Software Tools and Applications, Springer <http://link.springer.com/journal/10586>)

#### 10.1.4. Invited talks

Eric Rutten was invited to give talks at : 11th International Conference on Distributed Computing and Internet Technology (ICDCIT-2015) <http://www.icdcit.ac.in/>, Bhubaneswar, India, February 5–8, 2015 ; College of Information and Computer Sciences (CICS), University of Massachusetts Amherst, USA, 28 sept.2015 <https://www.cics.umass.edu/event/discrete-control-based-design-adaptive-and-autonomic-computing-systems>

#### 10.1.5. Scientific expertise

Eric Rutten was in the hiring commission for Inria CR2 research positions at Inria Grenoble-Rhône-Alpes and evaluated pre-proposals of projects submitted to the ANR generic call 2016. ; the CRI PILSI board of directors <http://cri-grenoble.com> and in charge of the development of scientific relationships between CEA and Inria in Grenoble on the topics of software and computer science ; PCS (Pervasive Computing Systems) committee of the Labex Persyval-lab.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Supervision

- PhD in progress : Adja Ndeye SYLLA ; Generation of coordination rules from an automaton, in the context of the redeployment of distributed contra; applications ; feb. 2015 ; E. Rutten, F. Pacull and M. Louvel (CEA)
- PhD in progress : Naweiluo Zhou ; Application-aware policies and control for transactional memory systems ; oct. 2013 ; E. Rutten, G. Delaval, J.F. Mehaut (LIG)

### 10.2.2. Juries

Eric Rutten was on the PhD defense committees for : Cédric Eichler, LAAS Toulouse, 9 june 2015 ; Mathilde Machin, LAAS Toulouse, 12 nov 2015.



## DANTE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- Paulo Gonçalves was president of the organising committee of the 25th conference GRETSI 2015 on Signal and Image Processing. The conference was held at ENS de Lyon on Sept. 8-11, 2015 and gathered 550 participants.
- Paulo Gonçalves was co-organiser of the special session on *Methodologies for Signal Processing on Graphs* at Eusipco 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- Paulo Gonçalves is officer of the local liaison board of EURASIP

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

- Thomas Begin is PC member of IEEE LCN 2015
- Christophe Crespelle is PC member of MARAMI 2015
- Christophe Crespelle is PC member of IEEE NetSciCom 2015
- Isabelle Guérin Lassous is PC member, in 2015, of ACM MSWiM, IEEE ICDCS, IEEE ICC, IEEE Globecom, IEEE ISCC, ACM PE-WASUN and MedHocNet
- Anthony Busson is PC member of FNC 2015, ISNCC 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Isabelle Guérin Lassous is member of the editorial boards of Computer Communications (Elsevier), Ad Hoc Networks (Elsevier) and Discrete Mathematics & Computer Science.
- Anthony Busson is member of the editorial boards of Computer Communications (Elsevier).

### 10.1.4. Invited talks

- Eric Fleury gave a keynote lecture at the 4th International Conference on Sensor Networks (Sensor-net in cooperation with ACM) and a panel on smart cities.
- Eric Fleury gave a keynote at the 11th Asian Internet Engineering Conference (AINTEC in cooperation with ACM) and a tutorial to the 26th Asian School.
- Eric Fleury gave a invited talk at the inaugural workshop EPFL/Inria
- Eric Fleury gave a seminar talk for the LIG Keynote Speech
- Anthony Busson gave a seminar talk at the Institute of Mathematics (Hanoi)

### 10.1.5. Leadership within the scientific community

- Isabelle Guérin Lassous is member of the CNRS National Committee for section 06 (Computer Science).
- Éric Fleury is member of the Inria Evaluation Committee.
- Éric Fleury is Co-chair of the Networking group ResCom of the CNRS GDR ASR. He is also a member of the scientific committee of the GDR ASR.

### 10.1.6. Scientific expertise

- Christophe Crespelle is expert for NAFOSTED (Vietnamese national agency for funding research)
- Isabelle Gu erin Lassous is a member of the research committee of the Milyon labex.
- Isabelle Gu erin Lassous was a member of the selection committee of ENS Cachan
-  ric Fleury is member of the Inria senior research position (DR2) jury
-  ric Fleury is member of the Starting Research Position and Advanced Research position jury
-  ric Fleury has been an expert for the Fund for Scientific Research - FNRS.
-  ric Fleury has been a member of evaluation panels as part of the French National Research Agency's (ANR) for ANR.

### 10.1.7. Research administration

- Paulo Gonalves is scientific liaison officer for international relations in Inria Research Centre of Rh ne-Alpes.
- Paulo Gonalves is scientific correspondent of the International Relations for the Computer Science Department at ENS Lyon.
- Paulo Gonalves is a member of the executive committee of the Milyon labex.
- Christophe Crespelle is member of the steering committee of the IXXI - Rh ne-Alpes Complex Systems Institute.
- Isabelle Gu erin Lassous is vice-chair of the LIP laboratory.
-  ric Fleury is Deputy Scientific Delegate for Inria Grenoble Rh ne Alpes
-  ric Fleury is in the in the Executive Committee of the IXXI – Rh ne-Alpes Complex Systems Institute.
-  ric Fleury is member of the Council of the LIP laboratory.
-  ric Fleury is a member of the executive committee of the Milyon labex.
- Anthony Busson is the vice president of the thesis committee of the LIP laboratory.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### 10.2.1.1. Teaching by  ric Fleury

 ric Fleury is Professor at the Computer Science department of ENS de Lyon and holds a Inria chair.

Master : CR15 - Complex Networks, 18H, M2, ENS de Lyon, France

Licence/Master : Alter-disciplinary course, Complexe network: an interdisciplinary approche 6H, L3, M1, M2, ENS de Lyon, France

#### 10.2.1.2. Teaching by Thomas Begin

Licence : "Networks", 18h, Bachelor (L3), University Lyon 1, France

Master : "Networking", 63h, Master (M1), University Lyon 1, France

Master : "Advanced Networks", 50h, Master (M2), University Lyon 1, France

Master : "Computer Networks", 12h, Master (M1), ENS de Lyon, France

#### 10.2.1.3. Teaching by Paulo Gonalves

Engineering school (year 3-5) : Statistical Signal Processing (80 hours/yr)

#### 10.2.1.4. Teaching by Christophe Crespelle

Master : C. Crespelle, "Chordal graphs: structure and algorithms", 10h, SEAMS Internatioanl School on Combinatorics, Hanoi, Vietnam

#### 10.2.1.5. Teaching by Isabelle Gu erin Lassous

Professor at Universit  Claude Bernard Lyon 1 in the Computer Science department since 2006. She lectures at the University.

Master : "Networking", 20h, Master (M1), University Lyon 1, France

Master : "QoS and Multimedia Networks", 30h, Master (M2), University Lyon 1, France

Master : "Wireless Networks", 15h, Master (M2), University Lyon 1, France

Master : "Introduction to Networking", 30h, Master (M2), University Lyon 1, France

### 10.2.1.6. Teaching by Anthony Busson

Professor at the IUT (Institut Universitaire de Technologie) of Université Claude Bernard Lyon 1 in the computer science department since 2012.

Master : "MPLS", 6h, Master (M2), University Lyon 1, France

Master : "Réseaux spontanés avancés", 17h, Master (M2), University Lyon 1 - Université Nationale du Vietnam, France-Vietnam

Master : "Palm Calculus and networking applications", 18h, Master (M1) - Institute of Mathematics - Hanoi

### 10.2.2. Supervision

- PhD defense: Benjamin Girault, Signal processing on graph: Contributions to an emerging field. ENS de Lyon, Dec. 1 2015. E. Fleury and P. Gonçalves
- PhD defense: Lucie Martinet, Dynamic complex networks: characterisation and diffusion properties in hospital context. ENS de Lyon, Sep. 18th 2015, E. Fleury and C. Crespelle
- PhD defense: Elie Rotenberg, An approach for a reliable estimation of the properties of the Internet topology. University Pierre et Marie Curie, Jan 8th 2015, M. Latapy and C. Crespelle
- PhD defense: Thiago Wanderley Matos de Abreu, Modeling and analysis of IEEE 802.11-based chains performance. University Lyon 1, March 5th 2015, T. Begin and I. Guérin Lassous
- PhD defense: Sabrina Naimi, "Gestion de la mobilité dans les réseaux Ad Hoc par anticipation des métriques de routage". University Paris 11, July 22th 2015, Véronique Vèque and Anthony Busson.
- PhD defense: Peng GUAN, Stochastic Geometry Analysis of LTE-A Networks. University Paris 11, Dec. 2015, Marco Di Renzo and Anthony Busson.
- PhD defense: Wei LU, Stochastic Geometry Analysis of relay-aided LTE-A cellular networks. University Paris 11, Dec. 2015, Marco Di Renzo and Anthony Busson.
- PhD in progress : Sarra Ben Alaya, Multi-scale classification and analysis of data on networks. Nov. 2015, P. Gonçalves (P. Borgnat, co-advisor)
- PhD in progress: Yannick Leo, Diffusion process and community structure in complex networks, Oct. 2013, E. Fleury, C. Crespelle, and M. Karsai
- PhD in progress: Laurent Reynaud, Optimized mobility strategies for wireless networks. March 2013, I. Guérin Lassous
- PhD in progress: Huu-Nghi Nguyen, Admission control in SDN networks. April 2014, T. Begin and A. Busson and I. Guérin Lassous
- PhD in progress: Mohammed Amer, WiFi network management: a SDN approach. January 2015, A. Busson and I. Guérin Lassous
- PhD in progress: Matteo Morini, New tools for understanding the dynamics of social networks, Oct 2013, E. Fleury, P. Jensen and M. Karsai

### 10.2.3. Juries

- Paulo Gonçalves was member of the PhD examination board of: Nadia Khalfa-Cheick;
- Paulo Gonçalves was reviewer and member of the PhD examination board of: Hadrien Hours.
- Christophe Crespelle was member of the PhD examination board of Pham Van Trung, Vietnam Academy of Science and Technology.
- Isabelle Guérin Lassous was reviewer of the PhD examination boards of: Guillaume Artero Gallardo, University of Toulouse ; Nicolas Boillot, University of Franche-Comté ; Georgios Z. Papadopoulos, University of Strasbourg ; Andrés Marcelo Vázquez Rodas, Universitat Politècnica de Catalunya, Spain;

- Isabelle Guérin Lassous was chair of the PhD examination boards of: Liviu-Octavian Varga, University of Grenoble ; Moussa Traore, University of Toulouse;
- Isabelle Guérin Lassous was member of the PhD examination boards of: Baher Mawlawi, INSA de Lyon ; Denis Carvin, University of Toulouse.
- Eric Fleury was chair of the PhD examination board of: Diala Naboulsi, INSA de Lyon;
- Eric Fleury was member of the HdR examination board of Michaël Hauspie, Université Lille 1.  
HDR MrHauspie

## DIANA Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

Walid Dabbous is in member of the technical program committee of the IEEE INFOCOM International Workshop on Computer and Networking Experimental Research Using Testbeds, CNERT 2016. He gave an invited talk on Realistic and Reproducible Wireless Networking Experiments at the REPPAR'2015 workshop at Vienna. He is founding member of the ns-3 consortium and co-organized the ns-3 workshop in May 2015. He is vice-president of the PlanetLab Europe consortium. He co-organizes the workshop on Future challenges in User-Centric Networks, co-located with Sigmetrics 2016 in June 2016. He is member of the scientific council of the Inria Bell-Labs laboratory on Communication networks of the future. He also servers as a chair of the scientific committee of the User Centric Networking (UCN@Sophia) Laroratory of Excellence. He is member of board of directors of the Telecom Platform Association responsible for the deployment and operation of the Com4Innov mutualized platform. He co-organized the joint UCN@Sophia Labex - Com4Innov day on research and experimentation. He is also member of the Ubinet International Master program steering committee. He is member of the Inria Sophia Antipolis project committee's bureau (Bureau du CP).

Thierry Turletti, Senior ACM and IEEE member, served in 2015 in the program committees of the following international workshops: the 21th Packet Video Workshop, Sydney, Australia, USA, June 4-5, 2015, the 6th Workshop on ns-3 at Barcelona, Spain, May 13, 2015, the 10th ACM Mobicom Workshop on Challenged Networks at Paris, France, September 11, 2015, the 11th ACM SIGCOMM Asian Internet Engineering Conference (AINTEC), Bangkok, Thailand, November 2015 and the 13th ACM International Symposium on Mobility Management and Wireless Access (MOBIWAC), Cancun, Mexico, November 2015; Thierry Turletti is member of the Editorial Boards of the Journal of Mobile Communication, Computation and Information (WINET) published by Springer Science and of the Advances in Multimedia Journal published by Hindawi Publishing Corporation. He is president of the Committee for Technological Development (CDT) and member of the committee NICE that studies postdoc and visiting researcher applications at Inria Sophia Antipolis

Chadi Barakat is on the editorial board of the Computer Networks journal, on the Technical Program Committee for the Traffic Monitoring and Analysis (TMA) 2015 workshop, the Passive and Active Measurement (PAM) 2016 Conference, the Algotel 2016 Conference, the ACM SIGCOMM 2015 Posters and Demos Session, and Publicity Co-Chair for ACM SIGCOMM 2015. He is currently the scientific referee for international affairs at Inria Sophia Antipolis and member of the Conseil d'Orientation Scientifique et Technologique (COST) at Inria within the working group of international affairs (COST-GTRI).

Arnaud Legout is on the editorial board of the Computer Networks journal, and was PC member of the ACM CoNEXT 2015 conference. Arnaud Legout is the president of the Commission of the users of IT resources of Sophia Antipolis Inria research center.

Damien Saucez is member of the TPC of DRCN 2016 and CCNC 2016. Damien Saucez is secretary and document shepherding at the IETF LISP working group (details about the secretary and shepherd roles can be found in RFC 2418 and RFC 4858). Damien Saucez is secretary of the Project Committee (CP) at Inria Sophia Antipolis Méditerranée.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master Ubinet: Chadi Barakat and Walid Dabbous, Evolving Internet, 31.5 hours, M2, University of Nice-Sophia Antipolis, France.

Master Ubinet: Chadi Barakat and Walid Dabbous, Internet Measurements and New Architectures, 31.5 hours, M2, University of Nice-Sophia Antipolis, France.

Master 1 International: Chadi Barakat, Algorithms for Networking, 22.5 hours, M1, University of Nice-Sophia Antipolis, France.

Master Estel: Chadi Barakat, Voice over IP, 9 hours, University of Nice-Sophia Antipolis, France.

Master RISM: Chadi Barakat, Mobility and wireless networking, 10.5 hours, University of Avignon, France.

Master Ubinet: Arnaud Legout, From BitTorrent to Privacy, 36 hours, M2, University of Nice-Sophia Antipolis, France.

Master 1 International: Arnaud Legout, Oral and written communications, 18 hours, M1, University of Nice-Sophia Antipolis, France.

Master IUP GMI: Damien Saucez, Security and privacy in networks, 38h, M2, University of Avignon, France.

IUT : Damien Saucez, Advanced Network Services and Operator Network Technologies, 27h, L1 and L2, University of Nice-Sophia Antipolis, France.

### **E-learning**

Mooc: Arnaud Legout and Thierry Parmentelat, Python : des fondamentaux à l'utilisation du langage, 7 weeks, FUN (<https://www.france-universite-numerique-mooc.fr/>), Inria, 9615 registered persons, 1487 qualified for the final attestation of achievement.

### **9.2.2. Supervision**

PhD in progress: Maksym Gabielkov works on "Information propagation in social networks" since October 2012. His thesis is supervised by Arnaud Legout.

PhD: Alina Quereilhac defended her PhD on "A Platform and Domain Independent Approach to Network Experiment Automation" in June 2015. Her thesis was co-supervised by Walid Dabbous and Thierry Turletti.

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

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

PhD in progress: Xuan Nam Nguyen works on "Software Defined Networking in challenged environments", since October 2012. His thesis is co-supervised by Thierry Turletti and Walid Dabbous.

PhD in progress: Vitalii Poliakov works on "the application of Software Defined Networking on 5G networks in order to optimise the Quality of Experience of network services" since November 2015. His thesis is co-supervised by Damien Saucez and Lucile Sassatelli (I3S).

PhD in progress: Hardik Soni works on "Software Defined Networking in challenged environments" since September 2014. His thesis is co-supervised by Thierry Turletti and Walid Dabbous.

PhD in progress: Riccardo Ravaioli works on "Active and Passive Inference of Network Neutrality" since October 2012. His thesis is co-supervised by Chadi Barakat and Guillaume Urvoy-Keller (I3S).

PhD in progress: Luigi Vigneri works on "Vehicles as a Mobile Cloud: Leveraging mobility for content storage and dissemination" since April 2014. His thesis is co-supervised by Chadi Barakat and Thrasylvoulos Spyropoulos (Eurecom).

### **9.2.3. Juries**

Chadi Barakat served as reviewer of Quentin Jacquemart PhD thesis, "Towards Uncovering BGP Hijacking Attacks" defended in October at Eurecom.

Chadi Barakat served as reviewer of Florin Coras PhD thesis, "On the Scalability of LISP and Advanced Overlaid Services " defended in July 2015 at Polytechnic University of Catalonia (UPC), Barcelona.

Chadi Barakat served as reviewer of Pavlos Sermpezis PhD thesis, "Performance Analysis of Mobile Social Networks with Realistic Mobility and Traffic Patterns" defended in February 2015 at Eurecom.

Thierry Turletti served as examiner of Diala Naboulsi PhD thesis, "Analysis and exploitation of mobile traffic datasets", defended in September 2015 at INSA Lyon.

Walid Dabbous served as reviewer of Patrick Senac HDR thesis, "L'Internet de l'extrême. Modèles, protocoles et mécanismes de bout en bout pour les réseaux de communication de nouvelle génération" defended in October 2015 at UPMC.

Walid Dabbous served as reviewer of Gwendal Simon HDR thesis, "Massive Interactive Multimedia Services Over the Internet" defended in April 2015 at Télécom Bretagne, Univ. of Rennes 1.

Walid Dabbous served as reviewer of Natalya Rozhnova PhD thesis, "Congestion control for Content-Centric Networking" defended in May 2015 at UPMC.

Thierry Turletti served as examiner and president of Haiyang Jiang PhD thesis, "Research on parallelization of network intrusion detection system", defended in May 2015 at Univ. of Grenoble.

Thierry Turletti served as reviewer of Peng He PhD thesis, "Design and evaluation of high performance software based packet classification systems", defended in May 2015 at Univ. of Grenoble.

Thierry Turletti served as reviewer of Michelle Tortelli PhD thesis, "Information-Centric Networking: Routing Design and Performance Evaluation Methodologies", defended in January 2015 at Politecnico di Bari.

### **9.3. Popularization**

Chadi Barakat presented ACQUA at the Scientific Day of the Afnic (JCSA 2015). See <https://www.afnic.fr/fr/l-afnic-en-bref/actualites/actualites-generales/9333/show/jcsa15-retour-sur-la-journee-du-conseil-scientifique-de-l-afnic-2015.html>.

Walid Dabbous was invited again in October 2015 to present Future Internet challenges to high school students at CIV for the Science Week (Fête de la science).

Arnaud Legout presented at lycée Amiral de Grasse to students in première and terminale a conference on privacy in the Internet in April 2015.

Damien Saucez has made a speech on the reproducibility of experimentation at the Journée Cloud 2015 of the GdR RSD Cloud Action Transverse (see <https://rsd-cloud.lip6.fr/journee.html>).

## **DIONYSOS Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. Member of the organizing committees*

Pierre L'Ecuyer was a member of the following groups:

- Steering Committee for the IMACS Seminar on Monte Carlo Methods (biennial conference), since 2009.
- Steering Committee for the International Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing, since 2006.
- Selection committee for the INFORMS Simulation Society Distinguished Service Award, 2012-2015.

G. Rubino and B. Tuffin are members of the Steering Committee of the International Workshop on Rare Event Simulation (RESIM).

Y. Hadjadj-Aoul is a member of the steering committee of the International Conference on Information and Communication Technologies for Disaster Management (ICT-DM) from December 2015.

R. Marie and G. Rubino are members of the IFIP WG 7.3 (Working Group in Computer Performance Modeling and Analysis).

### **9.1.2. Scientific events selection**

#### *9.1.2.1. Chair of conference program committee*

- Bruno Tuffin served as coordinator of Analysis Methodology track at the 48th Winter Simulation Conference, Huntington Beach, CA, December 2015.
- Adlen Ksentini served as Technical Program Committee Chair of the 1st IEEE on Standards for Communications and Networking (CSNC)
- Adlen Ksentini is serving as Symposium Chair of Mobile and Wireless Network Symposium of IEEE ICC 2016, Kuala Lumpur, Malaysia.
- Yassine Hadjadj-Aoul served as Technical Program Committee Chair of the 2nd International Conference on Information and Communication Technologies for Disaster Management (ICT-DM).

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

Pierre L'Ecuyer was a member of the program committee of the following events:

- MCM'2015: Tenth IMACS Seminar on Monte Carlo Methods, Linz, Austria, July 2015.
- SIMUL 2015: Seventh International Conference on Advances in System Simulation, Barcelona, Nov. 2015.
- SIMULTECH 2015: International Conference on Simulation and Modeling Methodologies, Technologies and Applications, Colmar, France, July 2015.
- BIRS Workshop on Applied Probability Frontiers: Computational and Modeling Challenges, Banff, Canada, June 2015.



Bruno Tuffin was a member of the program committee of the following events:

- IEEE ICC 2015 - Communications Software, Services and Multimedia Applications Symposium, London, UK, June 8-12, 2015.
- NetEcon 2015: the 10th Workshop on the Economics of Networks, Systems and Computation, Portland, Oregon, USA, in conjunction with ACM SIGMETRICS, June 2015.
- 2015 ACM SIGSIM Conference on Principles of Advanced Discrete Simulation (ACM SIGSIM PADS 2015), the University of Westminster, London, UK, June 15-17, 2015.
- 4th Workshop on Smart Data Pricing (SDP 2015), Workshop of IEEE INFOCOM 2015, Hong Kong, May 1st, 2015.
- 10th IMACS Seminar on Monte Carlo Methods (MCM 2015), Linz, Austria, July 2015.
- 8th International Workshop on Simulation, Vienna, Austria, September 21-25, 2015.
- The International Conference on Wireless Networks and Mobile Communications (WINCOM'15), Marrakech, Morocco, October 20-23, 2015.

Bruno Sericola served in the Program Committee of the following conferences:

- ASMTA 2015, 22nd International Conference on Analytical & Stochastic Modelling Techniques & Applications, Albena, (Varna) Bulgaria, 26-29 May 2015.
- MACOM 2015, 8th International Workshop on Multiple Access Communications, Helsinki, Finland, 3-4 September 2015.
- INTERNET 2015, 7th International Conference on Evolving Internet, St. Julians, Malta, 11-16 October 2015.

Adlen Ksentini was member of the program committee of the following events:

- IEEE ICC 2015 Mobile Wireless Networks Symposium, London, UK, 2015.
- IEEE Globecom 2015 Mobile Wireless Networks Symposium, San Diego, USA, 2015.
- IEEE WCNC 2015, New Orleans, USA, 2015.

Yassine Hadjadj-Aoul was a member of the program committee of the following events:

- IEEE ICC 2015 Mobile Wireless Networks Symposium, London, UK, 2015.
- IEEE Globecom 2015 Mobile Wireless Networks Symposium, San Diego, USA, 2015.
- IEEE WCNC 2015, New Orleans, USA, 2015.
- IEEE CSCN 2015 IEEE Conference on Standards for Communications & Networking, Tokyo, Japan, 2015.

Gerardo Rubino served or serves at the program committee of the following conferences:

- QEST 2015: 12th International Conference on Quantitative Evaluation of SysTEms, Madrid, Spain, August 2015.
- ComTel 2015: VIII Congreso Internacional de Computación y Telecomunicaciones, Lima, Perú, September 2016
- ComTel 2016: VIII Congreso Internacional de Computación y Telecomunicaciones, Lima, Perú, September 2016
- MASCOTS 2016: The 24th IEEE conference in Modelling, Analysis and Simulation of Computer and Telecommunications Systems, London, England, September 2016.
- Networking 2015: The 14th IFIP Networking Conference, Toulouse, France, May 2015.
- Networking 2016: The 15th IFIP Networking Conference, Vienna, Austria, May 2016.

### 9.1.2.3. Reviewer

César Viho has reviewed project proposals for the ANR and for CIFRE contracts for the ANRT. He has reviewed papers for the journals IEEE Transaction on Wireless Communication, IEEE Transactions on Vehicular Communications, IEEE Communications Magazine, and for the following international conferences: IWCNC'15, Globecom'15, CCNC'16.

Adlen Ksentini has reviewed papers in 2015 for Transaction Paralel Distributed Systems-TPDS, Transaction on Wireless Communication - TWC, Transaction on Vehicular Technology - TVT, Wireless Communication Magazine, Elsevier Computer Communication.

Yassine Hadjadj-Aoul has reviewed papers in 2015 for Transaction on Vehicular Technology-TVT, Wireless Communication Magazine, Elsevier Computer Communication and for the following international conferences: Globecom'15, ICC'15, WCNC'15.

### **9.1.3. Journal**

#### *9.1.3.1. Member of the editorial boards*

Bruno Tuffin is an associate editor for the following journals:

- INFORMS Journal on Computing, since 2007.
- Mathematical Methods of Operations Research, since November 2008.
- ACM Transactions on Modeling and Computer Simulation, since July 2009.

Pierre L'Ecuyer is an associate editor for the following journals:

- ACM Transactions on Mathematical Software, since August 2004.
- Statistics and Computing (Springer-Verlag), since June 2003.
- International Transactions in Operational Research, since May 2007.

Bruno Sericola is an associate editor for the following journals:

- International Journal of Stochastic Analysis.
- Performance Evaluation.

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

Adlen Ksentini is Associate Editor of IEEE Access Journal.

Yassine Hadjadj-Aoul is guest editor for the Hindawi's Special Issue on "Wireless and Mobile Technologies for the Internet of Things".

Yassine Hadjadj-Aoul is a member of the editorial board of the CSC Journal's "International Journal of Computer Networks (IJCN)" since 2012.

#### *9.1.3.2. Reviewer - Reviewing activities*

In addition to the reports done during his associate editor and conference TPC member duties, Bruno Tuffin has reviewed papers in 2015 for ACM TOMPECS, Computers & Operations Research, IEEE Network Magazine, Operations Research, Statistics & Computing.

Bruno Sericola has reviewed papers for several major international journals and conferences.

Yassine Hadjadj-Aoul has reviewed papers for several major international journals and conferences such as: Security and Communication Networks (Wiley), IEEE Communication Magazine, and IEEE Transaction on Vehicular Technologies (TVT).

Gerardo Rubino has reviewed papers for several major international journals and conferences, including Performance Evaluation, RAIRO, book chapters, and the reviewing activities related to the service at different program committees.

**9.1.4. Invited talks**

- B. Tuffin. “Rare event simulation applied to dependability analysis”. Université de Pau, May 2015.
- B. Tuffin (joint work with P. L’Ecuyer, P. Maillé, N. Stier-Moses). “Revenue-Maximizing Rankings for Online Platforms with Quality-Sensitive Consumers”. GRD COS, Toulouse, September 2015.
- B. Tuffin (joint work with P. Maillé, G. Simon). “On revenue-oriented Content Delivery Networks and their impact on Net Neutrality”. GEARD, Université de Montréal, Canada, Sept. 2015.
- B. Tuffin. “Rare event simulation applied to dependability analysis”. GDR MASCOT-NUM, IHP Paris, October 2015.
- B. Tuffin (joint work with P. L’Ecuyer, P. Maillé, N. Stier-Moses). “Stochastic Optimization for Search Engines: Revenue-Maximizing Rankings with Quality-Sensitive Consumers”. NTNU, Trondheim, Norway, November 2015.
- A. Ksentini, “On the Cloudification of mobile networks”, Tutorial at IEEE Globecom, December 2015, San Diego, USA.
- A. Ksentini, “Cloud and mobile network, the marriage”, Invited Seminar, Univ. Reims, October, 2015
- A. Ksentini, “SDN and NFV”, Tutorial in the International School on Cloud Computing, Tunis, Tunisia, April 2015.
- C. Viho, “Quality of Experience(QoE)-based resource management in wireless networks”, plenary talk at the 2nd International Congress on Telematics, Computing and Communications (WITCOM 2015), Mexico DF, Mexico, November 4, 2015.
- C. Viho, “How to Deal with Interoperability Testing in The Challenging and Ever-changing Context of IoT”, invited talk at the 2nd EAI International Conference on Interoperability in IoT (InterIoT 2015), Roma, Italy, October 26, 2015.
- G. Rubino, “Random Neural Networks: some applications and extensions”, invited speaker in Imperial College Seminar in honor of Prof. Erol Gelenbe, London, September November 2015.
- G. Rubino, “Automatic measuring of perceptual quality, a major QoE component of video- and audio-based services”, plenary speaker in Soft Computing Methods for the Design, Deployment, and Reliability of Networks and Network Applications (SOFTNET 2015), Paris, France, July 2015.
- G. Rubino, “Statistical Learning and Queueing Models: an Hybrid Approach for Performance Evaluation”, plenary speaker in 15th International Conference on Hybrid Intelligent Systems (HIS 2015), Séoul, Korea, November 2015.
- G. Rubino, “Risk and loss, prediction and analysis: probabilistic approaches”, keynote speaker in 2nd Int. Conference on Information and Communication Technologies for Disaster Management, Rennes, France, December 2015.

**9.1.5. Research administration**

- Bruno Tuffin was a member of Inria-MITACS selection committee, 2015.
- Bruno Sericola is responsible for the Inria Rennes-Bretagne Atlantique budget.
- Bruno Sericola has been (until August 2015) a member of the Inria Evaluation Committee which role is to assess the calibre of research conducted at Inria and to guarantee the quality of its hiring and internal promotions.
- Bruno Sericola is the leader of the research group MAPI (Math Appli Pour l’Info) the goal of which is to improve the collaboration between computer scientists and mathematicians.
- Bruno Sericola has been member of the HCERES (Haut Conseil de l’Évaluation de la recherche et de l’enseignement supérieur) Evaluation Committee for the scientific evaluation of the CITI (Centre of Innovation in Telecommunications and Integration of service), Lyon, France, in February 2015;
- Adlen Ksentini is the secretary of the IEEE ComSoc Technical Committee on Software.

- Adlen Ksentini is the the secretary of the IEEE ComSoc France Section.
- Gerardo Rubino is a member of the Technical Committee on Multimedia Communications of IEEE.
- G. Rubino has been appointed as the Inria representative at the Scientific Committee of the IFCAM (Indo-French Center for Applied Mathematics), a joint international unit between Indian Ministry of Science and Technology and several French institutions including CNRS, Inria, École Polytechnique, École Normale Supérieure, Inria, Nice Sophia Antipolis University and University of Toulouse III.
- Gerardo Rubino is a member of the Research Commission of TELECOM Bretagne (advisory board for the research activities of the institution).
- Gerardo Rubino is a member of the CSV (Selection and Validation Committee) of the “Images et Réseaux” (Images and networks) cluster in the French Brittany Region. The cluster includes most companies and academic institutions working in networking and in image-based applications in Western France.
- Gerardo Rubino has been appointed as a member of the Scientific Advisory Board of the Center for Uncertainty Quantification in Computational Science and Engineering, of KAUST, Saudi Arabia, since January 2014.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master and PhD at NTNU (Trondheim, Norway): 25 hours intensive course on Game Theory and Network Economics

Undergraduate students, Probability, 40 hours, University of Science and Technology of Hanoi, Vietnam

Master M1: Performance and dependability evaluation of computer systems, 54 hours, Istic/University of Rennes 1, France

Master M2: Mathematics, 12 hours Istic/University of Rennes 1, France

Master M2: Logistic and performance, 8 hours, Faculté de sciences économiques/University of Rennes 1, France

Master M1: Computer networks, 24 hours, Esir/University of Rennes 1, France

Master M1: Wireless Networks, 48 hours, Esir/University of Rennes 1, France

Master M1: Introduction to graph theory, 14 hours, Esir/University of Rennes 1, France

Master M2: Dependability analysis, 15 hours, SUPELEC Engineering School, Rennes, France

Master M1: Networks and protocols, 24 hours, Istic/University of Rennes 1, France

Master M2: Multimedia streaming over IP (MMR), 50 hours, Esir/University of Rennes 1, France

Master M2: Multimedia services in IP networks (RSM), 29 hours, Esir/University of Rennes 1, France

Master M2: Software Defined Networks, 4 hours, Istic/University of Rennes 1, France

### 9.2.2. Supervision

PhD in progress: Ajit Rai, “Availability prediction with logistics”, started in May 2015; advisor: B. Tuffin & G. Rubino, University Rennes 1.

Master: Yves Mocquard, “On population protocols”; advisors: Bruno Sericola and Emmanuelle Anceaume, University of Rennes 1.

PhD in progress: Corentin Hardy, “Device-Assisted Distributed Machine-Learning on Many Cores”, started on November 2015; advisors: Bruno Sericola, University of Rennes 1.

PhD in progress: Yves Mocquard, “Analyse de flux de données massifs dans les systèmes distribués large échelle”, started on September 2015; advisors: Bruno Sericola and Emmanuelle Anceaume, University of Rennes 1.

Btissam Errahmadi; Cifre Grant, Orange Labs; title: “Coopération et auto-\* dans un réseau de small cells”; PhD started on January 2013; advisors: C. Viho and A. Ksentini; University Rennes 1.

Osama Arouk; title: “Cellular-based M2M communication: congestion control”; PhD started on December 2012; advisors: C. Viho and A. Ksentini; University Rennes 1.

Farouk Messaoudi, title: “Orchestration et la virtualisation des ressources de terminaux, la vision Global OS”; PhD started on October 2014, advisor: A. Ksentini, P. Bertin; University Rennes 1.

Florient Grandhomme, title: “Etudes de protocoles de routage dynamique externe de type BGP dans un environnement réseaux tactiques adhoc mobiles : faisabilité, performances, qualité de service, et passage à l’échelle.”, PhD started on October 2014, advisors: A. Ksentini, G. Guette; University Rennes 1.

Louiza Yala, title: “CDNaaS: Content Delivery Network as a Service”, PhD started on October 2015, advisors: A. Ksentini; University Rennes 1.

Imad Awad, title: “Mobile SDN architecture for 5G”, PhD started on October 2015, advisors: A. Ksentini, P. Bertin; University Rennes 1.

Jean-Michel Sanner; Cifre Grant, Orange Labs, “SDN technologies for network services performances adaptation of carriers networks”; started on January 2013; Advisors: Y. Hadjadj-Aoul and G. Rubino; University Rennes 1.

Yue Li; Cifre Grant, Orange Labs; title: “Elaboration d’une architecture réseau unifiée, ouverte et flexible”, started on October 2013; Advisors: Y. Hadjadj-Aoul and G. Rubino; University Rennes 1.

Meriem Bouzouita; cotutelle between University of Rennes 1 and Carthage University; title: “Optimized random access for M2M communications in LTE-Advanced Networks”, started on October 2012; Advisors: Y. Hadjadj, N. Zangar, S. Tabbane, C. Viho; Carthage University, University Rennes 1.

Hamza Ben Ammar; University of Rennes 1; title: “Socially-aware network and cache resources optimization for efficient media content delivery in Content Centric Networks (CCN)”, started on October 2015; Advisors: Y. Hadjadj, A. Kentini, S. Ait-Chellouche; University of Rennes 1.

Nicolas Jara Carvallo; joint PhD between the University of Rennes 1 in France and the UTFSM in Chile; title: “Fault tolerant design of dynamic WDM optical networks”, started on October 2015; Advisors: R. Vallejos in Chile, G. Rubino in France.

Laura Aspirot; PhD from the University of the Republic, Uruguay; title: “Fluid Approximations for Stochastic Telecommunication Models”; co-advisors: E. Mordecki from UDELAR and G. Rubino in France.

Jorge Graneri; PhD from the University of the Republic, Uruguay; title: “Mathematical models for semantic memory pathologies”; co-advisors: E. Mizraji from UDELAR and G. Rubino in France.

### 9.2.3. *Juries*

Bruno Tuffin was a member of the following Habilitation defense committees:

- Pascal Redou. Modèles formels pour l’analyse et la simulation *in virtuo* de systèmes complexes d’inspiration biologique. Université de Bretagne Occidentale, Brest, 2015, rapporteur.
- P. Maillé. Insights from economic studies of telecommunication networks. Telecom Bretagne Rennes, Octobre 2015.

Gerardo Rubino was a member of the following Habilitation defense committee:

- Gwendal Simon. Massive Interactive Multimedia Services Over the Internet. HDR of the University of Rennes 1, Rennes, France. April 7, 2015. President of the jury.

Bruno Tuffin was a member of the following PhD defense committees:

- Josu Doncel. Efficiency of Distributed Queueing Games and of Path Discovery Algorithms. LAAS-CNRS, March 2015.
- Christelle Vergé. Modèle d'îlots de particules et application en fiabilité. École Polytechnique, Juillet 2015, rapporteur.
- Jeanne Demgne. Modélisation d'actifs industriels pour l'optimisation robuste des stratégies de maintenance. Université de Pau et de l'Amour, Octobre 2015, rapporteur.
- Vincent Moutoussamy. Contributions à l'analyse de fiabilité structurale : prise en compte de contraintes de monotonie pour les modèles numériques. Université de Toulouse, Novembre 2015, rapporteur.
- Yangyang Chen. Performance Analysis of Mobile Relays for LTE. Telecom Bretagne, December 2015.

Bruno Sericola was a member of the following:

- The jury for the recruitment of young graduate scientists.
- The jury for allocating the Inria Ph.D. and Research Supervising Bonus.
- The jury for allocating the university students' thesis grants.
- The PhD defense committee of Mathilde Pascal, "Oral health in children and young adults after renal transplantation", UFR d'odontologie, university of Rennes 1, December 2015, examinateur.

Adlen Ksentini was member of the following PhD defense committees:

- Mamadou Tourad DIALLO, Qualité d'expérience et adaptation de service vidéo. Institut Mines-Télécom Sud Paris, Juin 2015, rapporteur.
- Shengyang Chen, Etude des méthodes d'ordonnancement sur les réseaux de capteurs sans fil, Univ. Reims, Octobre 2015, rapporteur.

C. Viho was a member of the juries for the recruitment of young Associate Professors and senior Professors at ISTIC-Université Rennes 1. He was a member of the following PhD defense committees:

- Tanguy Ropitault, "Routage et performances dans les réseaux CPL pour le Smart Grid", Telecom Bretagne, June 2015, president.
- Roudy Dagher, "Sur la radionavigation dans les villes intelligentes du futur : Le cas des réseaux de capteurs sans-fils", Université de Lille 1, June 2015, rapporteur.

Gerardo Rubino was a member of the following PhD defense committees:

- Thiago Wanderlay Matos de Abreu. "Modélisation et analyse de performances des réseaux en chaîne basés sur IEEE 802.11". ENS Lyon, March 2015. Reviewer.
- Pedro Vilanova. "Multilevel approximations of Markovian jump processes with applications in communication networks". Center for Uncertainty Quantification, Stochastic Numerics Research Group, KAUST, Saudi Arabia, May 2015.

### 9.3. Popularization

- In [80], [83], Bruno Tuffin and his co-author Patrick Maillé discuss for a large audience the issues and challenges of network neutrality.
- Bruno Sericola and Emmanuelle Anceaume made a presentation to students of the ENS (Ecole Normale Supérieure) Rennes on their works on the performance evaluation of data streaming analysis algorithms.
- G. Rubino makes regular presentations to high school students about the research work in general, and specific technical topics in particular. Current talks:
  - Randomness as a tool
  - Internet as a research problem
  - Great challenges in maths: the Riemann Hypothesis
  - Great challenges in math/computer science: the "P versus NP" problem

## **DIVERSE Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific events organisation***

#### *10.1.1.1. Member of the organizing committees*

Benoit Baudry:

- International Symposium on Software Testing and Analysis (ISSTA'15)
- International Conference on Model Driven Engineering, Languages and Systems (MODELS'15)

Benoit Combemale:

- International Conference on Model Driven Engineering, Languages and Systems (MODELS'15)
- International Workshop on The Globalization of Modeling Languages (GEMOC'15)
- international workshop on Next Generation of Modularity Approaches for Multiple Dimensions of Sustainability (Sustainability'15)

### ***10.1.2. Scientific events selection***

#### *10.1.2.1. Chair of conference program committees*

Jean-Marc Jézéquel is co-chair of Digital Intelligence 2016, April 2016, Quebec City, Canada. Noel Plouzeau is co-chair of CBSE 2016 (Component Based Software Engineering) conference program committee, April 2016, Venice, Italy.

#### *10.1.2.2. Member of the conference program committees*

Benoit Baudry:

- International Conference on Software Engineering (ICSE'15)
- International Conference on Foundations of Software Engineering (ESEC-FSE'15)
- International Conference on Automated Software Engineering (ASE'15)
- International Conference on Model Driven Engineering, Languages and Systems (MODELS'15)

Arnaud Blouin:

- IEEE International Workshop on User Centered Design and Adaptive Systems (UCDAS), 2015

Benoit Combemale:

- International Conference on Software Language Engineering (SLE'15)
- European Conference on Modelling Foundations and Applications (ECMFA'15)
- International Conference on Model Transformation (ICMT'15)
- International Conference on Software Engineering and Formal Methods (SEFM'15)
- International Conference on Software and System Process (ICSSP'15)
- International Workshop on Multi-Paradigm Modeling (MPM'15)
- International Workshop on Executable Modeling (EXE'15)
- International Workshop on Modelling in Software Engineering (MiSE'2015)

Jean-Marc Jézéquel:

- 10th International Workshop on Models at Run-Time, associated to MODELS 2015
- 19th International Software Product Line Conference, July 20-24, Nashville, TN USA.
- 9th International Workshop on Variability Modelling of Software-intensive Systems, January 22-24, 2015 - Hildesheim, Germany

Johann Bourcier:

- 1st International Workshop on Software Engineering for Smart Cyber-Physical Systems, associated to ICSE 2015
- 3rd FoCAS Workshop on Fundamentals of Collective Adaptive Systems, associated to SASO 2015

Mathieu Acher:

- 19th International Software Product Line Conference, July 20-24, Nashville, TN USA.
- SEAA'15 : Euromicro Conference series on Software Engineering and Advanced Applications
- SAC'15 (SE) : 30th ACM Symposium on Applied Computing - Software Engineering (SE) Track
- ICSE'15 (NIER) : 37th International Conference on Software Engineering - New Ideas and Emerging Results (NIER) Track
- EduSymp'15 : Educators Symposium @ Model Driven Engineering Languages and Systems
- A-MOST'15 : 11th Workshop on Advances in Model Based Testing (at ICST)
- SPLTea'15: 2nd International workshop on teaching and product lines (organizer)

Noel Plouzeau:

- CBSE 2015: 18th conference on Component Based Software Engineering, Montreal, Canada, 2015.

Olivier Barais:

- Modularity 2015 Demo Poster Session: 14th International Conference on Modularity March 16-19, 2015 Ft. Collins, Colorado, USA
- SEAA 2015: 41st EUROMICRO Conference on Software Engineering and Advanced Applications (SEAA) Madeira, Portugal, August 26th - 28th, 2015
- SAC 2015: SAC 2015 The 30th ACM/SIGAPP Symposium On Applied Computing Salamanca, Spain
- SPLat 2015: 2nd Software Product Line Analysis Tools Workshop, July 20-24, Nashville, TN USA.
- WETICE 2016: 24th IEEE International Conference on Enabling Technologies: Infrastructure for Collaborative Enterprises.

### 10.1.2.3. Reviewer

Arnaud Blouin:

- EICS'15, ACM SIGCHI symposium on Engineering interactive computing systems
- ICSE'15, International Conference on Software Engineering
- IHM'15, French speaking conference on human-computer interaction

Johann Bourcier

- ICSE'15, 37th International Conference on Software Engineering
- FSE'15, 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering
- CBSE'15, The 18th International ACM Sigsoft Symposium on Component-Based Software Engineering
- DSN 2015, The 45th IEEE/IFIP International Conference on Dependable Systems and Networks



### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

Benoit Baudry is an Associate Editor of the following journals:

- Journal of Systems and Software (JSS)
- Journal on Software and System Modeling (SoSYM)

Benoit Combemale is member of the editorial boards of the following journals:

- Journal on Computer Languages, Systems and Structures (COMLAN)
- Journal on Science of Computer Programming (SCP), Advisory Board of the Software Section.

Jean-Marc Jézéquel is an Associate Editor in Chief of the following journal:

- Journal on Software and System Modeling (SoSYM)

Jean-Marc Jézéquel is an Associate Editor of the following journals:

- IEEE Computer
- Journal of Systems and Software (JSS)
- Journal of Object Technology: JOT

#### *10.1.3.2. Reviewer - Reviewing activities*

Arnaud Blouin:

- Journal Universal Access in the Information Society
- Journal of Computer Science and Technology
- Journal of Software Engineering for Robotics

Benoit Combemale:

- Journal on Software and System Modeling (SoSYM)
- Transactions on Software Engineering (TSE)

Mathieu Acher

- Journal on Software and System Modeling (SoSYM)
- Transactions on Software Engineering (TSE)
- Information and Software Technology (IST)
- Automated Software Engineering: An International Journal (ASE)

Johann Bourcier:

- Journal of Systems and Software (JSS)

Olivier Barais

- International Journal on Software and Systems Modeling (SoSyM)
- Journal of Systems and Software
- Transactions on Software Engineering (TSE)

### **10.1.4. Invited talks**

Benoit Baudry:

- MIT CSAIL: Automatic generation of software diversity in application source code
- LORIA (Nancy, France): Automatic software diversification in application code.

Benoit Combemale:

- McGill: From Model (driven) Engineering, to Language (driven) Engineering.
- IRT Saint Exupery: On the Globalization of Modeling Languages.
- INRA Toulouse: Modeling for Sustainability.

Jean-Marc Jézéquel:

- ECNU Shanghai: Model Driven Engineering of DSLs
- Present And Ulterior Software Engineering Seminar (Chair of Software Engineering at ETH Zurich): Language Families

Olivier Barais:

- ECNU Shanghai: Model Driven Engineering of DSLs
- EJCP 2015: Ecole Jeunes Chercheurs en Programmation

### **10.1.5. Leadership within the scientific community**

Benoit Baudry:

- Steering committee member for the ACM/IEEE MODELS conference

Benoit Combemale:

- Steering committee member for the ACM SLE conference

### **10.1.6. Scientific expertise**

Benoit Baudry:

- Member of the Scientific Advisory Board for the SVV lab, University of Luxembourg.

Arnaud Blouin:

- Member of the advisory board of the FNR project MODELS, Luxembourg.

Jean-Marc Jézéquel:

- Member of the Scientific Committee of the GDR GPL of CNRS.

### **10.1.7. Research administration**

Jean-Marc Jézéquel is Director of IRISA (UMR 6074). He is Administrator of the IRT B-com (representing University of Rennes 1). He is Coordinator of the academic club of the French Cyber-defense Excellence Cluster, and Director of the Rennes Node of EIT Digital.

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

### **10.2.1. Teaching**

The DIVERSE team bears the bulk of the teaching on Software Engineering at the University of Rennes 1 and at INSA Rennes, at the levels M1 (Project Management, Object-Oriented Analysis and Design with UML, Design Patterns, Component Architectures and Frameworks, Validation & Verification, Human-Computer Interaction) and M2 (Model driven Engineering, Aspect-Oriented Software Development, Software Product Lines, Component Based Software Development, Validation & Verification, *etc.*).

Each of Jean-Marc Jézéquel, Noël Plouzeau, Olivier Barais, Johann Bourcier, Arnaud Blouin, and Mathieu Acher teaches about 200h in these domains, with Benoit Baudry and Benoit Combemale teaching about 50h, for a grand total of about 1300 hours, including several courses at ENSTB, CentraleSupélec Rennes, and ENSAI.

Noël Plouzeau is the manager of the final year of the Master Pro in Computer Science at the University of Rennes 1.

Johann bourcier is co-manager of the Home-Automation option at the ESIR engineering school in Rennes.

Mathieu Acher is in charge of teaching services of ISTIC.

The DIVERSE team also receives several Master and summer trainees every year.

### 10.2.2. Supervision

- HDR: Benoit Combemale: *Towards Language-Oriented Modeling*, 2015
- PhD: Erwan Bousse, *Intégration et combinaison des techniques de V&V dans un contexte d'ingénierie système*, thèse, 2012-2015, B. Baudry and B. Combemale
- PhD: Valéria Lelli, *On Testing Interactive Systems*, thèse 2012-2015, B. Baudry and A. Blouin
- PhD: Inti Gonzalez, *Ressources reservation in Pervasive Middleware*, thèse 2012-2015, J. Bourcier, O. Barais
- PhD: Ivan Paez Anaya, *Proactive Adaptation in Pervasive Environment*, thèse 2012-2015, J. Bourcier, N. Plouzeau and J.-M. Jézéquel
- PhD in progress : Sana Ben Nasr, *Modeling variability in regulatory requirements*, thèse 2013-2016, B. Baudry and M. Acher
- PhD in progress : Kwaku Yeboah-Antwi, *Runtime emergence of software diversity*, thèse 2013-2016, B. Baudry and O. Barais
- PhD in progress : Guillaume Bécan, *Reverse Engineering and Evolution of Variability-intensive Software Systems*, thèse 2013-2016, B. Baudry and M. Acher
- PhD in progress : Paul Temple, *Massive Benchmarking of Vision Algorithms Using Synthetic Video Variants*, thèse 2015-2018, J.-M. Jézéquel and M. Acher
- PhD in progress : Quentin Plazar, *Combining Decision Procedures for Constraint Programming and SMT*, thèse 2015-2018, A. Gotlieb, S. Bardin and M. Acher
- PhD in progress : Mohamed Boussaa, *An Architecture for Testing Large-Scale Dynamic Distributed Systems*, thèse 2013-2016, O. Barais, G. Sunye, B. Baudry.
- PhD in progress : Thomas Degueule, *Next Generation of MDE Tooling Support*, thèse 2013-2016, O. Barais and A. Blouin
- PhD in progress : David Mendez Acuna, *Variability in Modeling Languages*, thèse 2013-2016, B. Baudry and B. Combemale
- PhD in progress : Jacky Bourgeois, *Automatic Synchronization of Energy Production and Consumption*, thèse 2012-2015 co-tutelle avec the Open University, J.Bourcier, B. Baudry and G. Kortuem
- PhD in progress : Francisco Acosta, *Automatic Deployment and Reconfigurations in Internet of Things*, thèse 2013-2016 co-encadrement avec l'équipe ACES, J. Bourcier, F. Weis
- PhD in progress : Pierre Laperdrix, *Secretless moving target against browser fingerprinting*, thèse 2014-2017, B. Baudry
- PhD in progress : Johan Pelay, *Langage pour une programmation incrémentale de réseau*, thèse 2014-2017 co-encadrement avec le laboratoire B-COM, O.Barais, F. Guillemin
- PhD in progress : Kévin Corre, *Modélisation de la confiance dans les services sociaux et conversationnels*, thèse 2014-2017 co-encadrement avec l'équipe AtanMod, O. Barais, G. Sunye
- PhD in progress : Marcelino Rodriguez-Cancio, *Automatic computation diversification*, thèse 2015-2018, B. Baudry and B. Combemale
- PhD in progress : Gwendal Le Moulec, *Towards synthesizing families of virtual reality applications*, thèse 2015-2018, with the Inria Hybrid Team, B. Arnaldi, A. Blouin, V. Gouranton

### 10.2.3. Juries

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

- Dionysios Efstathiou, October 2015, King's College London, Referee
- Aminata Sabané, December 2015, École Polytechnique de Montréal, Referee
- Mehdi Amhed-Nacer, May 2015, University of Nancy, Referee
- Mathieu Foucault, November 2015, University of Bordeaux, Examiner
- Erwan Bousse, December 2015, University of Rennes, Supervisor
- Valeria Lelli, December 2015, INSA Rennes, Supervisor
- Benoit Combemale, December 2015, University of Rennes, member

Benoit Combemale was in the examination committee of the following PhD thesis:

- Paola Vallejo, December 2015, University of Brest, Examiner
- Erwan Bousse, December 2015, University of Rennes, Supervisor

Arnaud Blouin was in the examination committee of the following PhD thesis:

- Valeria Lelli, December 2015, INSA Rennes, Supervisor

Jean-Marc Jézéquel was in the examination committee of the following PhD thesis and HDR:

- Jose Galindo Duarte, March 2015, University of Sevilla, Examiner
- Christopher Henard, May 2015, University of Luxembourg, Examiner
- Ivan Paez Anaya, September 2015, University of Rennes, Supervisor
- Remi Douence (HDR), January 2015, University of Nantes, Examiner
- Philippe Merle (HDR), September 2015, University of Lille, Examiner
- Axel Legay (HDR), November 2015, University of Rennes, President
- Benoit Combemale (HDR), December 2015, University of Rennes, Examiner
- Gerson Sunye (HDR), December 2015, University of Nantes, Examiner
- Jean-Rémy Falleri (HDR), December 2015, University of Bordeaux, Examiner
- Reda Bendraou (HDR), December 2015, University of Paris 6, Examiner

Johann Bourcier was in the examination committee of the following PhD :

- Ivan Paez Anaya, September 2015, University of Rennes, Supervisor
- Inti Gonzalez, December 2015, University of Rennes, Supervisor

Olivier Barais was in the examination committee of the following PhD :

- Inti Gonzalez, December 2015, University of Rennes, Supervisor
- Simon Urli, February 2015, University of Nice, Referee
- Sam Rottenberg, April 2015, Telecom Sud Paris, Referee
- Pierre Samson, November 2015, University of Pau, Referee

### **10.3. Popularization**

Benoit Combemale participated to the “Inria Industry meeting” focused on “Power Transition”, as part of the Futur en Seine festival. He presented the results of the collaboration with Obeo and INRA on the use of domain-specific languages for resource management.

Our research about browser fingerprinting have appeared in the MISC magazine (a French, general-audience magazine about technology and cyber-security) [75] and have been showcased at ICT’15 (a large European forum that gathers EU policy makers, industry and academics in the area of ICT) and at IRISA’s open house.

## DYOGENE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

- Bartek Blaszczyszyn and Marc Lelarge co-organized Stochastic networks and stochastic geometry conference dedicated to François Baccelli on his 60th birthday; <http://www.di.ens.fr/~blaszczy/FB60/>
- M. Lelarge: Co-organizer, Cargèse fall school on random graphs, with Dieter Mitsche and Pawel Pralat  
<http://math.unice.fr/~dmitsche/Fallschool/Fallschool.html>
- M. Lelarge: Co-organizer, Workshop on Community Detection, with Laurent Massoulié  
<http://www.msr-inria.fr/conferences-workshops/workshop-on-community-detection-at-institut-henri-poincare/>

#### 10.1.1.1. Chair of conference program committees

Ana Busic: Valuetools 2015 TPC co-chair. <http://valuetools.org/2015/show/home>

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

- Bartek Blaszczyszyn: WiOpt/SpaSWiN 2015
- Anne Bouillard was a member of the program committee of WiOpt 2015 and Valuetools 2015.
- Ana Busic: ACM Sigmetrics, WiOpt, IEEE SmartGridComm.
- Marc Lelarge: WEIS, WiOpt, WAW.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial boards

- F. Baccelli serves on the editorial boards of: Bernoulli, JAP, AAP et Questa.
- M. Lelarge serves on the editorial boards of: IEEE's Transactions on Network Science and Engineering, Bernoulli Journal and Queueing Systems.

### 10.1.3. Invited talks

- F. Baccelli gave the following invited lectures: Keynote Lecture, *ISWCS'15*, Brussels, August 2015; Invited lecture at the *Huawei Vision Forum, Paris*, on stochastic geometry for wireless networks, March 2015; Invited lecture at the *EPFL Inria Joint Meeting, Lausanne*, on coverage in cellular networks, January 2015.
- Bartek Blaszczyszyn: WiOpt/SpaSWiN 2015, Simons workshop on Stochastic Geometry and Networks, University of Texas at Austin.
- A. Busic: keynote talk at CaFFEET (California France Forum on Energy Efficiency Technologies); <http://caffet.com/>
- M. Lelarge: The International Symposium on Optimization (ISMP), Pittsburgh (Jul.); CAP2015 : Conférence sur l'Apprentissage automatique, Lille (Jul.); Algotel, Beaunes (Jun.); DALI 2015 - Workshop on Learning Theory, Spain (Apr.); Assemblée Générale du GdR Information Signal Image viSion (ISIS), Lyon (Apr.); Combinatorial and algorithmic aspects of convexity, Paris (Jan.).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Anne Bouillard (Cours) et Ana Busic (TD) **Structures et algorithmes aléatoires** 80heqTD, L3, ENS, France.

Licence : Anne Bouillard (Cours) **Théorie de l'information et du codage** 36 heqTD, L3, ENS, France.

Licence : Anne Bouillard (Cours) **Algorithmique et programmation** 21 heqTD, L3, ENS, France.

Licence : Anne Bouillard (TD) **Systèmes digitaux** 9 heqTD, L3, ENS, France.

Master: Bartek Blaszczyszyn (with Laurent Massoulié), Graduate Course on point processes, stochastic geometry and random graphs (program “Master de Sciences et Technologies”), 45h, UPMC, Paris 6, France.

Master : Bartek Blaszczyszyn (with Laurent Decreusefond), Graduate Course on Spatial Stochastic Modeling of Wireless Networks (master program “Advanced Communication Networks”), 45h, I’X and Telecom ParisTech, Paris.

Master : Anne Bouillard (Cours + TD) **Fondements de la modélisation des réseaux** 18heqTD, M2, MPRI, France

Master: Ana Busic et Marc Lelarge (Cours) et Rémi Varloot (TD) Modèles et algorithmes de réseaux, 50heqTD, M1, ENS, Paris, France.

Master: Ana Busic, Simulation, 9hCours, M2 AMIS, UVSQ, France

Master: Marc Lelarge (Cours), Algorithms for Networked Information, 27heqTD, M2 ACN, Ecole polytechnique

Master: Marc Lelarge (TD), Networks: distributed control and emerging phenomena, 36 heqTD, M1, Ecole polytechnique.

### 10.2.2. Supervision

HdR : Marc Lelarge, Topics in random graphs, combinatorial optimization, and statistical inference[2], ENS, 23 février 2015.

PhD : Miodrag Jovanovic, Evaluation and optimization of the quality perceived by mobile users for new services in cellular networks, started in January 2012, defended in 2015 advisor B. Blaszczyszyn, co-advisor M.Karray; [1]

PhD in progress : Kumar Gaurav, Convex comparison of network architectures, started in October 2011, advisor B. Blaszczyszyn;

PhD in progress : Christelle Rovetta, Applications of perfect sampling to queuing networks and random generation of combinatorial objects, from December 2013, co-advised by Anne Bouillard and Ana Busic;

PhD in progress : Umar Hashmi, Decentralized control for renewable integration in smartgrids, from December 2015, advisors: A. Busic and M. Lelarge;

PhD in progress: Lennart Gulikers, Spectral clustering, depuis décembre 2014, encadrants: Marc Lelarge et Laurent Massoulié

PhD in progress : Rémi Varloot, Dynamique de Formation des Réseaux, depuis février 2015, encadrants: Marc Lelarge et Laurent Massoulié

PhD in progress: Alexandre Hollocou, Local community detection, depuis décembre 2015, encadrants: Thomas Bonald et Marc Lelarge

### 10.2.3. Juries

- A. Busic: Examiner for PhD: Pierre-Antoine BRAMERET (ENS Cachan) 2015.
- A. Busic: membre du jury de recrutement CR2 Inria Saclay - Île-de-France.
- A. Busic: membre de la Commission des Emplois Scientifiques du CRI Paris-Rocquencourt
- A. Busic: membre de la Commission de développement technologique (CDT) de Paris-Rocquencourt
- M. Lelarge: External Examiner for PhD: Jean Barbier (ENS) and Hang Zhou (ENS)
- M. Lelarge: Member of the hiring committee for “maître de conférence Probabilités (Université Lyon 1)”

## EVA Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Event Organization

#### 10.1.1.1. General Chair, Scientific Chair

- **Pascale Minet**
  1. co-chair with Leila Saidane and Farouk Kamoun of PEMWN 2015, organized in Hammamet, Tunisia, November 2015.
- **Thomas Watteyne**
  1. Co-chair, IETF 6TiSCH standardization working group.
  2. Technical Program Committee Chair and Local Chair, EAI Conference on Interoperability in IoT (InterIoT), Paris, France, October 2016.
  3. General Chair, Second ETSI 6TiSCH plugtests, Paris, France, 2-4 February 2016.
  4. Technical Program Committee Chair, EAI Conference on Interoperability in IoT (InterIoT), part of the IOT360 Summit, Rome, Italy, 28-29 October 2015.
  5. Chair, OpenWSN/6TiSCH Hackathon, Czech Republic, 19 July 2015.
  6. Chair, First ETSI 6TiSCH plugtests, Prague, Czech Republic, 17-18 July 2015.
  7. Program co-chair of the 1st International Workshop on IoT challenges in Mobile and Industrial Systems (IoTSys), in conjunction with MobiSys, Florence, Italy, 18 May 2015.
- **Nadjib Achir**
  1. track chair of the Internet of Things (IoT) track of the Selected Areas in Communications Symposium of IEEE Global Telecommunications Conference 2014
- **Selma Boumerdassi**
  1. chair of the International Workshop on Energy Management for Sustainable Internet-of-Things and Cloud Computing (EMSICC 2015), August 2015.
  2. chair of the International Conference on Mobile, Secure and Programmable Networking (MSPN 2015), June 2015.

#### 10.1.1.2. Organizing Committee Member

- **Paul Muhlethaler**
  1. organized the DGA Inria workshop on Telecommunication and networking “Cloud, cloudlet & MANET” in October 2015.
- **Thomas Watteyne**
  1. Demo Chair, IEEE International Conference on Sensing, Communication and Networking (SECON), London, UK, 27-30 June 2016.
- **Christine Anocq**
  1. member of the organizing committee of the international conference PEMWN 2015

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Conference Program Committee Member

- **Paul Muhlethaler**

1. Steering Committee Member of MobileHealth 2015, 5th EAI International Conference on Wireless Mobile Communication and Healthcare, October 14–16, 2015, London, Great Britain
  2. Technical Committee of the fourth International conference on Performance Evaluation and Modeling in Wireless Networks, PEMWN 2015, November 2015, Hammamet , Tunisia.
- **Pascale Minet**
    1. TPC Member CIT 2015, 15th IEEE International Conference on Computer and Information Technology, May 2015,
    2. TPC Member DCNET 2015, 6th International Conference on Data Communication Networking, July 2015,
    3. TPC Member DMEMS 2015, Workshop on design, control and software implementation for distributed MEMS, September 2015.
    4. TPC Member ICN 2015, 14th International Conference on Networks, April 2015.
    5. TPC Member IUCC 2015, the 14th IEEE International Conference on Ubiquitous Computing and Communications, October 2015.
    6. TPC Member PEMWN 2015, 4th International Conference on Performance Evaluation and Modeling in Wired and Wireless Networks, November 2015.
    7. TPC Member PECCS 2015, 5th international conference on Pervasive and Embedded Computing and Communication Systems, February 2015.
    8. TPC Member RAWSN 2015, 3rd International Workshop on RFID And Adaptive Wireless Sensor Networks, May 2015.
    9. TPC Member RTNS 2015, 23th International Conference on Real-Time and Network Systems, November 2015.
    10. TPC Member WINCOM 2015, 1st International Conference on Wireless Networks and Mobile Communications, October 2015.
  - **Thomas Watteyne**
    1. TPC Member IEEE International Conference on Communications (ICC), Selected Areas in Communications (SAC), 2015, 2016.
    2. TPC Member International Conference on Embedded Wireless Systems and Networks (EWSN), 2016.
    3. TPC Member IEEE World Forum on Internet of Things (WF-IoT), 2015.
    4. TPC Member International Workshop on Internet of Things, Machine to Machine and Smart Services Applications (IoT), part of International Conference on Collaboration Technologies and Systems (CTS), 2015.
    5. TPC Member IEEE Wireless Communications and Networking Conference (WCNC), 2015.
    6. TPC Member IEEE International Conference on Embedded Software and Systems (ICESS), 2015.
  - **Nadjib Achir**
    1. TPC Member IEEE Global Telecommunications Conference, GLOBECOM 2015;
    2. TPC Member IEEE International Conference on Communications, ICC 20145;
    3. TPC Member Personal, Indoor and Mobile Radio Communications, PIMRC 2015.
    4. TPC Member IEEE Wireless Communications and Networking Conference, WCNC 2015;
    5. TPC Member IEEE Consumer Communications & Networking Conference, CCNC 2015;



6. TPC Member Global Information Infrastructure and Networking Symposium, GIIS 2015.
  7. TPC Member International Conference On Network of the Future, NoF 2015.
- Selma Boumerdassi
    1. TPC Member IEEE Global Telecommunications Conference, GLOBECOM 2015;
    2. TPC Member IEEE International Conference on Communications, ICC 2015;
    3. TPC Member International Workshop on Communicating Objects and Machine to Machine for Mission-Critical Applications, COMMCA 2015;
    4. TPC Member International Conference on Open and Big Data, OBD, 2015;
    5. TPC Member International Conference on New Technologies of Information and Communication, NTIC, 2015;
    6. TPC Member International Conference on Performance Evaluation and Modeling in Wired and Wireless Networks, PEMWN, 2015;
    7. TPC Member International Conference on Advances in Computing, Communications and Informatics, ICACCI, 2015;

### 10.1.3. Journal

#### 10.1.3.1. Editorial Board Member

- **Thomas Watteyne**
  1. Editor, EAI Transactions on Internet of Things since 2015.
  2. Editor, IEEE Internet of Things (IoT) Journal since 2014.
- Nadjib Achir
  1. guest editor of the special issue “Planning and Deployment of Wireless Sensor Networks”, of the International Journal of Distributed Sensor Networks.

#### 10.1.3.2. Journal Reviewer

- **Paul Muhlethaler**
  1. Reviewer Annals of telecommunications
  2. Reviewer IEEE Transactions on Wireless Communications
  3. Reviewer IEEE Transactions on Vehicular Technology
  4. Reviewer IEEE Transactions on Information Theory
  5. Reviewer International Journal of Distributed Sensor Networks. Hindawi.
- **Pascale Minet**
  1. Reviewer Real-Time Systems
  2. Reviewer International Journal of Distributed Sensor Networks
  3. Reviewer Computer Communications Journal
  4. Reviewer Annals of telecommunications
  5. Reviewer ACM Computing Surveys
- **Thomas Watteyne**
  1. Reviewer Springer Journal of Internet Services and Applications, 2015.
  2. Reviewer IEEE Internet of Things (IoT) Journal, 2015.
  3. Reviewer IEEE Transactions on Industrial Informatics, 2015.
- Nadjib Achir
  1. Reviewer Sensor Networks (MDPI)
  2. Reviewer Wireless Communications and Mobile Computing (Wiley)

3. Reviewer Internet of Things Journal (IEEE)
  4. Reviewer Ad Hoc Networks Journal (Elsevier)
- Selma Boumerdassi
    1. Reviewer Ad Hoc Networks Journal (Elsevier);
    2. Reviewer The journal of Future Generation Computer Systems (Elsevier).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master:

- **Thomas Watteyne** taught an Intensive 1-week course on IoT, with associated hands-on labs. ENSTA ParisTech. Together with Quentin Lampin and Dominique Barthel, 12-18 November 2015.
- **Thomas Watteyne** taught a 3-hour class on “Getting your Hands Dirty With the Industrial IoT”. IoT360 Summer School, Rome, Italy, 27 October 2015.
- **Thomas Watteyne** taught a 1-day crash course on the Industrial IoT, ParisTech, 30 September 2015.
- **Thomas Watteyne** taught a 3-hour class on “Deterministic Wireless Sensor Networks”, Ecole Temps Reel (ETR), with Pascal Thubert, Rennes, France, 28 August 2015.
- **Thomas Watteyne** taught a 1h class on the Silicon Valley at KULAK, Kortrijk, Belgium, 17 March 2015.
- **Thomas Watteyne** taught an Intensive 1-week course on IoT, with associated hands-on labs. ENSTA ParisTech. Together with Quentin Lampin and Dominique Barthel, 19-23 January 2015.
- **Pascale Minet** taught “Déploiement de réseaux de capteurs sans fil : couverture et connectivité” in Master Systèmes et Services pour l’Internet des Objets of the University of Marne-la-Vallée.
- **Pascale Minet** taught Mobile ad hoc networks and wireless sensor networks: medium access, routing and energy efficiency in Master ScTIC (Systèmes complexes, Technologies de l’Information et du Contrôle) of the University of Paris 12.
- **E-learning**
  - **Thomas Watteyne** recorded a MOOC on the Internet of Things (IoT) together Prof. Mischa Dohler from with King’s College London, FutureLearn platform, 3-week course, first course on 23 November 2015. Over 20,000 registered!

### 10.2.2. Supervision

PhD :

- Ines Khoufi, “Autonomous or assisted deployment by mobile robots of wireless sensor networks: coverage and connectivity issues”, University Pierre et Marie Curie - Paris VI, September 2015, **Pascale Minet** adviser, Anis Laouiti, co-adviser.
- Ines Ben Jemaa, “Multicast communications for cooperative vehicular systems”, Mines ParisTech, December 2014, **Paul Muhlethaler** co-adviser, Nadjib Achir reviewer.

### 10.2.3. Juries

HdR:

- Kinda Khawam, “Radio resource management in heterogeneous networks”, University of Paris Sud, November 2015, **Pascale Minet** examiner.

- Anis Laouiti, “From mobile ad hoc networks to smart cities”, University of Paris Sud, September 2015, **Pascale Minet** examiner.

PhD:

- Kevin Roussel, “Évaluation et amélioration des plates-formes logicielles pour réseaux de capteurs sans-fil, pour optimiser la qualité de service et l’énergie”, Université de Lorraine, viva 17 December 2015, **Thomas Watteyne** examiner.
- Antonio O. Gonga, “Mobility and Multi-channel Communications in Low-power Wireless Networks”, KTH Electrical Engineering, viva on 14 January 2016, **Thomas Watteyne** examiner.
- Roudy Dagher, “Sur la radionavigation dans les villes intelligentes du futur – Le cas des réseaux de capteurs sans fils”, Inria-Lille, viva 6 October 2015,, **Thomas Watteyne** examiner.
- Georgios Z. Papadopoulos, “Improving Medium Access in Dynamic Wireless Sensor Networks”, ICube lab, University of Strasbourg, 28 September 2015, **Thomas Watteyne** examiner.
- Ons Mabrouk, “Communications opportunistes dans les réseaux de capteurs radio cognitive”, University of La Manouba, ENSI, Tunis, November 2015, **Pascale Minet** examiner.
- Jean-Baptiste Dupe, “Ordonnancement et gestion de ressources pour un système de télécommunications haut débit : optimisation de la bande passante satellite”, University of Toulouse, October 2015, **Pascale Minet** reviewer.
- Rafik Zitouni, “Software defined radio for cognitive wireless sensor networks”, University of Paris Est, October 2015, **Pascale Minet** reviewer.
- Tanguy Ropitault, “Routage et performances dans les réseaux CPL pour le smart grid”, Telecom Bretagne, Juin 2015, **Pascale Minet** reviewer.
- Rana Diab, “HMC-MAC : un protocole MAC hybride et multi-canal pour les réseaux de capteurs sans fil”, Université Blaise Pascal, Clermont-Ferrand, June 2015, **Pascale Minet** reviewer.
- Dimitrios Millioris, “Trend Detection and Information Propagation in Dynamic Social Networks”, Ecole Polytechnique, April 2015, **Paul Muhlethaler** examiner.
- Guangyu Li “Adaptive and Opportunistic QoS-based Routing Protocol in VANETs” University of Paris Saclay July 2015, Paul **Paul Muhlethaler** reviewer.
- Zakia Khalfallah “Underwater Wireless Sensor Network Deployment for Water Pollution Monitoring in Rivers”, UPMC December 2015, **Paul Muhlethaler** examiner.
- Ines Koufi, “Autonomous or assisted deployment by mobile robots of wireless sensor networks: coverage and connectivity issues”, University Pierre et Marie Curie - Paris VI, September 2015, Nadjib Achir reviewer.
- Oussama Stiti, “Étude de l’urbanisation des accès virtuels et stratégie de métamorphose de réseaux ”, University Pierre et Marie Curie - Paris VI, November 2015, Nadjib Achir reviewer.
- El Hadj Malick Ndoeye, “Réseaux de capteurs sans fil linéaires : impact de la connectivité et des interférences sur une méthode d’accès basée sur des jetons circulants”, Université Blaise Pascal, Clermont-Ferrand, June 2015, Nadjib Achir reviewer.
- Sabrina Naimi, “Gestion de la mobilité dans les réseaux Ad Hoc par anticipation des métriques de routage”, Université Paris Sud and ENIT (Tunisia), July 2015, Anis Laouiti reviewer.

## 10.3. Popularization

### 10.3.1. Web Presence

- <https://team.inria.fr/eva/>
- <https://twitter.com/InriaEVA>

### 10.3.2. Demos

- We deployed a 15-mote network at the SolutionsCOP21 expo at the Grand Palais in Paris, held alongside the COP21 meeting, 4-10 December 2015. French President Francois Hollande and Minister of Research Thierry Mandon came by the demo.
- The EVA team organized several demonstrations of wireless sensor networks for undergraduates who visited Inria in February and December 2015.

### 10.3.3. Talks

- The Rise of the Industrial IoT! Inria-DGA day, Paris, France, 15 October 2015, **Thomas Watteyne**.
- Wireless In the Woods: Monitoring the Snow Melt Process in the Sierra Nevada. “demi-heure de la science” seminar. 3 September 2015, Rocquencourt, France, **Thomas Watteyne**.
- From Smart Dust to 6TiSCH: building the Industrial Internet of Things. 4th International Symposium on Sensor Science (I3S), 13-15 July 2015, Basel, Switzerland, **Thomas Watteyne**.
- Reaching Industrial-class Reliability with a Converged IPv6 Network in the Smart Building. Joint presentation with Pascal Thubert (Cisco). MEITO day on Smart Buildings, 21 May 2015, Rennes, France, **Thomas Watteyne**.
- OpenWSN: Having FUN with TSCH and the IoT-LAB. FUN research team seminar, Inria-Lille, 3 April 2015, Lille, France, **Thomas Watteyne**.
- Determinism in the IoT: the example of 6TiSCH and OpenWSN. IRTF T2TRG meeting, 22 March 2015, Dallas, TX, USA, **Thomas Watteyne**.

### 10.3.4. Panels

- **Thomas Watteyne** chair, panel on “Sensing and Networking”, Inria@Silicon Valley annual workshop (BIS), 13 May 2015, Berkeley, CA, USA.

### 10.3.5. In the News

- Article on IPSO CHALLENGE 2015, Inria-Paris Newsletter, 15 December 2015.
- Interview of **Thomas Watteyne** in Smart Insights on “The Internet of Important Things”, Issue 15, number IV, 14 December 2015.
- “Two Inria technologies rewarded at the IPSO Challenge 2015 in San Jose”, FrenchTechHub newsletter, 10 December 2015.
- “Interview: **Thomas Watteyne**, EVA research team and REALMS associate team, presents his research, his collaboration with California and the IPSO Challenge”. Inria@SiliconValley newsletter, October 2015.
- “Two Inria-EVA projects make it to IPSO CHALLENGE semi-finals”, inria.fr, October 2015.
- IPSO Alliance Announces Semi-Finalists for IPSO Challenge 2015, Reuters, August 2015.

## 10.4. Others

### 10.4.1. Position held at Inria

**Paul Muhlethaler** is the scientific director of the DGA-Inria partnership.

## FOCUS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Chair of conference program committees

**I. Lanese:** Co-chair of 8th Interaction and Concurrency Experience (ICE 2015)

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

**M. Bravetti:** Int. Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH 2015); 9th IEEE Int. Conference on Big Data Science and Engineering (IEEE BigDataSE 2015); 4th European Conference on Service-Oriented and Cloud Computing (ESOCC 2015); 20th Int. Workshop on Formal Methods for Industrial Critical Systems (FMICS 2015); 6th Int. Conference on Fundamentals of Software Engineering (FSEN 2015); 13th Int. Conference on Software Engineering and Formal Methods (SEFM 2015).

**U. Dal Lago:** 18th Int. Conference on Foundations of Software Science and Computation Structures (FOSACS 2015); 6th Workshop on Developments in Implicit Computational Complexity (DICE 2015); 31st Workshop on Mathematical Foundations of Programming Semantics (MFPS 2015); 42nd Int. Colloquium on Automata, Languages, and Programming (ICALP 2015); 11th Int. Workshop on Developments in Computational Models (DCM 2015); 16th Italian Conference on Theoretical Computer Science (ICTCS 2015); 24th EACSL Annual Conference on Computer Science Logic (CSL 2015).

**D. Hirschhoff:** 18th Int. Conference on Foundations of Software Science and Computation Structures (FoSSaCS), 2015.

**I. Lanese:** 12th Int. Conference on Formal Aspects of Component Software (FACS 2015); 7th Conference on Reversible Computation (RC 2015); 35th IFIP Int. Conference on Formal Techniques for Distributed Objects, Components and Systems (FORTE 2015); 11th Int. Workshop on Developments in Computational Models (DCM 2015); Special Session on Formal Approaches to Parallel and Distributed Systems (4PAD) of the 23rd Euromicro Int. Conference on Parallel, Distributed and Network-based Processing (PDP 2015).

**S. Martini:** 30th ACM/IEEE Symposium on Logic in Computer Science (LICS) 2015.

**F. Montesi:** 6th Int. Conference on Ambient Systems, Networks and Technologies (ANT 2015); 31st Annual ACM/SIGAPP Symposium On Applied Computing (SAC 2015) - Operating Systems track; 8th Programming Language Approaches to Concurrency- and Communication-centric Software (PLACES 2015). 8th Interaction and Concurrency Experience (ICE 2015).

**D. Sangiorgi:** 20th Int. Symposium on Fundamentals of Computation Theory 2015 (FCT); 10th Int. Andrei Ershov Memorial Conference (PSI 2015); 10th Int. Conference on Language and Automata Theory and Applications.

**V. Vignudelli:** 8th Interaction and Concurrency Experience (ICE 2015).

**G. Zavattaro:** 17th Int. Conference on Formal Engineering Methods (ICFEM 2015); 12th Int. Colloquium on Theoretical Aspects of Computing (ICTAC 2015); 8th IEEE Int. Conference on Service Oriented Computing and Applications (SOCA 2015); 4th European Conference on Service-oriented and Cloud Computing (ES-OCC' 15); 5th Int. Workshop on Adaptive Services for the Future Internet (WAS4FI 2015); 3rd IEEE Int. Workshop on Formal Methods Integration (FMi 2015); 20th Int. Symposium on Formal Methods (FM2015); Int. Conference on Cloud Computing Technologies and Applications (CLOUDTECH 2015); 30th ACM/SIGAPP Symposium On Applied Computing - track on Software Verification and Testing (ACM-SAC 2015).

### *9.1.1.3. Member of the editorial boards*

**U. Dal Lago:** Logical Methods in Computer Science.

**M. Gabrielli:** Int. Journal Theory and Practice of Logic Programming.

**C. Laneve:** Frontiers in ICT (Section Formal Methods).

**I. Lanese:** Editor in chief of the Open Journal of Communications and Software (Scientific Online).

**F. Montesi:** Guest editor for "Special issue on Service-Oriented Architecture and Programming (SOAP 2013)". Science of Computer Programming.

**D. Sangiorgi:** Logical Methods in Computer Science, Acta Informatica, Distributed Computing, RAIRO Theoretical Informatics and Applications.

### *9.1.2. Invited talks*

**M. Bravetti:** 14th Int. Workshop on Foundations of Coordination Languages and Self-Adaptive Systems (FOCLASA 2015).

**U. Dal Lago:** gave an invited course "From Implicit Complexity to Quantitative Resource Analysis" at the Warsaw's Open PhD lectures in Computer Science.

**C. Laneve:** Int. Symposium on Web Services, Formal Methods and Behavioural Types (WS-FM/BEAT 2015).

**S. Martini:** Colloque "Computing, Logic and Types", Université Jean Moulin Lyon 3.

**D Sangiorgi:** DIMAP Logic Day 2015, Centre for Discrete Mathematics and its Applications, University of Warwick; Joint 22th Int. Workshop on Expressiveness in Concurrency and 12th Workshop on Structural Operational Semantics, Madrid; 12th Int. Colloquium on Theoretical Aspects of Computing (ICTAC 2015), Cali, Colombia.

**G. Zavattaro:** 26th Conference on Concurrency Theory (CONCUR'15).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Mario Bravetti
  - Undergraduate: “Tecnologie Web”, 66 hours, 3rd year, University of Bologna, Italy.
  - Master: “Linguaggi di Programmazione e Modelli Computazionali”, 120 hours, 2nd year, University of Bologna, Italy.
- Ugo Dal Lago
  - Undergraduate: “Introduction to Programming in Python”, 20 hours, 1st year, University of Bologna, Italy.
  - Undergraduate: “Optimization”, 36 hours, 2nd year, University of Bologna, Italy.
  - Master: “Cryptography”, 36 Hours, 2nd Year, University of Bologna, Italy.
- Maurizio Gabbrielli
  - Undergraduate: “Programming languages”, 40 hours, 2nd year, University of Bologna, Italy.
  - Master: “Artificial Intelligence”, 60 hours, 2nd year, University of Bologna, Italy.
- Elena Giachino
  - Undergraduate: “Programmazione”, 40 hours, 1st year, University of Bologna, Italy.
- Saverio Giallorenzo
  - Undergraduate: “Laboratorio di Operating Systems”, 40 hours, 2nd year, University of Bologna, Italy.
- Ivan Lanese
  - Undergraduate: “Programmazione”, 32 hours, 1st year, University of Bologna, Italy.
  - Master: “Ingegneria del Software Orientata ai Servizi”, 22 hours, 2nd year, University of Bologna, Italy.
- Cosimo Laneve
  - Undergraduate: “Programmazione”, 70 hours, 1st year, University of Bologna, Italy.
  - Master: “Analisi di Programmi”, 42 hours, 1st year, University of Bologna, Italy.
- Simone Martini
  - Undergraduate: “Introduction to programming in Python”, 58 hours, 1st year, University of Bologna, Italy.
  - Undergraduate: “Computer abilities for biologists”, 8 hours, 1st year, University of Bologna, Italy.
  - Master: “Logical Foundations of Computer Science”, 48 hours, 2nd year, University of Bologna, Italy.
  - Undergraduate: “Programming languages”, 50 hours, 2nd year, University of Bologna, Italy.
- Jacopo Mauro
  - Undergraduate: “Algoritmi e strutture dati”, 20 hours, 1st year, University of Bologna, Italy.
- Giulio Pellitta
  - Undergraduate: “Tutorato informatico trasversale”, 100 hours, Degree in Quantitative Finance, University of Bologna, Italy.
  - Undergraduate: “Attività di supporto alla didattica universitaria di Informatica nell’ambito della Piattaforma di e-learning A3”, 120 hours, 1st year, University of Bologna, Italy.

Undergraduate: “Idoneita’ Informatica”, 50 hours, 1st year, University of Bologna, Italy.

Undergraduate: “C.I. Fisica, Informatica e Statistica - Modulo 2 Informatica”, 12 hours, 1st year, University of Bologna, Italy.

- Davide Sangiorgi

Undergraduate: “Operating Systems”, 110 hours, 2nd year, University of Bologna, Italy.

Master: “Models for concurrency”, 15 hours, 2nd year, University of Bologna, Italy.

- Marco Solieri

Undergraduate: “Programmation impérative”, 33 hours, 1st year, Inst. Galilée, Université Paris 13.

Undergraduate: “Structures de données”, 12 hours, 2nd year, Coursus préparatoire intégré ingénieurs, Sup Galilée, Université Paris 13.

Undergraduate: “Programmation fonctionnelle”, 14 hours, 2nd year, Inst. Galilée, Université Paris 13

Undergraduate: “Programmation web”, 20 hours, 3rd year, Inst. Galilée, Université Paris 13

Undergraduate: “Administration système” 30 hours, 3rd year, Inst. Galilée, Université Paris 13

Master: “Internet, Intranet, Web”, 35 hours, 2nd year, Ecole d’ingénieurs Sup Galilée, Université Paris 13

Master: “Administration système Unix”, 44 hours, 3rd year, Ecole d’ingénieurs Sup Galilée, Université Paris 13

- Gianluigi Zavattaro

Master: “Linguaggi di Programmazione e Modelli Computazionali”, 120 hours, 1st year, University of Bologna, Italy.

### 9.2.2. Supervision

PhD thesis completed in 2015:

- Jean-Marie Madiot, “Higher-order languages: dualities and bisimulation enhancements”, jointly supervised by D. Sangiorgi and D. Hirschhoff. March 2015 [11].
- R. Amadini. “Portfolio Approaches in Constraint Programming”, University of Bologna, June 2015 [10].

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

- Ferdinanda Camporesi, January 2009, “Analysis of system biology”, R. Cousot (Ecole Normale, Paris) and M. Gabbrielli
- Alberto Cappai, January 2013; “Security, ICC and probabilistic bisimulation”, U. Dal Lago.
- Abel Garcia, January 2014, “Analysis of Cloud Computing Systems”, C. Laneve.
- Francesco Gavazzo, October 2015, “Causality in coinduction”, D. Sangiorgi.
- Saverio Giallorenzo, January 2013, “Real-World Choreographies”, M. Gabbrielli and F. Montesi
- Vincenzo Mastandrea, October 2015, “Deadlock analysis in ASP”, Cosimo Laneve (with Ludovic Henrio, CNRS Sophia Antipolis).
- Alessandro Rioli, January 2012; Bisimulation equivalence in quantum lambda calculi, U. Dal Lago.
- Marco Solieri, December 2011; “Géométrie de l’interaction, réseaux, et lambda-calcul”, S. Guerrini (Paris Nord) and S. Martini.
- Valeria Vignudelli, January 2014, “Probabilities in Higher-Order languages”, D. Sangiorgi.



### 9.2.3. *Juries*

Dal Lago has been member of the PhD evaluation committee for Erika De Benedetti (January 2015, University of Torino).

Laneve has been member of the PhD evaluation committee for Abiar Al-Homaimedi, King's College London, June 2015

Simone Martini has been rapporteur and member of the PhD evaluation committee for Matthieu Perrinel (Ecole Normale Supérieure de Lyon); member of the PhD evaluation committee for Paolo Pistone (Università Roma Tre) and Federica Panarotto (Università di Verona).

## 9.3. Popularization

Simone Martini has carried out extended work of scientific divulgation:

- member of the technical committee of Olimpiadi del Problem Solving (at Italian Ministry of Education), <http://www.olimpiadiproblemsolving.com>;
- member of the technical committee of two national projects of Italian Ministry of Education, founded by ESF - European Social Fund: 'Robotica educativa', and 'Informatica nei licei';
- various talks at institutes and workshops on the teaching methods for Computer Science.
- coordinator of some initiatives for the 'Hour of Code', see <https://italia.code.org/> and <http://www.programmailfuturo.it>.

D. Hirschhoff takes part in several popularization activities in schools, in Lyon (association "Maths en Jeans").

### 9.3.1. *Other duties*

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

Simone Martini has been elected Head of the Department of Computer Science and Engineering, Università di Bologna, for the term 2015-2018.

Davide Sangiorgi is coordinator of undergraduate studies at the Department of Computer Science and Engineering, Università di Bologna (Informatica per il Management).

## FUN Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Valeria Loscri is/was (co)general chair for SwanSity 2015 and PACS 2015, of the special track "Body Area NanoNETworks: Electromagnetic, Materials and Communications (BANN-EMC)" in Body Area Networks conference.
- Aziz Mbacke is publicity chair for AdHocNow 2016.
- Nathalie Mitton is/was (co)general chair for AdHocNow 2016, Cloudification of IoT 2015, AdHoc-Nets 2015 and Inter-IoT 2015.
- Nathalie Mitton was demo chair for MobiCom 2015.
- Riccardo Petrolo is publicity chair for AdHocNets 2015 and web chair for AdHocNow 2016.
- Jean Razafimandimby Anjalalaina, was Publicity Chair for IoTIP 2015.
- Viktor Toldov is publicity chair for IndiaCom 2015.

#### 10.1.1.2. Member of the organizing committees

- The full team organizes AdHocNow 2016.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- Valeria Loscri is co-program chairs for AdHocNow 2016 and Member of the IEEE SMC (Systems, Man and Cybernetics Society) TC on "Interactive and Wearable Computing and Devices".
- Nathalie Mitton was co-program chair of the summer school RESCOM 2015 and of the RESCOM community days in January 2016.
- Nathalie Mitton is co-program chair for AdHocNow 2016, IEEE CSE 2016, SmartComp 2016, UIC 2016, VTC-Spring 2016, ICC 2016, NOMS 2015.

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

- Valeria Loscri is/was in the Technical Program Committee (TPC) of MoWNet' 15/16, IDCS 2015/16, SWIT-Health 2015, HPCC 2015, WiMob'2015, Ntms 2015, IoTIP' 15, IoT2015, ICARSC 2015,
- Nathalie Mitton is/was in the Technical Program Committee (TPC) of Algotel 2015, NOMS 2015, ICC 2015.
- Tahiry Razafindralambo is/was in the Technical Program Committee (TPC) of Globecom 2015.

### 10.1.3. Journal

- Valeria Loscri is Co-editor of SPART, special Issue on Signal Processing Algorithms for Real-Time Sensing by Means of Wireless Sensor Networks.
- Valeria Loscri is Co-editor in the Special Issue on Smart Wireless Access Networks and Systems For Smart Cities, Elsevier Ad Hoc Networks.
- Valeria Loscri is Co-editor for the book MIoT2015, Management of Cyber Physical Objects in the Future Internet of Things on behalf of Springer.
- Valeria Loscri is a member of the 'Research Group on IoT Communications and Networking Infrastructure' at ComSoc Communities.

- Nathalie Mitton is editorial board members of AHSWN since 2011.
- Nathalie Mitton is editorial board member of Adhoc Networks since 2012.
- Nathalie Mitton is editorial board member of IET-WSS since 2013.
- Nathalie Mitton is editorial board member of ComSoc MMTTC e-letter since 2014.

#### **10.1.4. Invited talks**

- Valeria Loscri was invited speaker at "Cloudification of the Internet of Things - CIoT" conference in Paris in June 2015.
- Valeria Loscri gave a talk at ICT2B "Innovation Runway Event" in Frankfurt, to present Vital project (February 2015).
- Valeria Loscri gave a talk at ICT2B "Venture Academy Event", in Chaldiki, Greece (June 2015).
- Nathalie Mitton was invited speaker at the French-India Architecture and Technological Trends and Issues in Indiacom in New Delhi in March 2015.
- Nathalie Mitton was invited speaker at IIIT Allahabad at the event on Smart Cities in Allahabad in March 2015.
- Nathalie Mitton was invited speaker at Rencontres Inria Industries in San Francisco in May 2015.
- Nathalie Mitton was invited speaker at BIS meeting in Berkeley in May 2015.
- Nathalie Mitton was invited speaker at the Inria-Mexico meeting in Mexico in June 2015.

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

Nathalie Mitton is an elected member of the evaluation community of Inria. She has acted as a reviewer for ANRT and ANR project submissions. She is also member of the scientific committees of the competitiveness cluster of MATIKEN and for CITC (International Contactless Technologies Center).

#### **10.1.6. Research administration**

Nathalie Mitton is a member of the Steering Committee of the GDR Rescom.

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

### **10.2.1. Teaching**

#### **E-learning**

Mooc, Nathalie Mitton, "Villes intelligentes : défis technologiques et sociétaux", 5-week mooc by the IPL CityLab@Inria team, FUN, Inria, to open in January 2016

Master : Roudy Dagher, Objets Communicants, 24h (Mineure Habitat Intelligent), Ecole des Mines de Douai, France.

Master: Valeria Loscri, Connected Objects, 24h eqTD (Engineer), Ecole des Mines, Douai

Master: Valeria Loscri, Telecom, 6h supervision TP (Engineer), Paris Telecom

Master : Nathalie Mitton, Wireless sensor networks, 36h eqTD (Master TIIR and MINT), Université Lille 1 and Telecom Lille 1, France

Bsc: Nathalie Mitton, Contactless technologies, 20h eqTD, Université de Valenciennes, France

BSC: Riccardo Petrolo, Réseaux Informatique, 36h TP and TD (Licence Info), Université Lille 1, France

BSC: Riccardo Petrolo, Technologies du Web, 36h TP and TD (Licence 1), Université Lille 1, France

Master : Viktor Toldov, Systèmes Numériques (VHDL), 18h eqTD (Formation d'ingénieur), Télécom Lille, France

Master : Viktor Toldov, Systèmes Numériques (Projet VHDL), 15h eqTD (Formation d'ingénieur), Télécom Lille, France

Master : Viktor Toldov, Communication numérique (Communication en bande transposée), 6h eqTD (Formation d'ingénieur), Télécom Lille, France

Master : Viktor Toldov, Communication numérique (Projet), 10h eqTD (Formation d'ingénieur), Télécom Lille, France

Master : Viktor Toldov, Technologie de l'électronique numérique et du signal, 25.5h eqTD (Formation d'ingénieur), Télécom Lille, France

Master : Viktor Toldov, Réseaux d'Objets Communicants (Projet), 15h eqTD (Formation d'ingénieur), Télécom Lille, France

Master : Viktor Toldov, Signal et Communication (Signaux déterministes), 3h eqTD (Formation d'ingénieur), Télécom Lille, France

Master : Viktor Toldov, Signal et Communication (Signaux aléatoires), 4.5h eqTD (Formation d'ingénieur), Télécom Lille, France

Master : Viktor Toldov, Projets Scientifiques et Technologiques 10h eqTD (Formation d'ingénieur), Télécom Lille, France

Licence : Jean Razafimandimby, Algorithms and Programming, 30h eqTD, Université Lille 1, France

Master : Tahiry Razafindralambo, Réseaux d'Objets Communicants (Projet), 9h eqTD (Formation d'ingénieur), Télécom Lille, France

Master : Tahiry Razafindralambo, Qualité de Service, 7h eqTD (Formation d'ingénieur - SPIRALE), Télécom Lille - , France

### 10.2.2. Supervision

PhD defended on Dec 15th, 2015: Natale Guzzo, Auto - organisation et économie d'énergie dans un réseau sans fil de surveillance de fret, Université Lille 1, 2013-2015, Nathalie Mitton

PhD defended on Oct 6th 2015: Roudy Dagher, Géolocalisation en environnement réel, extérieur et intérieur avec réseau de capteurs, Université Lille 1, 2013-2015, Nathalie Mitton

PhD in progress: Riccardo Petrolo, Internet of Things and Smart Cities, Université Lille 1, 2013-2016, Nathalie Mitton and Valeria Loscri

PhD in progress: Viktor Toldov, : Interférence et consommation dans les réseaux de capteurs, Université Lille 1, 2013-2016, Nathalie Mitton and Laurent Clavier

PhD in progress: Mouna Rekik, geographic multi path routing protocol based on swarm intelligence for wireless sensor and actuator networks in the context of Smart Grids, co-supervision Université Lille 1 and University of Sfax (Tunisia), 2013-2017, Nathalie Mitton and Zied Chtourou

PhD in progress: Jean Razafimandimby, Distributed Cooperation and Communication among Heterogeneous Devices, Université Lille 1, 2014-2017, Tahiry Razafindralambo and Valeria Loscri

PhD in progress: Aziz Mbacke, Smart Deployment of heterogeneous sensors and RFID in a Smart City, Université Lille 1, 2015-2018, Nathalie Mitton and Hervé Rivano (Urbanet)

PhD in progress: Jad Nassar, Ubiquitous networks for smart grids, Université Lille 1, 2015-2018, Nathalie Mitton and Nicolas Gouvy (HEI)

### 10.2.3. Juries

- Nathalie Mitton was reviewer of the following PhD thesis:
  - Mario Antonio Gasperin Zancanaro, UPMC, January 2015
  - Benjamin Billet, Inria Rocquencourt, 19 march 2015
  - Farouk Mezghani, University of Toulouse, 9 october 2015

- Malisa Vucinic, University of Grenoble, 17 november 2015
- Nathalie Mitton was member of the PhD defense committee of Filippo Rebecchi, 18 september 2015, UPMC.
- Nathalie Mitton was member of the Inria CR2 Lille and Nancy competition selection committee.

### **10.3. Popularization**

- Salvatore Guzzo Bonifacio gave a talk on "Introduction to Wireless Sensor Networks" in the framework of "Fête de la Science".
- Nathalie Mitton gave a talk on "Introduction to RFID" to Terminales S a in the framework of "Fête de la Science".
- Nathalie Mitton gave a talk at the BIS conference on Smart Cities in Berkeley in May 2015.
- Nathalie Mitton presented the wireless networks to ISN classes on March 2015.
- Nathalie Mitton gave a talk on the Connected bike to the BeyondLab PlugTest on March 2015.
- Jean Razafimandimby gave a talk on "Can robots cooperate?" to BTS a in the framework of "Fête de la Science".
- Viktor Toldov gave a talk on "Introduction to Wireless Sensor Networks" in the framework of "Fête de la Science".
- Viktor Toldov gave a talk on the PREDNET project to the BeyondLab PlugTest on March 2015.
- Viktor Toldov gave a talk on the PREDNET project during the IAE conference on Connected objects in December 2015, Lille.

## **GANG Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific events selection***

#### *10.1.1.1. Chair of conference program committees*

ICDCN 2015 – The 16th ACM International Conference on Distributed Computing and Networks, India, January 2015 (Amos Korman was PC co-chair for distributed computing track).

FCT 2015 – 20th International Symposium on Fundamentals of Computation Theory, Poland, August 2015 (Adrian Kosowski was PC co-chair).

NETYS 2015 – The International Conference on Networked Systems, Marocco, May 2015 (Hugues Fauconier was PC co-chair).

#### *10.1.1.2. Member of the conference program committees*

ICALP 2015 – 42nd Int. Colloquium on Automata, Languages and Programming, Japan, July 2015 (Pierre Fraigniaud – PC member of track C).

PODC 2015 – 34th ACM Symposium on Principles of Distributed Computing, Spain, July 2015 (Amos Korman – PC member).

SPAA 2015 – 27th ACM Symposium on Parallelism in Algorithms and Architectures, USA, June 2015 (Pierre Fraigniaud – PC member).

WWW 2015 – 24th World Wide Web Conference, Italy, May 2015 (Pierre Fraigniaud – PC Member of Social Networks and Graph Analysis track).

DISC 2015 – 29th Symposium on Distributed Computing, Japan, October 2015 (Amos Korman and Pierre Fraigniaud – PC members).

IPDPS 2015 – 29th IEEE International Parallel and Distributed Processing Symposium, India, May 2015 (Pierre Fraigniaud – PC member).

MFCS 2015 – 40th Int. Symposium on Mathematical Foundations of Computer Science, Italy, August 2015 (Pierre Fraigniaud – PC member).

CIAC 2015 – 8th Int. Conference on Algorithms and Complexity, France, May 2015, (Pierre Fraigniaud – PC member).

EUROPAR 2015 – 21st European Conference on Parallel Computing, Austria, August 2015 (Pierre Fraigniaud – PC member).

SIROCCO 2015 – 22th Colloquium on Structural Information and Communication Complexity, Spain, July 2015 (Adrian Kosowski and Pierre Fraigniaud – PC members).

SSS 2015 – International Symposium on Stabilization, Safety, and Security of Distributed Systems, Canada, August 2015 (Adrian Kosowski – PC member).

NETYS 2015 – The International Conference on Networked Systems, Marocco, May 2015 (Carole Delporte – PC member).

Algotel 2015 – 17eme Rencontres Francophones sur les Aspects Algorithmiques de Télécommunications, France, June 2015 (Carole Delporte – PC member).

### **10.1.2. Journal**

#### **10.1.2.1. Members of editorial boards**

Pierre Fraigniaud is member of the editorial boards of Distributed Computing (DC), Theory of Computing Systems (TOCS), Fundamenta Informaticae (FI) and Journal of Interconnection Networks (JOIN).

#### **10.1.3. Invited talks**

SIROCCO 2015 – 22th Colloquium on Structural Information and Communication Complexity, Spain, July 2015 (Amos Korman – invited speaker).

ADHOC-NOW 2015 – 14th International Conference on Ad-Hoc Networks and Wireless, special track on Distributed Computing with Mobile Agents, Greece, June/July 2015 (Pierre Fraigniaud – invited speaker).

AAAC 2015 – 8th meeting of Asian Association for Algorithms and Computation, Hiroshima, Japan, May 2015 (Pierre Fraigniaud – invited speaker).

ACBD 2015 – 2nd European Meeting on Algorithmic Challenges of Big Data, Germany, September 2015 (Pierre Fraigniaud – invited speaker).

MARAMI 2015 – Modèles et Analyses Réseau : Approches Mathématiques et Informatiques, 6ème édition, France, September 2015 (Michel Habib – invited speaker).

HaifaGraphWorkshop 2015 – 15th Haifa Workshop on Interdisciplinary Applications of Graph Theory, Combinatorics, and Algorithms, Israel, June 2015 (Michel Habib – invited speaker).

#### **10.1.4. Leadership within the scientific community**

Pierre Fraigniaud is Director of LIAFA (Laboratoire d'Informatique Algorithmique : Fondements et Applications, UMR 7089, CNRS et université Paris Diderot), since 2010.

Pierre Fraigniaud is Director of Federation IFP (Fédération d'Informatique Fondamentale de Paris-Diderot, FR 3634, CNRS et université Paris Diderot), since 2014.

Pierre Fraigniaud is Steering Committee member of the key conferences in distributed computing theory: PODC (ACM Symposium on Principles of Distributed Computing, 2010–2013 and 2015–2018) and SPAA (ACM Symposium on Parallelism in Algorithms and Architectures, since 2002).

#### **10.1.5. Research administration**

Pierre Fraigniaud has been an elected member of the EATCS (European Association for Theoretical Computer Science) since October 2013.

Pierre Fraigniaud has been a jury member of the ERC for Starting Grants (in 2013 and 2015; shadow committee member in 2014 and 2016).

Michel Habib has been a member of the NSERC evaluation committee for Computer Science (February 2015, Ottawa, Canada).

Michel Habib has been chair of the AERES evaluation committee for the LaBRI (Bordeaux, January 2015).

Pierre Fraigniaud was a member of the jury for the 2015 Edsger W. Dijkstra Prize in Distributed Computing (previously committee member in 2010 and president in 2011).

Adrian Kosowski has been acting in the Polish Academy of Sciences as elected member of Young Scientists Academy (2012–2016) and member of the Committee for Computer Science (2015–2018).

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

### **10.2.1. Teaching**

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

- Master: Hugues Fauconnier, Cours programmation répartie, 33h, M2, Univ. Paris Diderot
- Master: Carole Delporte, Cours et TP Protocoles des services internet, 44h, M2, Univ. Paris Diderot
- Master: Carole Delporte, Cours Algorithme réparti, 33h, M2, Univ. Paris Diderot
- Master: Carole Delporte and Hugues Fauconnier, Protocoles Réseaux, 72h, M1, Université Paris Diderot
- Licence: Carole Delporte and Hugues Fauconnier, Sécurité informatique, 36h, L3, Univ. Paris Diderot
- Licence: Hugues Fauconnier, Programmation objet et interfaces graphiques, 48h, L2-L3, EIDD
- Licence: Boufkhad Yacine, Algorithmique et Informatique, 132h, L1, IUT de l'Université Paris Diderot
- Licence: Boufkhad Yacine, Programmation Orientée Objet, 60h, L2, IUT de l'Université Paris Diderot
- Master: Pierre Fraigniaud, Algorithmique avancée, 24h, Ecole Centrale
- Master: Pierre Fraigniaud, Algorithmique parallèle et distribuée, 24h, Ecole Centrale
- Master: Adrian Kosowski, Communication and Routing, 4h, M1, ENSEIRB-MATMECA
- Master: Adrian Kosowski, Randomization in Computer Science: Games, Networks, Epidemic and Evolutionary Algorithms, 24h, M1, École Polytechnique
- Master: Pierre Fraigniaud and Adrian Kosowski, Algorithmique distribuée pour les réseaux, 24h, M2, Master Parisien de Recherche en Informatique (MPRI)
- Master: Fabien de Montgolfier and Michel Habib, Grand Réseaux d'Interaction, 44h, M2, Univ Paris Diderot
- Licence: Fabien de Montgolfier, Introduction à la programmation, 26h, L1, Univ Paris Diderot
- Licence: Fabien de Montgolfier, Programmation avancée (bio-informatique), 26h, L3, Univ. Paris Diderot
- Master: Fabien de Montgolfier, Algorithmique avancée (bio-informatique), 26h, M1, Univ Paris Diderot
- Licence: Fabien de Montgolfier, Systèmes et Réseaux, 52h, L3, Ecole d'Ingénieurs Denis Diderot
- Licence: Michel Habib, Algorithmique, 45h, L, ENS Cachan
- Master: Michel Habib, Algorithmique avancée, 24h, M1, Univ. Paris Diderot
- Master: Michel Habib, Mobilité, 33h, M2, Univ. Paris Diderot
- Master: Michel Habib, Méthodes et algorithmes pour l'accès à l'information numérique, 16h, M2, Univ. Paris Diderot
- Master: Michel Habib, Algorithmique de graphes, 12h, M2, Univ. Paris Diderot
- Licence: Pierre Charbit, Introduction a la Programmation, 30h, L1, Université Paris Diderot, France
- Licence: Pierre Charbit, Automates finis, 52h, L2, Université Paris Diderot, France
- Licence: Pierre Charbit, Types de Données et Objet, 52h, L1, Université Paris Diderot, France
- Master: Pierre Charbit, Programmation, 60h, M2Pro PISE, Université Paris Diderot, France
- Master: Pierre Charbit, Algorithmique de Graphes, 18h, M2 MPRI, Université Paris Diderot, France

### **E-learning**

Carole Delporte and Hugues Fauconnier were involved in the project SPC "informatique en ligne" (1 year, approved in June 2015), which consisted in preparing video sequences related to Bachelor level courses at Paris VII university.

### **10.2.2. Supervision**



HdR: Amos Korman on the topic of “Distributed Decision and Distributed Biological Algorithms”, Université Paris Diderot, November 2015.

PhD: François Durand was an Inria engineer hired by Gang under a contract with Alcatel-Lucent Bell Labs France. He obtained his PhD last September [1], under the subject “Towards Less Manipulable Voting Systems”.

PhD: The Dang Huynh (co-advised by Laurent Viennot and Fabien Mathieu) was a PhD Cifre with Alcatel-Lucent Bell Labs France. He obtained his PhD in June 2015 [2], under the subject “Extension of PageRank and application to social networks.” He now works in the industry on related topics.

PhD in progress: Leonardo Linguaglossa (co-advised by Laurent Viennot, Fabien Mathieu and Diego Perino, both from Bell Labs / Alcatel-Lucent / Nokia).

PhD in progress: Simon Collet (co-advised by Amos Korman and Pierre Fraigniaud). Title of thesis is: "Algorithmic Game Theory Applied to Biology". Started September 2015.

PhD in progress: Lucas Boczkowski (co-advised by Amos Korman and Iordanis Kerenidis). Title of thesis is: "Computing with Limited Resources in Uncertain Environments". Started September 2015.

PhD in progress: Laurent Feuilloley (advised by Pierre Fraigniaud). Title of thesis is: "Synchronous Distributed Computing". Started September 2015.

Foreign PhD co-supervision in progress: Alkida Balliu and Dennis Olivetti (PhD students of Gianlorenzo D'Angelo at L'Aquila University and Gran Sasso Science Institute) have Pierre Fraigniaud as their foreign co-supervisor since September 2015. They are expected to undertake a 6-month research visit to the team in 2016.

### 10.2.3. Juries

Laurent Viennot was reviewer for the PhD thesis of Dimitrios Miliouris on “Trend detection and information propagation in dynamic social networks” at Ecole Polytechnique (May 2015).

Laurent Viennot was co-advisor for the PhD thesis of The Dang Huynh on “Extension de PageRank et application aux réseaux sociaux” at UPMC (April 2015).

Hugues Fauconnier participated as a jury member in the PhD defense of Lena Kanellou on “Structures de données pour des architectures multi-cœur actuelles et de futures architectures many-cœur” at Univ Rennes (December 2015).

Hugues Fauconnier was a reviewer for the PhD thesis of Giuseppe Di Luna “On deterministic counting in anonymous dynamic networks” at University Sapienza in Rome (May 2015).

Pierre Fraigniaud was reviewer for the PhD thesis of Adi Shklarsh on “Modeling Bacteria-Inspired Smart Swarms ” at Tel Aviv University (2015).

Michel Habib participated as a jury member in the PhD defense of Brahim Neggazi on “Self-stabilizing algorithms for graph parameters”, Université Claude Bernard Lyon I (May 2015).

Michel Habib was a reviewer for the PhD thesis of Sid Ali Selmane on “Détection et analyse de communautés”, Université Lumière Lyon 2 (May 2015).

Michel Habib participated as a jury member in the PhD defense of Stephen Gray on “Subgraph Epimorphisms: Theory and Application to Model Reductions in Systems Biology”, Université Paris Diderot (June 2015).

Michel Habib participated as a jury member in the PhD defense of Ronan Hamon on “Analyse de réseaux temporels par des méthodes de traitement du signal”, Laboratoire de Physique, ENS Lyon (September 2015).

Michel Habib was a reviewer for the HDR of Mathieu Liedloff on “Algorithmes exponentiels pour l'étiquetage, la domination et l'ordonnancement”, Orléans (December 2015).

Michel Habib was a reviewer for the HDR of Mamadou Kante on “Studying graphs: structure via rank-width, and listing of minimal dominating sets”, Clermont-Ferrand (December 2015).

Amos Korman participated as a jury member in the PhD defense of Jara Uitto, at ETH Zurich.

Adrian Kosowski was a reviewer for the PhD thesis of Krzysztof Turowski on “The analysis of algorithmic properties of the skeleton graph coloring problem” at the Gdansk University of Technology (May 2015).

### **10.3. Popularization**

Michel Habib has contributed a text [41] to the “Encyclopedia of Algorithms”, providing a unifying and historical overview of graph searching problems and algorithms.

## **HIEPACS Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific events selection***

#### *10.1.1.1. Member of the conference program committees*

Luc Giraud has been member of the scientific program committee of the international conferences HiPC'15, IPDPS'16 and PDSEC'15.

Jean Roman has been member of the scientific program committee of the international conferences IEEE PDP'15 and PDP'16.

#### *10.1.1.2. Reviewer*

Furthermore, the **HIEPACS** members have contributed to the reviewing process of several international conferences: CCGRID 2015, IEEE IPDPS 2016, ...

### ***10.1.2. Journal***

#### *10.1.2.1. Member of the editorial boards*

Luc Giraud is member of the SIAM J. Matrix Analysis and Applications editorial board.

#### *10.1.2.2. Reviewer - Reviewing activities*

The **HIEPACS** members have contributed to the reviewing process of several international journals (ACM Trans. on Mathematical Software, Advances in Computational Mathematics, IEEE Trans. on Parallel and Distributed Systems, Journal of Parallel and Distributed Computing, Parallel Computing, SIAM J. Scientific Comp., ...).

### ***10.1.3. Invited talks***

Luc Giraud gave an invited talk at the 2015 **Salishan Conference on High-Speed Computing** (April 27 - 30, 2015) as well as to the seminar of the Laboratoire Jean Kuntzmann (LJK) in Grenoble (Nov. 2015).

Mathieu Favre gave an invited talk at an EDF seminar on High Programming Productivity for High Performance Computing via Runtime Systems (December 15th, 2015).

### ***10.1.4. Scientific expertise***

Luc Giraud was a member of the evaluation committee of the "Software for Exascale Computing" (SPPEXA) program funded by the funding agencies from France (ANR), Germany (DFG), and Japan (JST). He also acted as expert for projects submitted to the Israel Science Foundation.

Jean Roman is member of the "Scientific Board" of the CEA-DAM. As representative of Inria, he is member of the board of ETP4HPC (European Technology Platform for High Performance Computing), of the French Information Group for PRACE, of the Technical Group of GENCI and of the Scientific Advisory Board of the Maison de la Simulation.

Pierre Ramet is Scientific Advisor at CEA-DAM (French Department of Energy) since October 2015. He is member of the evaluation committee at GENCI since 2008. He is also member of the Scientific Board of :

- the Scientific Computing axis of the Cluster of Excellence CPU from Bordeaux University since 2014,
- the Mesocentre in Bordeaux University since 2010.

### 10.1.5. Research administration

Jean Roman is a member of the Direction for Science at Inria : he is the Deputy Scientific Director of the Inria research domain entitled *Applied Mathematics, Computation and Simulation* and is in charge at the national level of the Inria activities concerning High Performance Computing.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Undergraduate level/Licence

1. A. Esnard: Operating system programming, 36h, University Bordeaux I; Using network, 23h, University Bordeaux I.  
He is also in charge of the computer science certificate for Internet (C2i) at the University Bordeaux I.
2. M. Faverge: Programming Environment, 26h, L3; Numerical Algorithmic, 30h, L3; C Projects, 20h, L3, ENSEIRB-MatMeca, France
3. P. Ramet: System programming 24h, Databases 32h, Objet programming 48h, Distributed programming 32h, Cryptography 32h at Bordeaux University.

Post graduate level/Master

1. O. Coulaud: Paradigms for parallel computing, 24h, ENSEIRB-MatMeca, Talence; Méthodes hiérarchiques, 8h, ENSEIRB-MatMeca, Talence.
2. E. Agullo: Operating systems, 24h, University Bordeaux I; Dense linear algebra kernels, 8h, ENSEIRB-MatMeca; Numerical Algorithms, 30h; ENSEIRB-MatMeca, Talence.
3. A. Esnard: Network management, 27h, University Bordeaux I; Network security, 27h, University Bordeaux I; Programming distributed applications, 35h, ENSEIRB-MatMeca, Talence.
4. M. Faverge: System Programming, 74h, M1; Load Balancing and Scheduling, 19h, M2, ENSEIRB-MatMeca, Talence.  
He is also in charge of the second year of Embedded Electronic Systems option at ENSEIRB-MatMeca, Talence.
5. P. Ramet: Scheduling, 8h; Numerical Algorithmic, 30h; ENSEIRB-MatMeca, Talence.  
He also give classes on Cryptography, 30h, Ho Chi Minh City, Vietnam.
6. L. Giraud: Introduction to intensive computing and related programming tools, 20h, INSA Toulouse; Introduction to high performance computing and applications, 20h, ISAE-ENSICA; On mathematical tools for numerical simulations, 10h, ENSEIHT Toulouse; Parallel sparse linear algebra, 11h, ENSEIRB-MatMeca, Talence.
7. A. Guermouche: Network management, 92h, University Bordeaux I; Network security, 64h, University Bordeaux I; Operating system, 24h, University Bordeaux I.
8. J. Roman: Parallel sparse linear algebra, 10h, ENSEIRB-MatMeca, Talence; Parallel algorithms, 22h, ENSEIRB-MatMeca, Talence.

### 10.2.2. Supervision

Defended PhD thesis

1. Astrid Casadei, *Optimisations des solveurs linéaires creux hybrides basés sur une approche par complément de Schur et décomposition de domaine*, defended on October 19<sup>th</sup>, advisors: F. Pellegrini and P. Ramet.
2. Arnaud Etchevery, *Simulation de la dynamique des dislocations à très grande échelle*, defended on November 23<sup>th</sup>, advisors: O. Coulaud and G. Sylvand.

3. Xavier Lacoste, *Scheduling and memory optimizations for sparse direct solver on multi-core/multi-gpu cluster systems*, defended on February 18<sup>th</sup>, advisors: F. Pellegrini and P. Ramet.
4. Stojce Nakov, *On the design of sparse hybrid linear solvers for modern parallel architectures*, defended on December 14<sup>th</sup>, advisors: E. Agullo and J. Roman.
5. Alexis Praga, *Un modèle de transport chimie atmosphérique à grande échelle adapté aux calculateurs massivement parallèles*, defended on January 30<sup>th</sup>, advisors: D. Cariolle (CERFACS) and L. Giraud.
6. Fabien Rozar, *Contributions à l'amélioration de l'extensibilité de simulations parallèles de plasmas turbulents*, defended on November 5<sup>th</sup>, advisors: G. Latu and J. Roman.
7. Salli Moustafa, *Massively parallel Cartesian discrete ordinates method for neutron transport simulation*, defended on December 15<sup>th</sup>, advisors: P. Ramet and J. Roman.
8. Mawussi Zounon, *On numerical resilience in linear algebra*, defended on April 1<sup>st</sup>, advisors: E. Agullo and L. Giraud.

PhD in progress :

1. Pierre Blanchard, *Fast and accurate methods for dislocation dynamics*, starting Oct. 2013, advisors: O. Coulaud and E. Darve (Stanford Univ.).
2. Bérenger Bramas, *Optimization of time domain BEM solvers*, starting Jan 2013, advisors: O. Coulaud and G. Sylvand.
3. Nicolas Bouzat, *Fine grain algorithms and deployment methods for exascale plasma physic applications*, starting October 2015, advisors: G. Latu, M. Mehrenberger and J. Roman.
4. Jean-Marie Couteyen, *Parallélisation et passage à l'échelle du code FLUSEPA*, starting Feb 2013, advisors : P. Brenner (Airbus Defence and Space) and J. Roman.
5. Arnaud Durocher, *Passage à l'échelle des simulations de Dynamique des Dislocations sur plateforme hétérogène pour l'étude des mécanismes de fluage dans les matériaux du nucléaire*, starting Nov. 2015, advisors: O. Coulaud and L. Dupuy (CEA-DEN)
6. Aurélien Falco, *High performance solver for BEM-FEM coupling*, starting December 2015, advisors: E. Agullo, L. Giraud and G. Sylvand.
7. Grégoire Pichon, *Utilisation de techniques de compression  $\mathcal{H}$ -matrices pour solveur direct creux parallèle dans le cadre des applications FEM*, starting October 2015, advisors: L. Giraud and P. Ramet.
8. Cyrille Fournier, *New parallel programming paradigm for LES calculation at large scale*, starting March 2015, advisors: L. Giraud and G. Staffelbach (CERFACS).
9. Maria Predari, *Dynamic Load Balancing for Massively Parallel Coupled Codes*, starting Oct. 2013, advisors: A. Esnard and J. Roman.
10. Louis Poirel, *Two level hybrid linear solver*, starting Nov. 2014, advisors: E. Agullo, M. Faverge and L. Giraud.

### 10.2.3. Juries

- HDR of M. Chau (INP Toulouse) entitled "Algorithmes Parallèles Asynchrones et Applications en Calcul Scientifique" defended December 2015. L. Giraud (referee).
- PhD of J. Herrmann (ENS Lyon) entitled "Memory-aware Algorithms and Scheduling Techniques for Matrix Computations" defended November 2015. L. Giraud (examinator).
- Phd of E. Cieren (Université Bordeaux) entitled "Molecular Dynamics for Exascale supercomputers" defended October 2015. O. Coulaud (examinator).

- Phd of P. Pei Li (Université Bordeaux) entitled "Système unifié de transformation de code et d'exécution pour un passage aux architectures multicœurs hétérogènes" defended December 2015. J. Roman (examinator).

### **10.3. Popularization**

In the context of HPC-PME initiative, we started a collaboration with ALGO'TECH INFORMATIQUE and we have organised one of the first PhD-consultant action implemented by Xavier Lacoste led by Pierre Ramet. ALGO'TECH is one of the most innovative SMEs (small and medium sized enterprises) in the field of cabling embedded systems, and more broadly, automatic devices. The main target of the project is to validate the possibility to use the sparse linear solvers of our team in the area of electromagnetic simulation tools developed by ALGO'TECH.

The **HIEPACS** members have organized the PATC training session on Parallel Linear algebra at CINES in Montpellier April 9-10, 2015.

## INDES Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific events organisation

##### 8.1.1.1. General chair, scientific chair

Manuel Serrano was the General chair of the 11th ACM Dynamic Language Symposium (DLS'15), co-located with Splash 2015 (<http://2015.splashcon.org/track/dls2015>). Manuel Serrano was the General chair of 13th Trends In Functional Programming Symposium. (<https://tfp2015.inria.fr/>).

##### 8.1.1.2. Member of the organizing committees

Nataliia Bielova was a publication chair of International Symposium on Engineering Secure Software and Systems (ESSoS 2015). Ilaria Castellani co-organised the workshop TRENDS 2015, affiliated with the CONCUR 2015 conference which took place in Madrid at the beginning of September.

#### 8.1.2. Scientific events selection

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

- Ilaria Castellani served on the programme committee member of the conferences CONCUR 2015, TGC 2015, TTCS 2015 and ICTAC 2015.
- Tamara Rezk served on the programme committee member of the conferences ESSOS 2015, CSF 2015, POST 2015, PLAS 2015.
- Manuel Serrano served on the program committee of the 20th ACM ICFP'15.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master : Nataliia Bielova, Information Flow Security in Web Applications, 15 ETD, University of Pierre et Marie Curie, France

Doctorat : Ilaria Castellani, Behavioral Types, 15H ETD, University of Florence, Italy

Licence : Vincent Prunet, Algorithms and Data Structures, 80 ETD, L2, Lycée International de Valbonne Sophia Antipolis (within the scope of the national Inria action to promote early CS courses in all scientific curricula), France

Master : Tamara Rezk, Web Application Security, 28H ETD, University of Nice Sophia Antipolis, France

Master : Tamara Rezk, Proofs of Cryptography, 28H ETD, University of Nice Sophia Antipolis, France

Master : Tamara Rezk, Information Flow Security in Web Applications, 15 ETD, University of Pierre et Marie Curie, France

Master: Bernard Serpette, From Lambda-calculus and Pi-calculus to an Abstract Distributed Machine, 24H ETD, Escuela de Verano de Ciencias Informáticas, Rio Cuarto, Argentina

Master: Manuel Serrano, Programming the Diffuse Web, 4,5h ETD, Ecole Normale Supérieure de Cachan, France

### 8.2.2. Supervision

PhD : Johan Grande, Conception and Implementation of a modular concurrent programming language, University of Nice Sophia Antipolis, September 2015, Manuel Serrano and Gérard Boudol

PhD in progress: Yoann Couillec, Langages de programmation et données ouvertes, University of Nice Sophia Antipolis, 1/10/2012, Manuel Serrano

PhD in progress : Francis Dolière Some, Web Tracking Prevention, November 2015, Nataliia Bielova and Tamara Rezk

PhD in progress : Colin Vidal, HipHop, September 2015, Manuel Serrano and Gérard Berry

PFE master 2: Julien Chiramello, Décomposition en nombres premiers en informatique quantique, Tamara Rezk and Benjamin Grégoire

### 8.2.3. *Juries*

Iliaria Castellani was a member of the “Comité de sélection” for a position of Maître de conférences at the University of Paris-Est Créteil (Paris 12).

Iliaria Castellani was an examiner of the PhD thesis of Ioana Cristescu, Université Paris-Diderot (Paris 7).

Tamara Rezk was an examiner of the PhD thesis of Marco Patrignani, KU Leuven University.

Manuel Serrano was a member of a "comité de sélection" of UPMC (Paris 6).

## 8.3. Transfer

### 8.3.1. *Price discrimination in e-commerce*

In 2014, we started a collaborative project with Thomas Vissers, Wouter Joosen (KULeuven, Belgium) and Nick Nikiforakis (Stony Brook University, USA). The goal of this project is to analyse the price discrimination in e-commerce, and more precisely in the online airline tickets websites. This work (published at HotPETs 2014) has achieved a strong impact on the general public and society at large – its scientific results has been disseminated via the popular science French magazine “Science et vie” No. 1177, in the article called “*Achat sur Internet – Des prix à la tête du client!*”.

### 8.3.2. *WebRobotics*

The WebRobotics initiative aims at developing collaborations with partner academic and industry teams to jointly prototype and experiment end user applications involving assistive robots and sensor devices (depending on the size and number of the embedded components, applications may be either classified as robotic or IoT ones). Each WebRobotics project is structured around partner medical institutions that provide key requirements to specifications and use the actual prototype throughout their daily activity. WebRobotics Applications all use Hop.js as their core framework, natively supporting web protocols for communication and distribution of tasks, and any web enabled device such as a smartphone or tablet to drive the robots and applications. In 2015, The initiative accounted to two full time engineers.

The Top Three Benefits of WebRobotics:

- WebRobotics focuses on key societal issues, developing real applications for demanding users.
- Application developers and users feedback to Hop.js framework developers, helping identify and prioritize key requirements.
- The WebRobotics application portfolio fosters the dissemination and transfer of the Hop.js technology to the Industry.



The WebRobotics initiative now encompasses several prototypes in use by medical foundations and hospitals.

- RAPP. The WebRobotics project is now part of the RAPP FP7 european project, launched in December 2013, where Hop.js technology is used by several academic and SME R&D teams to develop a distributed software platform and applications for assistive robotics. Two prototypes are being developed, the first one is a personal coach robot (a Nao humanoid robot embedding Hop.js distributed applications), and the second one is a smart rollator (a walking aid with additional hardware and software services for rehabilitation, training and activity monitoring. The rollator hardware and robotic components are provided by Inria Hephaistos). Both prototypes are being evaluated by partner medical institutions. Indes contribution to the project is supported by the EC grant and by an Inria self funded ADT (Technology Development Program).
- Hopcare. Indes collaborates with other research teams (Inria STARS, Nice University Cobtek Project) and local institutes and SMEs to foster the development distributed monitoring and supervision applications with the Hop.js technology. An expert engineer is dedicated to this project (grant from UCN@Sophia Labex, since may 2015).
  - ICP (Institut Claude Pompidou Hospital, in Nice) is now using the Alzheimer diagnosis tool developed using Hop.js. User Data generated from Inria/Stars sensors and image analysis software are collected by a Hop.js server and processed before being delivered to the Physician's web tablet, as an editable web report, or paper ready PDF reports.
  - The activity monitoring application enables real-time monitoring of various events generated by hardware/software monitoring tools (such as the video monitoring applications from Inria/Stars) as well as user defined events. Hop.js is the common framework for the whole application (communications with remote information servers, processing of input data, database management, user authentication and authorization, custom views for web clients). The application will soon be deployed at the Nice Valrose EHPAD (a specialized institution for elderly who need medical care), where Inria runs an experimentation lab.
  - A third application has been developed to enable the configuration and use of Inria/Stars video analysis tools through a web interface. The application is used by researchers to tune their data processing algorithms.

## INFINE Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Emmanuel Baccelli co-chair of ACM MobileHealth 2015

#### 9.1.1.2. Member of the organizing committees

- Aline Viana was Publication Chair of ACM MobiCom 2015, IEEE SECON 2015 and part of Poster and Demo committee of ACM SIGCOMM 2015

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

- In 2015 Aline Viana was TPC co-chair of the Symposium on Selected Topics in Communications.

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

- In 2015 Aline Viana was on the conference programm committee for IFIP NTMS, IEEE SECON

#### 9.1.2.3. Reviewer

- In 2015 Cedric Adjih was reviewer for InterIoT 2015, ICC 2016, PEMWN 2015, Ad Hoc & Sensor Wireless Networks.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- In 2015 Aline Viana was Associate Editor of ACM Computer Communication Review (ACM CCR)

#### 9.1.3.2. Reviewer - Reviewing activities

- In 2015 Aline Viana was reviewer for IEEE Transaction on Mobile Computing (TMC), IEEE Transactions on Parallel and Distributed Systems (TPDS), Elsevier Pervasive and Mobile Computing, Elsevier AdHoc Networks.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- **Masters**
- Engineering School: Cédric Adjih, “Microcontrollers: from embedded systems to the Internet of Things”, 3 hours TD, Telecom SudParis.
- Engineering school, third year students at Ecole Polytechnique: Laurent Massoulié taught an 18 hour course on “Networks: distributed control and emerging phenomena”, and gave 18 hours of exercise classes for the Operations Research course taught by Stéphane Gaubert.
- PhD students course: Laurent Massoulié taught a 10 hour course to PhD students (mostly from EPFL and ETH but not only) on community detection, as part of a summer school in Les Diablerets.
- M2 course: Laurent Massoulié taught 10 hours in an M2 course of the Master of Probability and Statistics at Jussieu, on random graphs and epidemic models.

### 9.2.2. Supervision

1. Cedric Adjih currently advises Fatma Soma, on "handling mobility in routing in wireless sensor networks", thesis started in 2013 and co-advised with Inès El Korbi (Institut Supérieur d'Informatique et de Gestion de Kairouan, Tunisie).
2. Laurent Massoulie currently advises 2 PhD students: Lennart Gulikers and Remi Varloot.
3. Emmanuel Baccelli currently advises 2 PhD students: Oliver Hahm, on "Dependable IoT protocols and platforms", (Nov. 2012-) and Hauke Petersen, on "Holistic and generic IoT network stacks", (Nov. 2013-).
4. Aline Viana currently advises 3 PhD students: Felipe Domingos, on "Identifying Social Attributes in VANETs" (January 2013-). Roni Shigueta, on "Resource allocation in highly mobile wireless networks" (January 2012-). Guangshuo Chen, on "Understanding and predicting human demanded content and mobility" (September 2014-).
5. PhD completed: Eduardo Mucelli, "Revealing new facets of human behavior", November 2011-May 2015. Advisor: Aline Carneiro Viana.

### **9.2.3. Juries**

1. Aline Viana was on the PhD jury of Filippo Rebecchi, "Device-to-Device Data Offloading: From Model to Implementation", Univ. Paris 6 - Sorbone Universite, September 2015;
2. Aline Viana was on the PhD jury of N. R. Zema, "Spontaneous mobility and autonomous (Re)configuration techniques to support next generation networks", Univ. of Reggio Calabria, April 2015;

## **9.3. Popularization**

1. An interview from Laurent Massoulie was published in «La Recherche », concerning our work on community detection.
2. Cedric Adjih participated to the "Inria-Industry Meeting" dedicated to energy transition, with a demo of RIOT, an open-source OS for the Internet of Things. Among different uses of the RIOT, RIOT enables IoT devices and embedded systems to easily participate in an interoperable, IP-based, communication infrastructure. Such a standard-based infrastructure is essential for data collection (e.g. sensors) providing the information feeding smart energy systems (big data analytics).
3. Emmanuel Baccelli was the editor (with Dave Raggett) of ERCIM News Special Issue on Internet of Things and Web of Things (ERCIM News No 101).

## **KERDATA Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific events organisation**

#### *10.1.1.1. General chair, scientific chair*

Gabriel Antoniu: Program Co-Chair of the **EIT Digital Future Cloud Symposium** (Rennes, October 2015).

#### *10.1.1.2. Member of the organizing committees*

Alexandru Costan: Organizer of the IRISA D1 Department Day Seminar.

### **10.1.2. Scientific events selection**

#### *10.1.2.1. Chair of conference program committees*

Gabriel Antoniu: Track Chair for the following international conferences: IEEE Cluster 2015 (Data, Storage, and Visualization Track - Chicago, September 2015) and 3PGCIC 2015 (Distributed Algorithms Track - Krakow, November 2015).

Alexandru Costan: Program Co-Chair of the following international workshops: BigDataCloud 2015 held in conjunction with the Euro-Par 2015 conference (Vienna, August 2015) and ScienceCloud 2015 held in conjunction with HPDC 2015 (Portland, June 2015).

#### *10.1.2.2. Member of the conference program committees*

Gabriel Antoniu: ACM HPDC 2015, ACM/IEEE CCGrid'2015, ACM/IEEE SC'15, Euro-Par 2015, BigDataCloud 2015 workshop (held in conjunction with the Euro-Par 2015 conference).

Luc Bougé: BigDataCloud 2015, BigData 2015, ICA3PP 2015, CCGRID 2016.

Alexandru Costan: Member of the following Program Committees: IEEE Cluster 2015, CSCS 2015, ARMS-CC 2015, BigDataCloud 2015, ScienceCloud 2015, CSE

Other reviews: IEEE BigData 2015, SC 2015, HPDC 2015, CCGrid 2015, Euro-Par 2015.

Shadi Ibrahim: Member of the following Program Committees: IEEE Cluster 2015, IEEE Cloudcom 2015, ICPADS 2015, IEEE CSE 2015, IEEE FCST 2015, IEEE ICA3PP 2015, IFIP NPC 2015, MEDES 2015, BigDataCloud 2015 workshop (held in conjunction with the Euro-Par 2015 conference), SCRAMBL 2015 workshop (held in conjunction with the CCGrid 2015 conference).

Other reviews: IEEE BigData 2015, SC 2015, HPDC 2015, CCGrid 2015, Euro-Par 2015.

### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

Alexandru Costan: Soft Computing Journal, Special Issue on Autonomic Computing and Big Data Platforms

#### *10.1.3.2. Reviewer*

Shadi Ibrahim: IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Services Computing, IEEE Transactions on Cloud Computing, ACM Transactions on Architecture and Code Optimization, ACM Transactions on Internet Technology, Future Generation Computer Systems, IEEE Systems Journal, Cluster Computing.

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

#### 10.1.4. Invited talks

Gabriel Antoniu:

3rd JLESC workshop: *To Overlap or Not to Overlap: Optimizing Incremental MapReduce Computations for On-Demand Data Upload*, 3rd workshop of the Joint Laboratory for Extreme Scale Computing, Barcelona, Spain, July 2015.

Huawei Workshop on New Directions in Algorithms and Software, *Scalable data-intensive processing for science on distributed clouds: A-Brain and Z-CloudFlow*, Paris, March 2015.

Inria-Mexico workshop: *Scalable data-intensive processing for science on distributed clouds: A-Brain and Z-CloudFlow*, First Inria-Mexico Workshop in Applied Mathematics and Computer Science Mexico City, June 2015.

IRISA Data Science Symposium: *Damaris: Jitter-Free I/O Management and In Situ Visualization of HPC Simulations using Dedicated Cores*, Science Data Ecosystem workshop, Rennes, November 2015.

Luc Bougé

BigDataCloud 2016: *Data computing in distributed, very large-scale clouds: From execution models to programming models*, satellite workshop of the Euro-Par 2015 conference, Vienna, August 2015.

#### 10.1.5. Leadership within the scientific community

Luc Bougé: Vice-Chair of the Steering Committee of the **Euro-Par** conference.

Gabriel Antoniu: Leader for the Big Data, I/O and visualization activity within the **JLESC** - Joint Inria-Illinois-ANL-BSC-JSC-RIKEN/AICS Laboratory for Extreme-Scale Computing.

Gabriel Antoniu: Principal Investigator of the Z-CloudFlow Microsoft Research-Inria Project, for which he received an Azure Research Award.

#### 10.1.6. Scientific expertise

Luc Bougé: Member of the jury for the *Agrégation de mathématiques*, the French national hiring committee to hire high-school mathematics teachers at the national level.

Gabriel Antoniu: Project evaluator for 12 ANR projects submitted to the ANR 2016 call (Phase 1).

#### 10.1.7. Research administration

Luc Bougé: Nominated to seat at the CNU (*National University Council*) in the *Informatics* Section (27). His 4-year term has been renewed in November 2015.

Luc Bougé: Scientific Project Leader for Fundamental Informatics at the ANR - *Agence Nationale de la Recherche* until August 2015, for 40% of his time. It was the end of his 3-year delegation contract.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Gabriel Antoniu

- Master (Engineering Degree, 5th year): Big Data, 24 hours (lectures), M2 level, ENSAI (*École Nationale Supérieure de la Statistique et de l'Analyse de l'Information*), Bruz, France.
- Master : Cloud Computing, 15 hours (lectures and lab sessions), M2 level, ENSAI (*École Nationale Supérieure de la Statistique et de l'Analyse de l'Information*), Bruz, France.
- Master: Distributed Systems, 8 hours (lectures), M2 level, ALMA Master, Distributed Architectures module, University of Nantes, France.

- Master: Scalable Distributed Systems, 5 hours (lectures), M2 level, SDS Module, M2RI Master Program, ENS Rennes, France.
- Master: Scalable Distributed Systems, 12 hours (lectures), M1 level, SDS Module, EIT ICT Labs Master School, France.
- Master (Engineering Degree, 5th year, *Big Data* option), 10 hours (lectures), M2 level, INSA de Lyon, France.

Luc Bougé

- Bachelor: Introduction to programming concepts, 24 hours (lectures), L3 level, Informatics program, ENS Rennes, France.
- Master: Introduction to object-oriented high-performance programming, 24 hours (lectures), M1 level, Mathematics program, ENS Rennes, France.
- Master: Introduction to compilation, 12 hours (exercice classes), M1 level, Informatics program, Univ. Rennes 1, France.

Shadi Ibrahim

- Master (Engineering Degree, 5th year): Big Data, 24 hours (lectures and lab sessions), M2 level, ENSAI (*École Nationale Supérieure de la Statistique et de l'Analyse de l'Information*), Bruz, France.
- Master : Cloud Computing and Hadoop Technologies, 3 hours (lectures), M2 level, ENSAI (*École Nationale Supérieure de la Statistique et de l'Analyse de l'Information*), Bruz, France.
- Master: Distributed Systems (cloud data management), 4 hours (lectures), M2 level, ALMA Master, Distributed Architectures module, University of Nantes, France.

Alexandru Costan

- Bachelor: Software Engineering and Java Programming, 28 hours (lab sessions), L3, INSA Rennes.
- Bachelor: Databases, 68 hours (lectures and lab sessions), L2, INSA Rennes, France.
- Bachelor: Practical case studies, 24 hours (project), L3, INSA Rennes.
- Master: Big Data and Applications, 36h hours (lectures, lab sessions, project), M1, INSA Rennes.

## 10.2.2. Supervision

### 10.2.2.1. PhD in progress

Luis Eduardo Pineda Morales: *Efficient Big Data Management for Geographically Distributed Workflows*, thesis started in January 2014, co-advised by Alexandru Costan and Gabriel Antoniu.

Tien-Dat Phan: *Green Big Data Processing in Large-scale Clouds*, thesis started in October 2014, co-advised by Shadi Ibrahim and Luc Bougé.

Lokman Rahmani: *Big Data Management for Next-Generation High-Performance Computing Systems*, thesis started in October 2013 co-advised by Gabriel Antoniu and Luc Bougé.

Orçun Yildiz: *Energy-Efficient Big Data Management in Petasacle Supercomputers and Beyond*, thesis started in September 2014, co-advised by Shadi Ibrahim and Gabriel Antoniu.

Mohammed-Yacine Taleb: *Energy-impact of data consistency management in Clouds and Beyond*, thesis started in August 2015, co-advised by Shadi Ibrahim and Gabriel Antoniu.

Pierre Matri: *Predictive Models for Big Data*, thesis started in March 2015, co-advised by María Pérez and Gabriel Antoniu.

Ovidiu-Cristian Marcu: *Efficient data transfer and streaming strategies for workflow-based Big Data processing*, thesis started in October 2015, co-advised by Alexandru Costan and Gabriel Antoniu.

### 10.2.3. *Juries*

Gabriel Antoniu: Referee for the PhD thesis of Ms. Zhou Chi at the Nanyang Technological University (NTU), Singapore (to be defended in January 2016).

Gabriel Antoniu: Jury member of the PhD defense of Ms. Safae Dahmani at the University Bretagne Sud (December 14, 2015).

Shadi Ibrahim: Jury member of the PhD defense of Ms. Karine Pires at the University Pierre et Marie Curie, Paris (March 31, 2015).

### 10.2.4. *Miscellaneous*

Luc Bougé: Co-ordinator between ENS Rennes and the Inria Research Center and the IRISA laboratory.

Shadi Ibrahim: Project evaluator in the STIC-AMSUD Program 2015.

Shadi Ibrahim: Leader of the BigStorage project recruitment task force.

Gabriel Antoniu: Invited to give a tutorial on *Big Data Technologies* at the PUF Summer School co-organized with the 3rd JLESC workshop in Barcelona (July 2015).

Shadi Ibrahim: Invited to give a 2 days tutorial on *Hadoop* at IT4Innovations, Technical University Ostrava, Czech Republic (December 2015).

Alexandru Costan: In charge of communication at the Computer Science Department of INSA Rennes.

Alexandru Costan: In charge of the organization of the IRISA D1 Department Seminar.

## 10.3. **Popularization**

Luc Bougé:

Collège international, Valbonne. Invited presentation to the students of the preparatory classes on *Doing research in computer science* (January 2015).

Lycée Chateaubriand, Rennes. Invited presentation to the students of the preparatory classes on *Science of numerics* (March 2015).

IRISA Conf Lunch Program. Invited presentation about *Surviving the Data Deluge* (October 2015).

Master Program, Rennes. Invited presentation to the M2 students about *Informatics as a scientific activity: Toward a responsible research* (December 2015).

IRISA Open House Days, Rennes. Invited presentation about *Wikipedia back stage*, and management of an open booth to let visitors improve their skills about searching Wikipedia (December 2015).

Alexandru Costan:

CumuloNumBio'15, Aussois. Invited presentation at the *Summer School of BioInformatics* about *Big Data Management on Clouds* (June 2015).

IRISA, Rennes. Invited presentation at the *Conf'Lunch* about *Clouds and MapReduce Programming* (October 2015).

EIT Digital, Rennes. Invited presentation at the Future Cloud Symposium about *Enhancing video gaming user experience with Big Data analytics based on Apache Flink - a use case* (October 2015).

Gabriel Antoniu:

EIT Digital. Invited presentation at the Future Cloud Symposium on *Scalable data-intensive processing for science on distributed clouds* (October 2015).

## **MADYNES Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific events organisation**

#### *10.1.1.1. General chair, scientific chair*

Thomas Silverston organized (General Chair) the 2nd international Workshop on Crowd-Assisted Sensing in Pervasive Systems and Communications (CASPER'2015) along with the IEEE PERCOM Conference on March 27th 2015.

#### *10.1.1.2. Member of the organizing committees*

Remi Badonnel was member of the organizing committee for the following conferences: IEEE International Conference on Cloud Networking (IEEE CloudNet 2015), IEEE International Conference on Network Software (IEEE NetSoft 2016).

Isabelle Chrisment was member of the organizing committee for the following conferences: JCSA 2015 (Journée du Conseil Scientifique de l'AFNIC) "*Quelles mesures sur Internet, pour quels usages scientifiques et techniques*", RESSI'15 (*Rendez-vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information*).

Lucas Nussbaum was member of the organizing committee for the following conferences: Reppar (2st International Workshop on Reproducibility in Parallel Computing, held together with Euro-Par 2015).

Vassili Rivron and Cécile Dolbeau-Bandin organized a one-day seminar on "*Us et abus de l'Internet : enjeux sociologiques et psychologiques des pratiques numériques*", Université de Caen Basse Normandie, Caen, on 25th September 2015.

Vassili Rivron, Claudia Ignat and Isabelle Chrisment organized a one-day seminar on "Social science insights for large scale and mobile collaboration/networks", LORIA, Nancy, on 14th September 2015.

Ye-Qiong Song was member of the organizing committee for MSR 2015 (<http://msr2015.loria.fr/>) and co-organizer for "networks and real-time QoS" session of the real-time system summer school ETR 2015 (Ecole temps réel 2015).

### **10.1.2. Scientific events selection**

#### *10.1.2.1. Chair of conference program committees*

Rémi Badonnel was TPC co-chair for the following conferences: IFIP/IEEE International Symposium on Integrated Network Management (IFIP/IEEE IM 2015), the Experience Track of the IFIP/IEEE Network Operations and Management Symposium (IFIP/IEEE NOMS 2016), IFIP/IEEE International Workshop of Management of the Future Internet (IFIP/IEEE ManFI 2016), IFIP International Conference on Autonomous Infrastructure, Management and Security (IFIP AIMS 2016).

Laurent Ciarletta was associated Associate Editor for IEEE CSS / RAS International Conference on Unmanned Aircraft Systems ICUAS 2015.

Jérôme François was co-chair of the PhD workshop at IFIP International Conference on Autonomous Infrastructures, Management and Security (IFIP AIMS'15).

#### *10.1.2.2. Member of the conference program committees*

Bernardetta Addis: International Conference on Green IT Solutions (ICGREEN 2015) ; Design of Reliable Communication Networks (DRCN 2016)



Remi Badonnel: IFIP/IEEE International Symposium on Integrated Network Management (IFIP/IEEE IM 2015) ; IFIP International Conference on Autonomous Infrastructure, Management and Security (IFIP AIMS 2015) ; IFIP/IEEE International Conference on Network and Service Management (IFIP/IEEE CNSM 2015) ; IEEE Global Information Infrastructure and Networking Symposium (IEEE GIIS 2015) ; Asia-Pacific Network Operations and Management Symposium (APNOMS 2015) ; IEEE Global Communications Conference (IEEE GLOBECOM - SAC 2015) ; IFIP/IEEE Network Operations and Management Symposium (IFIP/IEEE NOMS 2016).

Thibault Cholez: 7th IEEE International Workshop on Network Science for Communication Networks (NetSciCom 2015) ; 9th International Conference on Autonomous Infrastructure, Management and Security (AIMS 2015) PhD workshop.

Isabelle Chrisment: IFIP International Conference on Autonomous Infrastructures, Management and Security (IFIP AIMS'15); Rencontres Francophones sur les Aspects Algorithmiques de Télécommunications (AlgoTel'15); Colloque francophone sur l'ingénierie des protocoles et Nouvelles Technologies de la Répartition (CFIP-NOTERE'15); IFIP/IEEE International Symposium on Integrated Network Management (IFIP/IEEE IM'15); IFIP/IEEE International Symposium on Network Operations and Management (IFIP/IEEE NOMS'16).

Laurent Ciarletta: IEEE CSS / RAS International Conference on Unmanned Aircraft Systems ICUAS 2015.

Olivier Festor: IFIP/IEEE International Symposium on Integrated Network Management (IFIP/IEEE IM 2015); IFIP International Conference on Autonomous Infrastructure, Management and Security (IFIP AIMS 2015); IFIP/IEEE International Conference on Network and Service Management (IFIP/IEEE CNSM 2015); Asia Pacific Network Operations and Management Symposium (APNOMS 2016); ACM SIGCOMM Poster/Demo Committee 2015; IEEE International Conference in COmmunications (IEEE ICC 2016); IEEE International Conference on Network Softwarization (IEEE Netsoft 2015, IEEE Netsoft 2016); IFIP/IEEE Network Operations and Management Symposium (IFIP/IEEE NOMS 2016).

Jérôme François: IFIP/IEEE International Symposium on Integrated Network Management (IFIP/IEEE IM'15); Sec-SDN workshop of the 1st Network Softwarization Conference (IEEE NetSoft, 2015); Asia-Pacific Network Operations and Management Symposium (APNOMS 2015); Principles, Systems and Applications of IP Telecommunications (IPTComm'15); Global Information Infrastructure and Networking Symposium (IEEE GIIS 2015).

Abdelkader Lahmadi: IFIP/IEEE International Symposium on Integrated Network Management (IFIP/IEEE IM'15); IFIP/IEEE International Symposium on Network Operations and Management (IFIP/IEEE NOMS'16); Asia-Pacific Network Operations and Management Symposium (APNOMS 2015); IFIP/IEEE International Workshop on Management of the Future Internet (ManFI 2015).

Lucas Nussbaum: Reppar (2nd International Workshop on Reproducibility in Parallel Computing, held together with Euro-Par 2015); CloudCom'2015 (HPC on Cloud track); WETICE'2015 (Convergence of Distributed Grid, Cloud and their Management track); ComPAS'2015.

Thomas Silverston: CASPER'15 Workshop (with IEEE Percom); ICNS Workshop (with IEEE Globecom'15); ACM AINTEC 2015, ACM ICN 2015 (Posters and Demos).

Françoise Simonot-Lion: 10th IEEE International Workshop on Factory Communication Systems (WFCS 2015); CARS@EDCC2015, satellite workshop of the 11th European Dependable Computing Conference - Dependability in Practice, 2015.

Ye-Qiong Song: 10th IEEE International Workshop on Factory Communication Systems (WFCS 2015); 5th IEEE International Conference on Communications and Networking (ComNet 2015); 20th IEEE International Conference on Emerging Technologies and Factory Automation (ETFAs 2015); 13th International Conference on Smart Homes and Health Telematics (ICOST 2015); 8th IFIP Wireless and Mobile Networking Conference; 23rd International Conference on Real-Time Networks and Systems (RTNS 2015).

### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

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

Olivier Festor is Associate Editor for -IEEE Transactions on Network and Service Management and -Wiley International Journal of Network Management (IJNM).

Françoise Simonot-Lion is Associate Editor for the IEEE Transactions on Industrial Informatics.

Ye-Qiong Song is Associate Editor for the Elsevier Computers and Electrical Engineering Journal.

#### *10.1.3.2. Reviewer - Reviewing activities*

The following reviews for journals has been made by team members:

Bernardetta Addis: Computers and Operation Research (COR), Discrete Applied Mathematics (DAM), Journal of Network and Systems Management (JONS), Telecommunication Systems (TELS).

Remi Badonnel: IEEE Transactions on Network and Service Management (IEEE TNSM), Springer Journal of the Network and Systems Management (JNSM), Elsevier International Journal on Computer Networks (COMNET), IEEE Communications Magazine (COMMAG).

Thibault Cholez: IEEE Transactions on Network and Service Management (IEEE TNSM), IEEE Communications Letters.

Isabelle Chrisment: Elsevier Computer Communications (COMCOM).

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: Concurrency and Computation: Practice and Experience ; SoftwareX.

Thomas Silverston: Elsevier Computer Network.

Françoise Simonot-Lion: Journal Mathematical Problem in Engineering, IEEE Transactions on Industrial Informatics.

Ye-Qiong Song: the Elsevier Computers and Electrical Engineering journal, Elsevier Ad hoc network journal, Journal of Real-time systems (Springer), ACM Transactions on Architecture and Code Optimization (TACO), IEEE transaction on cloud computing.

#### *10.1.4. Invited talks*

Isabelle Chrisment gave a talk on Mitigation of Topological Attacks in RPL based Networks at the IFIP WG11.2 seminar in June 2015, Paris, France.

Isabelle Chrisment and Jérôme François gave a talk on Internet Monitoring for Tracking Cybercriminal Activities at the French-German Cybersecurity Workshop, in February 2015, Saarbrücken, Germany.

Jérôme François gave a talk on monitoring network for fighting cybersecurity threats at the Cybersecurity French-Japanese Workshop in April 2015, Tokyo, Japan. He presented a tutorial on data analytics for network management at IFIP AIMS 2015. He also presented flow aggregation techniques at the first NMLRG (Network Machine Learning Research group) meeting at the IETF 94.

#### *10.1.5. Leadership within the scientific community*

Olivier Festor is Chair of the IFIP Working-Group 6.6 on Network and systems management. This working group is actively involved the animation of most major conferences in this research area and organizes frequent meetings and workshops on the domain.

Olivier Festor was Co-chair together with Lisandro Zambenedetti Grandvile from the Federal University of Rio Grande do Sul (UFRGS) of the Internet Research Task Force (IRTF) Network Management Research Group until november 2015.

### 10.1.6. Scientific expertise

Isabelle Chrisment is member of AFNIC scientific board since January 2013.

Thibault Cholez was invited by Thales to review the results of the NoE FP7 CAPITAL whose objective was to propose and motivate a research program in the field of cyber security for the European Commission.

Olivier Festor served as external expert in the AERES panel for the LIG laboratory evaluation.

Isabelle Chrisment participated in the review of a FNR (Fonds National de la Recherche - Luxembourg) proposal.

Thomas Silverston participated in the review of a FNR proposal (Luxembourg).

Françoise Simonot-Lion is Scientific Delegate with HCERES. She was member of the regional jury for the i-LAB 2015 Competition (Ministère de l'Enseignement Supérieur et de la Recherche and BPI-France)

Ye-Qiong Song is a member of the national Gilles Kahn best computer science PhD thesis awards committee.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Remi Badonnel is heading the Telecommunications, Networks and Services specialization of the 2nd and 3rd 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 and ENSEM engineering schools.

Laurent Ciarletta is heading the specialization Safe Systems Architecture of the Computer Science and IT department of the Ecole des Mines de Nancy ("Grande Ecole", Engineering School, Master degree level).

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

#### E-learning

MOOC : Rémi Badonnel, "Introduction to Nagios-based Monitoring", MOOC exercices complementing the initial course (45 minutes + 25 minutes), Youtube Platform (Flamingo Channel), TELECOM Nancy, Master/Engineering Students, more than 30 000 views in 2 years (initial course).

Team members are teaching the following courses:

**Bernardetta Addis** 216 hours, -M2 -Operational Research, Discrete Optimization -Écoles des Mines de Nancy, Université de Lorraine

**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** 340 hours, -L3, M1, M2 -Main topics: Computer Networks, Databases, Object-Oriented Programming, C and Shell Programming, Techniques and Tools for Programming, Network Services, Constraint development on small Connected Objects, Mobile applications and Internet of Things -TELECOM Nancy, Université de Lorraine

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

**Laurent Ciarletta** 250 hours -L3, M1, M2 -Component-based software development, Pervasive Computing, Networking and Systems -Écoles des Mines de Nancy, Université de Lorraine & ARTEM

**Olivier Festor** 192 hours -L3, M1, M2 -Network, Programming, Algorithmics, Complexity - TELECOM Nancy, Université de Lorraine

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

**Abdelkader Lahmadi** 280 hours - L1, M1, M2 -Algorithms and Java programming, C language programming, Real Time systems, Databases, Distributed algorithms, Constrained systems programming -ENSEM & Telecom Nancy

**Emmanuel Nataf** 192 hours -L1 L2 M2 -Network, operating system, network monitoring -IUT Nancy-Charlemagne & Telecom Nancy & Université de Lorraine

**Lucas Nussbaum** 96 hours (due to partial leave to Inria), -L3, M1, M2 -Systems and networks administration -IUT Nancy-Charlemagne

**Ye-Qiong Song** 230 hours, -L1, M1, M2 -Algorithms and Java programming, Databases, Networking, Sensor networks -ENSEM

## 10.2.2. Supervision

### 10.2.2.1. PhD in progress in team

Jonathan Arnault, *Data-Analytics infrastructure for Security Monitoring*, since November 2015, supervised by Isabelle Chrisment & Jérôme François.

Elian Aubry, *Using Software Defined Network to manage Content Centric Networks*, since October 2013, supervised by Isabelle Chrisment & Thomas Silverston.

Tomasz Buchert, *Orchestration of Experiments on Distributed Systems*, since Oct 2011, supervised by Jens Gustedt & Lucas Nussbaum.

Maxime Compastie, *Software-Defined Security for the Cloud*, since Dec 2015, supervised by Olivier Festor & Remi Badonnel.

Giulia De Santis, *Modelling and Analysis of Complex and Targeted Cyberattacks*, since October 2015, Olivier Festor & Abdelkader Lahmadi.

Meihui Gao, *Optimization models and methods for Network Functions Virtualization architectures*, since Nov 2015, supervised by Ye-Qiong Song & Bernardetta Addis.

Florian Greff, *QoS and fault-tolerance of distributed real-time systems over mesh networks*, since Feb. 2015, supervised by Ye-Qiong Song & Laurent Ciarletta.

Gaetan Hurel, *Mobile Cloud Security*, since Jan 2014, supervised by Olivier Festor, Abdelkahder Lahmadi & Remi Badonnel.

Patrick-Olivier Kamgue, *Routing management in WSNs*, since Jun 2012, supervised by Emmanuel Nataf & Olivier Festor in France, Thomas Djotio in Cameroun.

Daishi Kondo, *New Networking Architecture through Virtualization*, since September 2015, supervised with Olivier Perrin (EPI COAST) & Thomas Silverston.

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

Anthea Mayzaud, *Monitoring and Security for the Internet of Things*, since May 2013, supervised by Isabelle Chrisment & Rémi Badonnel.

Kevin Roussel, *Dynamic management of QoS and energy in heterogeneous sensor networks for e-health applications*, since December 2012, supervised by Ye-Qiong Song & Olivier Zendra.

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

Evangelia Tsiontsiou, *Multiconstrained QoS routing for wireless sensors networks with applications to smart space for ambient assisted living*, since Oct 2013, supervised by Ye-Qiong Song & Bernardetta Addis.

Shbair Wazen, *Contributions for the Management of HTTPS traffic*, since December 2013, supervised by Isabelle Chrisment & Thibault Cholez.

### 10.2.2.2. PhD defended in team

- [1] François Despaux, *Modelling and evaluation of the end to end delay in WSN*, Université de Lorraine, September 2015, supervised by Ye-Qiong Song & Abdelkahder Lahmadi.
- [2] Mohamed Said Seddiki, *Dynamic resource allocation and quality of service management in Network Virtualization*, Université de Lorraine, April 2015, supervised by Ye-Qiong Song & Mounir Frikha.

### 10.2.3. *Juries*

Team members participated to the following Ph.D. defense committees in Computer Science if no other indication:

- Dalal Belabed, in Informatics, Telecommunication and Electronics from Université Paris 6. Title: Optimization of Virtual Networks: design and assessment, 2015 – (Bernardetta Addis).
- Manamiary Bruno Andriamiarina, in Computer Science and Networking from Télécom SudParis and Université Pierre et Marie Curie. Title: Corrélation d’alertes : un outil plus efficace d’aide à la décision pour répondre aux intrusions, April 2015 – (Isabelle Chrisment as president).
- Florent Fourcot, joint Ph.D. from Télécom Bretagne and TU Dresden. Title: Address Spreading in Future Internet Supporting both the Unlinkability of Communication Relations and the Filtering of Non Legitimate Traffic, January 2015 – (Isabelle Chrisment as reviewer)
- Badis Hammi, in Networking, Knowledge and Organization from Université de Technologie de Troyes. Title: Vers une détection à la source des activités malveillantes dans les clouds publics : application aux attaques de déni de service, September 2015 – (Isabelle Chrisment as reviewer).
- Christopher Humphries, from Université de Rennes 1. Title: User-centred security event visualisation, December 2015 – (Isabelle Chrisment as president).
- Yosra Ben Mustapha. From Université de Lorraine. Title: Développement d’algorithmes répartis corrects par construction, May 2015 – (Isabelle Chrisment as reviewer)
- Yves Studnia. In Networking, Telecommunication, System and Architecture from Université Fédérale Toulouse Midi-Pyrénées, delivered by INSA Toulouse. Title: Détection d’intrusion pour des réseaux embarqués automobiles : une approche orientée langage, September 2015 – (Isabelle Chrisment as reviewer).
- Khalid Alsubli, from the University of Waterloo. Title: Security Configuration Management in Intrusion Detection, November 2015 – (Olivier Festor as reviewer).
- Yann Bachi, from Université Fédérale Toulouse Midi-Pyrénées. Title: Sécurité des équipements grands publics connectés à Internet: évaluation des liens de communication, June 2015 – (Olivier Festor as reviewer).
- Jonathan Dechaux, from École Polytechnique. Title: Formalisation, implémentation et tests d’une méthodologie et des techniques d’évaluation de logiciels antivirus. Application aux virus de documents, December 2015 – (Olivier Festor as reviewer).
- Léa El Samarji. From Télécom Bretagne. Title: Risk-aware Decision Support System to Counter Coordinated and Simultaneous Attacks, March 2015 – (Olivier Festor as reviewer).
- Samuel Marchal, joint Ph.D. from University of Luxembourg and Université Lorraine. Title: DNS and Semantic Analysis for Phishing Detection, June 2015 – (Olivier Festor as reviewer).
- Patrick Raad, from Université Pierre et Marie Curie, Paris 6. Title: Protocol Architecture and Algorithms for Distributed Data Center Networks, December 2015 – (Olivier Festor as reviewer).
- Mihai Andries, from Université de Lorraine. Title: Object and human tracking, and robot controls through a load sensing floor, December 2015 – (Ye-Qiong Song as president).
- Mouna Abdelmoumen, from Université de Carthage - SUPCOM Tunis. Title: Modèles de mobilité et leur impact sur la capacité des réseaux sans fil et mobiles, December 2015 – (Ye-Qiong Song as reviewer).

- Ali Kadhum Idrees, from Université de Franche-Comté. Title: Distributed Coverage Optimization Techniques for Improving Lifetime of Wireless Sensor Networks, October 2015 – (Ye-Qiong Song as reviewer).
- Ehsan Muhammad, from Université de Pau et des Pays de l'Adour. Title: Designing of MAC layer for Mission-Critical Surveillance Applications in Wireless Image Sensor Networks, June 2015 – (Ye-Qiong Song as reviewer).

Team members participated to the following Habilitation Degree in Computer Science defense committees of:

- Yves Roudier, from Université Nice-Sophia Antipolis, France. Title: Advances in the Design and Engineering of Secure Distributed Systems, December 2015 – (Isabelle Chrisment as examiner).
- Bertrand Mathieu, from Université Rennes 1. Title: Efficient Use of Network Resources for End-Users Quality Quality Improvement, April 2015 – (Olivier Festor as reviewer)
- Alain Pirovano, from Université Paul Sabatier de Toulouse. Title: Conception et Optimisation d'Architectures Réseaux pour les Systèmes de Communication Aéronautiques. February 2015 – (Olivier Festor as reviewer)
- Patrick Senac, from Université Pierre et Marie Curie, Sorbonne Universités. Title : L'Internet de l'extrême. Modèles, protocoles et mécanismes de bout en bout pour les réseaux de communication de nouvelle génération. December 2015 – (Olivier Festor as examiner)
- Claire Pagetti, from INP-ENSEEIH. Title: Programmation sûre de plates-formes embarquées de type multi/pluri-cœurs, (January 2015) – (Françoise Simonot-Lion as examiner)

Team members participated to the following recruitment selection committee:

- Isabelle Chrisment was member of the selection committee from Université de Technologie de Troyes to recruit an Assistant Professor (February 2015), from Université de Nice-Sophia Antipolis to recruit an Assistant Professor (April 2015) and from Université de Strasbourg to recruit a Professor (May 2015).

### **10.3. Popularization**

Thomas Silverston gave an interview with a subject on smart cities for the program *Mov'Futur* on the *Le Mouv'* radio (December 2015).

## MAESTRO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- A. Dandoush was co-chair of the International Workshop on Physics Inspired Paradigms in Wireless Communications and Networks (Physcomnet 2015, Mumbai, India).
- S. Alouf and A. Jean-Marie are the general chairs of the 13th SIGMETRICS/PERFORMANCE Joint International Conference on Measurement and Modeling of Computer Systems (ACM SIGMETRICS/IFIP PERFORMANCE 2016, Antibes Juan-les-Pins, France).

#### 10.1.1.2. Member of the organizing committees

- E. Altman was in the steering committee and an advisor in the organizing committee of 13th Intl. Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt 2015, Mumbai, India).

### 10.1.2. Scientific events selection

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

MAESTRO members were in the TPC of the following events (in alphabetical order):

- 10th ACM MobiCom Workshop on Challenged Networks (CHANTS 2015, Paris, France) (**G. Neglia**)
- 11th Advanced Intl. Conference on Telecommunications (AICT 2015, Brussels, Belgium) (**K. Avrachenkov**);
- IEEE ICC Workshop on Dynamic Social Networks (DySON 2015, London, UK), (**K. Avrachenkov**).
- 35th IEEE Intl. Conference on Computer Communications (IEEE INFOCOM 2016, San Francisco, USA) (**G. Neglia**)
- 7th IEEE Intl. Workshop on Network Science for Communication Networks (IEEE NetSciCom 2015, Hong Kong, PRC) (**K. Avrachenkov, G. Neglia**);
- 15th Intl. Conference on Next Generation Wired/Wireless Networking (NEW2AN 2015, St. Petersburg, Russia) (**K. Avrachenkov**);
- 9th Intl. Conference on Performance Evaluation Methodologies and Tools (VALUETOOLS 2015, Berlin, Germany) (**K. Avrachenkov, G. Neglia**)
- 30th Intl. Symposium on Computer and Information Sciences (ISCIS 2015, London, UK) (**A. Jean-Marie**);
- 13th Intl. Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt 2015, Mumbai, India), (**K. Avrachenkov**);
- 8th Intl. Workshop on Multiple Access Communications (MACOM 2015, Helsinki, Finland) (**K. Avrachenkov**);
- Intl. Workshop on Physics Inspired Paradigms in Wireless Communications and Networks (Physcomnet 2015, Mumbai, India) (**A. Jean-Marie**);
- Musimorphoses (Paris, France)) (**E. Altman**);
- 12th Workshop on Algorithms and Models for the Web Graph (WAW 2015, Eindhoven, The Netherlands) (**K. Avrachenkov**);
- 17th Workshop on Mathematical Performance Modeling and Analysis (MAMA 2015, Portland, Oregon, USA) (**A. Jean-Marie, P. Nain**).

#### 10.1.2.2. Reviewer

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

### 10.1.3. Journal

#### 10.1.3.1. Member of editorial boards (list in alphabetical order of journal name)

- *Performance Evaluation* (PEVA) (**P. Nain** Editor-in-Chief since 1 January 2008).
- *ACM Transactions on Modeling and Performance Evaluation of Computing Systems* (ToMPECS) (**K. Avrachenkov** since 2015).
- *Dynamic Games and Applications* (DGAA) (**E. Altman** since 2011);
- *Elsevier Computer Communications* (COMCOM) (**G. Neglia** since 2014);
- *IEEE Transactions on Control of Networks* (TCNS) (**E. Altman** since 2013);
- *IEEE/ACM Transactions on Networking* (ToN) (**E. Altman** since 2013);
- *Journal of Economic Dynamics and Control* (JEDC) (**E. Altman** since 2001);
- *Performance Evaluation* (PEVA) (**K. Avrachenkov** since 2008).

#### 10.1.3.2. Reviewer - Reviewing activities (list in alphabetical order of journal name)

- *Computer Communications* (COMCOM) (**S. Alouf**);
- *Computers in Industrial Engineering* (**A. Jean-Marie**);
- *IEEE Trans. on Control of Network Systems* (TCNS) (**A. Reiffers-Masson**);
- *IEEE Trans. on Mobile Computing* (TMC) (**G. Neglia**);
- *Mathematical Problems in Engineering* (**A. Jean-Marie**);
- *Performance Evaluation* (PEVA) (**J. K. Sreedharan**);
- *Social Network Analysis and Mining* (SNAM) (**A. Reiffers-Masson**);

### 10.1.4. Invited talks

MAESTRO members gave the following invited talks (in alphabetical order):

- *A Markovian queueing system for modeling a smart green base station*, in the series “séminaire Fondation HEC”, Gerad, Montréal, Canada, 13 October 2015, (**A. Jean-Marie**);
- *Extremes and Random Walks in Network Sampling Processes*, seminar at Yandex, Russia, 13 May 2015 (**K. Avrachenkov**);
- *Game models in epidemics in networks* seminar at Telecom SudParis on 22 October 2015 (**E. Altman**);
- *Game Theory and Online Social Network* seminar at NYU, New York, USA, August 2015 (**A. Reiffers-Masson**);
- *Graph-based Semi-supervised Learning Methods*, seminar at IIT Mumbai, India, 4 March 2015 (**K. Avrachenkov**);
- *Modeling with Markov chains: the MARMOTE software*, UCN@Sophia Labex seminar, 3 September 2015 (**A. Jean-Marie**);
- *On the convergence of the Rolling Horizon procedure*, 2nd 2015 Meeting of the COS working group of the GdR RO, Paris, 3 December 2015 (**A. Jean-Marie**).



### 10.1.5. Leadership within the scientific community

- E. Altman is a fellow member of IEEE (Class of 2010).
- E. Altman, A. Jean-Marie and P. Nain are (elected) members of IFIP WG7.3 on “Computer System Modeling”.

### 10.1.6. Research administration

E. Altman

- is co-responsible of one of the five themes of the SFR (Structure Fédérative de Recherche) AGORANTIC (in which Inria is a founding member) entitled “Digital Culture and Virtual Societies.”
- is Scientific coordinator of the European project CONGAS.

K. Avrachenkov

- together with Arnaud Legout (DIANA team) and Fabien Gandon (WIMMICS team) is co-responsible of the multi-disciplinary research theme (Action Transversale) “Semantic and Complex Networks” at Inria Sophia Antipolis - Méditerranée.

A. Jean-Marie

- is the scientific coordinator of Inria activities in Montpellier (since 2008); as part of this duty, he represents Inria at the Scientific Council of the Doctoral School “Sciences and Agrosociences” of the Univ. of Avignon, at the Regional Conference of Research Organisms (CODOR), at the Regional Consulting Committee for Research and Technological Development (ARAGO Committee);
- is a member of the Steering Committee of the GDR RO, a national research initiative on Operations Research sponsored by the CNRS;
- is Head of project-team MAESTRO since October 2014;
- was member of the recruitment committee for a *Maître de Conférences* position at Univ. Paris Est Créteil.

P. Nain

- has been Chairman of Inria’s Evaluation Committee from 1 September 2012 to 31 August 2015 (<http://www.inria.fr/en/institute/organisation/committees/evaluation-committee>).

G. Neglia

- is the scientific delegate for European partnerships for Inria Sophia Antipolis – Méditerranée.

MAESTRO members are in the following committees of Inria Sophia Antipolis-Méditerranée

- CC (Comité de Centre): General Information Commission (**G. Neglia** since September 2013);
- CLFP: Training Committee (**S. Alouf**, since November 2014);
- CSD: Doctoral Committee (**S. Alouf**, since February 2006);
- MASTIC: a commission in charge of popularization and regional and internal scientific animation (**S. Alouf**, from November 2011 until December 2015);
- NICE: Invited Researchers Committee (**K. Avrachenkov**, since 2010).

MAESTRO members are in charge of the following tasks for the research center and the project-team:

- Supervision and validation of the project-teams’ yearly activity reports (**K. Avrachenkov**, since 2010);
- Organizing MAESTRO internal meetings (**J. K. Sreedharan**, since November 2013).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### Licence:

S. Alouf, “Probability”, 33H, 1st year Water Engineering degree (L3), Univ. of Nice Sophia Antipolis (UNS), France.

G. Neglia, “Probability”, 18H, 1st year Water Engineering degree (L3), UNS, France.

A. Reiffers-Masson, “Introduction to telecommunications network engineering”, 63H, Computer Science Program (L2), Univ. of Avignon (UAPV), France.

#### Master:

S. Alouf, “Performance Evaluation of Networks”, 31.5H, M2 IFI Ubinet, UNS, France.

A. Jean-Marie, “Foundations of Network Modeling”, 12H, MPRI, Univ. Paris Diderot/ENS Ulm/Univ. Paris Saclay, France.

G. Neglia, “Distributed Optimization and Games”, 31.5H, M2 IFI Ubinet, UNS, France.

G. Neglia, responsible for the “Winter School on Complex Networks”, 29H, M1 Computer Science, UNS, France.

K. Avrachenkov, “Random-walk based algorithms for complex network analysis” at “Winter School on Complex Networks”, 2H, M1 Computer Science, UNS, France.

A. Reiffers-Masson, “Information theory”, 7.5H, Computer Science Program (M1), UAPV, France.

A. Reiffers-Masson, “Radio Interface”, 9H, Computer Science Program (M1), UAPV, France.

A. Reiffers-Masson, “Sentimental Analysis”, 13.5H, Computer Science Program (M2), UAPV, France.

A. Reiffers-Masson, “Cryptography”, 13.5H, Computer Science Program (M2), UAPV, France.

#### Doctorat:

A. Jean-Marie, “Advanced Markov Modeling”, 18H, Univ. of Montpellier 2, France.

G. Neglia, “PhD School on Network Science”, 20H, Univ. of Pisa, Italy.

### 10.2.2. Supervision

#### PhD defended:

Ilaria Brunetti, “New approaches to Evolutionary Games and Decision Dynamics”, UAPV, 8 December 2015, advisor: Eitan Altman.

Julio Cesar Louzada Pinto, “Dissemination of information in opinion dynamics in social networks”, Telecom SudParis, 14 January 2016, advisors: Eitan Altman, Tijani Chahed and Jeremie Jakubowicz.

Alexandre Reiffers-Masson, “Competition over visibility and popularity in on line social networks”, UAPV, 12 January 2016, advisors: Eitan Altman and Yezekael Hayel.

Abdoulaye Tall, “Optimization and Self-Optimization for LTE networks”, UAPV, 17 December 2015, advisors: Eitan Altman and Zwi Altman.

#### PhD in progress:

Alberto Benegiamo, “Mathematical tools for smart grids,” 1 November 2013 interrupted in 31 August 2015, advisors: Patrick Loiseau (Eurecom) and Giovanni Neglia.

Arun Kadavankandy, “Random Matrix Theory and Complex Networks,” 5 March 2014, advisors: Konstantin Avrachenkov and Laura Cottatellucci (Eurecom).

Jithin Kazhuthuveetil Sreedharan, “Diffusion processes in complex networks,” 23 July 2013, advisor: Konstantin Avrachenkov.

Hlib Mykhailenko, “Probabilistic approaches for big data analysis,” 1 May 2014, advisors: Fabrice Huet (SCALE team) and Philippe Nain.

Yonathan Portilla, “Analysis of social networks,” 1 January 2012, advisor: Eitan Altman.

### 10.2.3. *Juries*

MAESTRO members participated in the Habilitation (HDR) thesis committees of (in alphabetical order):

- Nidhi Hegde: “Resource Allocation in Wireless Data Networks”, 16 January 2015, UPMC, (**E. Altman** as reviewer);
- Patrick Maillé: “Insights from economic studies of telecommunication networks”, 7 October 2015, Univ. de Rennes, (**E. Altman** as reviewer);

and in the Ph.D. committees of (in alphabetical order):

- Iliaria Brunetti: “New approaches to Evolutionary Games and Decision Dynamics”, UAPV, 8 Dec. 2015, (**E. Altman** as advisor);
- The Dang Huynh: “Extension de PageRank et application aux réseaux sociaux”, Univ. Paris Diderot, 1 June 2015, (**K. Avrachenkov** as reviewer);
- Ovidiu-Constantin Iacoboaiea: “Coordination of self organization (SON) functionalities in future radio access networks”, Telecom ParisTech, 2 Oct. 2015, (**E. Altman** as reviewer);
- Ane Izagirre: “Interpolation approximations for steady-state performance measures”, INSA, Toulouse, 21 September 2015, (**K. Avrachenkov** as reviewer);
- Maialen Larrañaga: “Dynamic control of stochastic and fluid resource-sharing systems”, Univ. of Toulouse, 23 September 2015, (**A. Jean-Marie** as reviewer);
- Julio Cesar Louzada Pinto: “Dissemination of information and opinion dynamics in social networks”, Telecom SudParis, 14 January 2016, (**E. Altman** as advisor);
- Fatima Zahra Moataz, “Towards Efficient and Fault-Tolerant Optical Networks: Complexity and Algorithms”, Univ. of Nice Sophia Antipolis, 30 Oct. 2015, (**A. Jean-Marie** as jury president);
- Alexandre Reiffers-Masson: “Competition over visibility and popularity in on line social networks”, UAPV, 12 January 2016, (**E. Altman** as advisor);
- Abdoulaye Tall: “Optimization and Self-Optimization for LTE networks”, UAPV, 17 Dec. 2015, (**E. Altman** as advisor).

## 10.3. Popularization

Activities are presented in chronological order:

- S. Alouf delivered a conference titled “Comment marche le Web ?” at Lycée General et Technologique du Rempart, Marseille, for two classes of high school students (20 March 2015).
- A. Reiffers-Masson participated to the “Fête de la science” at the UAPV, (8 October 2015). His presentation was about Online Social Networks.

S. Alouf is a member of MASTIC, a commission in charge of popularization and regional and internal scientific animation (from November 2011 until December 2015).

## 10.4. Participation in scientific events

### 10.4.1. *Keynotes, tutorials and invited talks*

MAESTRO members gave the following keynote lectures/plenary speeches (in alphabetical order):

- *Defense strategies against SIS epidemics in networks*, at 6th Conference on Decision and Game Theory for Security (GameSec), London, UK, 4 November 2015 (**E. Altman**);
- *Graph-based semi-supervised learning methods*, at 5th Intl. Conference on Network Analysis (NET), Nizhny Novgorod, Russia, 18 May 2015 (**K. Avrachenkov**);
- *Timelines Analysis and competition over popularity, influence and visibility in social networks*, at IEEE ICC Workshop on Dynamic SOcial Networks (DySON), London, UK, 8 June 2015 (**E. Altman**);

the following tutorials (in alphabetical order):

- *Complex Networks and their Analysis with Random Walks*, at 27th Intl. Teletraffic Congress (ITC 27), Gent, Belgium, 7 September 2015 (**K. Avrachenkov**);

and the following invited talks (in alphabetical order):

- *Competition in social networks*, at “Stochastic networks and stochastic geometry” a conference dedicated to François Baccelli on his 60th birthday, Institut Henri Poincaré, Paris, 12-14 January 2015 (**E. Altman**);
- *Exploration and exploitation in learning in multiobjective MDPs*, at NETLEARN/ORANGE workshop on Learning and Networks, Issy-les-Moulineaux, 9 October 2015 (**E. Altman**);
- *Extremes and Random Walks in Network Sampling Processes*, at EURANDOM workshop on Random Walks on Random Graphs and Applications, Eindhoven, Netherlands, 14-16 April 2015 (**K. Avrachenkov**);
- *Game models in social networks*, at NYU Workshop on Control and Optimization of Network Systems (CONES), New York, USA, 1 May 2015 (**E. Altman**);
- *Performance Evaluation... of a Laser*, at Imperial College, Seminar in the honor of Pr. E. Gelenbe/ISCIS 2015, London, UK, 23 September 2015 (**A. Jean-Marie**);
- *Spectral Properties of Random Matrices for Stochastic Block Model*, at Intl. Workshop on Physics Inspired Paradigms in Wireless Communications and Networks (PHYSCOMNET), IIT Mumbai, India, 29 May 2015 (**A. Kadavankandy**);
- *Whittle index policy for crawling ephemeral content*, at Workshop on Modern trends in controlled stochastic processes, Univ. of Liverpool, UK, 29 June 2015 (**K. Avrachenkov**).

E. Altman was part of a one hour panel on network neutrality which took place as part of the WiOpt conference in IIT Mumbai, India, 25-29 May, 2015.

#### **10.4.2. Conferences and workshops**

MAESTRO members gave presentations at the following scientific events (in alphabetical order):

- Bell Labs Future X days (Openday), Paris, France, 10-11 June 2015 (**J. K. Sreedharan**);
- 12th European Workshop on Performance Engineering (EPEW), Madrid, Spain, 31 August - 1 September 2015 (**A. Jean-Marie**);
- 54th IEEE Conference on Decision and Control (CDC 2015), Osaka, Japan, 15-18 December 2015 (**K. Avrachenkov, G. Neglia**);
- 14th IFIP International conference on networking (Networking 2015), Toulouse, France, 20-22 May 2015 (**G. Neglia**);
- 3rd Intl. workshop on Big Data and Social Networking Management and Security (BDSN), Limassol, Cyprus, 7 December 2015 (**A. Reiffers-Masson**);
- 12th Workshop on Algorithms and Models for the Web-graph (WAW), Eindhoven, Netherlands, 10-11 December 2015 (**A. Kadavankandy**);
- 6th Workshop on Dynamic Games in Management Science, Montreal, Canada, 22-23 October 2015, (**I. Brunetti**).

#### **10.4.3. Schools and doctoral courses**

MAESTRO members have attended the following events (list in alphabetical order):

- COST ACROSS Summer School on “NFV meets Big Data Architecture and Performance Evaluation” (30H), Würzburg, Germany, 8-15 April 2015 (**A. Dandoush**);
- 12th EDBT Summer School on “Graph Data Management” (26H), Palamós, Spain, 31 August - 4 September 2015 (**H. Mykhailenko**);
- WAW 2015 School on complex networks and graph models (16H), Eindhoven, Netherlands, 7-8 December 2015 (**A. Kadavankandy** and **J. K. Sreedharan**).

## **MESCAL Project-Team**

## **9. Dissemination**

### **9.1. Promoting Scientific Activities**

#### **9.1.1. Scientific events organisation**

Bruno Gaujal organized the Game Theory In'Tech seminar on June 2015.

#### **9.1.2. Scientific events selection**

##### *9.1.2.1. Member of the conference program committees*

Arnaud Legrand was in the PC of HiPC and co-organized the RepPar workshop (Workshop on Reproducibility in Parallel Computing).

The members of the team regularly review numerous papers for international conferences.

#### **9.1.3. Journal**

##### *9.1.3.1. Reviewer - Reviewing activities*

The members of the MESCAL team regularly review articles for JPDC, DAM, IEEE Transactions on Networking/Automatic Control/Cloud Computing/Parallel and Distributed Computing/..., FGCS, ParCo, ...

#### **9.1.4. Invited talks**

Bruno Gaujal was invited to the Bacceli seminar in Paris<sup>0</sup>. Bruno Gaujal was invited to give a keynote at the Congrès of the "Société des Mathématiques Appliquées et Industrielles". Bruno Gaujal and Jean-Marc Vincent were invited to participate and present their work to the Symposium honoring Erol Gelenbe.

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

### **9.2.1. Teaching**

Master/PhD: Panayotis Mertikopoulos, "Game Theory for the Working Economist", 35 Eq. TD, University of Athens, Department of Economic Sciences PhD program (UADPhilEcon), Athens, Greece.

Master : Bruno Gaujal, Discrete Event Systems, 18 h, (M2R), MPRI, Paris.

Master : Bruno Gaujal, Advanced Performance evaluation, 9 h, (M2), Ensimag, Grenoble.

Master: Arnaud Legrand, Parallel Systems, 21 h, (M2R), Mosig.

Master: Arnaud Legrand and Jean-Marc Vincent, Performance Evaluation, 15 h, (M2R), Mosig.

Master: Arnaud Legrand and Jean-Marc Vincent, Probability and simulation, performance evaluation 72 h, (M1), RICM, Polytech Grenoble.

Master: Jean-Marc Vincent, Mathematics for computer science, 18 h, (M1) Mosig.

Master: Jean-Marc Vincent, workshop on the methodology in computer science research, 15 h, (M2R) Mosig.

Master : Olivier Richard, Networking, 40 Eq. TD, (M1), RICM, Polytech Grenoble

Master : Olivier Richard, Physical Computing Eq. 60 TD, L1 and M1, Joseph Fourier University and Polytech Grenoble

DU: Jean-Marc Vincent, Informatique et sciences du numérique, 20 h, (Professeurs de lycée).

<sup>0</sup><http://www.di.ens.fr/~blaszczy/FB60/>

### **E-learning**

SPOC: Jean-Marc Vincent, Informatique et sciences du numérique, 6 mois, plate-forme pairformnce, rectorat de Grenoble, Professeurs de lycée, formation continue, environ 50 inscrits.

### **9.2.2. Supervision**

PhD : Luka Stanasic, *A Reproducible Research Methodology for Designing and Conducting Faithful Simulations of Dynamic Task-based Scientific Applications* Defended Oct. 30, 2014[6], supervised by Arnaud Legrand and Jean-François Méhaut.

HdR : Arnaud Legrand, *Scheduling for Large Scale Distributed Computing Systems: Approaches and Performance Evaluation Issues*, Université Grenoble Alpes, Defended Nov. 2[5], 2015.

### **9.2.3. Juries**

- Bruno Gaujal was a reviewer for the PhD of Josu Doncel, on “Efficiency of Distributed Queueing Games and of Path Discovery Algorithms“ at University of Toulouse, on March 30th 2015
- Bruno Gaujal was a reviewer for the HDR of Nidhi Hegde.

## **9.3. Popularization**

- fête de la science: atelier sciences manuelles du numérique.
- MathC2+: sciences manuelles du numérique.
- Interventions dans des classes de seconde sur la simulation simcity.
- Participation à l’IREM de Grenoble, groupe algorithmique.

## MIMOVE Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

Valérie Issarny is co-chair of the BIS'15 workshop, which is the yearly workshop organized by Inria@SiliconValley to present the state of scientific collaborations and to work on proposals for future ambitious joint projects. BIS'2015 in particular featured a one-day International Conference on Digital Assets, Data Philanthropy and Public Benefit, entitled "Who Owns the Data", which was co-organized with CITRIS, with the support of EIT Digital.

#### 9.1.1.2. Chair of technical program committee

- Nikolaos Georgantas is co-chair of the ARM'15 international workshop.
- Valérie Issarny is co-PC chair of the New Idea track of ESEC/FSE'15.

#### 9.1.1.3. Member of technical program committee

- Nikolaos Georgantas is PC member of the following international conferences: 3PGCIC'15, Aml'15, SOSE'15, DATA'15, ICSOFT-EA'15, ICSOFT-PT'15, ANT'15, WETICE'15, CBSE'15, SAC'16;
- Nikolaos Georgantas is PC member of the following international workshops: SCART'15, Projects Showcase event at STAF'15, SERENE'15, SESoS'15;
- Valérie Issarny is PC member of the following international conferences: Coordination'15&16, ESSOS'14, FASE'15-17, FSE'14, ICDCS'15-16, IFIPTM'15, ISPN'15, Middleware'15&16, SEAMS'14.

### 9.1.2. Journal

#### 9.1.2.1. Member of editorial board

- Nikolaos Georgantas is associate editor of the International Journal of Ambient Computing and Intelligence (IJACI);
- Valérie Issarny is associate editor of the Springer JISA Journal of Internet Services and Applications.

#### 9.1.2.2. Guest editor of special issue

- Nikolaos Georgantas is co-guest editor of the Thematic Series on the Internet of Things of the Springer JISA Journal of Internet Services and Applications.

### 9.1.3. Invited talks

- Valérie Issarny gave a keynote at Formal Methods 2015.

### 9.1.4. Scientific expertise

- Valérie Issarny is member of the IFSTTAR Scientific Council & "Commission d'évaluation des chercheurs";
- Valérie Issarny is member of the GDR GPL scientific council;
- Valérie Issarny is elected member of the *Commission d'Evaluation Inria*;
- Nikolaos Georgantas is member of the Inria PhD scholarship, Inria postdoc scholarship and Inria professor leave (*Délégation*) scholarship selection committees at Inria Paris-Rocquencourt.

### 9.1.5. Research administration

- Valérie Issarny is scientific coordinator of Inria@Silicon Valley and CityLab@Inria;
- Nikolaos Georgantas is member of the PhD monitoring committee at Inria Paris-Rocquencourt.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

#### E-learning

Valérie Issarny is co-author and coordinator, and Animesh Pathak is co-author, of the MOOC entitled “Smart Cities: Technology and Societal Challenges”, which is provided via the FUN platform. The MOOC (in French) provides a high-level introduction to digital technologies underlying the design and development of smart cities. The course is composed of 5 weeks, each featuring from 5 to 8 sequences. Valérie Issarny and Animesh Pathak are authors of 5 and 4 sequences, respectively. The first edition of the MOOC is played in January 2016.

#### Class teaching

Master: Nikolaos Georgantas, “Pervasive Service Oriented Computing” as part of “Architectures orientées services”, 9 hours (équivalent TD), niveau M2, University of Versailles Saint-Quentin en Yvelines, France.

### 9.2.2. Supervision

In 2015 and beginning 2016, the following students successfully defended their PhD:

Benjamin Billet, *Data Stream Management System for the Future Internet of Things*, defended in March 2015, UVSQ-EDSTV, advised by Valérie Issarny;

Emil Andriescu, *Synthèse et déploiement dynamiques de protocoles de médiation pour l'interopérabilité dans les environnements collaboratifs nomades*, defended in February 2016, UPMC-EDITE, CIFRE Inria-Ambientic, advised by Valérie Issarny and Roberto Speicy-Cardoso (Ambientic).

Additionally, the following PhD thesis is currently in progress at the MiMove team:

Georgios Bouloukakis, *Runtime adaptation of middleware connectors for emergent mobile systems*, started October 2013, UPMC-EDITE, advised by Nikolaos Georgantas and Valérie Issarny.

Also, Valérie Issarny is co-advising with Ansgar Radermacher from CEA-LISE, the PhD thesis of Amel Belaggoun on *Adaptabilité et reconfiguration des systèmes temps-réel embarquées*; this is a PhD from UPMC-EDITE with the research being undertaken at CEA-LISE.

### 9.2.3. Juries

Nikolaos Georgantas was external reviewer for the PhD thesis of Amleto Di Salle, *Automated Synthesis of Service Choreographies*, defended in April 2015, Univ. of L'Aquila, Italy, advised by Prof. Paola Inverardi and Dr. Marco Autili;

Nikolaos Georgantas was examiner for the PhD thesis of Mourad Amziani, *Modeling, Evaluation and Provisioning of Elastic Service-based Business Processes in the Cloud*, defended in June 2015, Télécom SudParis and Université d'Evry Val Essonne, France, advised by Prof. Samir Tata and Dr. Tarek Melliti.

Valérie Issarny was reviewer for the PhD thesis of Dimitrios Miloris, *Trend Detection and Information Propagation in Dynamic Social Networks*, defended in April 2015, Ecole Polytechnique, France, advised by Philippe Jacquet and Paul Mühlethaler.



## **MOAIS Project-Team**

# **8. Dissemination**

## **8.1. Promoting Scientific Activities**

Moais has an intensive reviewing activity for a large variety of Conferences and Journals we do not detail here.

### **8.1.1. Scientific events organisation**

#### *8.1.1.1. Member of the organizing committee*

- IEEE VR 2015 (IEEE Conference on Virtual Reality): Workshop Chair
- HCW'2015 (24th IEEE Heterogeneous Computing Workshop) may 23, Hyderabad, India: Program Chair

### **8.1.2. Scientific events selection**

#### *8.1.2.1. Member of the conference program committee*

- LDAH 2015 (IEEE Symposium on Large-Scale Data Analysis and Visualization)
- SEARIS 2015 (Workshop on Software Engineering and Architectures for Realtime Interactive Systems)
- EGVE 2015 (Eurographics Symposium on Virtual Environments)
- EGPGV 2015 (Eurographics Symposium on Parallel Rendering and Visualization)
- SVR 2015 ((Symposium on Virtual and Augmented Reality - Brazil)
- HPSC (6th IEEE Internat. conf on High performance Scientific Computing) march 16-20, 2015, Hanoi, Vietnam
- CCgrid (14th IEEE/ACM internat symposium on Cluster, Cloud and Grid Computing), may 4-7, Shenzhen, China
- IPDPS 2015 (26th IEEE International Parallel & Distributed Processing Symposium) may 24-28, Hyderabad, India
- HICOMB'2015 (14th IEEE Internat Workshop on High Performance Computational Biology) may 23, Hyderabad, India
- COMPAS, june 22-july 25, 2015, Lille, France
- ISPDC (14th Internat Symposium on Parallel and Distributed Computing) june 29-july 01, 2015, Limassol, Cyprus
- MISTA (7th conference multidisciplinary internat. Scheduling conference), august 25-28, 2015, Prague, Czech Republic
- Topic chair Euro-Par (Scheduling and load balancing) august 26-28, 2015, Vienna, Austria
- ParCo2015 (International Conference on Parallel Computing) sept. 1-4, Edinburgh, Scotland
- PPAM'15 (11th internat. conf on parallel processing and applied Maths) sept. 6-9, 2015, Krakow, Poland
- EuroMPI, sept. 21-25, 2015, Bordeaux, France
- 27th SBAC-PAD, october 18-21, 2015, Santa catarina, Brazil
- Edu-HPC (Workshop on Education for High-Performance Computing), nov 16, 2015, Austin, USA

### **8.1.3. Journal**

#### *8.1.3.1. Member of the editorial board*

- Associate Editor of the Parallel Computing journal PARCO, D. Trystram.
- Member of the Editorial Board of JPDC, D. Trystram.
- Member of the Editorial Board of Computational Methods in Science and Technology, D. Trystram.
- Member of the Editorial Board of ARIMA (revue africaine de recherche en informatique et maths appliquées), D. Trystram
- Member of the Editorial Board of IEEE Trans. Parallel and Distributed Systems TPDS, D. Trystram.

#### 8.1.4. Invited talks

- Jean-Louis Roch: Invited speaker at 7th International Workshop on Parallel Symbolic Computation (PASCO 2015), Bath, UK, July 10-11. Title of the talk "Interactive computations and outsourcing"

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master: J-L. Roch co-director (Grenoble-INP) with P Elbaz-Vincent (Université Joseph Fourier, Math. Dept) of the Master "SCCI Security, Cryptology and Coding of Information Systems" (M2) joined between UJF and INP Grenoble Universities. This Master, started in 2001, is taught in English from sept 2007 (international Master). It has been refunded in 2015 to build a new Master 2 program "Cybersecurit" that will open in Q3 2016.

Master: C. Pernet and Denis Trystram are responsible of the first year (M1) of the international Master of Science in Informatics at Grenoble (MOSIG-M1).

Master: V Danjean: course "Parallel Programming" (M2), Grenoble University,.

Master: J-L. Roch, "Security models" 24h (M2), Grenoble University

Master: D. Trystram, P.-F. Dutot, J.-L. Roch, "Complexity, approximation theory and randomization" master course (M2) at Grenoble University

Master: François Broquedis. 192 hours per year. 192 hours per year. Engineering school Grenoble-INP/Ensimag, 1st year/L3 and Master (M1/2nd year and M2/3rd year).

Master: Vincent Danjean. 242 hours per year. Licence (third year) and Master (first and second year) at Joseph Fourier University. First to third year of engineering school at Polytech' Grenoble.

Master: Pierre-François Dutot. 226 hours per year. Licence (first and second year) at IUT2/UPMF (Institut Universitaire Technologique de l'Université Pierre Mendès-France) and 9 hours Master M2R-ISC Informatique-Systèmes-Communication at Joseph Fourier University.

Master: Guillaume Huard. 242 hours per year. Licence (first and third year) and Master (first year) at Joseph Fourier University.

Master: Grégory Mounié. 242 hours per year. Master (first year) and Computer Science for Non Computer Scientist Post-Master at Engineering school ENSIMAG, Grenoble-INP.

Master: Clement Pernet. 210 hours per year. University J. Fourier. Master (first year and second year) and Licence (3rd year).

Licence: Bruno Raffin. 38 hours per year. Engineering school ENSIMAG.

Master: Jean-Louis Roch. 242 hours per year. Engineering school Grenoble-INP/Ensimag and Master (M1/2nd year and M2/3rd year)

Master: Denis Trystram. 200 hours per year in average, mainly at first level of Engineering School.

Master: Frédéric Wagner. 220 hours per year. Engineering school ENSIMAG, Grenoble-INP (M1/2nd year and M2/3rd year) (190h), Master DESS/M2-P SCCI Security (30h).

### 8.2.2. Supervision

David Beniamine (since 2013). Parallelisation Patterns and Scheduling for Real-Time Physics Simulations. Co-advised by Guillaume Huard and Bruno Raffin.

Amrit Kumar (since 2013). Analysis of work-stealing and adaptive algorithms. Labex-Persyval co-advised PhD by Pascal Lafourcade (Verimag lab), Cedric Lauradoux (Inria Privatics team) and Jean-Louis Roch.

Gilles Daviet (since 2013). Parallel Macroscopic Simulations of Fibrous Materials. Co-advised by Florence Bertails-Descoubes and Bruno Raffin.

Julio Toss (since 2013). Parallel Algorithms and Data Structures for Physically Based Simulation of Deformable Objects. Join Ph.D with UFRGS, Brazil. Co-advised by Joao Comba and Bruno Raffin.

Adrien Roussel. Multi-CPU/Multi-GPU parallelization of numerical solvers. Co-advised by Jean-Marc Gratien (IFPEN) and Thierry Gautier.

Philippe Virouleau. Scalability of OpenMP runtime. Co-advised by Bruno Raffin, François Broquedis, Raymond Namyst and Thierry Gautier.

Marwa Sridi (since 2013). Parallel Algorithm Composition for Transient Mechanic Simulations. Join Ph.D with CEA, France. Co-advised by Vincent Faucher, Thierry Gautier and Bruno Raffin.

Ziad Sultan (since 2012). High-performance algebraic computations. Co-advised Ph.D by Jean-Guillaume Dumas (LJK Lab) and Clément Pernet.

Stefano Mor (2011-2015). Analysis of work-stealing and adaptive algorithms. Join Ph.D with UFRGS, Brazil. Co-advised by Jean-Louis Roch, Nicolas Maillard and Bruno Raffin

Mathieu Dreher (2011-2015). In-Situ Visualization for Molecular Dynamics. Advised by Bruno Raffin.

David Glesser. Energy Aware Resource Management for HPC. Co-advised by Yianis Georgiou (BULL) and Denis Trystram.

Raphaël Bleuse. Affinity Scheduling. Co-advised by Gregory Mounié and Denis Trystram.

Millian Poquet. Enhanced Data Movements for HPC. Co-advised by Pierre-François Dutot and Denis Trystram.

Abhinav Srivastav. Persyval. Multi-objective Scheduling. Co-advised by Oded Maler (VERIMAG) and Denis Trystram.

Fernando Machado Mendonca. Locality Aware Scheduling. Co-advised by Frederic Wagner and Denis Trystram.

Alessandro Kraemer. Scheduling in the Cloud. Join Ph.D with UFPR, Brazil. Co-advised by Olivier Richard, and Denis Trystram.

### 8.2.3. *Juries*

- B Raffin: Reviewer of the PhD. of Julien Duchateau, 9th of December 2015, Université du Littoral Côte d'Opale. "Parallélisation de simulations physiques utilisant un modèle de Boltzmann multi-phases et multi-composants en vue d'un épandage de GNL sur sol."
- JL Roch: PhD of Marcelo Alejandro Forets Irurtia, 10th of December 2015, Université de Grenoble : "Marches quantiques et mécanique quantique relativiste".
- JL Roch: PhD of Bastien Violla, 14th of December 2015, Université de Montpellier : "Contributions à l'Algèbre Linéaire Exacte sur Corps Finis et au Chiffrement Homomorphe"
- Denis Trystram reviewer of the PhD of Samia Kouki (14 février 2015)
- Denis Trystram jury member of the HDR of Cécile Murat (12 mai 2015)
- Denis Trystram president of the PhD jury of Nathalie Herr (19 novembre 2015)
- Denis Trystram reviewer of the PhD of Julien Herman (25 novembre 2015)

## MUSE Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Program chair of the 5th PhD School on Traffic Monitoring and Analysis (TMA), 2015.

#### 9.1.1.2. Member of the organizing committees

- R. Teixeira, Workshop co-chair of ACM SIGCOMM 2015.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

- R. Teixeira, Co-chair of the program committee of ACM CoNEXT 2015.
- V. Christophides, Area Chair for “Semi-structured, Web, and Linked Data Management” in the 18th International Conference on Data Engineering (ICDE’16), Bali, Indonesia 2016 ([internationalsciencindex.org/event/2016/10/bali/](http://internationalsciencindex.org/event/2016/10/bali/) ICDE)
- V. Christophides, Workshop co-chair of the 2nd International Workshop on Preservation of Evolving Big Data, co-located with EDBT 2016 with G. Papastefanatos and S. Viglas March 15, 2016 Bordeaux, France ([www.diachron-fp7.eu/2nd-diachron-workshop.html](http://www.diachron-fp7.eu/2nd-diachron-workshop.html))

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

- R. Teixeira, ACM IMC 2015
- V. Christophides, Int’l Conference on Information and Knowledge Management (CIKM) 2015
- V. Christophides, Int’l Conference on Extending Database Technology (EDBT) 2016

#### 9.1.2.3. Reviewer

- A.-K. Pietilainen, CHI 2016

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- R. Teixeira, Editor of IEEE/ACM Transactions on Networking (Feb. 2011 – Feb. 2015)

### 9.1.4. Invited talks

- R. Teixeira, “HostView: Measuring Internet quality of experience on end-hosts”, Journée thématique - Métrologie des réseaux - de la DGA, Rennes, November 2015.
- R. Teixeira, “UCN user study”, panelist at ACM SIGCOMM workshop on crowdsourcing and crowdsharing of (big) Internet data, London, August 2015.
- R. Teixeira, “HostView: Measuring Internet quality of experience on end-hosts”, Princeton University, USA, July 2015.
- R. Teixeira, “HostView: Measuring Internet quality of experience on end-hosts”, Journée du Conseil scientifique de l’Afnic, Paris, July 2015.
- R. Teixeira, “Home network diagnosis”, Workshop of “Aux frontières du système” of the “Conférence d’informatique en Parallélisme, Architecture et Système”, Lille, June, 2015.
- R. Teixeira, “Measuring Internet Experience from Home Networks”, invited talk, Workshop on Active Internet Measurements, San Diego, USA, April, 2015.

- R. Teixeira, “Home network performance diagnosis”, Microsoft Research Devices and Networking Summit, Paris, May 2015.
- R. Teixeira, “Home network performance diagnosis”, workshop on Information and Communication Systems and their application to vertical sectors, Montevideo, Uruguay, March 2015.
- R. Teixeira, “Fathom: A Browser-based Network Measurement Platform”, invited talk at Federal University of Rio de Janeiro, Brazil, March 2015.

•

### 9.1.5. Leadership within the scientific community

- R. Teixeira, Vice-chair of ACM SIGCOMM (since Jun. 2013).
- R. Teixeira, chair of the ACM SIGCOMM Industrial Liaison Board.
- R. Teixeira, member of the steering committee of the ACM Internet Measurement Conference (since Nov. 2009)

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: Renata Teixeira, “Methodology for research in networking”, 10h eqTD, M2, UPMC, France.

Master: Timur Friedman, Renata Teixeira, “Network Metrology”, 24h CM, M2, UPMC, France. Created this new master’s level class.

#### E-learning

Mooc: Timur Friedman, Renata Teixeira, “Network Metrology”, preparation of a five-week Mooc to start in May 2016 in the platform FUN, supported by Inria.

### 9.2.2. Supervision

PhD: Nelly Vouzoukidou (October 2011-September 2015): “Continuous top-k Queries over Real-time Web Streams” University Pierre et Marie Curie (UPMC). Advisors: B. Amann and V. Christophides

PhD in progress:

- Sara el Aouad, “Improving the quality of recommendation using semi-structured user feedback”, May 2014, advisors: C. Diot and R. Teixeira
- Diego da Hora, “Crowdsourced Home Network Diagnosis”, February 2014, advisors: C. Diot and R. Teixeira
- Giuseppe Scavo, “Exploiting Network Content-awareness to provide novel added value services”, November 2013 advisors: Z. Ben-Houidi and R. Teixeira
- Sofia Kleisarchaki (October 2013-now): “Temporal Analytics of the Social Web” cotutelle between University of Crete & University of Joseph Fourier - Grenoble. Advisors: S. Amer-Yahia and V. Christophides)
- Vassilis Efthimiou (February 2013-now): “Entity resolution in the Web of Data” University of Crete. Advisor: V. Christophides

### 9.2.3. Juries

V. Christophides: member of the supervision committee of the Ph.D. Thesis of Charalampos Nikolaou, Univ. of Athens, 2015

## MYRIADS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Christine Morin and Deb Agarwal were co-chairs of the Science Data Ecosystem workshop, held in the framework of the Data Science Symposium organized by IRISA for the 40th anniversary celebration (November 26th, 2015, Rennes, France)
- Louis Rilling was also co-organizer of the SEC2 2015 workshop, co-located with Compas 2015.
- Anne-Cécile Orgerie was co-chair of the ExtremeGreen workshop, in conjunction with CCGrid 2015 (Shenzhen, China, May 2015).

#### 10.1.1.2. Member of the organizing committees

- Martin Quinson was the main organizer of the 2015 SimGrid's User Days (Lyon, France, 8-12 June 2015), gathering the community of users.
- Christine Morin was a member of the scientific committee for the Inria Scientific Days held in Nancy in June 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- Guillaume Pierre was program committee co-chair of the EIT Digital Symposium on the Future of Cloud Computing (Rennes, France, 19-20 October 2015).

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

- Christine Morin was a member of the program committee of the ACM/IEEE CCGrid 2015 conference.
- Christine Morin was a member of the program committee of the first IEEE Conference on Network Function Virtualization and Software Defined Networks (NFV-SDN 2015) conference.
- Christine Morin was a member of the program committee of the 23rd Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2015).
- Christine Morin was a member of the technical posters committee of the 2015 ACM/IEEE International Conference on High Performance Computing, Networking, Storage and Analysis (SC15).
- Christine Morin was a member of the program committee of the Compas 2015 conference.
- Christine Morin was a member of the program committee of the 6th International workshop on Scientific Cloud Computing (ScienceCloud 2015) co-located with the ACM HPDC 2015 conference.
- Christine Morin was a member of the program committee of the 8th International workshop on Virtualization Technologies in Distributed Computing (VTDC-2015) co-located with the ACM HPDC 2015 conference.
- Christine Morin was a member of the program committee of the 10th international workshop on Virtualization in High-Performance Cloud Computing (VHPC 2015) co-located with the EuroPar 2015 conference.
- Christine Morin was a member of the program committee of the Resilience 2015 workshop co-located with the EuroPar 2015 conference.
- Anne-Cécile Orgerie was a member of the program committee of the CCGrid 2015 conference.

- Anne-Cécile Orgerie was a member of the program committee of the CloudNet 2015 conference.
- Nikolaos Parlavantzas was a member of the program committee of the CLOSER 2015 conference.
- Guillaume Pierre was a member of the program committee of the DADS track of the SAC 2015 conference.
- Guillaume Pierre was a member of the program committee of the IC2E 2015 conference.
- Guillaume Pierre was a member of the program committee of the AINA 2015 conference.
- Guillaume Pierre was a member of the program committee of the CSCS20-2015 conference.
- Guillaume Pierre was a member of the program committee of the CloudDP 2015 workshop.
- Guillaume Pierre was a member of the program committee of the VTDC 2015 workshop.
- Guillaume Pierre was a member of the program committee of the HotWeb 2015 workshop.
- Martin Quinson was a member of the program committee of the ACM SIGSIM Principles of Advanced Discrete Simulation (PADS 2015) conference.
- Martin Quinson was a member of the program committee of the High Performance Computing & Simulation (HPCS 2015) conference.
- Martin Quinson was a member of the program committee of the SimulTech 2015 conference.
- Martin Quinson was a member of the program committee of the Parallel and Distributed Computing Education for Undergraduate Students (Euro-EduPar 2015) workshop.
- Louis Rilling was program committee member of the DIHC 2015 workshop co-located with EuroPar 2015.
- Cédric Tedeschi was a member of the program committee of the ICWS 2015 conference.
- Cédric Tedeschi was a member of the program committee of the ICCS 2015 conference.
- Cédric Tedeschi was a member of the program committee of the CloSer 2015 conference.

### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

Christine Morin has been appointed associate editor in the IEEE's Transactions on Parallel and Distributed Systems' Editorial Board since June 2015.

- Martin Quinson is a member since 2013 of the editorial board of the Interstices journal (edited by Inria in collaboration), aiming at increasing the scientific outreach of informatics.

#### **10.1.4. Invited talks**

- *Breaking the cloud : Energy-Efficient & Network-aware Distributed Cloud Infrastructure*. Ismael Cuadrado-Cordero, talk at GreenDays. Toulouse, France, 16-17 March 2015.
- *Resource allocation in a Cloud partially powered by renewable energy sources*. Yunbo Li, talk at GreenDays. Toulouse, France, 16-17 March 2015.
- *Breaking the cloud: Energy-efficient cloud PaaS*. Ismael Cuadrado-Cordero, poster presentation at the EIT Digital Symposium on the Future of Cloud Computing. Rennes, France, 19-20 October 2015.
- *Breaking the cloud: Energy-efficient cloud PaaS*. Ismael Cuadrado-Cordero, poster presentation at Green ICT day at IRISA. Rennes, France, 30 November 2015.
- *Self Adaptation for Security Monitoring in IaaS Clouds*. Anna Giannakou, 3 minute talk at the D1 Department Day. Rennes, France, 26 May 2015.
- *Self Adaptation in Security Monitoring for IaaS clouds*. Anna Giannakou, 5 minute talk at the SEC2-Premier atelier sur la Securite dans les Clouds. Lille, France, 30 June 2015.
- *Self Adaptable Security Monitoring in IaaS Clouds*. Anna Giannakou, poster presentation at the EIT Digital Symposium on the Future of Cloud Computing. Rennes, France, 19-20 October 2015

- *Self Adaptable Security Monitoring in IaaS Clouds*. Anna Giannakou, poster presentation at Club recherche du Pôle d'Excellence Cyber. Rennes, France 8 December 2015.
- *Private-by-design: towards Personal Local Clouds*. Christine Morin, invited presentation at the Dagstuhl seminar on the Distributed Cloud Computing (DCC), Dagstuhl, Germany, February 10, 2015.
- *Autonomic and Energy-Efficient Management of Large-Scale Virtualized Data Centers and Towards High Performance Computing in Clouds*. Christine Morin, invited tutorials at the *Seconda Università di Napoli*, Napoli, Italy, April 19-20 2015.
- *ConPaaS Generic Service for Automated Application Deployment in Distributed Clouds*. Christine Morin, presentation at the Inria Industry Meeting on Smart City & Mobility Innovations: Towards environmental and social sustainability, San Francisco, USA, May 11, 2015.
- *Security of Information Systems hosted in Clouds: SLA Definition and Enforcement in a Dynamic Environment*. Christine Morin, invited presentation at the SEC 2 workshop on security in clouds, co-located with Compas 2015, Lille, France, June 30, 2015.
- *Debate on Ecological Transitions*. Christine Morin, panelist, Nantes, France, September 24, 2015.
- *Energy Efficiency & Energy Saving in Clouds*. Christine Morin, presentation at the IRISA Green IT meeting, Rennes, France, November 30, 2015.
- *Self-adaptation for Security Monitoring in IaaS clouds*. Anna Giannakou, Christine Morin, and Louis Rilling, invited poster at the Cyber Pole of Excellence's research club meeting, Rennes, France, November 30, 2015.
- Anne-Cécile Orgerie gave a keynote entitled "Energy efficiency in Cloud computing infrastructures", at ExtremeGreen workshop in conjunction with CCGrid 2015, Shenzhen, China, May 4, 2015.
- Anne-Cécile Orgerie gave a talk entitled "Le Green IT à l'IRISA", Matinale Rennes Atalante on Smart Grids, Rennes, July 8, 2015.
- Anne-Cécile Orgerie gave a talk entitled "Green computing" and participated to a debate with Françoise Berthoud (CNRS), at the Forum du CNRS, Paris, December 12, 2015.
- *HARNESS: bringing real hardware heterogeneity to the cloud*. Guillaume Pierre, invited presentation at the 5th International Workshop on Cloud Data and Platforms. Co-located with EuroSys 2015 in Bordeaux, France. April 21, 2015.
- *HARNESS: bringing real hardware heterogeneity to the cloud*. Guillaume Pierre, invited presentation at the 8th International Workshop on Virtualization Technologies in Distributed Computing. Co-located with HPDC 2015, Portland, OR, USA, June 15th 2015.
- *Accelerating clouds with FPGA virtualization*. Ancuta Iordache, poster presentation at the EIT Digital Symposium on the Future of Cloud Computing. Rennes, France, 19-20 October 2015.
- *Accelerating clouds with FPGA virtualization*. Ancuta Iordache, presentation at the 5th Workshop on Storage and Data Analytics. Cesson-Sévigné, France, 19 November 2015.
- *Cloud application performance modeling in ConPaaS*. Guillaume Pierre, invited presentation at the Paris Open Source Summit. Paris, France, 18-19 November 2015.
- *An Edge Cloud Architecture for Latency-Critical Interactive Applications*. Teodor Crivat, poster presentation + demo at the EIT Digital Symposium on the future of Cloud computing. Rennes, France, 19-20 October 2015.
- *An Edge Cloud Architecture for Latency-Critical Interactive Applications*. Teodor Crivat, poster presentation + demo at the EIT Digital results day. Helsinki, Finland, December 1st 2015.

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



- Christine Morin acted as a reviewer for the University College Cork (UCC) Research Quality Review (April 2015). She was one of the scientific experts to examine a promotion as Senior University Lecturer in Computing Science and Engineering at the Faculty of Science and Technology of Umeå University (August 2015). She was a member of the ModaClouds European project Advisory Board. She is a member of the scientific council of ENS Cachan. She was a member of the admission jury for the 2015 Inria senior researcher competition.

She was a member of the selection committees for a Professor position in Computer Science at ESIR engineering school at the University of Rennes 1 and for a Professor position in Computer Science at ENS Rennes.

- Anne-Cécile Orgerie participated to the evaluation of three Doctoral schools in January 2015 as a young researcher expert for HCERES.
- Guillaume Pierre participated in the evaluation panels of ongoing national (ANR) projects LISP-LAB, MOEBUS, PROFIL, ABCD, and DataTweet. Paris, France, 27-27 October 2015.
- Nikolaos Parlavantzas acted as an expert reviewer for ANRT CIFRE, PHC Orchid, and FFCR projects.

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

### **10.2.1. Teaching**

Christine Morin is responsible for the Internet of Services: Programming Models & Things and Clouds (ISI) teaching unit of the Master in research in Computer Science of the University of Rennes 1 and of the EIT Digital Master School at the University of Rennes 1.

Christine Morin:

- Master 2: Internet of Services: Programming Models & Things and Clouds (ISI), 12 hours ETD, EIT Digital Master School, University of Rennes 1, France.

Anne-Cécile Orgerie:

- Licence 3: ARCSYS2 - architecture et systèmes 2 (60 hours ETD at ENS Rennes)
- Master 2: Green ICT - 3 hours of invited lecture at Telecom SudParis

Nikolaos Parlavantzas (at INSA Rennes):

- 4th year: Operating Systems (40 hours ETD)
- 4th year: Big Data and Applications (25 hours ETD)
- 4th year: Networking and SOA (12 hours ETD)
- 4th year: Advanced Operating Systems (12 hours ETD)
- 4th year: Parallel programming (12 hours ETD)
- 4th year: Software Development Project (30 hours ETD)
- 5th year: Component-based Software Engineering (16 hours ETD)

Jean-Louis Pazat is responsible for the following graduate teaching Modules: Advanced operating Systems, Parallel Computing, Clouds, Networking and SOA.

Jean-Louis Pazat (at INSA Rennes):

- 4th year: Advanced Operating Systems and Clouds (32 hours ETD)
- 4th year: Parallel Programming (48 hours ETD)
- 4th year: Networking and SOA (48 hours ETD)
- 4th year: Software development project (60 hours ETD)

Guillaume Pierre (at the University of Rennes 1):

- License 3: Systèmes (25 hours ETD)
- License 3: Organisation et utilisation des systèmes d'exploitation 2 (67 hours ETC)
- Master 2: Techniques de développement logiciel dans le Cloud (39 hours ETD)
- Master 1: Service Technologies (24 hours ETD)
- Master 2: Approche algorithmique des applications et systèmes répartis (32 hours ETD)

Martin Quinson:

- Licence 3: Programming and Software Engineering (30 hours ETD at ENS Rennes)
- Master 1: Concurrency in Systems and Networks (20 hours ETD at University of Rennes 1)
- Master 2: Pedagogy and Scientific Mediation for Computer Science (30 hours EDT at ENS Rennes)

Cédric Tedeschi (at the University of Rennes 1):

- Master 1: Concurrency in Systems and Networks (70 hours ETD)
- Master 1: Parallel Programming (36h hours ETD)
- Master 1: Service Technologies (30h hours ETD)
- Master 2 (research): Internet of Services (6 hours ETD)

#### **E-learning**

Christine Morin contributed to a MOOC entitled "*Villes intelligentes : défis technologiques et sociaux*" that will be available on the FUN platform in January 2016.

Cédric Tedeschi is responsible for the Operating Systems class within the eMiage online teaching program.

Martin Quinson extended the Programmer's Learning Machine (PLM) with another lesson on recursive programming. The 12 new exercises revisit the old problem of Hanoi towers with several less common variants.

### **10.2.2. Supervision**

PhD in progress : Ancuta Iordache, Multi-resource optimization for application hosting in heterogeneous clouds, started in February 2013, Guillaume Pierre.

PhD in progress: Yunbo Li, Resource allocation in a Cloud partially powered by renewable energy sources, started in October 2013, Anne-Cécile Orgerie, Jean-Marc Menaud (Ascola).

PhD in progress: Ismael Cuadrado Cordero, Energy-efficient and network-aware resource allocation in Cloud infrastructures, started in October 2013, Christine Morin, Anne-Cécile Orgerie.

PhD in progress: Édouard Outin, A multi-objective adaptation system for the management of a Distributed Cloud, started in October 2013, Olivier Barais (Triskell), Yvon Jégou, Jean-Louis Pazat.

PhD in progress: Sabbir Hasan, SLA Driven Cloud autoscaling for optimizing energy footprint, started in December 2013, Thomas Ledoux (Ascola), Jean-Louis Pazat.

PhD in progress: Anna Giannakou, A Self-adaptable Security Supervision System for Clouds, started in March 2014, Christine Morin, Jean-Louis Pazat, Louis Rilling.

PhD in progress: Bruno Stevant, Resource allocation strategies for service distribution at the Internet edge to optimize end-to-end latency, started in December 2014, Jean-Louis Pazat.

PhD in progress: David Guyon, Supporting energy-awareness for cloud users, started in September 2015, Anne-Cécile Orgerie, Christine Morin.

PhD in progress: Amir Teshome Wonjiga, Definition and Enforcement of Service Level Agreements for Cloud Security Supervision, started in October 2015, Christine Morin, Louis Rilling.

PhD in progress: Issam Rais, Multi criteria scheduling for large scale High Performance Computing environments, started in October 2015, Anne-Cécile Orgerie, Anne Benoit (ROMA), Laurent Lefèvre (Avalon).

PhD in progress: Palakiyem Wallah, Best-Effort Execution of Service Workflows, started in October 2013, Ayité Ajavon (University of Lomé, Togo), Jean-Louis Pazat, Cédric Tedeschi.

PhD in progress: Genc Tato, Locality-aware Lazy Overlay Networks for WANS, started in December 2015, Marin Bertier, Cédric Tedeschi, Christine Morin.

PhD in progress: Pernelle Mensah, Security policy adaptation driven by risk evaluation in modern communication infrastructures, started in December 2015, Samuel Dubus (Alcatel-Lucent), Christine Morin, Guillaume Piolle (Cidre), Eric Total (Cidre).

### **10.2.3. Juries**

- Christine Morin was a member (chair) of the PhD defense committee of Sylvain Gault, ENS Lyon (March 23rd 2015).
- Christine Morin was a reviewer of the HdR committee of Gilles Fedak, ENS Lyon (May 28th, 2015).
- Christine Morin was a reviewer of the HdR committee of Vania Marangozova-Martin, Grenoble University (June 12th, 2015).
- Christine Morin was a reviewer of the PhD defense committee of Tatiana Martsinkevich, Paris-Sud University (September 22nd 2015).
- Christine Morin was a member (chair) of the PhD defense committee of Arnaud Lefray, ENS Lyon (October 3rd 2015).
- Christine Morin was a reviewer of the HdR committee of Georges DaCosta, Toulouse University (November 12th, 2015).
- Christine Morin was a reviewer of the PhD defense committee of Aline Bousquet, Orléans University (December 2nd 2015).
- Christine Morin was a reviewer of the PhD defense committee of Damien Riquet, Lille 1 University (December 3rd 2015).
- Guillaume Pierre was a reviewer in the PhD committee of Mihai Dobrescu, EPFL, 3 July 2015.
- Guillaume Pierre was a reviewer in the PhD committee of Kaveh Razavi, Vrije Universiteit Amsterdam, 5 November 2015.
- Guillaume Pierre was a reviewer in the PhD committee of Diego Didona, Lisbon University, 20 November 2015.
- Martin Quinson was a member in the PhD committee of Luka Stanisic, Grenoble University, 30 October 2015.
- Louis Rilling was a member of the PhD defense committee of Pierrick Buret, Université de Limoges (December 1st 2015).
- Louis Rilling was a member of the PhD defense committee of Anis Bkakria, Télécom Bretagne (December 17th 2015).
- Cédric Tedeschi was a member in the PhD committee of Maurice Faye, ENS de Lyon, 10 November 2015.

## **10.3. Popularization**

- Martin Quinson organized a 2-days workshop for secondary maths teachers on how algorithms could be used to reinforce the pupils abilities to verbalize, set out arguments and conduct rigorous demonstrations (Nancy, March 2-3 2015). This workshop was co-organized by the IREM (Institut de Recherche en Enseignement des Mathématiques) of Nancy.
- Martin Quinson gave a talk entitled “Computational Science: the real societal impact of computers”, during the workshop presented in previous item (Nancy, March 3th 2015).
- Martin Quinson co-organized a one day workshop for about 100 secondary computer science teachers. This event spreads the best practices to teach our topic (Nancy, March 12th 2015).

- Martin Quinson was a scientific expert in an experiment in which we explored how Scratch can be used to teach Computer Science in after school activities every week for the whole week.
- Martin Quinson is a scientific expert in a teaching manual of Computer Science for primary schools, currently authored within the «La main à la pâte» research network. This manual will be released in 2016.
- Martin Quinson organized a collaborative workshop on Wikipedia gathering students and researchers to improve the French speaking pages on Computer Science in the free encyclopedia (Rennes, December 10, 2015).

## 10.4. Miscellaneous

Christine Morin is a member of the Project-Team Committee of INRIA RENNES – BRETAGNE ATLANTIQUE (Comité des projets), a member of the board of the Project-Team Committee of INRIA RENNES – BRETAGNE ATLANTIQUE (since November 2015), *Référent Chercheur* for INRIA RENNES – BRETAGNE ATLANTIQUE. She was a member of the Irisa/Inria “Commission Personnel” being in charge of post-docs and “*délégations*” (until October 2015). She was corresponding for North America relationships in the Inria Direction of European and International Relationships (until November 2015).

Anne-Cécile Orgerie is in charge (chargée de mission) of the “Green IT” transversal axis of IRISA.

Nikolaos Parlavantzas is the local coordinator for the international exchange of students at the computer science department of Insa.

Guillaume Pierre is the local coordinator of the EIT Digital master school in Rennes, and the local coordinator of the Erasmus exchange program between Université de Rennes 1 and Politehnica University Bucharest.

Jean-Louis Pazat is the leader of the “Large Scale Systems” department of IRISA. He is the leader of the computer Science Lab at INSA (IRISA-INSA). He is the coordinator for reviews of international bilateral cooperation projects at the Ministry of Research and Higher Education in the STIC domain.

Thierry Priol is the director of the Inria European and International Partnership department.

Cédric Tedeschi is a member of the administration council of the EECS departement of the University of Rennes 1.

Yvon Jégou is a member of the Grid 5000 executive committee. He is a member of the *Comité de Sélection et de Validation (CSV)* of the *Images & Réseaux* cluster.

## **PHOENIX Project-Team**

## **9. Dissemination**

### **9.1. Promoting Scientific Activities**

#### **9.1.1. Scientific events selection**

##### *9.1.1.1. Member of the conference program committees*

Charles Consel

- ESOP 2015, the 24th European Symposium on Programming. April 11-15, 2015 London, United Kingdom.

##### **9.1.2. Invited talks**

- C. Consel: HomeAssist: An Assisted Living Platform for Aging in Place Based on A Multidisciplinary Approach. Presentation at Washington State University, July 7, 2015.

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

#### **9.2.1. Teaching**

Licence: H  l  ne Sauz  on, "General Cognitive Psychology", 36h, L2/L3, University of Bordeaux, France

Licence: H  l  ne Sauz  on, "Cognitive Neuropsychology", 14h, DU, University of Bordeaux, France

Master: H  l  ne Sauz  on, "Cognitive Science of Language", "Technologies For Cognitive Disabilities", "Human Factors and HCI", 120h, M1/M2, University of Bordeaux, France

Master: Charles Consel, "Telephony Over IP", 43h, M2, Bordeaux INP, France.

Master: Charles Consel, "Software Engineering for Smart Spaces", 10h, M2, Bordeaux INP, France.

Master: Charles Consel, "Ubiquitous Computing", 10h, M2, Bordeaux INP, France.

#### **9.2.2. Supervision**

PhD: Paul van der Walt, "Certification d'une plateforme ouverte", completed in December 2015, supervised by Charles Consel

PhD in progress: Milan Kabac, "Orchestration    grande   chelle d'objets communicants", started in September 2012, supervised by Charles Consel

PhD in progress: Charles Fage, "Validation exp  rimentale d'un assistant num  rique d'inclusion scolaire d'  l  ves coll  giens porteurs d'autisme", started in September 2012, supervised by H  l  ne Sauz  on

PhD in progress: Lucile Dupuy, "DomAssist: Assistance domiciliaire pour la personne   g  e et son aidant formel bas  e sur la technologie DiaSuiteBox", started in September 2013, supervised by H  l  ne Sauz  on and Charles Consel

PhD in progress: Adrien Carteron, "A development environment dedicated to assistive application", started in October 2014, supervised by Charles Consel.

PhD in progress: C  cile Magnier, "Customized technology for autonomous schooling: on longitudinal effects for students with an autism spectrum disorder", started in November 2014, supervised by H  l  ne Sauz  on and Charles Consel.

PhD in progress: Quentin Chisin, "Digital home assistance for young adults with Down syndrome", started in December 2014, supervised by Bernard N'Kaoua and Charles Consel.

#### **9.2.3. Juries**

Charles Consel participated in the following jury:

- Thesis defense committee for A. Capra, Universit   de Bordeaux, december 2015.

Hélène Sauzéon participated in the following juries:

- Thesis defense committee for S. Gombart, Université de Tours, december 2015
- Thesis defense committee for B. Chateau, Université de Poitiers, december 2015

### **9.3. Popularization**

- Hélène Sauzéon. " Assistance numérique pour soutenir les activités quotidiennes des personnes âgées et/ou avec handicap cognitif." Journée de Lancement du Living Lab e-santé Aquitain. March 5, 2015, Bordeaux.
- Hélène Sauzéon. " Quels outils numériques pour les élèves avec handicap cognitif ?" Congrès FNAREN. June 24-27, 2015, Cenon.
- Hélène Sauzéon. "DomAssist : perspectives d'application en EPHAD." Congrès EHPAD et Innovations. July 2, 2015, Bordeaux.
- Phoenix members. Présentation de DomAssist et Colleege+. Les rencontres Inria-Industrie sur le thème de la santé. Novembre 13, 2015, Bordeaux.
- Benjamin Bertran. Présentation de DomAssist. Colloque sur la Silver Economy. October 19, 2015, Bordeaux (200 personnes).
- Benjamin Bertran. Présentation de DomAssist / HomeAttendant, Rencontre médico-social. October 1, Limoges (80 personnes).

## RAP Project-Team

# 7. Dissemination

## 7.1. Promoting Scientific Activities

### 7.1.1. Scientific events selection

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

- *Philippe Robert*, Caching in Wireless Networks Conference (2015)

### 7.1.2. Journal

#### 7.1.2.1. Member of the editorial boards

- *Nicolas Broutin* is member of the steering committee of the international meeting on analysis of algorithms (AofA).
- *Philippe Robert* is Associate Editor of the Book Series “Mathématiques et Applications” edited by Springer Verlag and Associate Editor of the journal “Queueing Systems, Theory and Applications”.

### 7.1.3. Invited talks

- *Cédric Bourdais, Sarah Eugene, Philippe Robert and Wen Sun*] have been invited to the Young European Queueing Theorists (YEQT'9) workshop in Eindhoven in November 2015.

### 7.1.4. Conferences

- *Nicolas Broutin* has given lectures at annual meeting of the ALEA working group of the GDR-IM, the workshop GRAAL that took place at IHES, at the workshop organized in honor of Svante Janson's 60's birthday in Sweden, and the workshop on geometric networks at the Symposium on Computational Geometry that was held in Eindhoven. He gave a plenary lecture at the conference on analysis of algorithms that was held in Strobl in June. He has also exposed his results at the probability seminar in Grenoble, the seminar of algorithmic and combinatorial geometry at IHP, and at the probability seminar of the NYU-ECNU Math institute in Shanghai.
- *Christine Fricker and Guilherme Thompson* participated to ITC 27 (International Teletraffic Congress) in Ghent in September 2015.
- *Renaud Dessalles, Philippe Robert and Wen Sun* gave talks at INFORMS Applied Probability Conference in July 2015 in Istanbul.
- *Philippe Robert* gave a talk at the department of mathematics at the University of Novosibirsk, in October 2015.

### 7.1.5. Scientific expertise

- *Christine Fricker* is member of the jury of agrégation.
- *Philippe Robert* is member of the scientific council of EURANDOM.

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

Master : *Nicolas Broutin* Master Parisien de Recherche en Informatique (MPRI), in the course 2.15 on Analysis of Algorithms.

Master: *Nicolas Broutin*, Analysis of Algorithms, NYU Shanghai.

Master: *Philippe Robert*, Master, Probabilités et Applications, UPMC.

Master: *Philippe Robert*, Communication Networks, University of Novosibirsk, 12h.

### 7.2.2. Juries

- *Nicolas Broutin* has been a member of the committee for the PhD thesis of Daphné Dieuleveut (U Orsay).
- *Philippe Robert* has been reviewer of HDR document by Nidhi Hegde.

## REGAL Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Luciana Arantes was scientific co-chair of the 16th Simposio em Sistemas Computacionais de Alto Desempenho
- Pierre Sens was general-chair of **EDCC 2015** conference.

#### 9.1.1.2. Member of the organizing committees

- Luciana Arantes was organisation chair of **EDCC 2015** conference.
- Sébastien Monnet was finance chair for **EDCC 2015** conference.
- Franck Petit is member of the steering committee of SSS (International Symposium on Stabilization, Safety, and Security of Distributed Systems) conference.
- Pierre Sens is member of the steering committee of SBAC-PAD (International Symposium on Computer Architecture and High Performance Computing) conference.
- Marc Shapiro is a member of the Steering Committee of the Principles and Practice of Consistency for Distributed Data (PaPoC).
- Marc Shapiro is a member of the Steering Committee of the Int. Conf. on the Principles of Distributed Systems (OPODIS).

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

- Marc Shapiro chairs the 2016 Franco-American Doctoral Exchange Programme (FADEX).

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

- Luciana Arantes was a PC member of the 15th IFIP Distributed Applications and Interoperable Systems Conference (DAIS 2015); The 26th IEEE International Symposium on Software Reliability Engineering (ISSRE 2015); the 17th IEEE International Conference on High Performance Computing and Communications (HPCC 2015); The 14th IEEE International Symposium on Network Computing and Applications (NCA 2015); The 27th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD 2015); The Eighth International Conference on Dependability (DEPEND 2015).
- Swan Dubois was member of the program committee of 17th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2015).
- Sébastien Monnet is PC member of 30th and 31st ACM/SIGAPP Symposium On Applied Computing - track Operating Systems (SAC 2015 and 2016); French conference on parallelism, architecture and system (Compas 2015); 14th workshop on Network and Systems Support for Games (NetGames 2015) and 16th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CC-Grid 2016).
- Pierre Sens was member of the program committee of 4rd IEEE/SAE International Conference on Connected Vehicles and Expo (ICCVE 2015); Europar 2015; 30th IEEE International Parallel and Distributed Processing Symposium (IPDPS'2016).
- Marc Shapiro was a member of the External Programme Committee for the Int. Conf. on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2016).



- Marc Shapiro is PC member of W. on Planetary-Scale Distributed Systems (W-PSDS) 2015; member of the Middleware 2015 conference.

#### 9.1.2.3. Reviewer

- Swan Dubois reviewed papers for the ACM Symposium on Principles of Distributed Computing (PODC 2015), the International Conference on Networked Systems (NETYS 2015), and the Rencontres Francophones sur les Aspects Algorithmiques de Télécommunications (AlgoTel 2015).
- Sébastien Monnet was external reviewer for the 30th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2016).

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- Franck Petit was invited editor with Michel Raynal for a special issue on Distributed Computing into TCS (Journal of Theoretical Computer Science)—Vol. 561. Also, he belongs to the editorial board of the Scientific World Journal and the Journal of Discrete Mathematics.
- Pierre Sens is associated editor of International Journal of High Performance Computing and Networking (IJHPCN).

#### 9.1.3.2. Reviewer - Reviewing activities

- Luciana Arantes reviewed papers for the Journal of Parallel and Distributed Computing (JPDC).
- Swan Dubois reviewed papers for the Journal of Parallel and Distributed Computing (JPDC), Computer Networks (COMNET), and Theoretical Computer Science (TCS).
- Sébastien Monnet reviewed a paper for the IEEE Transactions on Parallel & Distributed Systems (TPDS 2016).

### 9.1.4. Invited talks

Pierre Sens gave the following invited talks:

- ICL Innovative Computing Laboratory - University of Tennessee, October 2015
- Maimonide seminar - Herzilya, Israel, November 2015.

Marc Shapiro gave the following invited talks:

- Royal Holloway London University, May 2015.
- Universidade Nova de Lisboa, May 2015.
- W. on Chemistry of Concurrent and Distributed Programming II, Agadir, Morocco, May 2015.
- CurryOn, Prague, July 2015.
- Workshop on Large-Scale Distributed Systems (LADIS), Monterey CA USA, Oct. 2015.
- CodeMesh, London, Nov. 2015.

### 9.1.5. Scientific expertise

Swan Dubois was member of the scientific committee for the assistant professor position n°1642 at University Paris-Sud.

Pierre Sens served on the jury for the "Prix de thèse Gilles Kahn" (SIF - Académie des Sciences).

Pierre Sens also chaired the selection committees for an assistant professor position at Grenoble University.

### 9.1.6. Research administration

- Pierre is Member of the scientific council of UPMC and officer at UPMC Vice Presidency of Research and Innovation.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Julien Sopena is Member of "Directoire des formations et de l'insertion professionnelle" of UPMC Sorbonne Universités, France

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

Master: Luciana Arantes, Swan Dubois, Oliver Marin, Sébastien Monnet, Franck Petit, Pierre Sens, Advanced distributed algorithms, M2, UPMC Sorbonne Universités, France

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

Master: Luciana Arantes, Sébastien Monnet, Pierre Sens, Julien Sopena, Operating systems kernel, M1, UPMC Sorbonne Universités, France

Master: Luciana Arantes, Swan Dubois, System distributed Programming, M1, UPMC Sorbonne Universités, France

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

Master: Sébastien Monnet, Julien Sopena, Client-server distributed systems, M1, UPMC Sorbonne Universités, France

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

Licence: Swan Dubois, Sébastien Monnet, Introduction to operating systems, L2, UPMC Sorbonne Universités, France

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

Ingénieur 4ème année : Marc Shapiro, Introduction aux systèmes d'exploitation, 22 h, M1, Polytech UPMC Sorbonne Universités, France.

### 9.2.2. Supervision

PhD: Raluca Diaconu, "Passage à l'échelle pour les mondes virtuels," UPMC, 01/23/2015, Joaquin Keller (Orange lab), Sébastien Monnet, Pierre Sens.

PhD: Lokesh Gidra, "Ramasse-miettes pour les machines virtuelles sur les processeurs multicoeurs," UPMC, 09/28/2015, Gaël Thomas, Marc Shapiro, Julien Sopena.

PhD: Karine Pires, "Diffusion et Transcodage à Grande Échelle de Flux Vidéo en Direct," UPMC, 03/31/2015, Gwendal Simon, Sébastien Monnet, Pierre Sens.

PhD: Maxime Véron, "Arbitrage décentralisé pour les jeux massivement parallèles," UPMC, 09/25/2015, Olivier Marin, Sébastien Monnet, Pierre Sens.

PhD: Marek Zawirski, "Cohérence à terme fiable avec des types de données répliquées," UPMC, 01/14/2015, Marc Shapiro.

PhD in Progress: João Paulo de Araujo, "L'exécution efficace d'algorithmes distribués dans les réseaux véhiculaires", funded by CNPq (Brésil), since Nov.2015, Pierre Sens and Luciana Arantes.

PhD in progress : Antoine Blin, "Execution of real-time applications on a small multicore embedded system", since April 2012, Gilles Muller (Whisper) and Julien Sopena, CIFRE Renault

PhD in progress: Marjorie Bournat, “Gathering in robot networks”, UPMC, since Sep. 2014, Swan Dubois, Franck Petit, Yoann Dieudonné (University of Picardy Jules Verne)

PhD in progress: Damien Carver, “HACHE : Horizontal Cache cHorEgraphy – Toward automatic resizing of shared I/O caches.”, UPMC, CIFRE, since Jan. 2015, Sébastien Monnet, Pierre Sens, Julien Sopena, Dimitri Refauvelet (Magency).

PhD in Progress: Florent Coriat, "Géolocalisation et routage en situation de crise" since Sept 2014, UPMC, Anne Fladenmuller (NPA-LIP6) and Luciana Arantes.

PhD in progress: Rudyar Cortes, “Un Environnement à grande échelle pour le traitement de flots massifs de données,” UPMC, funded by Chile government, since Sep. 2013, Olivier Marin, Luciana Arantes, Pierre Sens.

PhD in progress: Lyes Hamidouche, “Data replication and data sharing in mobile networks”, UPMC, CIFRE, since Nov. 2014, Sébastien Monnet, Pierre Sens, Dimitri Refauvelet (Magency).

PhD in progress: Denis Jeanneau, “Problèmes d’accord et détecteurs de défaillances dans les réseaux dynamique,” UPMC, funded by Labex Smart, since Oct. 2015, Luciana Arantes, Pierre Sens.

PhD in progress: Mohamed Hamza Kaaouachi, “Autonomic Distributed Environments for Mobility”, UPMC/Chart-LUTIN (Labex SMART), Franck Petit, Swan Dubois, and François Jouen (Chart).

PhD in progress: Maxime Lorrillere, “A kernel cooperative cache for virtualized environments”, UPMC, Sébastien Monnet, Julien Sopena, Pierre Sens.

PhD in progress: Mahsa Najafzadeh, UPMC, funded by Inria competitive grant (Cordi-S), since Nov. 2012, Marc Shapiro.

PhD in progress: Yoann Péron, “Development of an adaptive recommendation system”, UPMC/Makazi, Franck Petit, Patrick Gallinari, Matthias Oehler (Makazi).

PhD in progress: Alejandro Z. Tomsic, UPMC, funded by SyncFree, since Feb. 2014, Marc Shapiro.

PhD in progress: Guillaume Turchini, “Scalable platform for massively multiplayer online games..”, UPMC, since Sep. 2015, Sébastien Monnet.

PhD in progress: Tao Thanh Vinh, UPMC, CIFRE, since Feb. 2014, Marc Shapiro, Vianney Rancurel (Scality).

PhD in progress: Gauthier Voron, “Big-Os : un OS pour les grands volumes de données,” UPMC, since Sep. 2014, Gaël Thomas, Pierre Sens.

Master 1 : Mohamed Bekthaoui, “Cliques maximales dans les TVGs”, ENS Lyon, Swan Dubois.

### 9.2.3. *Juries*

Franck Petit was the reviewer of:

- T. Langner, PhD ETHZ, Zurich, Suisse. (Advisor: R. Watenhoffer)
- M. Djibril Faye, PhD LIP, ENS Lyon. (Advisor: E. Caron)
- M. Khaled, PhD MIS, Amiens. (Advisors: V. Villain and F. Levé)

Franck Petit was Chair of :

- D. Bonnin, PhD LaBRI, Bordeaux. (Advisors: C. Travers and Y. Métivier)
- M. Véron, PhD LIP6, Paris. (Advisors: P. Sens, O. Marin, and S. Monnet)

Pierre Sens was the reviewer of:

- G. Da Costa, HDR IRIT, Toulouse
- V. Marangozova, HDR LIG, Grenoble
- G. Fedak, HDR LIP, Lyon
- P. Li, PhD Bordeaux (Advisors: R. Namyst, E. Brunnet)
- R. Leroy, PhD LIFL - Maison de la Simulation, (Advisor: N. Melab)
- T. Martsinkevich, PhD LRI (Advisor: F. Cappello)
- M. Antoine, PhD Univ. Nice (Advisor: F. Baude)
- C. Gómez-Calzado, PhD Univ. San Sebastian, Spain (Advisor: M. Larrea)
- J. De la Houssaye, PhD Univ. Évry (Advisor: F. Pommereau)
- F. Zanon Boito, PhD LIG (Advisors: Y. Denneulin, P. Naveaux)
- A. El Rheddane, PhD LIG (Advisor: N. de Palma)

Pierre Sens was Chair of the defense committees of:

- S. Monnet, HDR LIP6, Paris
- D. Conan, HDR Télécom Sud Paris, Evry
- R. Angarita, PhD Dauphine, Paris (Advisor: M. Rukoz)
- X. Han, PhD Télécom Sud Paris, Evry (Advisor: N. Crespi)
- R. Farahbakhsh, Han, PhD Télécom Sud Paris, Evry (Advisor: N. Crespi)
- D. Yang, PhD Télécom Sud Paris, Evry (Advisor: D. Zeghlache)
- H. Xiong, PhD Télécom Sud Paris, Evry (Advisor: D. Zeghlache)
- L. Guo, PhD LIP6, Paris, (Advisor: G. Muller)

Marc Shapiro was a reviewer on the defense committee of Mehdi Ahmed-Nacer (Nancy).

Sébastien Monnet was member of the defense committee of Amadou Diarra, Phd Grenoble university, Grenoble (Advisor: V. Quema).

### **9.3. Popularization**

Sébastien Monnet is responsible for the [Science Festival at UPMC for the LIP6](#).

Sébastien Monnet and Julien Sopena animated an activity during the Science Festival 2015.

## RMOD Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Anne Etien was General chair of IWST15, the International Workshop of Smalltalk Technologies (part of ESUG 2015).

#### 10.1.1.2. Member of the organizing committees

- Nicolas Anquetil, Anne Etien and Damien Cassou organized the umbrella conference EvoLille (= EOSESE + RIMEL + BENEVOL) as well as BENEVOL. Funding was acquired from sponsors (8000 EUR). The event had 60 participants.
- Nicolas Anquetil organized RIMEL.
- Marcus Denker and Stéphane Ducasse are in the board of ESUG and organized ESUG 2015, the yearly Smalltalk industrial conference.
- RMoD organized Pharo Conf 2015, the yearly Pharo meeting of both industrial and reserach users.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- Nicolas Anquetil, Anne Etien and Damien Cassou where program chairs of BENEVOL, Belgian-Netherlands software eVOLution seminar (Dec 03-04, 2015. Lille, France)
- Anne Etien was program chair at IWST 2015 (International Workshop of Smalltalk Technologies).

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

- Anne Etien
  - BENEVOL 2015 : BELgian-Netherlands software eVOLution seminar (Dec 03-04, 2015. Lille, France)
  - Modelsward16 : 4th International Conference on Model-Driven Engineering and Software Development (19 - 21 Feb 2016, Rome, Italy)
  - ICSOFT-PT15 : 10th International Conference on Software Paradigm Trends
  - ICSOFT-PT16 : 11th International Conference on Software Paradigm Trends (24 - 26 Jul 2016, Lisbon, Portugal)
- Nicolas Anquetil
  - BENEVOL 2015 : BENEVOL 2015 : BELgian-Netherlands software eVOLution seminar (Dec 03-04, 2015. Lille, France)
  - SANER 2015 : International Conference on Software Analysis, Evolution, and Reengineering (Mar 2–6, 2015; Montreal, Canada)
  - CIEL 2015 : 4 me Conference en Ingenierie du Logiciel (Jun 9–11, 2015; Bordeaux, France)
  - ICSOFT-EA : 10th International Joint Conference on Software Engineering and Applications (Jul 20–22, 2015; Colmar, France)
  - AICCSA 2015 : ACS/IEEE International Conference on Computer Systems and Applications (Nov 17–20, 2015; Marrakech, Morocco)
- Damien Cassou

- BENEVOL 2015 : BElgian-NEtherlands software eVOLution seminar (Dec 03-04, 2015, Lille, France)
- Marcus Denker
  - SANER 2016 (23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering)
  - VISSOFT'15 NIER/TD (IEEE Working Conference on Software Visualization, NIER and Tool Track)
- Martin Dias
  - DChanges 2015 (International Workshop on (Document) Changes: Modeling, Detection, Storage and Visualization 2015)
- Stéphane Ducasse
  - International Conference Onward! 2015.
  - International Conference 18th International Conference on Fundamental Approaches to Software Engineering (FASE) 2015, 2016
  - declined: ECOOP 2015, ECOOP 2016.

#### 10.1.2.3. Reviewer

- Gustavo Santos reviewed for SANER 2016 (23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering).
- Klérisson Paixão reviewed for SANER 2016 (23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering).
- Klérisson Paixão reviewed for 19th International Conference on Fundamental Approaches to Software Engineering (FASE).

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing activities

Nicolas Anquetil reviewed a book on software evolution for Springer. He also reviewed manuscripts for the following international journals:

- IEEE Transactions on Software Engineering (IEEE Computer Society, ISSN: 0098-5589)
- Journal of Software: Evolution and Process (Wiley, ISSN: 2047-7481)
- Journal of Systems and Software (Elsevier, ISSN: 0164-1212)
- IET Software (IET, ISSN 1751-8806)

Marcus Denker reviewed an article for Science of Computer Programming (Elsevier, ISSN: 0167-6423)

#### 10.1.4. Scientific expertise

- Damien Cassou reviewed a proposal for *Jeune Entreprise Innovante*.
- Marcus Denker reviewed a research proposal for *Fondo Nacional de Desarrollo Científico y Tecnológico (FONDECYT), Chile*

#### 10.1.5. Research administration

- Marcus Denker and Stéphane Ducasse are Moderators of arXiv cs.SE, from 2015. <http://arxiv.org/list/cs.SE/recent>
- Marcus Denker was vice president of the local Inria Lille *commission développement technologique*.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: C. Demarey, Intégration Continue, 4h (M2), GIS2A5, Polytech'Lille, France  
 Master: C. Demarey, Intégration Continue, 12h (M2), IAGL, Université de Lille 1, France  
 Licence : Damien Cassou, OpenDevs Communauté de Développeurs, 40, L3, Université Lille 1, France  
 Licence : Damien Cassou, Conception orientée objet, 52.5, L3, Université Lille 1, France  
 Master : Damien Cassou, Qualité logicielle, 30, M2, Université Lille 1, France  
 Master : Damien Cassou, CAL Tests et Maintenance, 12, M2, Université Lille 1, France  
 Master: Anne Etien, Test et Maintenance, 10, M2, Polytech-Lille, France  
 Master : Anne Etien, Système d'information objet, 22, M1, Polytech-Lille, France  
 Master : Anne Etien, Bases de données, 44, M1, Polytech-Lille, France  
 Master : Anne Etien, Bases de données Avancées, 12, M1, Polytech-Lille, France  
 Licence : Anne Etien, Bases de données, 22, L3, Polytech-Lille, France  
 Licence : Damien Pollet, Java lecture, L3 level, 130 students, 30 hours (for the students), Telecom Lille, France  
 Licence : Damien Pollet, Java lecture, L3 level, 60 remote students, 20h, Telecom Lille, France  
 Licence : Damien Pollet, Java project, L3 level, 10 remote students, 20h, Telecom Lille, France  
 Licence : Damien Pollet, Computer architecture, L3 level, 10h, Telecom Lille, France  
 Master : Damien Pollet, Technologies for information systems, M1 level 30h, Telecom Lille, France  
 Master : Damien Pollet, Network algorithms, M2, 30h, Telecom Lille, France  
 Master : Damien Pollet, Software engineering, M1, 6h, Telecom Lille, France  
 Nicolas Anquetil, Conception et programmation objet avancées, 64h, L2, Univ. Lille1, France  
 Nicolas Anquetil, Programmation Système, 48h L2, Univ. Lille1, France  
 Nicolas Anquetil, Projet tuteuré, 32h L2, univ. Lille1, France  
 Nicolas Anquetil, Programmation mobile, 32h L2, univ. Lille1, France

### **10.2.2. Supervision**

Martin Dias, Supporting Merging, 27/11/2015, Damien Cassou, Stéphane Ducasse.  
 Guillermo Polito, Isolation and Reflection in Dynamic Object Oriented Languages, 13/04/2015, Noury Bouraqadi, Luc Fabresse, Stéphane Ducasse.  
 PhD in progress: Vincent Blondeau, CIFRE Worldline, started Oct 2014, Anne Etien, Nicolas Anquetil.  
 PhD in progress: Brice Govin, CIFRE Thales, started Jan 2015, Anne Etien, Nicolas Anquetil, Stéphane Ducasse.  
 PhD in progress: Gustavo Santos, started April 2014, Anne Etien, Nicolas Anquetil  
 PhD in progress: Camille Teruel, Security for dynamic languages, 01/12/2012, Stéphane Ducasse, Damien Cassou  
 PhD in progress: Marco Naddeo, Evolvable and reusable software: from language design to developer tools, started 01/01/2014, Viviana Bono (University of Turin), Damien Cassou, Stéphane Ducasse  
 PhD in progress: Clément Béra: Evolvable Runtimes for a Changing World, started Oct 2014, Stéphane Ducasse, Marcus Denker.  
 PhD in progress: Klérisson Paixao, Automating reactions for API changes based on dynamic analysis, started 16/08/2014, Marcelo Maia, Damien Cassou, Stéphane Ducasse.  
 Internships: Cyril Ferlicot, Yann Lesage, Skip Lentz, Thomas Durieux, Cédric Lenquette, Xavier Koma, Mathieu Schepens, Thomas Heniart.

### 10.2.3. Juries

- Anne Etien: Eli Richa, Qualification des générateurs de code source dans le domaine de l'avionique: le test automatisé des chaînes de transformation de modèles, 15/12/15, Telecom ParisTech (reviewer)
- Damine Cassou: Martin Dias, Supporting Integration Activities with First-Class Code Changes, 27/11/2015, Lille.
- Stéphane Ducasse:
  - *Habilitation*
    - \* *Reflective Languages for Mobile Robotics Applications Development*, Dr. Luc Fabresse, Université de Lille 1, Lille, 08/12/15.
    - \* *Supporting Software Evolution in Organizations*, Dr. Nicolas Anquetil, Université de Lille 1, Lille, 09/05/14.
  - *Thèses*
    - \* *Organisation des développeurs open-source et fiabilité logicielle*, Mathieu Foucault, Université de Bordeaux, France. 30/11/15. (referee)

## 10.3. Popularization

- Marcus Denker gave one presentation about Pharo at the open source conference FOSDEM 2015.
- RMOD co-organized and participated at ESUG 2015.
- Multiple public Pharo Sprints in Lille.
- A MOOC for Pharo is in preparation (Stéphane Ducasse, Damien Cassou)



## ROMA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Laure Gonnord is co-chair of the “Compilation French community”, with Florian Brandner (ENSTA) and Fabrice Rastello (Inria Corse).

### 10.1.2. Scientific events selection

#### 10.1.2.1. Steering committees

Yves Robert is a member of the steering committee of HCW, Heteropar and IPDPS. He is the chair of the steering committee of Euro-EduPar.

#### 10.1.2.2. Chair of conference program committees

Anne Benoit was program vice-chair for the Applications and Algorithms track of SBAC-PAD’2015, program vice-chair for the Algorithms track of HiPC’2015, and workshops co-chair of ICPP’2015.

Bora Uçar was IPDPS 2015 Workshops vice-chair, and was a co-chair of PCO2015 (a workshop of IPDPS).

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

Christophe Alias was a member of the program committee of IMPACT’16.

Anne Benoit was a member of the program committee of SC, CCGrid, HCW, Ena-HPC, and FEEDBACK.

Jean-Yves L’Excellent was a member of the program committee of Compas.

Loris Marchal was a member of the program committee of IPDPS. and HiPeR.

Yves Robert was a member of the program committee of FTXS, ICCS, IPDPS, and SC.

Bora Uçar was in the PC of IPDPS, HiPC, PPAM, ICCS, HPC4BD, and IEEE CSE.

Frédéric Vivien was a member of the program committee of IPDPS, SC, HiPC, PDP, ComPAS, EduHPC, EduPar, ROADEF, and WAPCO.

#### 10.1.2.4. Reviewer

Christophe Alias reviewed papers for DATE’15.

Laure Gonnord reviewed papers for VMCAI’15, CGO’15.

Bora Uçar reviewed papers for SC15 and MFCS 2015.

Jean-Yves L’Excellent reviewed papers for Compas’15 and Europar 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Anne Benoit is Associate Editor of TPDS (IEEE Transactions on Parallel and Distributed Systems) since October 2015, and also of JPDC (Elsevier Journal of Parallel and Distributed Computing) and SUSCOM (Elsevier Journal of Sustainable Computing).

Yves Robert is Associate Editor of JPDC (Elsevier Journal of Parallel and Distributed Computing), IJHPCA (Sage International Journal of High Performance Computing Applications), and JOCS (Elsevier Journal of Computational Science).

Anne Benoit is Associate Editor of Parallel Computing (Elsevier) and of JPDC (Elsevier Journal of Parallel and Distributed Computing).

#### 10.1.3.2. Reviewer - Reviewing activities

Anne Benoit reviewed papers for TOPC and TCS.

Christophe Alias reviewed papers for PARCO and IEEE TVLSI.

Laure Gonnord reviewed papers for PARCO.

Bora Uçar reviewed papers for SIAM SISC, ACM ToPC, IEEE TPDS, JPDC, and NLAA.

Loris Marchal reviewed papers for IEEE TPDS, SIAM TOPC, JPDC and ADHOC.

Jean-Yves L'Excellent reviewed a paper for ACM TOMS.

Frédéric Vivien reviewed papers for Journal of Grid Computing, Cluster Computing, and the Journal of Supercomputing.

#### 10.1.4. Invited talks

In June 2015, Laure Gonnord was invited at Google, Mountain View and SRI, to give talks about her research about static analyses for compilers.

#### 10.1.5. Leadership within the scientific community

Laure Gonnord, together with Fabrice Rastello (CORSE) and Florian Brandner (Telecom Paris Tech) animate since 2010 the French Compilation Community (<http://compilfr.ens-lyon.fr>).

Yves Robert participated to the following selection committees:

- IEEE Fellows: vice-president and attended the physical selection meeting in Los Alamitos in May 2015.
- IEEE TCSC Award for Excellence in Scalable Computing: member
- IEEE TCSC Mid-Career Award: member

#### 10.1.6. Scientific expertise

In 2015, Maroua Maalej has produced 7 Research Tax Credit documents for Accenture group France as a scientific consultant. The goal is to expertise research done by Accenture project-teams and suggest further ideas by evaluating the state of the art.

#### 10.1.7. Research administration

Anne Benoit is a member of the executive committee of the Labex MI-LYON.

Bora Uçar served as the Secretary of the SIAM activity group on Supercomputing, (1 January 2014–12 December 2015).

Loris Marchal is a member of the scientific council of the “Ecole Nationale Supérieure de Mécanique et des Microtechniques” (ENSMM, Besançon).

Jean-Yves L'Excellent evaluated a CIFRE PhD proposal for ANRT. He is a member of the direction board of the LIP laboratory (since November 2015).

Frédéric Vivien is a member of the scientific council of the École normale supérieure de Lyon and of the academic council of the University of Lyon.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence:

- Anne Benoit : Algorithmique avancée (CM 32h), L3, Ecole Normale Supérieure de Lyon.
- Laure Gonnord : Architecture des ordinateurs (TD+TP=40h), L2, Université Lyon 1 Claude Bernard : Spring 2015.
- Maroua Maalej : Algorithmique et Programmation Fonctionnelle et Récursive (TP=28h), L1, Université Lyon 1 Claude Bernard : Autumn 2015.
- Christophe Alias : Introduction à la compilation (CM+TD=24h), L3, INSA Centre-Val-de-Loire : Spring 2015.
- Christophe Alias : Concours E3A – épreuve informatique MPSI (correcteur) : Spring 2015.
- Yves Robert : Algorithmique (CM 32h), L3, Ecole Normale Supérieure de Lyon

Master:

- Anne Benoit, Resilient and energy-aware scheduling algorithms (CM 24h), M2, Ecole Normale Supérieure de Lyon.
- Laure Gonnord, Program Analysis and Verification (CM 24h), M2, Ecole Normale Supérieure de Lyon. With David Monniaux
- Laure Gonnord, Compilation (TP 28h), M1, Ecole Normale Supérieure de Lyon.
- Laure Gonnord, Introduction aux systèmes et réseaux (CM/TP 52h), M2 Pro, Université Lyon 1.
- Laure Gonnord, Compilation (TD/TP 24h), M1, Université Lyon 1 Claude Bernard.
- Laure Gonnord, Complexité (TD 15h), M1, Université Lyon 1 Claude Bernard.
- Laure Gonnord, Temps Réel (TP 24h), M1, Université Lyon 1 Claude Bernard.
- Laure Gonnord organised (Jan. 2015) a research school entitled “Static analyses in the state-of-the-art compilers” (invited speaker : Fernando Pereira).
- Christophe Alias, Optimisation d’applications embarquées (CM+TD=18h), M1, INSA Centre-Val-de-Loire.
- Christophe Alias, Advanced Compilers: Loop Transformations and High-Level Synthesis (CM 8h), M2, Ecole Normale Supérieure de Lyon.
- Christophe Alias, Compilation (CM 16h), M1, Ecole Normale Supérieure de Lyon.
- Frédéric Vivien, Algorithmique et Programmation Parallèles et Distribuées (CM 36 h), M1, École normale supérieure de Lyon, France.

### 10.2.2. Supervision

PhD in progress: Aurélien Cavelan, "Resilient and energy-aware scheduling algorithms for large-scale distributed systems", started in September 2014, advisors: Anne Benoit and Yves Robert.

PhD in progress: Guillaume Iooss, “Semantic tiling”, started in September 2011, joint PhD ENS-Lyon/Colorado State University, advisors: Christophe Alias and Alain Darté (ENS-Lyon) / Sanjay Rajopadhye (Colorado State University).

PhD in progress: Oguz Kaya, “High performance parallel tensor computations”, started in September 2014, funding: Inria, advisors: Bora Uçar and Yves Robert.

PhD in progress: Maroua Maalej, “Low cost static analyses for compilers”, started in October 2014, advisors : Laure Gonnord and Frédéric Vivien.

PhD in progress: Gilles Moreau, "High-performance multifrontal solution of sparse linear systems with multiple right-hand sides, application to the MUMPS solver", started in December 2015, funding: MUMPS consortium and Labex MILYON, advisor: Jean-Yves L'Excellent.

PhD in progress: Loic Pottier, "Scheduling concurrent applications in the presence of failures", started in September 2015, advisors: Anne Benoit and Yves Robert.

PhD in progress: Issam Rais, "Multi-criteria scheduling for high-performance computing", started in November 2015, advisors: Anne Benoit, Laurent Lefèvre (LIP, ENS Lyon, Avalon team), and Anne-Cécile Orgerie (IRISA, Myriads team).

PhD in progress: Bertrand Simon, "Task-graph scheduling and memory optimization", started in September 2015, funding: ENS Lyon, advisors: Loris Marchal and Frédéric Vivien.

PhD defended on November 25: Julien Herrmann, "Memory-aware algorithms and scheduling techniques for matrix computations", started in September 2012, funding: ENS Lyon, advisors: Loris Marchal and Yves Robert.

### 10.2.3. *Juries*

Laure Gonnord was a member of the doctoral committee for the evaluation of the first year of Phd of F. Maurica, Université de la Réunion, December 2015.

Jean-Yves L'Excellent was a reviewer for the PhD thesis of Corentin Rossignon, University of Bordeaux, 2015.

Yves Robert chaired the HDR defense committee of Arnaud Legrand (University of Grenoble) in November 2015. He was a member of the PhD defense committee of Mathias Coqblin (University of Bsançon) in January 2015. He was a reviewer for the PhD defense committee of Pooja Aggarwal (Indian Institute of Technology Delhi) in October 2015.

Frédéric Vivien was a member of the PhD defense committee of Mawussi Zounon (University of Bordeaux).

## 10.3. Popularization

Loris Marchal led a "Math en Jeans" workshop at "Lycée Lacassagne" in Lyon.

Frédéric Vivien gave two lectures about "Scheduling" at the CIRM "Algorithmique et programmation" workshop for Maths teachers in *Classes préparatoires aux grandes écoles*. The two lectures were recorded and are available online (<http://library.cirm-math.fr/Record.htm?Record=19278406157910966889>).

## SCALE Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. general chair, scientific chair

- Ludovic Henrio, member of the chairing committee of ICE'2016; organisation of a workshop on Active object languages in September 2015.
- Fabien Hermenier co-chaired of the 4th Workshop Energy-Efficiency in Data Centres (E2DC)

### 9.1.2. Scientific events selection

#### 9.1.2.1. responsible of the conference program committee

- Olivier Dalle, member of the SIMUTools Steering Committee;
- Eric Madelaine, member of the FACS Steering Committee;

#### 9.1.2.2. member of the conference program committee

- Françoise Baude: program committee member of HPCS 2015, Compas2015
- Olivier Dalle: program committee member of DEVS/TMS'15, ACM SIGSIM PADS'15, WSC'15
- Ludovic Henrio: program committee member of ICE'15, PDP4PAD 2016, AGERE!2015
- Fabien Hermenier: program committee member of Compas2015, PDP, VTDC
- Fabrice Huet : program committee member of Europar 2014, IEEE Big Data 2014, BDCloud 2014.

### 9.1.3. Journal

#### 9.1.3.1. reviewer

- Françoise Baude was a reviewer for International Journal of Computer Mathematics, and TSI special issue of Compas 2014;
- Olivier Dalle was a reviewer for journals ACM TOMACS, SCS SIMULATION, Elsevier SIMPRA;
- Fabien Hermenier was a reviewer for journals of Systems and Software, IEEE Transactions on Cloud Computing, Journal of Grid Computing;
- Ludovic Henrio was reviewer for the journal SCP (Science of Computer Programming);
- Eric Madelaine was reviewer for the journals SCP (Science of Computer Programming) and JLAMP (Journal of Logical and Algebraic Methods in Programming).

### 9.1.4. Invited talks

- Eric Madelaine presented a talk titled "Semantics and Equivalences for Parameterized Networks of Synchronised Automata (pNets)", at the "Advanced Software Technology Forum" of the Chinese Academy of Science, Shanghai, July 23rd.

### 9.1.5. Research administration

- Eric Madelaine is council member of the International Joint Research Laboratory of Trustworthy Software, Ministry of Education, China.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Françoise Baude, Algorithmique et Programmation en Java, 70 H eqTD, niveau L2, Polytech'Nice Sophia, UNS, France

Licence : Françoise Baude, Introduction au Web, 30 H eqTD, niveau L2, Polytech'Nice Sophia, UNS, France

Licence : Olivier Dalle, Systèmes Informatiques, 72 H eqTD, niveau L1, UFR Sciences, UNS, France

Licence : Olivier Dalle, Outils Formels Informatique, 36 H eqTD, niveau L2, UFR Sciences, UNS, France

Licence : Olivier Dalle, Projet Scientifique Informatique, 33 H eqTD, niveau L2, UFR Sciences, UNS, France

Licence : Olivier Dalle, Systèmes d'Exploitation, 72 H eqTD, niveau L2, UFR Sciences, UNS, France

Licence : Fabien Hermenier, Algorithmique et Programmation en Java, 70 H eqTD, niveau L2, Polytech'Nice Sophia, UNS, France

Licence : Fabien Hermenier, Introduction à Internet, 103 H eqTD, niveau L2, Polytech'Nice Sophia, UNS, France

Licence : Fabien Hermenier, Outils pour le Génie Logiciel 14 H eqTD, niveau L3/SI3, Polytech'Nice Sophia, UNS, France

Licence : Justine Rochas, TP de Programmation Orientée Objet 18 H eqTD, niveau L3, UFR Sciences, UNS, France

Master : Françoise Baude, Applications Réparties, 36 H eqTD, niveau M1/SI4, Polytech'Nice Sophia, UNS, France

Master : Françoise Baude and Ludovic Henrio, Distributed systems: an Algorithmic approach, 17 H + 17 h eqTD, niveau M2, Polytech'Nice Sophia/UFR Sciences, UNS, France

Master : Fabrice Huet, Programmation Parallèle et Distribuée, 63h eqTD, niveau M1, UFR Sciences, UNS, France

Master : Fabrice Huet, Programmation Avancée, 78h eqTD, niveau M1, UFR Sciences, UNS, France

Master : Fabien Hermenier, Software Architecture for Cloud Computing, 17h eqTD, niveau M2, Polytech'Nice Sophia, UNS, France

Master : Fabien Hermenier, Virtualised Architecture for Cloud Computing, 17h eqTD, niveau M2, Polytech'Nice Sophia, UNS, France

Master : Justine Rochas, TP de Systèmes Distribués 24 H eqTD, niveau M1, UFR Sciences, UNS, France

Master : Justine Rochas, TP de Technologies XML 24 H eqTD, niveau M1, UFR Sciences, UNS, France

Summer School : Eric Madelaine, "Designing, programming, and verifying distributed systems", 9 H eqTD, East China Normal University Shanghai, China.

### 9.2.2. Supervision

PhD : Michaël Benguigui, "Valorisation d'options américaines et Value at Risk de portefeuille sur cluster de GPUs/CPU's hétérogène", UNS, 27/8/2015 advisor Françoise Baude.

PhD : Maeva Antoine, "Improving skewed data dissemination in structured overlays", UNS, 23/3/2015, advisors Eric Madelaine and Fabrice Huet

PhD: Damian Vicino, "Improved Time Representation in Discrete-Event Simulation", UNS-Carleton, 23/11/2015, advisors Olivier Dalle, Françoise Baude, Gabriel Wainer (Carleton University, Canada).

PhD in progress: Ge Song, “Publish-Subscribe Models for Large Scale Data Analysis Frameworks”, since Feb. 2013, advisor Fabrice Huet and Frédéric Magoulés (ECP)

PhD in progress : Vincent Kerbache, “Resource Management in a Cloud Supplied with Renewable Energies”, since Sep. 2013, advisors Eric Madelaine and Fabien Hermenier

PhD in progress : Oleksandra Kulankhina, “Model-driven environment for the development of safe component-based distributed applications”, since Oct. 2013, advisor Eric Madelaine

PhD in progress: Justine Rochas, “Programming model and middleware support for distributed and concurrent applications”, since Oct. 2013, advisor Ludovic Henrio

PhD in progress: Hlib Mykhailenko, “Probabilistic Approaches for Big Data Analytics”, since March. 2014, advisors Fabrice Huet, Philippe Nain (Inria)

PhD in progress: Vincenzo Mastandrea, “Deadlock analysis for concurrent and distributed programming”, since Oct. 2014, advisors Ludovic Henrio and Cosimo Laneve.

PhD in progress: Léa El Bèze, “Predictive Big Data Analytics: continuous and dynamically adaptable data request and processing”, since Nov. 2015, advisors Françoise Baude and Didier Parigot (Inria).

### 9.2.3. Juries

- Françoise Baude was jury president for the PhD of Ivan Paez (Université de Rennes 1).
- Ludovic Henrio was reviewer and jury member for the PhD of Sylvain Dailler (Université d’Orléans).
- Fabrice Huet reviewed the PhD thesis of Roelof Kemp (Vrije Universiteit, Amsterdam).

## 9.3. Popularization

- Françoise Baude is in charge since September 2011 of the set up and animation of an educational program *Cordées de la Réussite*, which in 2015 has launched a robotic project around the humanoid robot named Poppy. Since 2013, she is in charge of the AVOSTII-STI2D program implementation for Polytech’Nice Sophia, requiring advertising high-school pupils for engineering studies, in particular in ICT.

As EIT Digital Master School University of Nice Sophia-Antipolis coordinator, she is in charge of publicizing, orchestrating, and reporting about all the EIT Digital master programmes involvement of UNS (Internet and Technology Architecture, and Data Science programmes); and as part of the *Paris Node comité de pilotage*, to follow French activities within EIT Digital, and report about UNS activities within this KIC. Overall this mission required about four full-time months of work in 2015. She presented these two master programs at the Telecom Valley Innovation meeting on March 27th and June 18 2015, and in more details at the Kick-Off meeting of the Master School organized in Eindhoven for master students, on October 23th 2015.

She has been invited at the round table “Mystérieuses Big Data” on november 230th that was organized for the 50th anniversary of UNS.

- Fabrice Huet is in charge, since 2011, of the *Informatiques et Sciences du Numérique* courses for the academia of Nice. These courses are offered to high school teachers who volunteer to offer a Computer Science option to their students. He has also given seminars in high school during the *Fête de la Science*.

## **SOCRATE Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Event Organisation**

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

- Samir Perlaza was one of the general chairs of the Inria – GDR-ISIS Meeting: Recent Advances in Information Theory and Coding Theory, held in the campus of Université de Lyon, Bibliothèque Marie Curie de l'INSA de Lyon, Lyon, November 29, 2015, France.
- Samir Perlaza was one of the scientific chairs of the Inria – Intech: La théorie des jeux à l'œuvre dans la société, l'économie et l'industrie, held in Inria Grenoble - Rhône-Alpes, Montbonnot, Juin 30, 2015, France.

#### *9.1.1.2. Member of Organizing Committees*

- Florent de Dinechin was a member of the following organizing committee:
  - 22nd IEEE Symposium on Computer Arithmetic
- Jean-Marie Gorce was a member of the following organizing committees:
  - colloque Objets Connectés, Entretiens Jacques Cartier (Dec 2015).
  - Grets 2015, September 2015, Lyon.
- Samir Perlaza was a member of the following organizing committee:
  - GDR Isis : symposium on New Advances in Information Theory.

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

- Florent de Dinechin was a member of the following program committees:
  - IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP)
  - IEEE International Conference on Field Programmable Logic and Applications (FPL)
  - IEEE International Conference on Field Programmable Technologies (FPT)
  - IEEE International Conference on Reconfigurable Computing and FPGAs (ReConFig)
  - International Symposium on Highly Efficient Reconfigurable Accelerator Technologies (HEART)
  - 22nd IEEE Symposium on Computer Arithmetic (Arith)
  - Conférence d'informatique en Parallélisme, Architecture et Système (CompAS)
- Jean-Marie Gorce was a member of the following program committees:
  - Grets 2015, September 2015, Lyon.
  - IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2015
  - IEEE International Conference on Ultra-Wideband (ICUWB) 2015
  - IEEE ICC Workshop on Cognitive Radio Networks (CRN) 2015.
  - European Conference on Antennas and Propagation (Eucap) 2015
- Tanguy Risset was a member of the following program committees:
  - IEEE Computer Society Annual Symposium on VLSI (ISVLSI) 2015.
  - Design Automation and Test in Europe (DATE) 2015.



- Samir Perlaza was a member of the following program committees:
  - IEEE ICC 2015 Workshop on Next Generation Backhaul/Fronthaul Networks (BackNets). June 8, 2015, London, UK
  - IEEE ICC 2015 Workshop on Wireless Physical Layer Security (WPLS) June 8, 2015, London, UK
  - IEEE ICC 2015 Workshop on Small Cell and 5G Networks (SmallNets). June 8, 2015, London, UK
- Guillaume Villemaud was a member of the following program committees:
  - IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2015
  - International Telecommunications Symposium (ITS) 2015
  - IEEE Vehicular technology Conference (VTC) Fall 2015
- Yasser Fadlallah was a member of the following program committees:
  - IEEE Symposium on Signal Processing and Information Technology 2015.
  - International Conference on Signal Processing & Data Mining 2015.

### **9.1.3. Member of Editorial Boards**

- Florent de Dinechin is an associate editor of IEEE Transactions on Computers
- Jean-Marie Gorce is an associate editor of Telecommunications Systems (Springer) and Journal of Wireless communications and Networking (Springer).
- Guillaume Villemaud is an associate editor of Annals of Telecommunications (Springer).

### **9.1.4. Tutorials at International Conferences**

Samir Perlaza delivered the tutorial “Output Feedback in Wireless Communications” at the IEEE International Conference on Communications (ICC), London, UK, June, 2015. Joint work with H. Vincent Poor (Princeton University, NJ) and Ravi Tandon (Virginia Tech, VA).

### **9.1.5. Invited Talks**

- Samir Perlaza delivered the invited talk “On the Impact of Network-State Knowledge on the Feasibility of Secrecy” at the London Probability Seminar, advances in information theory, Imperial College London, June 10, 2015, London, UK.
- Samir Perlaza delivered the invited talk “On the Impact of Network-State Knowledge on the Feasibility of Secrecy” at the MESCAL Seminar, Inria, Rhône-Alpes Research Centre, Mai 21, 2015, Montbonnot, France.
- Selma Belhadj Amor delivered the invited talk “Simultaneous energy and information transmission in Gaussian multiple access channels” at the Inria – GDR-ISIS Seminar on Recent Advances in Information Theory and Coding Theory, Nov 29, 2015, Lyon, France.
- Selma Belhadj Amor delivered the invited talk “Simultaneous energy and information transmission in Gaussian multiple access channels” at the SOCRATE Seminar, Inria, Rhône-Alpes, CITI Lab, Mai 21, 2015, Lyon, France.
- Victor Quintero delivered the invited talk “Noisy Channel-Output Feedback Capacity of the Linear Deterministic Interference Channel” at the SOCRATE Seminar, Inria, Rhône-Alpes, CITI Lab, Mai 21, 2015, Lyon, France.
- Victor Quintero delivered the invited talk “Noisy Channel-Output Feedback Capacity of the Linear Deterministic Interference Channel” at the Inria – GDR-ISIS Seminar on Recent Advances in Information Theory and Coding Theory, Nov 29, 2015, Lyon, France.

- Jean-Marie Gorce: energy efficiency - spectral efficiency tradeoff with distributed interference alignment strategies in 4G networks and beyond. In special session on Smart and Efficient wireless networks and technologies at First URSI Atlantic Radio Science Conference (URSI AT-RASC), May, 20th, 2015.
- Leonardo Sampaio Cardoso deliver the invited talk “Building and using the CorteXlab platform” at Rutgers University, at Winlab research meeting June 10, 2015, New Jersey, USA.
- Florin Hutu: Energy optimization of radio transmission using wake-up radio. In First URSI Atlantic Radio Science Conference (URSI AT-RASC), May, 2015.

Tanguy Risset is expert in the European Technology Platform for communications networks and services (NetWorld2020 <http://networld2020.eu/>)

### **9.1.6. Research Administration**

Jean-Marie Gorce was a member of the Comité National des Universities (CNU) in section 61 signal processing (2011-2015).

Jean-Marie Gorce is a member of the Scientific Committee of the Inria-ALU Bell Labs common lab.

Jean-Marie Gorce is a member of the jury prix de thèse 2016 Signal Image et Vision, soutenu par l’association GRETSI, le GDR ISIS et le club EEA.

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

### **9.2.1. Teaching**

Jean-Marie Gorce is the head of the Telecommunications department of Insa Lyon.

Tanguy Risset and Jean-Marie Gorce and are professors at the Telecommunications Department of Insa Lyon.

Florent de Dinechin is a professor at the Computer Science Department of Insa Lyon.

Claire Goursaud is an associate professor at the Telecommunications department of Insa Lyon.

Leonardo Sampaio Cardoso is an associate professor at Insa Lyon (Premier Cycle).

Guillaume Salagnac and Kevin Marquet are associate professors at the Computer Science Department of Insa Lyon.

Guillaume Villemaud and Florin Hutu are associate professor at the Electrical Engineering Department of Insa Lyon.

Nikolai Lebedev is an associate professor at CPE Lyon engineering school, Lyon.

### **9.2.2. Supervision**

PhD in progress **Yuqi Mo** *Scaling of Iot Communication issuers*, Insa-Lyon, since 09/2015.

PhD in progress **David Kibloff** *New strategy for Physical Layer Security in wireless networks: self-jamming using Full-Duplex Transceivers*, Inria-DGA grant, since 10/2015.

PhD in progress **Coralie Saysset** *Compilation de programme data-flow pour architecture multi-coeur*, nom de l’Université, MENRT, since 09/2014.

PhD in progress **Victor Quintero** *Fundamental Limits of Decentralized Cognitive Radio Networks*, Ecole Doctoral EEA de Lyon, funded by Colciencias since 02/2014.

PhD in progress : **Arturo Jimenez Guizar**: *Cooperative communications in Body Area Networks*, ANR Cormoran grant, since 09/2012.

PhD in progress : **Matei Istoan**: *High-performance coarse operators for FPGA-based computing*, ANR Metalibm grant, since 01/2014.

PhD in progress : **Matthieu Vallerian**: “*Radio Logicielle pour réseau de capteurs*”, CIFRE/Orange, since 09/2012.

PhD: **Matthieu Lauzier**: “*Design and evaluation of information gathering systems for dense mobile wireless sensor networks*”, CIFRE/Euromedia, 03/04/2015.

PhD: **Baher Mawlawi**: “*Random access for dense networks: Design and Analysis of Multiband CSMA/CACEA grant*, 26/11/ 2015.

PhD: **Minh Tien Do**: “*Ultra-narrowband wireless sensor networks modeling and optimization* CIFRE grant with Sigfox, 21/07/ 2015.

### 9.2.3. Juries

Florent de Dinechin

PhD Fernando Endo *Génération dynamique de code pour l’optimisation énergétique* (U. Grenoble, Sep. 2015), (as a reviewer).

PhD Martin Kumm *Multiple Constant Multiplication Optimizations for Field Programmable Gate Arrays* (U. Kassel, Germany, Oct. 2015), (as a reviewer).

PhD Dmitry Burlyaev *Design, Optimization, and Formal Verification of Circuit Fault-Tolerance Techniques* (U. Grenoble, Nov. 2015).

PhD Olga Kupriianova *Toward a Modern Floating-Point Environment* (U. Pierre et Marie Curie Paris 6, Dec. 2015).

PhD Ashraf El-Antably *Etude de la migration de tâches dans une architecture multi-tuile. Génération automatique d’une solution basée sur des agents* (U. Grenoble, Dec. 2015).

Tanguy Risset

PhD Vagelis Bebelis *Boolean Parametric Data Flow (Modeling, Analyses, Implementation)* (U. Grenoble, Fev. 2015), (as a reviewer).

PhD Farouk Mansouri *Modèle de programmation des applications de traitement du signal et de l’image sur cluster parallèle et hétérogène* (U. Grenoble, Oct. 2015), (as jury president).

PhD Andrea Enrici *Model Driven Engineering of Parallel and Distributed Embedded Systems: the  $\Psi$ -chart Approach* (Telecom-ParisTech, Dec. 2015), (as a reviewer).

Jean-Marie Gorce

- HdR Eric Simon *Estimation de canal et Synchronisation pour les systèmes OFDM en présence de mobilité* (U. Lille, June 2015), (as a reviewer).
- PhD Thi-Minh-Dung Tran *Methods for finite-time average consensus protocols design, network robustness assessment and network topology reconstruction* (U.Grenoble March 2015), (as a reviewer).
- PhD Selma Belhadj Amor *Gains en capacité dans les canaux à accès multiple et à diffusion par l’exploitation de la voie de retour* (Telecom Paris Tech, March 2015), (as the jury president).
- PhD Matthieu De Mari *Allocations de ressources dans les réseaux sans fils* (CentraleSup-elec, July 2015), (as a reviewer).
- PhD Raouia Masmoudi *Télécommunications domotiques efficaces en termes de consommation d’énergie* (U. Cergy Pontoise and U. Sfax, Nov 2015), (as the jury president).
- PhD Yangyang Chen *performance analysis of mobile relays for LTE ; Telecoms Bretagne* (U.Rennes Dec 2015), (as a reviewer).

Guillaume Villemaud

PhD Nicolas Chevalier *Performances de l’optique sans fil pour les réseaux de capteurs corporels* (U. Limoges, dec. 2015), (as a reviewer).

## **SPIRALS Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific events organisation***

#### *10.1.1.1. General chair, scientific chair*

**Martin Monperrus** has been General Chair of the 2nd European Open Symposium on Empirical Software Engineering (**EOSESE'2015**), organized in Lille on 3 December 2014 in the context of EvoLille 2015.

**Romain Rouvoy** has been General Chair of (**Compas'2015**), that is the national research conference on parallelism, architecture, and system. The conference was held in Lille from 30 June to 3 July 2015.

#### *10.1.1.2. Member of the organizing committees*

**Martin Monperrus** has been member of the organization committee of the **EvoLille'2015** scientific conference on software evolution and empirical software engineering that was held in Lille from 2nd December to 4th December 2015.

### ***10.1.2. Scientific events selection***

#### *10.1.2.1. Chair of conference program committees*

**Romain Rouvoy** is member of the Steering Committee of the IFIP International Conference on Distributed Applications and Interoperable Systems (**DAIS**) and the French conference Compas.

#### *10.1.2.2. Member of the conference program committees*

##### **Laurence Duchien**

International Software Product Line Conference (SPLC), track Vision

International Workshop on Software Engineering Research and Industrial Practice (SER&IP) at the ACM/IEEE International Conference on Software Engineering

European Conference on Software Architecture (ECSA)

IEEE International Conference on Cloud and Autonomic Computing (ICCAC)

Belgian-Netherlands software eVOLution seminar (BENEVOL)

IEEE International Conference on Software Analysis Evolution and Reengineering Committee for Female Student Funding

##### **Filip Krikava**

Transformation Tool Contest (TTC) at the Software Technologies Applications and Foundations (STAF) International Conference

##### **Philippe Merle**

International Workshop on Combining Model-Driven Engineering and Cloud Computing (Cloud-MDE)

Intelligent Service Clouds Workshop (ISC) at the International Conference on Services Oriented Computing

International Symposium on Security in Computing and Communications (SSCC)

International Workshop on Adaptive and Reflective Middleware (ARM)

Conférence en Ingénierie Logicielle (CIEL)

**Martin Monperrus**

ACM /IEEE International Conference on Software Engineering (ICSE)  
International Conference on Software Maintenance and Evolution (ICSME)  
International Workshop on Computational Antifragility and Antifragile Engineering (ANTIFRAG-  
ILE)

**Daniel Romero Acero**

IEEE International Conference on Enabling Technologies: Infrastructure for Collaborative Enter-  
prises (WETICE), track on Adaptive and Reconfigurable Service-Oriented and Component-Based  
Applications and Architectures (AROSA)

**Romain Rouvoy**

ACM/IFIP/USENIX International Middleware conference (Middleware)  
Dependable and Adaptive Distributed Systems track (DADS) at the Annual ACM Symposium on  
Applied Computing (SAC)  
Distributed Computing track (DC) of the International Symposium on Symbolic and Numeric  
Algorithms for Scientific Computing (SYNASC)  
Vision Track of the International Software Product Line Conference (SPLC)  
International Conference on Computer Communications and Networks (ICCCN)  
International Conference on Ambient Systems, Networks and Technologies (ANT)  
IEEE International Workshop on Big Data Management for the Internet of Things (BIOT)  
International Workshop on Adaptive and Reflective Middleware (ARM)  
International Workshop on Adaptive Services for the Future Internet (WAS4FI)  
International Workshop on Software Architectures for Next-generation Cyber-physical Systems  
(SANCS)  
International Workshop on Self-aware Internet of Things (Self-IoT)  
International Workshop on Scalable Computing For Real-Time Big Data Applications (SCRAMBL)

**Lionel Seinturier**

IEEE/IFIP Conference on Software Architecture (WICSA)  
International ACM Symposium on Component-Based Software Engineering (CBSE)  
ACM Symposium on Applied Computing (SAC), tracks Software Architecture Theory Technology  
and Applications (SA-TTA), Operating Systems (OS), Software Engineering Aspects of Green  
Computing (SEGC)  
International Workshop on Software Engineering for Smart Cyber-Physical Systems (SEsCPS) at  
the ACM/IEEE International Conference on Software Engineering  
IEEE International Symposium on Software Crowdsourcing (ISCC)  
IEEE International Conference on Service Oriented Computing & Applications (SOCA)  
Australasian Software Engineering Conference (ASWEC)  
International Workshop on Model-Driven Engineering for Component-Based Software System  
(ModComp)  
Euromicro Conference on Software Engineering and Advanced Applications (SEAA), track Model-  
based development Components and Services (MOCS)  
IEEE Service Visionary Track on Service Composition for the Future Internet (SCFI)  
IEEE/ACIS International Conference on Software Engineering Research Management and Applica-  
tions (SERA)  
IEEE International Conference on Enabling Technologies: Infrastructure for Collaborative Enter-  
prises (WETICE), track on Formal Verification of Service Based Systems (FVSBS)  
Workshop on Patterns Promotion and Anti-patterns Prevention (PPAP)  
Conférence francophone en sur les Architectures Logicielles (CAL)

### 10.1.2.3. Reviewer

**Philippe Merle** has reviewed papers for the International ACM SIGSOFT Symposium on Component-Based Software Engineering (CBSE).

## 10.1.3. Journal

### 10.1.3.1. Member of the editorial boards

**Laurence Duchien** is member of the editorial board of the journal Lavoisier Technique et Science Informatiques (TSI).

**Martin Monperrus** is member of the editorial board of the international journal Springer Empirical Software Engineering (IF-2014: 2.161).

**Lionel Seinturier** is editor for software engineering of the ISTE-Wiley Computer Science and Information Technology book collection.

### 10.1.3.2. Reviewer - Reviewing activities

**Laurence Duchien**: Elsevier Science of Computer Programming (SCP), Elsevier Journal of Systems and Software (JSS), Wiley Software Practice and Experience (SPE).

**Philippe Merle**: Elsevier Journal of Systems and Software (JSS), Lavoisier Technique et Science Informatiques (TSI), IEEE Cloud Computing.

**Martin Monperrus**: IEEE Transactions on Dependable and Secure Computing (TDSC), Wiley Journal of Software Testing, Verification and Reliability (STVR), Software Quality Journal (SQJ), Springer Empirical Software Engineering (EMSE), Communications of the ACM (CACM).

**Romain Rouvoy**: IEEE Computer, IEEE Internet of Things Journal, Lavoisier Technique et Science Informatiques (TSI), Journal of Network and Computer Applications (JNCA), Elsevier Computer Communications (COMCOM), Elsevier Science of Computer Programming (SCP), IEEE Journal of Software: Evolution and Process (JSME).

**Lionel Seinturier**: Elsevier Journal of Systems and Software (JSS), Elsevier Journal of Network and Computer Applications (JNCA), Science China Information Sciences (SCIS), Springer Journal of Internet Services and Applications (JISA), Wiley Software Practice and Experience (SPE).

### 10.1.4. Invited talks

**Martin Monperrus** gave on keynote in Barcelona at IEEE CNSM 2012, and an invited course on automatic repair at the Escuela de Ciencias Informáticas, a winter school held in Buenos Aires (Argentina).

### 10.1.5. Leadership within the scientific community

**Laurence Duchien** is the head of the CNRS GDR GPL (Génie de la Programmation et du Logiciel). GDR GPL gathers 700 researchers from 90 teams in the domain of software engineering and programming languages.

**Martin Monperrus** is the co-head of the "Groupe de Travail Génie Logiciel Empirique" of the GDR GPL.

**Romain Rouvoy** is the co-head of the "Groupe de Travail Composants Objets Services : Modèles, Architectures et Langages" of the GDR GPL.

### 10.1.6. Scientific expertise

**Laurence Duchien** was member of a recruitment committee for a Senior Research Scientist position at the University of Luxembourg, for a Full Professor Position at the University of Montpellier and at the University of Bordeaux, for a Full Professor and an Inria Chair at Ecole des Mines de Nantes. She is expert for Program Hubert Curien.

**Philippe Merle** was member of the recruitment committee for research engineers for Inria SED Lille and Grenoble.

**Martin Monperrus** has been expert for the Natural Sciences and Engineering Research Council of Canada (NSERC/CRSNG).

**Romain Rouvoy** has been expert for the Natural Sciences and Engineering Research Council of Canada (NSERC/CRSNG).

**Lionel Seinturier** has been expert for the EU COST program, the Swiss National Science Foundation, the Qatar National Research Fund, and the French DRRT. He was member of a recruitment committee for a Senior Research Scientist position at the University of Luxembourg.

### 10.1.7. Research administration

**Laurence Duchien** is member of the Scientific Advisory Board for the Certus Center of the Simula Lab Norway (2014-2016). She is member of the CNRS PEDR committee.

**Philippe Merle** is member of the scientific board of Inria. He is in charge of creating the Lille's instance of the Irill research and innovation institute on free software. He is vice-president of the CUMI (Comité des Utilisateurs des Moyens Informatiques), alternate member of the Comité de centre, member of the CLHSCT (Comité Local d'Hygiène, de Sécurité et de Conditions de Travail).

**Romain Rouvoy** is president of the CLDD (Commission Locale de Développement Durable), member of the CUB (Commission des Utilisateurs du Bâtiment), and member of the Horizon Startup committee for the Inria Lille - Nord Europe research center.

**Lionel Seinturier** is member of the CDT (Commission Développement Technologique), member of the CER (Commission Emplois Recherche), and scientific correspondent for DPEI (Direction Partenariat Europe et International), for the Inria Lille - Nord Europe research center. He heads the committee (so-called "vivier 27 rang A") that selects members of recruitment committees in Computer Science at University of Lille 1.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

**Laurence Duchien** teaches at the University of Lille 1, IEEA faculty. She heads the **research program** in Master of Computer Science at University Lille 1. She heads the Carrières et Emplois service and is referent for the professional insertion in the PhD program in Computer Science at ComUE University Lille Nord de France. She is also Director of Doctoral Studies for Computer Science in Doctoral School Engineering Science (SPI) - ComUE Lille Nord de France.

Software Project Management, 50h, Level M2, Master MIAGE,  
 Design of distributed applications, 42h, Level M1, Master of Computer Science,  
 Software Product Lines, 8h, Level M2, Master of Computer Science,  
 Research and Innovation Initiation, 22h, Level M2 IAGL, Master of Computer Science,  
 Tutoring Internship, 16h, Level M2, Master of Computer Science.

**Martin Monperrus** teaches at the University of Lille 1, IEEA faculty.

Introduction to programming, 48h, Level L1, Licence of Computer Science,  
 Object-oriented design, 39h, Level L3, Licence of Computer Science,  
 Automated software engineering, 40h, Level M2 IAGL, Master of Computer Science.

**Romain Rouvoy** teaches at the University of Lille 1, IEEA faculty. He heads the **IAGL** specialty of the Master of Computer Science at the University Lille 1. He supervises the Agil-IT Junior Enterprise.

Infrastructures et Frameworks Internet, 32h, Level M2 IAGL, Master of Computer Science,  
 Innovation & Initiation à la Recherche, 14h, Level M2 IAGL, Master of Computer Science special-  
 ity,  
 Outils pour la Programmation des Logiciels, 12h, Level M2 IAGL, Master of Computer Science,  
 Suivi de projets, 20h, Level M2, Master of Computer Science,  
 Suivi d'alternants, 20h, Level M2, Master of Computer Science.

**Walter Rudametkin Ivey** teaches at the University of Lille 1, Polytech engineering school.

GIS4 Programmation par Objets  
 GIS4 Architectures Logicielles  
 GIS2A3 (apprentissage) Projet programmation par Objet  
 IMA2A4 (apprentissage) Conception Modélisation Objet  
 GBIAAL4 Bases de données

**Lionel Seinturier** teaches at the University of Lille 1, IEEA faculty.

Conception d'Applications Réparties, 18h, Level M1, Master of Computer Science,  
 Infrastructures et Frameworks Internet, 6h, Level M2 E-Services and TIIR, Master of Computer Science.

### **10.2.2. Supervision**

Defended HdR: Philippe Merle, Intergiciel d'intergiciels adaptable à base de services, composants et aspects, University Lille 1, 24 September 2015.

Defended PhD: Benoit Cornu, Automatic Analysis and Repair of Exception Bugs for Java Programs, 26 November 2015, Lionel Seinturier & Martin Monperrus.

Defended PhD: Marc Sango, Traceability of Concerns and Observer-Based Verification for Railway Safety-Critical Software, 18 September 2015, Laurence Duchien & Christophe Gransart.

In progress PhD: Yahya Al Dhuraibi, Un cadre flexible pour l'élasticité dans les nuages, October 2015, Philippe Merle.

In progress PhD: Stéphanie Challita, Un cadre formel et outillé pour la gestion de toute ressource en nuage, October 2015, Philippe Merle.

In progress PhD: Thomas Durieux, Search-based Monitoring and Root Cause Diagnosis in Production, September 2015, Lionel Seinturier & Martin Monperrus.

In progress PhD: Maria Gomez Lacruz, Self-Optimization of Software Systems Driven by Wisdom of the Crowds, October 2013, Lionel Seinturier & Romain Rouvoy.

In progress PhD: Geoffrey Hecht, Auto-optimisation des architectures orientées services : Application aux applications mobiles et Cloud, October 2013, Romain Rouvoy.

In progress PhD: Vincenzo Musco, Etude de la topologie et de l'évolution des graphes logiciels, October 2013, Philippe Preux (Inria SequeL) & Martin Monperrus.

In progress PhD: Gustavo Sousa, Towards dynamic software product lines to optimize management and reconfiguration of cloud applications, October 2012, Laurence Duchien & Walter Rudametkin Ivey.

In progress PhD: Amal Tahri, Evolution logicielle multi-vues, des réseaux domestiques au Cloud, March 2013, Laurence Duchien.

In progress PhD: Bo Zhang, Elasticité spontanée des services et infrastructures dans le Cloud, October 2013, Lionel Seinturier & Romain Rouvoy.

### **10.2.3. Juries**

#### **Laurence Duchien**

HDR Reda Bendraou (Université Paris 6), reviewer  
 HDR Jean-Rémy Falleri (University of Bordeaux), reviewer  
 HDR Anis Sharfi (Université of Nice-Sophia Antipolis), reviewer  
 Marc Sango (University Lille 1), director  
 Jonathan Aceituno (University Lille 1), chair  
 Radu Ciucanu (University Lille 1), chair  
 Fabien Gilson (University of Namur), reviewer  
 Sam Rottenberg (Telecom SudParis), reviewer  
 Shuai Wang (University of Oslo), reviewer  
 Jakub Zwolakowski (University Paris VII), reviewer  
 Jacob Geisel (Université of Toulouse), examiner  
 Vincent Lanore (ENS Lyon) Dec 2015, examiner



**Martin Monperrus**

Benoit Cornu (University Lille 1), co-supervisor

**Romain Rouvoy**

Codé Diop (INSA Toulouse), reviewer

Ivan Paez (University of Rennes 1), reviewer

Paul van der Walt (University of Bordeaux), reviewer

**Lionel Seinturier**

HDR Rémi Douence (University of Nantes), reviewer

HDR Patricia Stolf (University of Toulouse), reviewer

HDR Philippe Merle (University Lille 1), examiner

Benoit Cornu (University Lille 1), director

Damien Riquet (University Lille 1), chair

Nour Assy (Telecom SudParis), reviewer

Thomas Calmant (University of Grenoble), reviewer

Cédric Eschler (University of Toulouse), reviewer

Leandro Fountoura-Cupertino (University of Toulouse), reviewer

Ilias Gerostathopoulos (Charles University Prague), reviewer

Pierre Samson (University of Pau), reviewer

Abderrahmane Seriai (University Bretagne Sud), reviewer

Borjan Tchakaloff (University Bretagne Occidentale), reviewer

Ghada Ben Nejma (University of Pau), examiner

### 10.3. Popularization

**Julien Duribreux** and **Antoine Vuiller** has given a demonstration of the APISSENSE<sup>®</sup> crowd-sensing platform (see Section 6.1 ) at the RIC day in September. The event targets students from computer science master programs and engineering schools in Lille.

**Loïc Huertas** has participated in June to Rencontres Inria Industries (RII) Futur en Seine organized by the Paris Rocquencourt research center where he presented the PowerAPI software library (see Section 6.2 ) for energy monitoring of software systems.

**Lionel Seinturier** has participated in October to the event Chercheur itinérant organized by the Inria Lille Nord Europe research center in the context of La Fête de la science. Two classrooms (2<sup>nd</sup>e and 1<sup>ère</sup>) have been visited. The theme of the visit was crowd-sensing and data gathering from mobile devices.

## STORM Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- Raymond NAMYST was publicity co-chair of ACM International Conference on Computing Frontiers 2015 (CF'15).

### 10.1.2. Scientific events selection

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

- Samuel THIBAUT was a program committee member for EuroPar'15.
- Olivier AUMAGE was a program committee member for HUCAA'15.
- Raymond NAMYST was member of the program committee for IEEE Cluster 2015, ROSS 2015, PPAM 2015, RESPA 2015, SAC/MUSEPAT 2016 and EuroPar 2016.

#### 10.1.2.2. Reviewer

The members of the team reviewed numerous papers for various international conferences such as IPDPS, Super-Computing, Euro-Par, ICPP.

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing activities

The members of the team review papers from many high-level journals such as TPDS, CCPE, TACO, JPDC.

### 10.1.4. Invited talks

- Samuel THIBAUT was invited to participate to the HCW panel at IPDPS'15, and to the GPU thematic school in Grenoble in December 2015.
- Olivier AUMAGE was invited to participate to the workshop on Graph-based Languages and Task Programming workshop organized by the company Total in Pau in March 2015, and to the Parallel Runtimes and Architectures panel at the HiPEAC Computer System Week in Oslo in May 2015.

### 10.1.5. Scientific expertise

Raymond NAMYST has been Scientific Advisor at CEA/DAM (French Department of Energy) since 2007.

Denis Barthou was scientific expert for ANR CIFRE PhD files and for ANR HPC/simulation proposal.

### 10.1.6. Research administration

Raymond NAMYST is member of the committee in charge of allocating research delegations at Inria Bordeaux Sud-Ouest.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching administration

- Raymond NAMYST is co-chair of Teaching Department in Computer Science of University of Bordeaux
- Denis BARTHOU is in charge of the RSR option (M2 level) at Bordeaux INP.
- Samuel THIBAULT is responsible for the computer science topic of the first university semester.

### 10.2.2. Teaching

**Licence** : Marie-Christine Counilh, Introduction to Computer Science, 42HeTD, L1, University of Bordeaux

**Licence** : Marie-Christine Counilh, Object Oriented Programming, 51HeTD, L2, University of Bordeaux

**Licence** : Raymond Namyst, Computer Architecture, 38HeTD, L1, University of Bordeaux

**Licence** : Raymond Namyst, System Programming, 59HeTD, L3, University of Bordeaux

**Licence** : Samuel Thibault, Introduction to Computer Science, 42HeTD, L1, University of Bordeaux

**Licence** : Samuel Thibault, Networking and programming project, 24HeTD, L3, University of Bordeaux

**Licence** : Pierre-André Wacrenier, Introduction to Computer Science, 42HeTD, L1, University of Bordeaux

**Licence** : Pierre-André Wacrenier, System Programming, 35HeTD, L3, University of Bordeaux

**Master** : Raymond Namyst, Operating Systems, 60HeTD, M1, University of Bordeaux

**Master** : Raymond Namyst, Parallel Programming, 33HeTD, M1, University of Bordeaux

**Master** : Samuel Thibault, Operating Systems, 24HeTD, M1, University of Bordeaux

**Master** : Pierre-André Wacrenier, Parallel Programming, 51HeTD, M1, University of Bordeaux

**Engineer School** : Olivier Aumage, High Performance Communication Libraries, 20HeTD, Bac+5, ENSEIRB/IPB

**Engineer School** : Olivier Aumage, Languages and Supports for Parallelism, 14HeTD, Bac+5, ENSEIRB/IPB

**Engineer School** : Nathalie Furmento, Operating Systems, 20HeTD, Bac+5, ENSEIRB/IPB

**Engineer School**: Denis Barthou, Compilation, 28HeTD, M1, ENSEIRB/IPB

**Engineer School**: Denis Barthou, Computer Architectures, 54HeTD, L3, ENSEIRB/IPB

**Engineer School/M2**: Denis Barthou, Architecture of parallel computers, 24HeTD, M2, ENSEIRB/IPB

**Engineer School**: Denis Barthou, Games and interaction, 20HeTD, M2, ENSEIRB/IPB

**Engineer School**: Denis Barthou, Programming and Software Engineering, 55HeTD, L3/M1, ENSEIRB/IPB

### 10.2.3. Supervision

PhD: Corentin Rossignon, Design of an object-oriented runtime system for oil reserve simulations on heterogeneous architectures, 2015/07, Olivier Aumage and Pascal Hénon (TOTAL) and Raymond Namyst and Samuel Thibault

PhD: Paul-Antoine Arras, Ordonnancement d'applications à flux de données pour les MPSoC embarqués hybrides comprenant des unités de calcul programmables et des accélérateurs matériels, 2015/02, Emmanuel Jeannot, Samuel Thibault, Didier Fuin, Arthur Stoutchinin

PhD: Emmanuelle Saillard, Static/dynamic/iterative analyses for validation and improvement of multi-models HPC applications, U. Bordeaux, 2015/09, Patrick Carribault (CEA) and Denis Barthou

PhD: Emmanuel Cieren, Molecular Dynamics on Exascale Supercomputers, 2015/10, Laurent Colombet (CEA), Raymond Namyst

PhD: Antoine Capra, Virtualization in the context of High Parallel Computing, 2015/12, Marc Pérache (CEA), François Diakhaté (CEA), Raymond Namyst

PhD: Pei Li, Unified system of code transformation and execution for heterogeneous multi-core architectures, 2015/12, Elisabeth Brunet (Telecom Sud-Paris), Raymond Namyst

PhD in progress: Christopher Haine, Estimating efficiency and automatic restructuration of data layout, 2014/01, Olivier Aumage, Denis Barthou

PhD in progress: Jérôme Richard, Conception of a software component model with task scheduling for many-core based parallel architecture, application to the Gysela5D code, 2014/11, Christian Perez (LIP/ENSL), Julien Bigot (Maison de la Simulation), Olivier Aumage, Guillaume LATU (IRFM).

PhD in progress: Marc Sergent, Passage à l'échelle de moteur d'exécution à base de graphes de tâches, 2013/09, Olivier Aumage, David Goudin (CEA/CESTA), Samuel Thibault, Raymond Namyst

PhD in progress: Suraj Kumar, Task-based programming paradigms and scheduling, 2013/12, Emmanuel Agullo, Olivier Beaumont, Samuel Thibault

PhD in progress: Hugo Brunie. Characterizing and Using Hierarchical Heterogeneous Memories. 2015/09, Julien Jaeger (CEA), Patrick Carribault (CEA), Denis Barthou

PhD in progress: P. Huchant. Static/Dynamic Parallelism Adaptation. 2015/09, Denis Barthou, Raymond Namyst

PhD in progress: G. Vaumourin. Hybrid Memory Hierarchy and Dynamic Data Handling in Embedded Parallel Architectures. Alexandre Guerre (CEA), Thomas Dombek (CEA), Denis Barthou

PhD in progress: J.C. Papin, Potentials-based dynamic scheduling and partitioning tools for domain decomposition based simulations, Laurent Colombet (CEA), Raymond Namyst

#### 10.2.4. Juries

Samuel THIBAULT was member of PhD defense jury of the following candidates:

- Nicolas Bertrand (INP Toulouse, Examiner)
- Sébastien Frémal (Mons Université (Belgium), Examiner)

Denis BARTHOU was member of PhD defense jury of the following candidates:

- Imen Fassi (U. Strasbourg, Reviewer)
- Leandro Fontoura Cupertino (U. Toulouse, Reviewer)
- Vincent Palomares (U. Versailles St Quentin, Reviewer)

Raymond NAMYST was member of the PhD defense jury of the following candidates:

- Aurèle Mahéo (Université Versailles Saint-Quentin, Reviewer)
- Luka Stanisic (Université de Grenoble, Reviewer)
- Safae Dahmani (CEA, Reviewer)
- Andi Drebes (Université Pierre et Marie Curie, President)
- Salli Moustafa (EDF, President)
- Vincent Lanore (ENS Lyon, President)
- Damien Dosimont (Université de Grenoble, Examiner)
- Florent Lopez (Université de Toulouse, Examiner)

He was also member of the HDR defense jury of the following candidates:

- Georges Da Costa (Université Paul Sabatier de Toulouse, President)

Nathalie FURMENTO was member of a Recruiter Committee for a permanent engineer position at the Université de la Rochelle.

### **10.3. Popularization**

- Olivier Aumage gave a tutorial on task-based runtime systems at the HiPEAC conference in Amsterdam in January 2015.
- Olivier Aumage participated to the Inria Booth at the SuperComputing conference in Austin in November 2015.
- Samuel Thibault gave a talk at the ELCI Workshop in Paris.
- Samuel Thibault published a paper « L'accessibilité partout ! Retour d'expérience sous Debian » in the professional « Programmez ! » journal.

## TACOMA Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific events organisation

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

- PC member for Ehpwas 2015: 3rd IEEE Int. Workshop on E-Health , 2015, F. Weis

#### 8.1.2. Invited talks

- "L'habitat adaptatif: un pas à franchir vers la ville durable", speech at BATI-MAT/Le Mondial du Bâtiment on 5 November 2015. [http://visiteur.batimat.com/?IdNode=6564&CurrentNode=11261&Lang=FR&Zoom=cb627eb94499111bd0da1a764a20bc34&KM\\_Session=b6bc7a1](http://visiteur.batimat.com/?IdNode=6564&CurrentNode=11261&Lang=FR&Zoom=cb627eb94499111bd0da1a764a20bc34&KM_Session=b6bc7a1)

### 8.2. Teaching - Supervision - Juries

#### 8.2.1. Teaching

L2/L3: network computing (lectures, tutorials, labs), 250 hours, F. Weis, University Rennes 1

Master : Wireless LANs, F. Weis, 20 hours, M2, Telecom Bretagne

Master: Mobile and Pervasive Computing , 12 hours, P. Couderc, M2, University of Rennes 1

#### 8.2.2. Supervision

PhD in progress: Francisco Javier Acosta Padilla, Auto-adaptation for IoT, 31/01/13, Frédéric Weis and Johann Bourcier

PhD in progress: Adrien Capaine, Vers une plate-forme de LED connectées comme vecteur de services contextuels dans le cadre des bâtiments intelligents, 01/05/15, Frédéric Weis and Yoann Maurel

PhD in progress: Zaineb Lioune, Une Architecture pour des Services e-Santé évolutifs dans le cadre des Maisons Intelligentes, 01/09/14, Frédéric Weis, Tayeb Lemlouna and Philippe Roose

#### 8.2.3. Juries

Frédéric Weis was in the following PhD examination committees:

Abdulkader BENCHI, Middleware Systems for Opportunistic Computing in Challenged Wireless Networks, University Bretagne Sud (PhD referee)

Osama ABU OUN, Conception d'une plate-forme multi-échelle hybride pour évaluer les performances des systèmes orientés Internet des Objets, University Franche-Comté (PhD referee)

#### 8.2.4. Internship

Master 2 Internship, 6 months: "Enhancing a Web Administration GUI for Smart Home devices", Charles Ferron

Master 1 Internship, 4 months: "Synchronization between connected LEDs", Youness Aghazzaf

### 8.3. Popularization

#### 8.3.1. Hack'Archi

Organized as part of the "Architecture de la Transformation" call for proposals, the Hack'Archi was an open workshop held in Paris-Belleville school of architecture (ENSA) on 4 and 5 December 2015. About 90 students in disciplines as diverse as architecture, sociology, urbanism and engineering gathered for this 24-hours "architectural hackathon". Students were organized in small teams of 5 or 6 members to work on enriching the preselected projects, proposed by the social landlords.

During the Hack'Archi, Michele Dominici was the representative of the project led by NEOTOA (a french social landlord) and helped 6 students in architecture, sociology, urbanism and engineering proposing new ideas about the on-demand room. We had in charge the leadership and coordination of the students. Our team was awarded the first prize of the Hack'Archi<sup>0</sup>.

### 8.3.2. Miscellaneous

- Atelier de l'Innovation, Fondation Rennes 1. <https://fondation.univ-rennes1.fr/actualite/neotoa-nouveau-partenaire-de-la-fondation-0>.
- "Un habitat très prospectif | Espace des sciences". Date accessed: 16 December 2015. <http://www.espace-sciences.org/sciences-ouest/335/dossier/un-habitat-tres-prospectif>.
- Pitch at "Rencontres Inria - Industrie and Meito", 21 May 2015. <http://videos.rennes.inria.fr/InriaMeito2015/index-pitchInriaMEITO2015.html>
- Fondation de l'Université de Rennes 1 - Chaire Habitat Intelligent et Innovation. Date accessed: 16 December 2015. [http://www.legrand.fr/formation/fondation-universite-rennes1-chaire-habitat-intelligent-innovation\\_5746](http://www.legrand.fr/formation/fondation-universite-rennes1-chaire-habitat-intelligent-innovation_5746).
- Live video interview at Festival des Sciences, "Samedi en direct du plateau TV du Village des sciences'". <https://www.youtube.com/watch?v=MDkKd4PI5vQ&feature=youtu.be&t=4541>.
- Website of the chair "Habitat Intelligent et Innovation". On-line since October 2015. <https://fondation.univ-rennes1.fr/la-chaire-habitat-intelligent-et-innovation>.

---

<sup>0</sup>Hack'Archi : retour sur 24h d'innovations - Lab CDC. Date accessed: 16 December 2015. <http://labcdc.caissedesdepots.fr/hackarchi-etudiants-et-professionnels-autour-dun-meme-defi/>

## **TADAAM Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. General chair, scientific chair*

TADAAM has organized the 22nd European MPI Users' Group Meeting, also known as EuroMPI. EuroMPI is the preeminent meeting for users, developers and researchers to interact and discuss new developments and applications of message-passing parallel computing, in particular in and related to the Message Passing Interface (MPI).

TADAAM has also organized the MPI Forum meeting that took place just after the EuroMPI conference.

#### *9.1.1.2. Member of the steering committee*

Emmanuel JEANNOT is member of the steering committee of Euro-Par and the Cluster international conference.

### **9.1.2. Scientific events selection**

#### *9.1.2.1. Chair of conference program committees*

Alexandre DENIS, Brice GOGLIN, Emmanuel JEANNOT and Guillaume MERCIER acted as Program Co-chairs as well as Proceeding Editors of Euro-MPI 2015.

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

Brice GOGLIN was a member of the program committee of HotInterconnect 23, EuroMPI 2015.

Emmanuel JEANNOT was a member of the program committee of IPDPS'2015, PPAM 2015, EuroMPI 2015, Heteropar'2015, Compas 201, HiPC' 15

Alexandre DENIS was a member of the program committee of HeteroPar 2015, HiPC' 15, EuroMPI 2015, and Compas' 15.

Guillaume MERCIER was a member of the program committee of EuroMPI 2015.

#### *9.1.2.3. Reviewer*

Emmanuel JEANNOT was reviewer of SuperComputing.

Alexandre DENIS was a reviewer for CCGrid'2015.

Guillaume MERCIER was a reviewer for IPDPS 2015.

### **9.1.3. Journal**

#### *9.1.3.1. Member of the editorial boards*

Emmanuel JEANNOT is associate editor of the International Journal of Parallel, Emergent and Distributed Systems

### **9.1.4. Editing activities**

Emmanuel Jeannot edited the special issue following the HeteroPar 2014, APCIE 2014, and TASUS 2014 workshops [9].

#### *9.1.4.1. Reviewer - Reviewing activities*

Brice GOGLIN was a reviewer for the IEEE Micro journal.



Guillaume MERCIER was a reviewer for the Simulation and Modelling Practice and Theory Journal (SIMPAT) and Parallel Computing (PARCO)

Emmanuel JEANNOT was a reviewer for IEEE TPDS, Parallel Computing, JPDC, ACM TACO

François Pellegrini was a reviewer for Parallel Computing.

### 9.1.5. Invited talks

Alexandre DENIS gave a talk about overlap of communication and computation at *CEA/DAM*.

Brice GOGLIN gave a talk about managing locality in hierarchical computing platforms at *Maison de la Simulation*.

Emmanuel JEANNOT gave an invited talk system-scale optimisation of HPC applications at the PADAL workshop in Berkeley<sup>0</sup>.

Emmanuel JEANNOT gave an invited talk on topology-aware data management at the Sandia National Lab working group.

Emmanuel JEANNOT gave the keynote speech at the Heteropar'2015 workshop in Vienna.

François PELLEGRINI was invited to participate in a round table on the law of the Internet of things at the Law faculty of Université d'Aix-Marseille.

François PELLEGRINI gave an invited talk on legal aspects of software creation during the *Journées nationales du GDR "Génie de la Programmation et du Logiciel"*<sup>0</sup> in Bordeaux.

François PELLEGRINI gave an invited talk on legal aspects of software creation during the *Journées du réseau du développement logiciel (DevLOG)*<sup>0</sup> in Bordeaux.

François PELLEGRINI was invited to participate in a round table on the use of personal data for the personalization of healthcare treatments, in the context of the 3<sup>rd</sup> *Rencontres du droit et de l'innovation* held by the Forum Montesquieu in Bordeaux.

François PELLEGRINI was invited to give a talk on Big data and personal data, in the context of the Juriconnexion meetings<sup>0</sup>, at École française du Barreau, in Issy-les-Moulineaux.

### 9.1.6. Scientific expertise

Emmanuel JEANNOT was member of the hiring committee for the professor position in computer science of the university of Bordeaux.

François PELLEGRINI is a commissioner at CNIL, the French data privacy supervision authority, where he has been appointed by the President of the French Senate in December 2013.

François PELLEGRINI, as a commissioner at CNIL, is the representative for France in the data privacy supervision bodies of several European organizations that process personal data (Europol, the Schengen information system, etc.). He has been appointed as technical expert for on-site inspection missions of such data processing systems.

### 9.1.7. Standardization Activities

TADAAM attends the MPI Forum meetings on behalf of Inria (where the MPI standard for communication in parallel applications is developed and maintained).

### 9.1.8. Tutorials

Brice GOGLIN gave tutorials about managing hardware affinities on hierarchical platforms with HWLOC during a PRACE Advanced Training Center session and during EuroMPI. He also gave a hands-on session on advance uses of the GIT version control system in Inria Bordeaux internal seminars.

<sup>0</sup><https://sites.google.com/a/lbl.gov/padal-workshop/padal15>

<sup>0</sup><http://gdr-gpl.cnrs.fr/node/196>

<sup>0</sup><http://devlog.cnrs.fr/jdev2015/t4>

<sup>0</sup><http://www.juriconnexion.fr/programme-de-la-journee-du-8-decembre-2015-2/>

Emmanuel JEANNOT gave a tutorial about optimizing process placement with TreeMatch during a PRACE Advanced Training Center session.

### 9.1.9. Research administration

Emmanuel JEANNOT is member of the scientific council of the Labex IRMIA (Université de Strasbourg).

Emmanuel JEANNOT is the head of the young researcher commission of Inria Bordeaux Sud-Ouest in charge of supervising the hiring of the PhDs and post-doc of the center.

François PELLEGRINI is deputy vice-president of Université de Bordeaux in charge of digital issues. In this context, he participates in the definition and implementation of policies regarding aspects of research such as the development of the academic computing center of the Bordeaux area (MCIA), relationships with other universities (UPPA, Université de La Rochelle), etc.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Members of the TADAAM project gave hundreds of hours of teaching at Université de Bordeaux and the Bordeaux INP engineering school, covering a wide range of topics from basic use of computers and C programming to advanced topics such as computer architecture, operating systems, parallel programming and high-performance runtime systems.

### 9.2.2. Supervision

PhD: François Tessier, Placement of parallel applications according to the topology and the affinity, Université de Bordeaux, defended Jan. 26, 2015. Advisor: Emmanuel Jeannot and Guillaume Mercier.

PhD: Paul-Antoine Arras, Ordonnement d'applications à flux de données pour les MPSOC, Université de Bordeaux, defended Feb. 3, 2015. Advisor: Emmanuel Jeannot and Samuel Thibault.

PhD in progress: Remi Barat, multi-criteria graph partitioning, started in 2014. Advisor: François Pellegrini.

PhD in progress: Raphaël Blanchard, parallelization and data distribution of discontinuous Galerkin methods for complex flow simulations, started in 2013. Advisor: François Pellegrini.

PhD in progress: Nicolas Denoyelle, advanced memory hierarchies and new topologies, started in 2015. Advisor: Brice Goglin and Emmanuel Jeannot.

PhD in progress: Benjamin Lorendeau, new programming models and optimization of Code Saturn, started in 2015. Advisor: Yvan Fournier and Emmanuel Jeannot.

PhD in progress: Romain Prou, communication management based on remote memory access, started in 2015. Advisor: Alexandre Denis and Emmanuel Jeannot.

PhD in progress: Hugo Taboada, communication progression in runtime systems, started in 2015. Advisor: Alexandre Denis and Emmanuel Jeannot.

PhD in progress: Adèle Villiermet, topology-aware resource management, started in 2014. Advisor: Emmanuel Jeannot and Guillaume Mercier.

### 9.2.3. Juries

Brice GOGLIN was member of the PhD defense of the following candidates:

- Surya Narayanan Khizahanchery Natarajan (Inria Rennes, Reviewer)

Emmanuel JEANNOT was member of the PhD defense of the following candidates:

- Ivan Cores, (Universidade Da Coruña, Reviewer)
- Emmanuelle Saillard (Université de Bordeaux, President)
- Farouk Mansouri (Université de Grenoble, Reviewer)
- Stéfano Drimon Kurz Mór (Federal University of Rio Grande do Sul, Reviewer)

François PELLEGRINI was member of the PhD defense of the following candidates:

- François Tessier (Université de Bordeaux, President)
- Astrid Casadei (Université de Bordeaux, Member)
- Karl-Eduard Berger (CEA & Paris Saclay, Reviewer)

Brice GOGLIN was also a member of the hiring committees for the Inria Bordeaux communication department head, for a communication assistant, and for the works council (AGOS) assistant.

Emmanuel JEANNOT was member of the hiring committee of a research team assistant.

### **9.3. Popularization**

Brice GOGLIN is in charge of the diffusion of the scientific culture for the Inria Research Center of Bordeaux. He gave numerous talks about high performance computing and research careers to general public audience and school student. He is also involved in the popularization of computer programming and robotics programming and gave several wide audience seminar on these topics.

François PELLEGRINI was invited to give a talk about privacy and information security by the students of ENS Bretagne at Rennes, in the context of their “EntretiENS” conference program.

François PELLEGRINI was a member of the jury of the Student Demo Cup at the Paris Open-Source Summit.

## URBANET Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Hervé Rivano was general co-chair of the ResCom Summer School "Smart Cities", held in Lyon in June 2015.

#### 10.1.1.2. Member of the organizing committees

- Razvan Stanica was in the organizing committee of the ResCom Summer School "Smart Cities", held in Lyon in June 2015.

### 10.1.2. Scientific events selection

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

- Walid Bechkit was TPC member for the following conferences: IEEE ICC, IEEE CCNC, ACS/IEEE AICCSA, IWCMC and ISPS.
- Marco Fiore was TPC member for IEEE INFOCOM, IEEE WoWMoM, IEEE ICC, IEEE VNC, IEEE VTC, IEEE/IFIP WONS, IEEE WF-IoT, MobiArch, ExtremeCom, IEEE/IFIP Wireless Days, IEEE UIC, IEEE WiMob, and a number of international workshops.
- Razvan Stanica was in the TPC of the following conferences: IEEE ICC, IEEE GlobeCom, IEEE VTC Fall, IEEE CCNC, ISNCC, WSC, ICCVE, GIIS, IOV, MobiArch, MobiApps, WF-IoT, INT-GAST, AlgoTel.
- Fabrice Valois was in the TPC of the following conferences: IEEE ICC, IEEE AINA, IEEE Globecom, IWCMC, IEEE VTC Spring, IEEE WCNC.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Marco Fiore is Technical Committee member for Elsevier Computer Communications.
- Marco Fiore and Razvan Stanica were Guest Editors for the Elsevier Computer Communication special issue on Mobile Traffic Analytics.

#### 10.1.3.2. Reviewer - Reviewing activities

- Walid Bechkit was a reviewer for the following journals: Elsevier Ad-Hoc Networks, Telecommunication Systems and Journal of Network and Computer Applications.
- Marco Fiore served as a reviewer for a number of international journals, including IEEE Transactions on Mobile Computing, IEEE Journal on Selected Areas in Communications, IEEE Transactions on Vehicular Technology, IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, IEEE Transactions on Industrial Informatics, IEEE Communications Magazine, IEEE Vehicular Technology Magazine, Elsevier Ad-hoc Networks, Elsevier Computer Communications, Elsevier Vehicular Communications.
- Razvan Stanica was a reviewer for the following journals: IEEE Communications Magazine, Elsevier Ad-Hoc Networks, Elsevier Computer Communications, Elsevier Vehicular Communications, Springer Annals of Telecommunications, IEEE Sensors Journal, Sensors, Procedia Engineering, Journal of Advanced Transportation, Frontiers of Information Technology & Electronic Engineering.

#### **10.1.4. Invited talks**

- Marco Fiore gave an invited talk "Mobile Traffic Data Analytics for 5G Cognitive Networking" at the 1st GdR MaDICS Workshop on Big Data for the 5G RAN, Paris, November 2015.
- Marco Fiore gave an invited lecture on "Mining cellular traffic collected at mobile operator network probes" at the Networks and Data Mining Summer School, Luchon, June 2015.
- Marco Fiore gave an invited talk "Road traffic modeling with an eye to networking applications" at Telecom Sud Paris, Paris, June 2015.
- Hervé Rivano gave an invited talk and a demo entitled "Capteurs pour la route intelligente" at the inauguration conference of the Sense City EquipEx, Marne la Vallée, March 2015.
- Hervé Rivano gave an invited talk entitled "Issues of urban capillary networks" in the Japan-France workshop on Cyber security, French Embassy, Tokyo, April 2015.
- Hervé Rivano gave an invited talk entitled "Urban networks for Smarter Cities" in the Aristote association workshop on Smart Cities, Ecole Polytechnique, April 2015.
- Hervé Rivano gave an invited talk entitled "Networking for Smarter Cities" in the Berkeley-Inria-Stanford workshop of Inria@SiliconValley, Berkeley, May 2015.
- Hervé Rivano gave an invited talk and a demo entitled "Sensors for smart roads" in the Global Metropolitan Lab of the World Bank, Marne la Vallée, June 2015.
- Hervé Rivano gave an invited talk entitled "Including citizens in the design of Smart Cities – Needs, results and challenges of interdisciplinarity" in the CNRS Lamsade/NSF-Dimacs Citizens Science workshop, Paris, December 2015.
- Razvan Stanica gave an invited talk entitled "Véhicules connectés : Pourquoi nos voitures apprennent à parler?" in the Connected Objects workshop organized in the context of the 28th Jacques Cartier Meetings, Lyon, December 2015.
- Fabrice Valois gave an invited talk entitled "Capillary networks for Smart Cities" in the Ecole d'été ResCom, GDR CNRS, Lyon, June 2015.

#### **10.1.5. Leadership within the scientific community**

- Hervé Rivano has been named in the working group of Rhone Alpes region and Caisse des Dépôts et Consignations on "Territoires Augmentés", Lyon, November 2015.
- Fabrice Valois has been named as a member of the Scientific Council of the LIMOS-UMR6158 laboratory, Clermont Ferrand, in January 2015.

#### **10.1.6. Scientific expertise**

- Marco Fiore was a reviewer for the following calls: MiSe FCS (Italy), MiSe DA (Italy), ANR appel générique (France).
- Hervé Rivano has done a scientific expertise for the Aquitaine Province, April 2015.
- Hervé Rivano is involved in the "Villes et territoires innovants" working group of the Conseil National de l'Information Géographique.

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

- Walid Bechkit is responsible for seminar organization and scientific animation within the CITI laboratory.
- Hervé Rivano is responsible with the Economic and Strategic Intelligence affairs of the CITI research laboratory, in charge with setting up ZRRs within the lab.
- Hervé Rivano is member of the Administration Council of the EquipEx Sense City as representative of Inria.
- Hervé Rivano is member of the Steering Committee of the ResCom axis of the ASR CNRS GdR.

- Hervé Rivano and Razvan Stanica are members in the CITI laboratory council.
- Razvan Stanica is the CITI laboratory correspondent with the Labex IMU.
- Fabrice Valois is director of the CITI research laboratory of INSA Lyon.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Isabelle Augé-Blum, Operating Systems, 70h, L3, Telecom. Dpt. INSA Lyon.

Licence : Walid Bechkit, IP Networks, 40h, L3, Telecom. Dpt. INSA Lyon.

Licence : Hervé Rivano, IP Networks, 20h, L3, Telecom. Dpt. INSA Lyon.

Licence : Razvan Stanica, Network Programming, 90h, L3, Telecom. Dpt. INSA Lyon.

Licence : Razvan Stanica, Advanced Wireless Networks, 20h, L3, IST / Telecom. Dpt. INSA Lyon (lectures given in english).

Licence : Fabrice Valois, IP Networks, 100h, L3, Telecom. Dpt. INSA Lyon.

Licence : Fabrice Valois, IP Networks, 20h, L3, IST / Telecom. Dpt. INSA Lyon (lectures given in english).

Master : Isabelle Augé-Blum, Innovation project, 30h, M1, Telecom. Dpt. INSA Lyon.

Master : Isabelle Augé-Blum, Bibliographical study, 30h, M1, Telecom. Dpt. INSA Lyon.

Master : Isabelle Augé-Blum, Real-Time Networks, 25h, M2, Telecom. Dpt. INSA Lyon.

Master : Isabelle Augé-Blum, Networks of the Future, 10h, M2, University of Lyon.

Master : Walid Bechkit, Network architectures, protocols and services, 12h, M1, Telecom. Dpt. INSA Lyon.

Master : Walid Bechkit, Performance evaluation of telecom networks, 100h, M1, Telecom. Dpt. INSA Lyon.

Master : Walid Bechkit, Wireless multihop networks, 10h, M2, University of Lyon.

Master : Walid Bechkit, Wireless networks: architecture and security, 18h, M2, INSA Lyon.

Master: Hervé Rivano, Wireless multihop networks, 10h, M2, University of Lyon.

Master: Hervé Rivano, Smart Cities, 4h, M2, Polytech Perpignan.

Master : Razvan Stanica, Mobile Networks, 30h, M1, Telecom. Dpt. INSA Lyon.

Master : Fabrice Valois, Mobile Networks, 30h, M1, Telecom. Dpt. INSA Lyon.

Master : Fabrice Valois, Wireless Sensor Networks, 6h, M2, University of Grenoble.

Isabelle Augé-Blum is in charge of the foreign affairs of the Telecommunications department at INSA Lyon, coordinating all incoming and outgoing student exchange programs.

Razvan Stanica is responsible for the administrative part related to all Master projects prepared by INSA Lyon Telecommunications department students.

Fabrice Valois is responsible of the networking teaching team in the Telecommunications department at INSA Lyon, coordinating all the courses in the networking domain.

Since 2006, Fabrice Valois is the head of an international teaching program focused on Internet of Things, established between INSA Lyon and Shanghai Jiao Tong University.

Fabrice Valois and Walid Bechkit are elected members of the Telecommunications Department Council at INSA Lyon.

### E-learning

MOOC : Hervé Rivano, Villes intelligentes et technologies numériques, with the Inria Project Lab « Smart Cities », FUN platform.

### 10.2.2. Supervision

PhD : Diala Naboulsi, Analysis and exploitation of mobile traffic datasets, INSA Lyon, 09/2015. Advisors: Marco Fiore, Razvan Stanica, Fabrice Valois.

PhD : Trista Lin, Smart parking: network, infrastructure and urban service, INSA Lyon, 12/2015. Advisors: Frédéric Le Mouel (CITI DynaMid), Hervé Rivano.

PhD in progress : Yosra Bahri Zguira, DTN for IoT, since 05/2015. Advisors: Aref Meddeb (Univ. Sousse, Tunisia), Hervé Rivano.

PhD in progress: Ahmed Boubrima, Optimal deployment of wireless sensor networks for air pollution monitoring, since 10/2015. Advisors: Walid Bechkit, Hervé Rivano.

PhD in progress : Soukaina Cherkaoui, Energy-saving strategies for backhaul networks, since 11/2013. Advisor: Hervé Rivano.

PhD in progress : Jin Cui, Aggregation: From data dynamics to network dynamics, since 11/2012. Advisor: Fabrice Valois.

PhD in progress : Rodrigue Domga Komguem, Autonomous WSN architectures for road traffic applications, since 11/2012. Advisors: Razvan Stanica, Maurice Tchente (Univ. Yaoundé, Cameroun), Fabrice Valois.

PhD in progress : Alexis Duque, Use of visible light communication in a smart city context, since 10/2015. Advisors: Hervé Rivano, Razvan Stanica.

PhD in progress : Guillaume Gaillard, SLA pour réseaux de capteurs multi-services, since 12/2012. Advisor: Fabrice Valois.

PhD in progress : Leo Le Taro, Recalibration of wireless sensors for pollution monitoring, since 11/2015. Advisor: Hervé Rivano.

PhD in progress: Jad Oueis, Systèmes PMR très haut débit fédérateurs, since 10/2015. Advisors: Razvan Stanica, Fabrice Valois.

PhD in progress: Mihai Popescu, Mobilité au sein de flottes de robots sous contrainte de maintien de la connectivité, since 11/2015. Advisors: Olivier Simonin (Inria CHROMA), Anne Spalanzani (Inria CHROMA), Fabrice Valois.

MS thesis: S. Bouchareb, INSA Lyon, Capacity Limits in Cloud RAN, 09/2015. Advisors: Samir Perlaza (Inria Socrate), Razvan Stanica.

MS thesis: A. Merabtene, Univ. Lyon 1, Usage-Mobility Correlation in Mobile Phone Data, 07/2015. Advisor: Razvan Stanica.

MS thesis: J. Oueis, INSA Lyon, Energy Harvesting in Wireless Sensor Networks, 07/2015. Advisors: Razvan Stanica, Fabrice Valois.

MS thesis: B. Saves, INSA Lyon, Mobile data collection in wireless sensor networks for air pollution monitoring, 09/2015. Advisors: Walid Bechkit, Hervé Rivano.

MS thesis: J. Wang, INSA Lyon, Wi-Fi based Localization in Urban Spaces, 09/2015. Advisors: Patrice Raveneau, Razvan Stanica.

### 10.2.3. Juries

- Marco Fiore was external reviewer in the following PhD defense committees:
  - E. Mucelli, From Human Routine to more Efficient Mobile Networks, École Polytechnique, Paris, 03/2015.
  - F. Mezghani, Dissemination de contenus dans les reseaux vehiculaires, INP Toulouse, 10/2015.
- Hervé Rivano was external reviewer in the following PhD defense committees:
  - H. Xiang, Quasi-Optimal Mobile Crowdsensing : Cadre de conception et algorithmes, Télécom SudParis, Université Pierre et Marie Curie, 01/2015.

- G. Artero Gallardo, Qualité de service dans de environnements réseaux mobiles, hétérogènes et contraints, IRIT, INP Toulouse, 03/2015.
- R. Dagher, Sur la radionavigation dans les villes intelligentes du futur. Le cas des réseaux de capteurs sans fils, Inria, Université de Lille 1, 10/2015.
- Hervé Rivano was member in the following PhD defense committees:
  - F. Zahra Moataz, Vers des Réseaux Optiques Efficaces et Tolérants aux Pannes : Complexité et Algorithmes, I3S, Université de Nice-Sophia Antipolis, 10/2015.
- Fabrice Valois was external reviewer in the following PhD defense committees:
  - G. Romaniello, Energy Efficient Protocols for Harvested Wireless Sensor Networks, LIG, Université de Grenoble, 03/2015.
  - D. Carvin, Mécanismes de supervision distribués pour la gestion des réseaux dynamiques, LAAS, INSA Toulouse, 07/2015.
  - C. Cobarzan, Internet of Highly Mobile Things, I-Cube, Université de Strasbourg, 09/2015.
  - N. Guzzo, Facing the real challenges in wireless sensor network-based applications : an adaptative cross-layer self- organization WSN protocol, Inria, Université de Lille 1, 12/2015.
- Fabrice Valois was member in the following PhD defense committees:
  - T. Antignac, Méthodes formelles pour le respect de la vie privée par construction, CITI, INSA Lyon, 02/2015.
  - Y. Chen, Routing Algorithm Dedicated to Environmental Data Collection: Precision Agriculture, LIMOS, Université Blaise Pascal, Clermont-Ferrand, 04/2015.
  - M. Vucinic, Architectures and Protocols for Secure and Energy-Efficient Integration of Wireless Sensor Networks with the Internet of Things, LIG, Université de Grenoble, 11/2015.
  - T. Lin, Smart Parking : Network, Infrastructure and Urban Service, CITI, INSA Lyon, 12/2015.

### **10.3. Popularization**

- Hervé Rivano gave a popularization talk entitled "Réseaux de capteurs urbains" in the Tuba X-pert session of February 2015.
- Hervé Rivano participated to a TV Show on "IoT and Smart Cities", Tele Grenoble, April 2015.
- Razvan Stanica gave a popularization talk entitled "Teaching Our Cars How to Speak: Communications for Intelligent Transportation Systems" in the internal meeting of the Transportation Group of the Spie company.



## WHISPER Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

Gilles Muller was a member of the organizing committee of the Programming Language and Operating Systems workshop (PLOS). He was the sponsor co-chair and the grant co-chair of the EuroSys conference.

Julia Lawall was the publicity co-chair of the EuroSys conference.

### 10.1.2. Scientific events selection

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

Julia Lawall was a member of the program committee for the following conferences that took place in 2015: Automated Software Engineering (ASE), EuroSys, IEEE International Conference on Distributed Computing System (ICDCS), International Conference on Software Maintenance and Evolution (ICSME, ERA track), and OOPSLA.

Gilles Muller was a member of the program committee for the following conferences that took place in 2015: European Dependable Conference (EDCC), Dependable Systems and Network (DSN), Timely Results In Operating Systems (TRIOS). He was also a member of the program committee for the upcoming Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2016).

Gilles Muller was a member of the EuroSys 2015 PhD prize R. Needham award.

Pierre-Évariste Dagand was a member of the EuroSys 2015 shadow program committee and member of the program committee of the Programming Languages and Operating Systems (PLOS) workshop.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Julia Lawall is a member of the editorial board of Science of Computer Programming.

#### 10.1.3.2. Reviewer - Reviewing activities

Julia Lawall reviewed an article for the journal Empirical Software Engineering and an article for the journal Computer Languages, Systems & Structures.

Pierre-Évariste Dagand reviewed an article for the Journal of Computer Programming and an article for Computer Surveys.

### 10.1.4. Invited talks

Julia Lawall gave an invited talk on “Analysis and Manipulation of Linux Kernel Source Code using Coccinelle” at the 15th IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM, <http://www.ieee-scam.org/2015/>).

Julia Lawall gave an invited talk on “Coccinelle for the Working Programmer” at Curry On (<http://www.curry-on.org/>)

Julia Lawall was invited to give several presentations on Coccinelle at Intel, in Portland, Oregon, in June 2015.

Gilles Muller was invited to give a talk at the NICTA Summer school in Sydney in January 2015, and at the FuDiCo IV workshop in Cornell in October 2015 on his joint work with Renault on mixing real-time and best effort applications on an embedded multicore processor.

Pierre-Évariste Dagand gave an invited talk at the EuroSys program committee meeting on the subject of certified binary parsing, in Cambridge, UK, in January 2015.

### **10.1.5. Leadership within the scientific community**

Julia Lawall is a member of the IFIP TC2 working group WG2.11, on Program Generation. She participated in the WG2.11 meetings in January and November, 2015.

Gilles Muller is a member of the IFIP 10.4 working group on Dependable Computing and Fault Tolerance. He participated in the meetings in January and July, 2015. He gave a talk during the July meeting on his joint work with Renault on mixing real-time and best effort applications on an embedded multicore processor.

### **10.1.6. Scientific expertise**

Julia Lawall served on selection committees for a professor position at UPMC, a professor position at Rennes, and an assistant professor position at the University of Copenhagen. Julia Lawall also served on the jury for the Prix Inria (Grand Prix Inria – Académie des sciences, Prix Inria - Académie des sciences du jeune chercheur, and Prix de l'innovation Inria – Académie des sciences – Dassault Systèmes), and on the Inria national commission for selecting young engineer positions (ADT).

### **10.1.7. Research administration**

Julia Lawall was a Member at Large of the SIGPLAN Executive Committee, for a three-year term ending in June 2015.

Gilles Muller is a member of the steering committee of the EuroSys conference.

Gilles Muller is representing Inria in the Sorbonne Universités advisory committee for research. He is a member of the project committee board of the Inria Paris Center and a member of the Paris committee for allocating post-doc, PhD and sabbatical.

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

### **10.2.1. Teaching**

Master/Doctorat : Pierre-Évariste Dagand, **Algorithms**, 60 hours, University of Cape Coast, Ghana

### **10.2.2. Supervision**

Julia Lawall and Gilles Muller co-supervised the PhD work of Valentin Rothberg and Peter Senna Tschudin.

Julia Lawall serves as the external supervisor of Krishna Narasimhan, a PhD student at Goethe University, Frankfurt, supervised by Christoph Reichenbach.

Gilles Muller is the supervisor of the PhD work of Antoine Blin who is supported by a CIFRE grant with Renault.

Pierre-Évariste Dagand and Julia Lawall co-supervised the bachelor's internship of Arthur Blot.

PhD : Florian David, Efficient and Precise Monitoring of Java Locking algorithms on multicore architectures, Université Pierre et Marie Curie, 8 juillet 2015, Gilles Muller and Gaël Thomas

### **10.2.3. Juries**

Julia Lawall was a member of the PhD jury of Shaowei Wang at Singapore Management University.

Gilles Muller was a reviewer of the PhD of Inti Yulien Gonzalez Herrera at the University of Rennes1, a reviewer of the PhD of Amadou Diara at the University of Grenoble, and a reviewer of the PhD of Julien Tanguy at the University of Nantes.

Gilles Muller was a member of the HDR jury of Vincent Gramoli at the Université Pierre et Marie Curie.

### 10.3. Popularization

Julia Lawall presented a tutorial on Coccinelle at the 2015 KVM Forum in Seattle, Washington, USA in August 2015 (“Getting Started with Coccinelle (KVM edition)”, <http://kvmforum2015.sched.org/>)

Julia Lawall organized a Development Tools Tutorial microconference at the 2015 Linux Plumbers Conference in Seattle, Washington, USA in August 2015 (<http://linuxplumbersconf.org/2015/ocw/events/LPC2015/tracks/423>). She also gave a talk “Introduction to Coccinelle” at that event.

Julia Lawall served on the program committee for the joint Linuxcon Linux Plumbers session at Linuxcon 2015, and on the program committee of the 17th Real Time Linux Workshop (industry workshop).

Julia Lawall served as a mentor for the Linux kernel in the Outreachy internship program for women and other underrepresented groups in winter and summer 2015 (<https://www.gnome.org/outreachy>). She also served as the Linux kernel coordinator for the Outreachy internship program, and organized panel presentations about the program at LinuxCon North America in Seattle, Washington, USA in August 2015 (<http://events.linuxfoundation.org/events/archive/2015/linuxcon-north-america>), and at LinuxCon Europe in Dublin, Ireland in October 2015 (<http://events.linuxfoundation.org/events/archive/2015/linuxcon-europe>).

Julia Lawall participated in the Linux Kernel developer panel at LinuxCon Europe in Dublin, Ireland in October 2015 (<http://events.linuxfoundation.org/events/archive/2015/linuxcon-europe>).

## ALICE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Selection

#### 9.1.1.1. Member of Conference Program Committees

Bruno Lévy was a member of the conference committees of SGP2015 and ACM SIGGRAPH 2015.

Sylvain Lefebvre was a member of the technical papers committee of SIGGRAPH 2015.

#### 9.1.1.2. Reviewer

Bruno Lévy was a reviewer for Eurographics.

Sylvain Lefebvre was a reviewer for SIGGRAPH Asia and Eurographics.

Nicolas Ray was a reviewer for SIGGRAPH, SIGGRAPH Asia and Eurographics.

Jérémie Dumas was a reviewer for UIST.

Laurent Alonso was a reviewer for LATIN 2016.

Samuel Hornus was a reviewer for Eurographics.

### 9.1.2. Journal

#### 9.1.2.1. Member of Editorial Boards

Sylvain Lefebvre is associate editor for the journal ACM Transactions on Graphics.

Bruno Lévy is a member of the editorial boards of Graphical Models J. and the Visual Computer J.

#### 9.1.2.2. Reviewer - Reviewing Activities

Sylvain Lefebvre reviewed articles for ACM Transactions on Graphics.

Bruno Lévy was a reviewer for ACM Transactions on Graphics, SIAM journal on scientific computing, IEEE TVCG, Computer Graphics Forum.

Jérémie Dumas was a reviewer for IEEE TVCG.

Samuel Hornus was a reviewer for IEEE TVCG, ACM Transactions on Graphics, REFIG.

Laurent Alonso reviewed articles for Discrete Applied Mathematics, Graphs and Combinatorics.

### 9.1.3. Invited Talks

- Bruno Lévy, 11/24/2015, Séminaire Equations aux Dérivées Partielles de l'IRMA - Strasbourg, invited talk
- Bruno Lévy, 19/10/2015: Intl. Conference on 3D Vision (3DV), invited tutorial
- Bruno Lévy, 07/10/2015: Journées Informatique et Géométrie (JIG2015), invited talk
- Bruno Lévy, 06/29/2015: Journée de l'ANR Geometyra - Summer School Geometric Measure Theory at Institut Fourier - invited talk, [video available](#).
- Bruno Lévy, 06/24-26/2015: Shape Modeling International - keynote talk
- Bruno Lévy, 03/6/2015: New trends in Optimal Transport - Computational Optimal Transport and applications - Bonn, Germany
- Bruno Lévy, 02/15/2015-02/20/2015: BIRS workshop, Advances in Numerical Optimal Transportation - Banff, Canada. [Video available](#).

- Bruno Lévy, 01/23/2015: seminar at the Jacques Louis Lions lab on Optimal Transport. [Slides available](#).
- Jonas Martínez Bayona, gave a talk in CNR Pisa about offset surfaces for fabrication while he was visiting the Visual Computing Lab from 03/03/2015 to 06/03/2015.
- Jonas Martínez Bayona, 29/09/2015, seminar at UPC (Barcelona) to introduce IceSL and the research results it includes.
- Sylvain Lefebvre, 06/03/2015, seminar at Collège de France entitled *Balancing and supporting shapes for 3D printing*, [video available](#).
- Sylvain Lefebvre, 01/07/2015, keynote talk at CEIG 2015 (Spain).

#### 9.1.4. Research Administration

Bruno Lévy was Vice-president of the Inria Chargé de Recherche hiring committee in Centre Nancy - Grand Est.

Samuel Hornus is a member of the CDT (Commission du Développement Technologique) of Inria Nancy - Grand Est. He is the « correspondant RAweb » to organize the writing of the activity reports of the Inria Nancy research teams.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

#### 9.2.1.1. Master

Bruno Lévy, Pépites Algorithmiques, 20h ETD, École des Mines de Nancy, France

Bruno Lévy, Analyse Numérique, 20h ETD, 2ème année école d'Ingénieurs en Géologie de Nancy, France

Dmitry Sokolov, Infographie, 30h ETD, Université de Lorraine, France

Dmitry Sokolov, Algorithmique et programmation, 45h ETD, Université de Lorraine, France

Dmitry Sokolov, Algorithmique et Programmation Avancée, 60h ETD, Université de Lorraine, France

Dmitry Sokolov, Optimisation Combinatoire, 30h ETD, Université de Lorraine, France

Sylvain Lefebvre, Programmation OpenCL, 20h ETD, Université de Lorraine, France.

Sylvain Lefebvre, Programmation pour le jeu vidéo, 30h ETD, École des Mines de Nancy, France.

Sylvain Lefebvre, Introduction au parallélisme et au graphique, 9h ETD, ENSG Nancy, France.

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

#### 9.2.1.2. Licence

Dobrina Boltcheva, Image et son numériques, 100h ETD, IUT Saint-Dié-des-Vosges, France

Dobrina Boltcheva, 2A DUT INFO, Advanced programming, 100h ETD, IUT Saint-Dié-des-Vosges, France

Dobrina Boltcheva, 1A DUT INFO, Programming, 50h ETD, IUT Saint-Dié-des-Vosge, France

Dmitry Sokolov, Informatique graphique, 55h ETD, Université de Lorraine, France

Dmitry Sokolov, Programmation Avancée, 40h ETD, Université de Lorraine, France

Samuel Hornus, Mathématique pour l'informatique, 32h ETD, Télécom-Nancy, France

Samuel Hornus, Programmation Fonctionnelle en OCaml, 32h ETD, Épitech Nancy, France.

### 9.2.2. Internships

Tristan Ezequel, Université Jean Monnet (St Etienne), *méthodes d'apprentissage pour l'aide à la sélection de paramètres de modèles 3D*, March-July 2015, supervised by Sylvain Lefebvre and Amaury Habrard (Université Jean Monnet).

Charles Helbing, ENSEM (Nancy), *dépot de filament suivant une surface courbe*, March-August 2015, supervised by Dmitry Sokolov, Nicolas Ray and Sylvain Lefebvre.

Guillaume Devoille, Epitech, *OpenSCAD plugin for IceSL*, March-July 2015, supervised by Frédéric Claux.

Bolun Zhang, Hong Kong University, *Using the finite element method to determine infill parameters*, June-August 2015, supervised by Jonas Martínez Bayona and Sylvain Lefebvre.

Semigambi Andy-Saleh and Ouhdadi Yassine, Lorraine University, *Modeling and analysis of preferences in multicriteria decisions*, Mars-June 2015, supervised by Dmitry Sokolov.

Thomas Pagelot and Thibaut Humbert, Lorraine University, *Measuring filament diameter on the fly*, Mars-June 2015, supervised by Dmitry Sokolov.

### 9.2.3. Supervision

PhD in progress : Maxence Reberol, *Finite elements for non-conformal mixed hexahedral-tetrahedral meshes*, Janvier 2015, co-directed by Bruno Lévy and Sylvain Lefebvre

PhD in progress : Jean Hergel, *Modeling under Fabrication Constraints*, Oct. 2013, directed by Sylvain Lefebvre

PhD in progress : Jérémie Dumas, *By-example shape synthesis for Fabrication*, Sept. 2013, directed by Sylvain Lefebvre

PhD in progress : Arnaud Botella, *Génération de maillages hex-dominants pour la simulation numérique appliquée à la géologie*, Oct. 2012, co-directed by Guillaume Caumon and Bruno Lévy

Julien Renaudeau, *Méthode de l'élément frontière et ses applications en géomécanique*, Nov. 2015, co-directed by Guillaume Caumon and Bruno Lévy

PhD : Kun Liu, *Multi-view oriented 3D data processing*, Université de Lorraine, defended on December 14, 2015, co-directed by Bruno Lévy and Rhaleb Zayer.

### 9.2.4. Juries

Bruno Lévy participated to the following Ph.D. and habilitation juries:

- Committee member for the Habilitation Thesis of Boris Thibert (LJK Grenoble)
- Committee member for the Habilitation Thesis of Franck Hetroy (Inria Grenoble)
- Committee member for the Ph.D. defense of Norbert Bus (ESIEE, Paris)

## 9.3. Popularization

Bruno Lévy gave a talk in front of the general public in the context of the conference cycle *Sciences et Société*, entitled *Simuler la physique avec un ordinateur* on 12/10/2015.

Sylvain Lefebvre demonstrated IceSL at the Science Festival using a custom designed 3D printer. He jointly organized with the Nancy Makerspace (fablab) an event to present IceSL to the fablab users on October 22, 2015 <http://nybi.cc/2015/10/workshop-icesl/>.

## ALPAGE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Laurence Danlos is co-chair of the TALN conference which will be held in Paris in July 2016.

#### 10.1.1.2. Member of organizing committees

- Marie Candito has co-organised (with Jihno Choi and Yannick Versley) the 6th Workshop on Statistical Parsing of Morphologically Rich Languages (SPMRL 2015) in Bilbao, Spain
- Benoît Sagot is the co-organiser (with Olivier Bonami) of the workshop on Computational methods for descriptive and theoretical morphology (CMDTM) to be held during the 17th International Morphology Meeting (IMM 2016) in Vienna, Austria

### 10.1.2. Scientific events selection

#### 10.1.2.1. Member of conference program committees or reviewer

- Marie Candito has served as reviewer or member of the program committee for the following events: ACL 2015, EMNLP 2015, LAW 2015, DEPLING 2015, RECITAL 2015
- Mathieu Constant has served as member of the program committee for the following events: PARSEME 6, LREC 2016
- Benoit Crabbé has served as a reviewer or member of the program committee for the following events: TALN 2015, RECITAL, DepLing, EMNLP.
- Laurence Danlos has served as a reviewer or member of the program committee for the following events: LREC, TALN
- Corentin Ribeyre has served as a reviewer or member of the program committee for the following event: EMNLP 2015
- Laurent Romary has served as member of the program committee for the following events: LT4VarDial, CMLC-3 (co-located with Corpus Linguistics 2015), SLSP 2015, LREC 2016, DH Conference
- Benoît Sagot has served as a reviewer or member of the program committee for the following events: TALN 2015, LAW 2015, LREC 2016, CMDTM workshop of IMM 2016
- Djamé Seddah has served as a reviewer or member of the program committee for the following events: ACL 2015, CONLL 2015, TLT 2015, LAW 2015, SPMRL 2015
- Éric Villemonte de La Clergerie has served as a reviewer or member of the program committee for the following events: EPIA'15, IJCAI'15, Depling'15, LREC 2016

### 10.1.3. Journals

#### 10.1.3.1. Member of the editorial boards

- Laurence Danlos has served as a member of the editorial board of the journal *TAL*.
- Laurent Romary is co-editor of the overlay Journal of Data Mining and Digital Humanities and for the DH Commons journal

#### 10.1.3.2. Reviewer - Reviewing activities

- Marie Candito has served as a reviewer for the following journals: Language Resources and Evaluation, Traitement Automatique des Langues
- Benoit Crabbé has served as a reviewer for the following journal: Journal of Language Modelling.
- Laurence Danlos has served as a reviewer for the following journal: Traitement Automatique des Langues
- Laurent Romary has been reviewing for the Language Resources and Evaluation Journal Special Issue on Replicability and Reproducibility of Language Technology Experiments, the Journal on Computing and Cultural Heritage
- Benoît Sagot has served as a reviewer for the following journals: Journal of Language Modeling, Language Resources and Evaluation, Traitement Automatique des Langues
- Djamé Seddah has served as a reviewer for the following journals: Journal of Linguist Modeling, TALLIP (Transactions on Asian and Low-Resource Language Information Processing)
- Éric Villemonte de La Clergerie has served as reviewer for the following journals: Journal of Language Modelling, Language Resource and Evaluation

#### **10.1.4. Invited talks**

- Chloé Braud has given an invited talk on 09/03/2015 at Copenhagen University, Lowlands team (Denemark)
- Benoit Crabbé has given two invited talk on 20/04/2015 and 21/04/2015 at Université de Genève, CLCL group and department of Linguistics (Switzerland)
- Corentin Ribeyre has given an invited talk on 31/08/2015 at Université de Genève, CLCL group (Switzerland)
- Laurent Romary gave an introductory talk for the launch of the Maltese chapter of DARIAH in Valetta, Malta on 03/09/2015
- Laurent Romary gave an introductory talk for the launch of the Serbian chapter of DARIAH in Belgrade, Serbia on 10/12/2015, in the presence of the Ministry of Culture and Ministry of Higher Education and Research of Serbia
- Laurent Romary has given a keynote at the DiXiT Convention week on 17/09/2015 in The Hague, Netherlands (hal-01254365)
- Laurent Romary has given a keynote at the Spanish DH conference in Madrid, Spain on 06/10/2015
- Laurent Romary has given an invited talk on 24/09/2015 at the 1st Workshop on Digital Humanities in Prag, Czech Republic
- Benoit Crabbé has given an invited talk on 5/11/2015 at the Institut fuer Sprache und Information at Heinrich-Heine Universitaet Duesseldorf
- Laurent Romary has given an invited talk on 16/11/2015 at the Intangible Cultural Heritage and Innovation Symposium in Berlin (ITN DCH network)
- Laurent Romary gave the welcoming talk for the launch of the Digital Humanities Laboratory at the University of Warsaw on 10/12/2015
- Laurent Romary was invited to the final panel of the 10 year anniversary of the HAL-SHS portal on 18/12/2015
- Éric Villemonte de La Clergerie has given an invited talk on 09/07/2015 at Montpellier (LIRMM).
- Éric Villemonte de La Clergerie has given an invited talk and participated to a panel during the colloquium "Technologies pour les Langues Régionales de France" organized by DGLFLF (Meudon, February 19-20, 2015).
- Éric Villemonte de La Clergerie has given a talk and participated to a panel on "Humains, Algorithmes et data-sciences" during the GFII forum (Paris, December 7-9th 2015)



### 10.1.5. Leadership within the scientific community

#### 10.1.5.1. Involvement in international initiatives

- Djamé Seddah is playing a key role in the SPMRL initiative that was initiated during the IWPT'09 conference organised in Paris by Alpage, which involves several leading international teams. As a result, Alpage members have served as programme co-chair or member of all editions of the successful SPMRL Workshop and Shared Task series hosted successively by NAACL-HLT (2010), IWPT (2011), ACL (2012) [103], EMNLP (2013) [104], CoLing (2014) and IWPT (2015). Djamé Seddah also served as a co-editor of a special issue of *Computational Linguistics* on this topic [108].
- Alpage is involved in the ISO subcommittee TC 37/SC 4 on “Language Resource Management”. Éric Villemonte de La Clergerie has participated in various ISO meetings as an expert, in particular on morpho-syntactic annotations (MAF), feature structures (FSR & new FSD), and syntactic annotations (SynAF) [48]. Within the same subcommittee, Laurent Romary is the convenor of the working group on lexical resources (WG4).
- Éric de La Clergerie is the Secretary of SIGParse, the Association for Computational Linguistics (ACL) Special Interest Group in natural language parsing.
- Mathieu Constant is a member of the International Advisory Board of SIGFSM, the Association for Computational Linguistics (ACL) Special Interest Group in Finite-State Methods.
- Laurent Romary heads the Board of Directors of the European Research Infrastructure Consortium DARIAH established by the European Commission to coordinate Digital Humanities infrastructure activities in Europe.
- Laurent Romary is member of the TEI Archiving, Publishing, and Access Service (TAPAS) project advisory board
- Laurent Romary is member of the International Advisory board of the Belgrade Center for Digital Humanities
- Mathieu Constant serves as a member of the Management Committee and as a substitute member of the Steering Committee of the European COST action PARSEME

#### 10.1.5.2. Involvement in national initiatives

- Alpage has many responsibilities within the LabEx EFL. Until February 2015, Benoît Sagot served as head of the research strand on language resources, and was therefore a member of the Governing Board and of the Scientific Board; since then, he is deputy head of this research strand, and therefore deputy member of both boards; Marie Candito is deputy head of the research strand on computational semantics; Benoît Crabbé is deputy head of the research strand on experimental grammar; Laurence Danlos is a member of the Scientific Board of the LabEx EFL, representing Alpage;
- Benoît Sagot is in charge of the scientific and technical aspects of the development of the future Corpus de Référence du Français (French Reference Corpus), a project initiated and funded by the Institut de Linguistique Française;
- Benoît Sagot is a member of the scientific board of the consortium Corpus Écrits, which belongs to the TGIR Huma-Num;
- Benoît Sagot is a member of the executive board of the Institut de Linguistique Française, a CNRS federation of research teams involved in French linguistics;
- Laurent Romary is the leader of the scientific committee of the EquipEx Ortolang, of which Benoît Sagot is also a member.
- Laurent Romary is chairman of the scientific council of ABES (Agence Bibliographique de l'Enseignement Supérieur)
- Laurent Romary is also member of several scientific committees: Labex ‘Les passes dans le présent’ (PasP), ABES (Agence Bibliographique de l'Enseignement Supérieur, chair), OpenAIRE 2020 Advisory Board, OpenEdition (UMS Cleo)

- Laurent Romary is the Inria scientific advisor for Scientific and Technical Information, in charge in particular of the Open Access strategy.

#### 10.1.5.3. Other activities for the scientific community

- Éric de La Clergerie and Benoît Sagot have served as project reviewers for ANR
- Benoît Sagot and Djamé Seddah are elected board members of the French NLP society (ATALA)
- Laurence Danlos and Benoît Sagot are members of the Permanent Committee of the TALN conference organised by ATALA

#### 10.1.6. Scientific expertise

- Laurent Romary has advised the European Patent Office for the specification of their model for representing the patent information, based on recommendations by the TEI (Text Encoding Initiative). This model is now used for representing a database containing 200 million documents associated with over 2 billion of individual annotations.
- Éric Villemonte de La Clergerie has participated to several AFNOR meetings in relation with ISO TC37SC4 “Language Resource Management”

#### 10.1.7. Research administration

##### 10.1.7.1. University duties

- Lucie Barque is deputy director of the Linguistic department at Université Paris Nord
- Laurence Danlos is a member of the Scientific Committee of the Linguistics UFR of University Paris Diderot, which she chairs since 2014.
- Laurence Danlos is the deputy chair of the Doctoral School for Linguistic Sciences (École Doctorale de Sciences du Langage).
- Benoit Crabbé and Laurence Danlos are members of the Administrative board of the UFR of Linguistics of University Paris Diderot.
- Marie Candito is deputy director of the UFR of Linguistics.
- Within the Computational Linguistic curriculum at Université Paris–Diderot (L3 to M2), Laurence Danlos is in charge of the M2 and coordinates the whole curriculum, and Benoit Crabbé is in charge of the L3 year.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: Lucie Barque, Sémantique lexicale, 22,5 heures en équivalent TD, niveau L2, Université Paris 13, France

Licence: Lucie Barque, Phonétique, 22,5 heures en équivalent TD, niveau L2, Université Paris 13, France

Licence: Lucie Barque, Dictionnaires électroniques, 22,5 heures en équivalent TD, niveau L2, Université Paris 13, France

Licence: Lucie Barque, Syntaxe et sémantique, 22,5 heures en équivalent TD, niveau L3, Université Paris 13, France

Licence: Lucie Barque, Introduction aux sciences du langage, 22,5 heures en équivalent TD, niveau L3, Université Paris 13, France

Licence: Marie Candito, Linguistique de corpus, 28 heures en équivalent TD, niveau L3, Université Paris Diderot, France

Licence: Marie Candito, Probabilités et statistiques pour le TAL, 28 heures en équivalent TD, niveau L3, Université Paris Diderot, France

Licence: Maximin Coavoux, Programmation 2, 28 heures en équivalent TD, niveau L3, Université Paris Diderot, France

Licence: Benoit Crabbé, Introduction à la programmation, 24 heures en équivalent TD, niveau L3, Université Paris Diderot, France.

Licence: Laurence Danlos, Introduction au TAL, 32 heures en équivalent TD, niveau L3, Université Paris-Diderot, France

Licence: Corentin Ribeyre, TD d'Algorithmique, 24 heures en équivalent TD, niveau L3, Université Paris 7 Diderot, France

Master: Lucie Barque, Ressources lexicales pour le TAL, 24 heures en équivalent TD, niveau M2, Université Paris 13, France

Master: Timothée Bernard, Phonétique (TD), 12 heures en équivalent TD, niveau M1, Université Paris Diderot, France

Master: Timothée Bernard, Langages formels (TD), 24 heures en équivalent TD, niveau M1, Université Paris Diderot, France

Master: Marie Candito, Analyse sémantique automatique du langage naturel, 14 heures en équivalent TD, niveau M2, Université Paris Diderot, France

Master: Marie Candito, Traduction automatique, 51 heures en équivalent TD, niveau M1, Université Paris Diderot, France

Master: Marie Candito, Apprentissage automatique pour le TAL, 60 heures en équivalent TD, niveau M1, Université Paris Diderot, France

Master: Maximin Coavoux, Approches probabilistes du TAL (TD), 24 heures en équivalent TD, niveau M1, Université Paris Diderot, France

Master: Benoit Crabbé, Linguistique empirique et expérimentale, 24 heures en équivalent TD, niveau M2, Université Paris Diderot, France.

Master: Laurence Danlos, Discours: Analyse et génération de textes, 32 heures en équivalent TD, niveau M2, Université Paris-Diderot, France

Master: Marianne Djemaa, Sémantique Computationnelle (TD), 24 heures en équivalent TD, niveau M1, Université Paris 7, France

Master: Corentin Ribeyre, TD de Langages Formels, 24 heures en équivalent TD, niveau M1, Université Paris 7 Diderot, France

Master: Benoît Sagot, Analyse syntaxique du langage naturel, 28 heures en équivalent TD, niveau M1, Université Paris 7, France

### **10.2.2. Supervision**

PhD in progress: Timothée Bernard, "Analyse discursive et factualité", started in September 2015, supervised by Laurence Danlos (supervisor) and Philippe de Groote (co-supervisor)

PhD: Marion Baranes, "Normalisation de textes bruités", started in January 2012, supervised by Laurence Danlos (supervisor) and Benoît Sagot (co-supervisor), defended on 23 October 2015

PhD: Valérie Hanoka, "Extraction et Structuration de Terminologie Multilingue", started in January 2011, supervised by Laurence Danlos (supervisor) and Benoît Sagot (co-supervisor), defended on 6 July 2015

PhD: Emmanuel Lassalle, "Structured learning for coreference resolution: a joint approach", Université Paris-Diderot, started in October 2010, supervised by Laurence Danlos (supervisor) and Pascal Denis (co-supervisor), defended on 11 May 2015

PhD: Chloé Braud, "Analyse discursive : les relations implicites", Université Paris-Diderot, started in October 2011, supervised by Laurence Danlos (supervisor) and Pascal Denis (co-supervisor), defended on 18 December 2015

PhD: Quentin Pradet, “Annotations en rôles sémantiques du français en domaine spécifique”, Université Paris-Diderot, started in October 2011, supervised by Laurence Danlos (supervisor) and Gael de Calendar (co-supervisor), defended on 6 February 2015

PhD: Isabelle Dautriche, “Exploring early syntactic acquisition: a experimental and computational approach”, started in September 2012, supervised by Anne Christophe (LSCP, supervisor) and Benoit Crabbé (co-supervisor), defended on 18/09/2015

PhD in progress: Raphael Salmon, “Implémentation d’un système de génération à base de contraintes”, Université Paris-Diderot, started in October 2013, supervised by Laurence Danlos (supervisor) and Alain Kaeser (co-supervisor)

PhD in progress: Marianne Djemaa, “Création semi-automatique d’un FrameNet du français”, started in October 2012, supervised by Marie Candito

PhD in progress: Corentin Ribeyre, “Vers la syntaxe profonde pour l’interface syntaxe-sémantique”, started in November 2012, supervised by Laurence Danlos (supervisor), Djamé Seddah (co-supervisor) and Éric Villemonte de La Clergerie (co-supervisor). from data driven approaches to graph based approaches.

PhD in progress: Maximin Coavoux, “Représentations continues pour l’analyse syntaxique et sémantique automatique”, started in September 2015, supervised by Benoit Crabbé.

### 10.2.3. Juries

- Mathieu Constant served as a reviewer (*rapporteur*) in the PhD defense committee of Seyed Abolghasem Mirroshandel. Title: Towards Less-Supervision in Dependency Parsing. University: Aix-Marseille Université. PhD supervisor: Alexis Nasr. Defense date: 10 December 2015.
- Laurence Danlos and Benoît Sagot served as a member in the PhD defense committee of Valerie Hanoka, respectively as supervisor and co-supervisor. Title: Extraction et complétion de terminologie multilingue. University: Université Paris-Diderot. Defense date: 6 July 2015.
- Laurence Danlos and Benoît Sagot served as a member in the PhD defense committee of Marion Baranes, respectively as supervisor and co-supervisor. Title: Normalisation automatique de textes bruités. University: Université Paris-Diderot. Defense date: 23 October 2015.
- Éric Villemonte de La Clergerie served as a member in the PhD defense committee of Jérôme Kirman. Title: Mise au point d’un formalisme syntaxique de haut niveau pour le traitement automatique des langues. PhD supervisors: Sylvain Salvati and Lionel Clément. Defense date: November 4th 2015 (Bordeaux)
- Éric Villemonte de La Clergerie served as a member in the mid-term PhD defense committee of Suzanne Mpouli. Title: Automatic Detection and Analysis of Figurative Similes in Literary Texts. PhD Supervisor: Jean-Gabriel Ganascia. Defense date: July 9th 2015 (Paris)
- Éric Villemonte de La Clergerie served as a reviewer for the PhD dissertation of Daniel Fernández-González. Title: Improvements to the performance and applicability of dependency parsing. PhD supervisors: Manuel Vilares Ferro and Carlos Gómez-Rodríguez. University of Coruña (Spain)

## **AVIZ Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. General chair, scientific chair*

- Petra Isenberg and Tobias Isenberg co-chaired the Workshop on Data Exploration for Interactive Surfaces at ITS (DEXIS)

#### *9.1.1.2. Member of the organizing committees*

- Petra Isenberg was IEEE VIS VisKids co-chair
- Tobias Isenberg was IEEE VIS exhibits co-chair
- Pierre Dragicevic was IEEE VIS panels co-chair

### **9.1.2. Scientific events selection**

#### *9.1.2.1. Member of the conference program committees*

- ACM Conference on Human Factors in Computing Systems – Work In Progress: Samuel Huron
- ACM/Eurographics Expressive: Tobias Isenberg
- ACM Symposium on Spatial User Interfaces (SUI): Tobias Isenberg
- ACM Tabletop and Interactive Surfaces: Petra Isenberg, Tobias Isenberg
- Eurographics Visual Analytics Workshop (EuroVA): Nadia Boukhelifa
- Eurographics/VGTC Conference on Visualization (EuroVis) Short Papers: Tobias Isenberg
- IEEE 3D User Interfaces (3DUI): Tobias Isenberg
- IEEE Information Visualization (InfoVis): Pierre Dragicevic, Tobias Isenberg, Jean-Daniel Fekete
- IEEE Scientific Visualization (SciVis): Tobias Isenberg
- IEEE VIS Art Show (VISAP): Samuel Huron, Tobias Isenberg

#### *9.1.2.2. Reviewer*

- 3DUI: IEEE Symposium on 3D User Interfaces: Tobias Isenberg
- CHI: ACM Conference on Human Factors in Computing System: Nadia Boukhelifa, Jeremy Boy, Pierre Dragicevic, Pascal Goffin, Samuel Huron, Mathieu LeGoc, Petra Isenberg, Tobias Isenberg, Jean-Daniel Fekete
- EXPRESSIVE: The Joint Symposium on Computational Aesthetics and Sketch-Based Interfaces and Modeling and Non-Photorealistic Animation and Rendering: Tobias Isenberg
- EUROVA: EuroVis Workshop on Visual Analytics: Nadia Boukhelifa
- EUROVIS: Eurographics/IEEE Conference on Visualization: Tobias Isenberg, Jean-Daniel Fekete
- GI: Graphics Interface: Samuel Huron
- IHM: Conférence Francophone sur l'Interaction Homme-Machine: Pierre Dragicevic
- INFOVIS: IEEE Information Visualization Conference: Nadia Boukhelifa, Pierre Dragicevic, Pascal Goffin, Tobias Isenberg
- INTERACT: IFIP Conference on Human-Computer Interaction: Pierre Dragicevic
- ITS: ACM Conference on Interactive Tabletops and Surfaces: Jeremy Boy, Petra Isenberg, Tobias Isenberg

- IUI: Intelligent User Interfaces: Tobias Isenberg
- MOBILEHCI: International Conference on Human-Computer Interaction with Mobile Devices and Services: Pierre Dragicevic
- PACIFICVIS: IEEE Pacific Visualization Symposium: Nadia Boukhelifa
- SCCG: Spring Conference on Computer Graphics: Tobias Isenberg
- SCIVIS: IEEE Scientific Visualization Conference: Tobias Isenberg
- SIGGRAPH: ACM Conference on Computer Graphics and Interactive Techniques: Tobias Isenberg
- SIGGRAPH ASIA: ACM Conference on Computer Graphics and Interactive Techniques in Asia: Tobias Isenberg
- SUI: ACM Symposium on Spatial User Interaction: Tobias Isenberg
- TEI: Tangible, Embedded and Embodied Interaction: Mathieu LeGoc
- UIST: ACM Symposium on User Interface Software and Technology: Pierre Dragicevic
- VAST: IEEE Visual Analytics Science and Technology: Nadia Boukhelifa
- VISAP: IEEE Visualization Arts Program: Petra Isenberg, Tobias Isenberg
- VR: IEEE Virtual Reality: Tobias Isenberg

### **9.1.3. Journal**

#### *9.1.3.1. Member of the editorial boards*

- Jean-Daniel Fekete was Associate Editor of IEEE Transactions on Visualization and Computer Graphics.
- Petra Isenberg was a guest editor of a special issue of Sage Publishing's Information Visualization on selected papers from BELIV 2014.
- Tobias Isenberg is associate editor of Elsevier Computers & Graphics.
- Tobias Isenberg was a guest editor of a special issue of Sage Publishing's Information Visualization on selected papers from BELIV 2014.

#### *9.1.3.2. Reviewer - Reviewing activities*

- Applied Mathematical Modeling: Tobias Isenberg
- Book review for Morgan Claypool Publishers: Petra Isenberg
- C&G: Computers & Graphics Journal: Nadia Boukhelifa, Tobias Isenberg
- JCSCW: Journal on Computer Supported Cooperative Work: Petra Isenberg
- Information Visualization Journal: Tobias Isenberg
- SCC: Spatial Cognition Computational Journal: Nadia Boukhelifa
- TVCG: IEEE Transactions on Visualization and Computer Graphics: Jeremy Boy, Tobias Isenberg

### **9.1.4. Invited talks**

- Jean-Daniel Fekete: Invited Talk, MIT, "Visualizing Large and Dense Graphs", Dec. 2nd, 2015
- Jean-Daniel Fekete: Invited Talk, Brown University, "ProgressiVis: a New Workflow Model for Scalability in Information Visualization", Nov. 4. 2015
- Jean-Daniel Fekete: Invited Talk, Columbia University, "Visualizing Large and Dense Networks", Sep. 18th, 2015
- Jean-Daniel Fekete: Invited Talk, IBM Watson Research Center, "ProgressiVis: a New Workflow Model for Scalability in Information Visualization", Sep. 17. 2015
- Jean-Daniel Fekete: Invited Talk, Center for Data Science, New York University, "ProgressiVis: a New Workflow Model for Scalability in Information Visualization", Sep. 14, 2015

- Jean-Daniel Fekete: Invited Talk, University of Maryland, “Visualization for the People: Where Are We Now”, Sep. 10th, 2015
- Jean-Daniel Fekete: Invited Talk, CANVAS Summer School, Toronto, “Visualization for the People: Where Are We Now”, Jul. 2015
- Jean-Daniel Fekete: Invited Talk, Microsoft Research Redmond, “Visualization for the People: Where Are We Now”, Tuesday, Jun. 9, 2015
- Jean-Daniel Fekete: Invited Talk, Tableau Software, “Matrix-Based Visualization”, Monday, Jun. 8, 2015
- Jean-Daniel Fekete: The Visualization Distinguished Lecture Series, Georgia Tech “Visualization for the People: Where Are We Now”, Friday, Apr. 10, 2015
- Jeremy Boy: Invited talk at Harvard, December 1, 2015 on “Towards Enabling Casual-Users to Engage in Data Exploration Using Information Visualization Interfaces”.
- Pierre Dragicevic: “Recent and Future Information Visualization Research at Inria / Aviz”. Guest lecture at HIIT Finland, 4 March 2015.
- Pierre Dragicevic: “Introduction aux nouvelles statistiques pour l’IHM”. Rencontre Jeunes Chercheurs en Interaction Homme-Machine (RJC IHM 2015), Oléron, 1 June 2015.
- Pierre Dragicevic: “How to Adopt the New Statistics in HCI”. Doctoral Colloquium HCI Group Univ Munich, Venice, 6 October 2015.
- Pierre Dragicevic: “Overview of Temporal Data Visualization Approaches”. 3ème journée ESSTE INRA – Visualisation des données spatio-temporelles et méthodes, Agro ParisTech, 27 November 2015.
- Petra Isenberg: keynote at the 2015 CANVAS summer school, Toronto, Canada on “Novel Display Technology for Visual Analytics”.
- Tobias Isenberg: ““Touching” the Third Dimension—Exploration of Scientific Data on Surfaces”. Inria Méditerranée, Sophia Antipolis, France, Sep. 28, 2015.
- Tobias Isenberg: “Illustrative Visualization for Molecular Data”. Keynote, conference of the thematic groups “Enzymes” and “Graphics and Molecular Modeling” of the Société Française de Biophysique, Sète, France, May 28 2015
- Tobias Isenberg: “Abstraction in Non-Photorealistic Rendering and Illustrative Visualizations.”. Hasso Plattner Institute Potsdam, Germany, Apr. 30, 2015
- Romain di Vozzo: “How to create a fablab?” Institut Supérieur des Etudes Techniques de Sousse. Sousse, Tunisia.

### 9.1.5. Leadership within the scientific community

- Jean-Daniel Fekete is a member of the Visualization Executive Committee of the IEEE VIS Conference
- Jean-Daniel Fekete is the chair of the Steering Committee of the IEEE Information Visualization Conference
- Jean-Daniel Fekete is a member of the Steering Committee of the EuroVis Conference
- Tobias Isenberg is a member of the Steering Committee of the Expressive conference.
- Tobias Isenberg is a Member of the Executive Committee of the Visualization and Computer Graphics Technical Committee of the IEEE Computer Society (Publications Chair).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Aviz members were involved in teaching the following lectures at the Masters or PhD level:

Jean-Daniel Fekete: *Information Visualization*, course on Interaction, 2h, Harvard, USA

Jean-Daniel Fekete: *Information Visualization*, course on Interaction, 2h, NYU-Poly, USA

Petra Isenberg, Pierre Dragicevic, *Visual Analytics*, Ecole Centrale, Paris, France

Pierre Dragicevic, Jean-Daniel Fekete, Lonni Besançon, Nadia Boukhelifa, Tobias Isenberg, *Information Visualization*, Université Paris Sud, France

Tobias Isenberg, *Non-Photorealistic Rendering*, University of Granada, Spain

Tobias Isenberg, *Interaction with 3D visualizations*, Tobias Isenberg at the CANVAS summer school in data analytics, visual analytics, and visualization in Toronto, Canada

Romain di Vozzo: *Digital Fabrication* 24h, HCID Master, Université Paris Sud, France

Aviz members were involved in teaching the following tutorials at international scientific conferences to students, data analysis specialists, and academics:

Tutorial on *Tools & Techniques for Direct Volume Interaction* co-taught by Tobias Isenberg at IEEE Visualization 2015

Tutorial on *Tools & Techniques for Direct Volume Interaction* co-taught by Tobias Isenberg at Eurographics 2015

### 9.2.2. Supervision

PhD in progress: Lonni Besançon, An Interaction Continuum for Scientific Visualization, Université Paris-Sud, 2014, Tobias Isenberg and Mehdi Ammi

PhD in progress: Evanthia Dimara, Information Visualization for Decision Making, Université Paris-Sud, 2014, Pierre Dragicevic, Anastasia Bezerianos and Jean-Daniel Fekete

PhD in progress: Pascal Goffin, From Individual to Collaborative Work, Université Paris-Sud, 2013, Petra Isenberg and Jean-Daniel Fekete

PhD in progress: Mathieu Le Goc, Dynamic and Interactive Physical Visualization, Université Paris-Sud, 2013, Pierre Dragicevic and Jean-Daniel Fekete

### 9.2.3. Juries

Jean-Daniel Fekete: PhD committee of Jorge Poco Medina, "Visual Intercomparison of Multifaceted Climate Data", NYU-Poly, June 2015

Jean-Daniel Fekete: Nivan Ferreira, "Visual Analytics Techniques For Exploration Of Spatiotemporal Data", NYU-Poly, June 2015

PhD committee: Dr. Emmanuel Iarussi, Computer-Assisted Drawing, Inria Sophia Antipolis, France, September 2015, Tobias Isenberg

PhD committee: Dr. Leïla Schemali, Édition et Visualisation Stéréoscopiques [Interaction with, Editing of, and Visualization of Stereoscopic 3D Objects], Telecom ParisTech, France, January 2015, Tobias Isenberg

Pierre Dragicevic: Commission Scientifique Inria Saclay

Pierre Dragicevic: Commission Consultative de Spécialistes de l'Université Paris-Sud (CCSU)

Pierre Dragicevic: Jury MCF UPSud 0274

Pierre Dragicevic: PhD committee of Bin Yang, Memory island: visualizing hierarchical knowledge as insightful islands, Université Pierre et Marie Curie, 8 June 2015.

Pierre Dragicevic: PhD committee of Azam Khan, Choice & Consequence: Exploratory Data Analysis for Critical Decision Making, University of Copenhagen, 14 Aug 2015.

Pierre Dragicevic: PhD committee of Renaud Gervais, Interaction and introspection with tangible augmented objects, Université de Bordeaux, 9 Dec 2015.

Romain di Vozzo: Fablab projects evaluation. Master Innovation Technologique & Entrepreneuriat. Ecole Polytechnique.



### 9.3. Popularization

Aviz members have been involved in several popularization activities:

- Romain di Vozzo: invitation of Richard Stallman to give a Digiteo conference on Free Software.
- Jeremy Boy wrote a chapter for “Le kit Serie graphique : Connaître et pratiquer le design graphique au collège” published by Le Centre National des Arts Plastiques (CNAP) .
- Jeremy Boy’s *Is the World a Better Place Today* online visualization platform was mentioned in Le Monde <http://data.blog.lemonde.fr/2015/10/21/la-journee-de-la-statistique-un-evenement-francais-pas-celebre-en-france/>
- Jeremy Boy gave an interview on his *Is the World a Better Place Today* online visualization platform to the NYU News and Publications Department <http://engineering.nyu.edu/news/2015/11/23/when-united-nations-puts-call-out-data-pros>
- Mathieu Le Goc, Pierre Dragicevic, Samuel Huron, Jeremy Boy, Jean-Daniel Fekete: **SmartTokens: Embedding Motion and Grip Sensing in Small Tangible Objects - Extended Material**.
- Pierre Dragicevic and Yvonne Jansen: the **Curated List of Physical Visualizations** is continuously being updated.

## AYIN Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Josiane Zerubia was General Chair with Prof. Konrad Schindler (ETH Zurich) of the EARTHVISION workshop at CVPR'15 [<http://www.pamitc.org/cvpr15/workshops.php>] in Boston, USA, in June.
- Josiane Zerubia was Plenary talks Chair with Prof Sergios Theodoridis (University of Athens) of IEEE/EURASIP EUSIPCO'15 conference [<http://www.eusipco2015.org/content/keynotes>] in Nice, France, in September.
- Josiane Zerubia was Scientific Chair of the workshop on Stochastic Geometry and Big Data [<https://team.inria.fr/ayin/workshop/>] in Sophia Antipolis, France, in November.

#### 10.1.1.2. Member of the organizing committees

- Josiane Zerubia was part of the organizing committee of IEEE/EURASIP EUSIPCO'15 conference [<http://www.eusipco2015.org/content/organising-committee>] in Nice, looking for the sponsoring of Inria (Bronze sponsor + Best Student Award sponsor).
- Josiane Zerubia also organized the workshop on Stochastic Geometry and Big Data [<https://team.inria.fr/ayin/workshop/>] in Sophia-Antipolis, financially supported by Airbus D&S, CNRS (GdR GeoStoch) and Inria.

### 10.1.2. Scientific events selection

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

- Josiane Zerubia was part of the conference program committee of EMMCVPR'15 [<http://blog.ust.hk/emmcvpr/people/>] in Hong Kong, China, in January.
- Josiane Zerubia was part of the conference program committee of ISPRS/SPIE Remote Sensing'15 [<http://spie.org/spieremotesensing>] and [<http://eventegg.com/spie-2015-toulouse/>] in Toulouse, France, in September.

#### 10.1.2.2. Reviewer

- Nazre Batool was a reviewer for the conference IEEE ICIP'15
- Josiane Zerubia was a reviewer for the conferences EMMCVPR'15, IEEE ICASSP'15, IEEE ICIP'15, IEEE EMBS'15, IEEE-EURASIP EUSIPCO'15, ISPRS-SPIE Remote Sensing'15, TAIMA'15 and GRETSI'15.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Josiane Zerubia is an Associate Editor of the collection "Foundation and Trends in Signal Processing" [<http://www.nowpublishers.com/>].
- Josiane Zerubia is a member of the Editorial Board of the "Revue Française de Photogrammétrie et de Télédétection of SFPT" [<http://www.sfpt.fr/rfpt/>].
- Josiane Zerubia is an Associate Editor of the electronic journal Earthzine [<http://www.earthzine.org/>].

#### 10.1.3.2. Reviewer - Reviewing activities

- Seong-Gyun Jeong was a reviewer for the journals APSIPA TSIP, IEEE TCSVT and ELS JVCIR.
- Paula Craciun was a reviewer for IEEE JSTARS journal.
- Ihsen Hedhli was a reviewer for IEEE TGRS, TGRL and TIP journals.
- Nazre Batool was a reviewer for IEEE TIP and JSTARS, and Elsevier Expert Systems with Applications journals.
- Josiane Zerubia was part of SFPT/RFPT Best Paper Award committee in 2015 to evaluate the papers from the year 2014 [<http://www.sfpt.fr/revue/prix-etudiant-sfpt/>].

#### 10.1.4. Invited talks

- Paula Craciun gave a seminar at the Center for Vision, Cognition, Learning and Autonomy, at University of California Los Angeles, USA (invited by Prof. Song-Chun Zhu [<http://vcla.stat.ucla.edu/people.html>]) and the Computer Vision Group, University of California Berkeley, USA (invited by Prof. Jitendra Malik [<http://www.eecs.berkeley.edu/Research/Projects/CS/vision/>]) in January 2015 on joint detection and tracking of moving objects using spatio-temporal marked point processes. Paula Craciun also gave a seminar at the University of Lille 1, France (invited by Dr. Radu Stoica [<http://math.univ-lille1.fr/~stoica/>]) in September 2015 on a similar topic.
- Nazre Batool gave a seminar on modeling and analysis of wrinkles on aging human faces at the Computer Vision Lab, at ETH Zurich, Switzerland (invited by Dr. Orcun Goksel [<http://www.vision.ee.ethz.ch/~ogoksel/>]), in June 2015. Nazre Batool also gave a seminar on modeling of facial wrinkles in aging human faces, at the Multimedia and Visual Computing Lab, at New York University in Abu Dhabi (NYUAD), UAE (invited by Dr. Yi Fang [<http://nyuad.nyu.edu/en/academics/faculty/yi-fang.html>]), in April 2015.
- Josiane Zerubia gave a seminar on marked point processes for object detection in high resolution images at the School of Computer Science and Statistics, at Trinity College Dublin, Ireland (invited by Prof. Rozenn Dahyot [<https://www.cs.tcd.ie/Rozenn.Dahyot/>]), in April 2015. She also gave a seminar on assessing skin lesion evolution from multispectral image sequences at ONERA/DOTA in Toulouse, France (invited by Dr Xavier Briottet [<http://www.onera.fr/dota/>]), in January 2015.

#### 10.1.5. Leadership within the scientific community

- Josiane Zerubia is IEEE Fellow since 2003 and IEEE SPS Distinguished Lecturer since November 2015. ([[http://www.ieee.org/membership\\_services/membership/fellows/index.html](http://www.ieee.org/membership_services/membership/fellows/index.html)], [<http://www.signalprocessingsociety.org/community/lectures/>]).

#### 10.1.6. Scientific expertise

- Nazre Batool was a reviewer for the Austrian Science Fund, FWF, Austria in 2015 [<https://www.fwf.ac.at/en/research-funding/fwf-programmes/>]
- Josiane Zerubia was a reviewer for the Natural Sciences and Engineering Research Council of Canada, NSERC, Canada in 2015 [<http://www.nserc-crsng.gc.ca>].
- Josiane Zerubia also worked as a remote sensing expert for the preparation of the Thales Alenia Space/Inria Chile Symposium in collaboration with Claude Puech and Hervé Coulomb (see [<http://inria.cl/>] and [<http://www.inria.fr/actualite/actualites-inria/inria-chile-acteur-de-l-innovation>]), and prepared in collaboration with Vladimir Krylov a presentation entitled "the Use of Remotely Sensed Optical Imagery for Civil Applications at Inria" given at this symposium on April 29, 2015, in Chile.
- Josiane Zerubia was a reviewer for the IRD Post-Doctoral Fellowship Program, France, in 2015 [<https://www.ird.fr/nous-rejoindre/l-ird-recrute/accueil-de-post-doctorants-campagne-2015-resultats-disponibles>].
- Josiane Zerubia is part of the Scientific Council of Academy 3 of UCA-Jedi [<http://univ-cotedazur.fr/english>] dedicated to "Space, Environment, Risks and Resilience".
- Josiane Zerubia was member of the working group for the creation of the GraphDeco team [<https://team.inria.fr/graphdeco/>] at Inria-SAM.

### 10.1.7. Research administration

- Josiane Zerubia is part of the Board of Directors of the French Photogrammetry and Remote Sensing Society [<http://www.sfpt.fr/sfpt/bureau/>].

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Masters: Ihsen Hedhli, Introduction to Image Processing, TP & TD in Matlab, 10h eq. TD, M2 SVS ISAB, Université de Nice Sophia-Antipolis, France.
- Masters: Josiane Zerubia, Advanced Techniques in Signal and Image Processing, 30h eq. TD (20h of lectures), ISAE/SUPAERO, France. Josiane Zerubia is also director of this course (total: 30h of lectures and 10h of TD). This course was given to third-year students at ISAE/SUPAERO and was also validated by the M2 of Applied Mathematics at the University Toulouse III Paul Sabatier, France.
- Masters: Josiane Zerubia, Deconvolution and Denoising in Confocal Microscopy, 18h eq. TD (12h of lectures), M2 BCC, Université de Nice Sophia-Antipolis, France. Josiane Zerubia is also director of this course (total: 24h of lectures).
- Masters: Josiane Zerubia, Introduction to Image Processing, 4.5h eq. TD (3h of lectures), M2 SVS ISAB, Université de Nice Sophia-Antipolis, France. Josiane Zerubia is also director of the course “Digital imaging” at UNS, Master 2 SVS ISAB, UE3 (total: 25h of lectures and 25h of TD).
- Doctoral School (PhD level): Josiane Zerubia, Hierarchical Markovian Models and MCMC Optimisation Techniques, 9h eq. TD (6h of lectures), SUPCOM Tunis Doctoral School, Tunisia. This course was also validated by ENSI Tunis and EP Tunis Doctoral Schools, Tunisia.
- Summer Shool (PhD and Post-doc level): Josiane Zerubia, Image Deconvolution and Denoising for Confocal Microscopy, 6h eq. TD (4h of lectures) at SSMIA’15, Sinaia, Romania. The courses of SSMIA’15 were validated by University Politehnica of Bucharest and Titu Maiorescu University, Bucharest, Romania, and by Technion-Israel Institute of Technology, Israel. See [[http://imag.pub.ro/ssima/?page\\_id=44](http://imag.pub.ro/ssima/?page_id=44)] and [<https://www.youtube.com/watch?v=1wnmL8P8arQ>].

### 10.2.2. Supervision

PhD (defended): Paula Craciun, Stochastic geometry for automatic object detection and tracking in remotely sensed image sequences, University of Nice-Sophia Antipolis, started in December 2012, defended in November 2015, Josiane Zerubia.

PhD (defended): Seong-Gyun Jeong, Curvilinear structure modeling and its applications in computer vision, University of Nice-Sophia Antipolis, started in December 2012, defended in November 2015, Josiane Zerubia and Yuliya Tarabalka.

PhD (in progress): Ihsen Hedhli, Change detection methods for multisensor and multiresolution remote sensing images for applications to environmental disaster management, University of Genoa and University of Nice-Sophia Antipolis, started in January 2013, Gabriele Moser and Josiane Zerubia.

### 10.2.3. Juries

- Josiane Zerubia was a member of the Jury for the Masters BioComp defenses at University of Nice Sophia-Antipolis in August 2015.
- Josiane Zerubia was a reviewer of a PhD thesis at SUPCOM Tunis, Tunisia, and a member of the PhD defense committee in Tunis, in April 2015.
- Josiane Zerubia was a member of a PhD defense committee (joint PhD thesis between Paris-Saclay University, CentraleSupélec and ENSEEIHT) in Toulouse, in October 2015.

- Josiane Zerubia was a member of two PhD defense committees at University of Nice Sophia-Antipolis/Inria, in Sophia-Antipolis, in November 2015.
- Josiane Zerubia was a reviewer of a joint PhD thesis (cotutelle) between University of Bordeaux, France, and University of Rabat, Morocco, and a member of the PhD defense committee in Bordeaux, in December 2015.

### 10.3. Popularization

- Paula Craciun and Josiane Zerubia wrote a brief scientific popularization article entitled "high resolution satellite imaging" for the book "Mathematics of Planet Earth" published by SIAM in 2015.
- Ihsen Hedhli and Josiane Zerubia hosted in AYIN team during one full day, a schoolboy from "Collège l'Archet", Nice, and a schoolgirl from "collège l'Eganaude", Biot, France. Furthermore, Josiane Zerubia was in charge of the schoolboy internship at Inria-SAM during one week in December 2015.
- Josiane Zerubia provided Hachette publisher with a land cover classification image obtained by an energy minimization based method to make the front cover of a text book of Physics in Ivory Coast.
- Josiane Zerubia participated in the Women in Computer Vision workshop at CVPR'15 in Boston, in June [<https://sites.google.com/site/wicv2015/home>]. She was the mentor of 4 female PhD students from USA, Taiwan, PR China and Sri Lanka, during the dinner organized afterwards.
- Josiane Zerubia presented Inria and Inria-SAM to interested PhD and post-doc students at both SUPCOM Tunis in Tunisia and Trinity College Dublin, Ireland.
- Josiane Zerubia is organizing a monthly scientific seminar at Inria-SAM with national and international speakers (see [<https://team.inria.fr/ayin/ayinseminars/>]).

## Chroma Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- C. Laugier was General Chair (with Ph. Bidaud as co-Chair) of the IEEE ARSO conference "The 2015 IEEE International Workshop on Advanced Robotics and its Social Impacts".
- C. Laugier is a member of the Advisory / Steering Committee of IEEE/RSJ IROS conference.
- C. Laugier was co-organizer of the workshop "7th Workshop on Planning, Perception and Navigation for Intelligent Vehicles", IROS 2015, Hamburg, September 2015 ( 160 attendees).
- O. Simonin was co-organizer of the Workshop DEMUR "On-line decision-making in multi-robot coordination", IROS 2015, Hamburg, October 2015.
- O. Simonin was co-Chair of CAR 2015 "The 10th National Conference Control Architectures of Robots", Lyon, July 2015.

#### 10.1.1.2. Member of the organizing committees

- C. Laugier is a member of the Advisory / Steering Committee of IEEE/RSJ IROS conference.
- C. Laugier is a member of the Editorial Board of the JSME Robomech Journal.
- O. Simonin was Local arrangement chair of the IEEE ARSO conference.
- O. Simonin was Chair (with J. Ponge) of the organization committee of CAR 2015.
- O. Simonin and J. Saraydaryan were members of the organization committee of the Colloque Jacques Cartier "Robotique, Services et Santé", 31.10-1.11, 2015.

### 10.1.2. Scientific events selection

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

- C. Laugier was Associate Editor for the IEEE/RSJ IROS 2015 and 2016 conferences.
- C. Laugier was Associate Editor for the IEEE ICRA 2015 and 2016 conferences.
- Jilles S. Dibangoye was Program Committee member of the following conferences:
  - International Joint Conference on Artificial Intelligence (IJCAI)
  - AAAI Conference on Artificial Intelligence (AAAI)
  - Autonomous Agent and Multi-agent Systems International Conference (AAMAS)
- O. Simonin was Program Committee member for IFAC/ACM ICINCO (International Conference on Informatics in Control, Automation and Robotics)
- O. Simonin is Program Committee member of the JFSMA conference since 2008 (Journées Francophones sur les Systèmes Multi-Agents).

#### 10.1.2.2. Reviewer

- A. Martinelli served, in quality of reviewer, at the following international conferences: ICRA 2015, IROS 2015, ICUAS 2015, ACC 2015
- O. Simonin served, in quality of reviewer, at the following international conferences : IROS 2015, ICRA 2015.

### **10.1.3. Journal**

#### **10.1.3.1. Member of the editorial boards**

- C. Laugier is a member of the Editorial Board of the JSME Robomech Journal.
- C. Laugier is a member of the Editorial Board of the new IEEE Journal "Transaction of Intelligent Vehicles". He is member of the Steering Committee of the Journal and Senior Editor.
- O. Simonin was member of the editorial board of Robotics and Autonomous Systems Journal, for the Volume 75 Part A "Assistance and Service Robotics in a Human Environment", Jan. 2016.

#### **10.1.3.2. Reviewer - Reviewing activities**

- A. Martinelli served, in quality of reviewer, for the following journals: Foundation and Trend in Robotics, Transaction on Automation Science and Engineering
- Jilles S. Dibangoye served as a reviewer for the following journals: Journal on Artificial Intelligence Research (JAIR), Artificial Intelligence Journal (AIJ), IEEE Transactions on Robotics (TRO).
- O. Simonin serves, in quality of reviewer, for the RIA revue (Revue d'Intelligence Artificielle).

### **10.1.4. Invited talks**

- C. Laugier was invited to give a talk at IET Workshop on "Autonomous Vehicles: from the theory to full scale applications", Novotel Paris Les Halles, Paris, June 18th 2015.  
Talk title: Risk Assessment and Decision-making for Safe Vehicle Navigation under Uncertainty.
- C. Laugier was invited to give a talk at RII "Smart Cities & Mobility Innovations", San Francisco, May 11th 2015.  
Talk title: Bayesian Perception and Decision for Intelligent Mobility.
- C. Laugier was invited to give a talk at Google Self-Driving Cars, Mountain View, May 12th 2015.  
Talk title: Bayesian Perception and Decision for next Cars Generation.
- C. Laugier was invited to give a Keynote talk at PPNIV-7 workshop, IEEE/RSJ IROS 2015, Hamburg, September 28th 2015.  
Talk title: Embedded Bayesian Perception and Risk Assessment for ADAS and Autonomous Cars.
- O. Simonin was invited to give a talk at JNRR 2015, Journées Nationales de la Recherche en Robotique, October 21-23, Cap Hornu.
- A. Spalanzani was invited to give a talk at the Colloque Jacques Cartier "Robotique, Services et Santé", 30th-1st of november/december, Lyon.

### **10.1.5. Leadership within the scientific community**

- C. Laugier has been invited as co-author (with Alberto Broggi, Alex Zelinsky and Umit Ozguner) for the Chapter 62 on "Intelligent Vehicles" of the 2nd edition of the Handbook of Robotics (to appear on March 2016).

### **10.1.6. Scientific expertise**

- C. Laugier is Scientific Consultant for the Probayes company.

### **10.1.7. Research administration**

- C. Laugier is a member of several Ministerial and Regional French Committees on Robotics and Autonomous Cars.
- O. Simonin is member of the Rhone-Alpes Robotics cluster (Coboteam), for Inria and INSA de Lyon entities.
- A. Martinelli carried out the activity of leader for the ANR project VIMAD
- A. Martinelli carried out the activity of leader for the CARNOT project SEDIA

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

M2R Informatique option RTS : O. Simonin, Robotique distribuée, 8h, M2, Université de Lyon, France.

INSA Lyon 5th year : O. Simonin, Robots mobiles communicants, 60h, M2, INSA de Lyon, France.

INSA Lyon 3rd year : O. Simonin, Algorithmique et programmation, 20h, L3, Dept. Telecom INSA de Lyon, France.

M2R MoSIG: A. Martinelli, Autonomous Robotics, 12h, ENSIMAG Grenoble

#### E-learning

Mooc "Mobile Robots and Autonomous Vehicles" (eMotion / Chroma): C. Laugier, A. Martinelli and D. Vasquez, 5 weeks on Inria-uTOP site, Videos in English including quiz, International diffusion on Inria-uTOP site, course for Engineers, Master and PhD students.

### 10.2.2. Supervision

PhD in progress: Tiana Rakotovao Andriamahefa, Embedded Bayesian Perception on a Multi-core Architecture, 2013, C. Laugier and D. Ruspini (CEA LETI).

PhD in progress: David Sierra Gonzalez, Autonomous Driving, 2014, E. Mazer (Inria Prima), J. Dibangoye, C. Laugier (cooperation Toyota).

PhD in progress: Mathieu Barbier, Decision making for Intelligent Vehicles, 2015, O. E. Mazer (Inria Prima), O. Simonin, C. Laugier (cooperation Renault)

PhD in progress: Vishnu K. Narayanan, semi-autonomous navigation of a electric wheelchair using visual servoing and user intention analysis, 2013, M. Babel (Lagadic Team) and A. Spalanzani.

PhD in progress: Stefan Chitic, Middleware for multi-robot systems, 2013, O. Simonin, J. Ponge (CITI-Dynamid), Ministry funding.

Starting PhD: Mihai Popescu, Robot fleet mobility under communication constraints, O. Simonin, A. Spalanzani, Regional funding.

### 10.2.3. Juries

- O. Simonin was a member of the defense committee of the HDR of Cedric Pradalier, INP Toulouse, June 5th, 2015.
- O. Simonin was a reviewer and a member of the defense committee of the HDR of Anne Spalanzani, Université Pierre-Mendès-France, June 22th, 2015.
- C. Laugier was a member of the defense committee of the HDR of Anne Spalanzani, Université Pierre-Mendès-France, June 22th, 2015.
- O. Simonin was a reviewer and a member of the defense committee of the PhD thesis of Bassem Hichri, Université Blaise Pascal, October, 2015.
- O. Simonin was a reviewer and a member of the defense committee of the PhD thesis of Zoubida Afoutni, Université de la Réunion, Montpellier September 25th, 2015.
- O. Simonin was a reviewer and a member of the defense committee of the PhD thesis of Cyril Robin, Université de Toulouse, June 4th, 2015.
- O. Simonin was a member of the selection committee (COS) for an Associate Professor position at Université de Grenoble, IUT de Valence.
- A. Spalanzani was a reviewer and a member of the defense committee of the PhD thesis of Mihai Andries, Université de Lorraine, December 15th, 2015.
- C. Laugier was a reviewer and a member of the defense committee of the PhD thesis of Thibaut Kruse, Technical University of Munich, January 14th, 2015.
- C. Laugier was President of the Jury of the French PhD Theses Award 2015 of the GDR Robotique (Theses defended in 2014), Presented at the JNRR 2015, 21-23 October 2015, Cap Hornu.



## DAHU Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

Serge Abiteboul participated with Olivier Baudon to the organization in 2015 of the seminar of the Société Informatique de France “Enseignement de l’informatique pour les humanités et les sciences sociales”.

### 9.1.2. Scientific events selection

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

Serge Abiteboul: Data engineering (ICDE’2015); Management of data (Sigmod’2015); Very Large Database (VLDB’2015); Web Database (WebDB’2015). In 2015, Serge Abiteboul also participated in Awards committees for the French Academy of Sciences and the British Royal Society (Milner Award).

Sylvain Schmitz: Reachability Problems (RP’15).

Cristina Sirangelo: ICDT’15. PODS’15. PODS’16.

Victor Vianu: ICDT’15.

#### 9.1.2.2. Reviewer

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

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

Victor Vianu: Editor-in-Chief of JACM, Associate Editor of ACM TOCL, Editor of the Database Theory column in SIGACT News.

### 9.1.4. Invited talks

Victor Vianu gave two invited talks: One at the Alberto. O. Mendelzon Workshop, Lima, Peru, May 6-8 2015. A second one at the Martin Abadi Honoris Causa Symposium, ENS Cachan, June 2015.

Sylvain Schmitz gave two invited talks, at ACTS 2015 in Chennai, India, and at the DIMAP Logic Day 2015 in Warwick, UK.

Serge Abiteboul gave invited talks at the Advances in Database and Information Systems Conference (keynote - Poitiers), Profile, Predict, and Prevent Conference (Law, Paris), TTOW Conference (History, Paris), DSAAI Conference (Paris), Filocs Workshop (Tel Aviv), Data science symposium (Rennes), CNRS Mastodons Workshop (Paris), Inria EPFL Workshop (Lausanne), UPMC Seminar (Paris 6)...

He also gave invited talks in industry (Thalles, Accenture).

### 9.1.5. Leadership within the scientific community

Serge Abiteboul was nominated co-chair of the Parity and Equality committee of Inria.

### 9.1.6. Scientific expertise

Sylvain Schmitz reviewed grant proposals for the Agence Nationale de la Recherche (ANR) and the Austrian Science Fund (FWF).

### 9.1.7. Research administration

Since 2015 Luc Segoufin is an elected member of the CNRS of Inria.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Cristina Sirangelo, Databases, 24h L3, ENS Cachan  
 Licence : Cristina Sirangelo, Database project, 22.5h, L3, ENS Cachan  
 Master : Cristina Sirangelo, Algorithms, 37h, M2, ENS Cachan  
 Master : Cristina Sirangelo, Advanced complexity theory, 30h M1, ENS Cachan  
 Graduate : Cristina Sirangelo, Web sites, 18h, Ecole doctorale ENS Cachan  
 Graduate : Cristina Sirangelo, Databases, 18h, Ecole doctorale ENS Cachan  
 Graduate : Cristina Sirangelo, Web search, 18h, Ecole doctorale ENS Cachan  
 Licence : Sylvain Schmitz, Complexity, 22.5h, L3, ENS Cachan, France  
 Master : Sylvain Schmitz, Introduction to Verification, 19h, M1, ENS Cachan, France  
 Master : Sylvain Schmitz, Formal Languages, 37.5h, M2, ENS Cachan, France  
 Master : Sylvain Schmitz, Logical and Computational Structures for Linguistic Modeling, 18h, M2, ENS Cachan, France  
 Master : Serge Abiteboul, Web data management, 15h, MPRI  
 Licence : Serge Abiteboul, Relational databases, 30h, ENS Cachan

#### E-learning

Mooc Bases de Données Relationnelles - Bador (in French), Inria Fun, Serge Abiteboul, Benjamin Nguyen and Philippe Rigaux, Start January 2016; about 6000 students registered, 6+ weeks. Target audience: students in L3/Master, engineers and scientists using databases.

### 9.2.2. Supervision

PhD : Nadime Francis, View-based query determinacy and rewritings over graph databases, 08/12/2015 [11], Luc Segoufin and Cristina Sirangelo  
 PhD in progress: Nathan Grosshans, branching program, 01/09/2014, Luc Segoufin and Pierre McKenzie (University of Montreal)  
 PhD in progress: David Montoya, Personal information management systems, 01/02/2014, Serge Abiteboul  
 PhD in progress: Alexandre Vigny, enumeration, 01/09/2015, Luc Segoufin and Arnaud Durand  
 PhD in progress: Karima Rafes, Web semantic and Internet of Thing, 01/02/2015, Serge Abiteboul  
 PhD in progress: Simon Halfon, Well quasi orders, 01/09/2015, Sylvain Schmitz and Philippe Schnoebelen

### 9.2.3. Juries

Cristina Sirangelo was in the jury for ingénieur d'étude of ENS-Cachan in July 2015.

Sylvain Schmitz was on the Ph.D. committee of Jérôme Kirman, Université de Bordeaux, in December 2015.

Serge Abiteboul was on the Ph.D. committee of Stamatis Zampetakis, University of Paris-Saclay, in September 2015.

### 9.3. Popularization

For the last couple of years, Serge Abiteboul has initiated and is coordinating an invited blog for Le Monde newspaper, namely Binaire, <http://binaire.blog.lemonde.fr>. He is the initiator of “The Cabale Informatique de France”, a joint action between the Société Informatique de France and Wikipédia France to improve the quality of Wikipédia pages about Computer Science in France.

Serge Abiteboul participated in a documentary "Nos ordinateurs ont-ils la mémoire courte" (directed by Vincent Amouroux, Zed production) that was showed on Arte in September 2015. He wrote popularization articles, in particular, [13] (on Personal information systems), [28] (on the Responsibility of algorithms, and notably data analysis algorithms; short version in French in Le Monde) and [27] (on Digital humanities).

Serge Abiteboul gave talks to Congrès National des Profs de Physique Chimie (La Rochelle), Forum Big Data (La Vilette), Congrès APLCPCGE ("prépas", Paris), UPMC Colloquium (Paris)... He was audited for the French Parliament (OPECST, Big data and Agriculture).

In 2015, Serge Abiteboul was a member of the "Conseil national du numérique".

## DEFROST Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events selection

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

- Christian Duriez is member of the WorldHaptics 2015 Conference Editorial Board and Vriphys 2015
- Jérémie Dequidt has been member of the program committee of AFIG 2016

#### 9.1.1.2. Reviewer

- Christian Duriez has been reviewer for SIGGRAPH 2015, Vriphys 2015, ISBI 2015.
- Jeremie Dequidt has been reviewer for MICCAI 2015, Haptics Symposium 2016
- Damien Marchal was reviewer for IEEE 3D User Interface 2016 (3DUI 2016), VriPhys 2015, "la Conférence francophone sur l'Interaction Homme-Machine" (IHM 2015), World Haptics Conference (WHC 2015)
- Alexandre Kruszewski was reviewer for American Control Conference 2016, European Control Conference 2016, World Haptics Conference 2015, International Conference on Fuzzy Systems 2015.

### 9.1.2. Journal

#### 9.1.2.1. Reviewer - Reviewing activities

- Christian Duriez has received an award from the journal IEEE transactions on haptics for outstanding review activities
- Christian Duriez has been reviewer for the following journals: Computer Graphics Forum, IEEE Transaction on Automation Science and Engineering, Mechanism and Machine Theory, IEEE Transactions on Haptics, IEEE Transactions on Visualization and computer Graphics
- Jeremie Dequidt was reviewer for the following journals: IEEE Transactions on Haptics, Computers and Graphics, Computer Graphics and Applications, Annals of Biomedical Engineering, REFIG
- Alexandre Kruszewski was reviewer for International Journal of Systems Science, Fuzzy sets and systems (2 papers), IEEE Transaction on Fuzzy systems (4 papers), Control Engineering Practice.

### 9.1.3. Invited talks

- Christian Duriez has been invited for a talk on the summer school on surgical robotics (Montpellier) and for the Autumn school on soft robotics and surgery (Torino).

### 9.1.4. Scientific expertise

- Christian Duriez is one of the founder and scientific advisor of the startup InSimo ([www.insimo.com](http://www.insimo.com))

### 9.1.5. Research administration

- Christian Duriez was reviewer for the founding program AIRR (Nord-Pas de Calais) and Ecos-Sud (France-South America)

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : Christian Duriez, Simulation interactive basé sur la physique, niveau M2, université de Lille, France

Master : Jérémie Dequidt is in charge of the "Fillière Systèmes Communicants (IMA)" at Polytech Lille, France

Master : Jérémie is in charge of the transversal modules, which are common to all students M2 at Polytech Lille, France

Licence : Alexandre Kruszewski is in charge of Teaching Automation in the "Cursus Iteem" (L1 to M2) at Centrale Lille, France

Master : Alexandre Kruszewski, Advanced Automatic, Centrale Lille, France

Master : Damien Marchal, "Introduction to Unity 3D" Master 2 IVI de l'UFR d'IEEA, université de Lille, France

Master : Damien Marchal, "Introduction to Unity 3D" professional training SUDES, université de Lille, France

### 9.2.2. Supervision

- PhD: Julien Bosman, Physically-based 6DOF Nodes deformable models: Application to connective tissues simulation and soft-robots control, Université de Lille, 27 Novembre 2015, encadrée par C.Duriez
- PhD: Raymundo Márquez, «New control and observation schemes based on Takagi-Sugeno models», Université de Valenciennes, 12 Novembre 2015, encadrée par A. Kruszewski
- PhD in progress: Frederick Largillière, Control and Modelling of Interfaces based on Soft-robots, Université de Lille, advisors: C. Duriez and L.Grisoni (3d year)
- PhD in progress: Thor Morales, Feedback Control and Design of Soft-robots manipulators, Université de Lille, advisors: C. Duriez and R.Merzouki (3d year)
- PhD in progress: Zhongkai Zhang, Real-time control of deformable robot using visual servoing. Encadrement: J. Dequidt et C.Duriez (1st year)

### 9.2.3. Juries

- Christian Duriez was reviewer for the HdR of Pierre Joli (Université d'Evry)
- Christian Duriez was member of the committee for the position "Chargés de Recherche" (Inria Lille)

## 9.3. Popularization

- Presentation of a deformable robot in the Senate on 02/11/2015 at the "journée du numérique".
- A popular article on the work of the team was simultaneously broadcast on the BIT Blog Site lemonde.fr and the Interstices website.
- We worked with the Fresnoy (National Studio of Contemporary Arts) on the work of art: Exo-Biota artist Jonathan Pepe. This work was presented at the Panorama exhibition. It will be exhibited at the Palais de Tokyo in 2017. This project was the subject of an article on the humanoide.fr site.
- At the Science Festival, our team has greatly contributed to the itinerant scholars operation. Scientists and engineers have moved in colleges and high school in the region to present their work. This year, 15 one hour lessons were conducted in front of 430 students in secondary schools (<http://www.inria.fr/centre/lille/agenda/chercheurs-itinerants-2015>).
- Participation in various operations Chti'Code. Chti'Code is an action of the University of Lille 1, which aims to promoting computer education in primary schools. Damien Marchal intervened with 4 CM2 classes for a total of 20h. <https://wikis.univ-lille1.fr/chticode/>.
- In march 2015 Presentation of the work of Defrost students ISN Terminal specialty by Eulalie Coevoet and Jeremie Dequidt.

- J.Dequidt made an invited presentation and was a member of the jury of robotics competition organized by the High School Baggio (SI @ Baggio): <https://www.inria.fr/centre/lille/actualites/un-defi-de-robotique-interscolaire-a-lille>.
- J.Dequidt participated in the organization of the Robotics Cup of Primary Schools Polytech Lille. <http://crep.plil.net/>.
- J.Dequidt was a member of the European competition Android application creation students, supported by Google. <https://competition.eestec.net/>.
- A reporter did a paper about our team, posted on the site rue89 (over 11,000 visits to the article): <http://rue89.nouvelobs.com/2015/10/27/les-robots-mous-solution-medecine-moins-douloureuse-261847>
- Defrost research works have been presented to students (Terminale ISN) by E. Coevoet and J. Dequidt in march 2015.

## **DREAM Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific events organisation***

#### *10.1.1.1. General chair, scientific chair*

Local chairs of PFIA 2015 in Rennes (T. Guyet, R. Quiniou).

Organization chair (T. Guyet) and program committee members (T. Guyet, R. Quiniou) of GAST workshop at EGC 2015 and at EGC 2016.

#### *10.1.1.2. Member of the organizing committees*

Organizer of the workshop "Data mining in industry: case study in embedded systems" at the IRISA Data Science fair (A. Termier).

### ***10.1.2. Scientific events selection***

#### *10.1.2.1. Member of the conference program committees*

Program committee members of EGC 2015 and 2016 (R. Quiniou, A. Termier).

Program committee member of IJCAI 2015 and 2016 (T. Guyet).

Program committee member of KR 2016 (T. Guyet).

Program committee member of DSAA 2015 (A. Termier)

Program committee member of ICDM 2015 (A. Termier)

Program committee member of ECML/PKDD 2015 (A. Termier)

Program committee member of KDD 2016 (A. Termier)

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

#### *10.1.3.1. Member of the editorial boards*

Members of the editorial board of RIA (Revue d'Intelligence Artificielle) (T. Guyet).

#### *10.1.3.2. Reviewer - Reviewing activities*

Journal of Biomedical Informatics (T. Guyet).

ACM Computing Surveys (T. Guyet).

Data Mining and Knowledge Discovery (A. Termier)

The Very Large DataBases journal (A. Termier)

### ***10.1.4. Invited talks***

"Intelligence artificielle et Fouille de données: questions ouvertes et perspectives pour les thématiques des JFPDA", JFPDA conference, july 2015: T. Guyet.

"Pattern mining with ASP", LIFO, Orléans, october 2015: T. Guyet

"Intelligence artificielle et Fouille de données", I-Cube, Strasbourg, november 2015: T. Guyet

"Pattern mining for execution traces: a report", GREY, Caen, February 2015: A. Termier

### ***10.1.5. Leadership within the scientific community***

Representative of Inria for the "e-Agriculture" program, which goal is to organize further governmental actions to develop numerical agriculture: A. Termier

Co-representative of Inria, with E. Prados, in the Transition<sup>2</sup> action undertaken with the FING: A. Termier

Member of the AFIA board, treasurer (since october 2011): T. Guyet.

### **10.1.6. Scientific expertise**

Evaluation of a project proposal for the University of Padova: A. Termier

Evaluation of a CIFRE PhD proposal for the ANRT: A. Termier

Evaluation of a project proposal for the ANR: R. Quiniou

### **10.1.7. Research administration**

Member of INRA CEI (Engineers Evaluation Committee): T. Guyet.

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

### **10.2.1. Teaching**

Many members of the EPI Dream are also faculty members and are actively involved in computer science teaching programs in ISTIC, INSA and Agrocampus-Ouest. Besides these usual teachings Dream is involved in the following programs:

Master: Module DSS: Apprentissage sur des données séquentielles symboliques, 10 h, M2, Istic University of Rennes 1 (R. Quiniou).

Master: C++ Programming, M1, ENSAI, Rennes (T. Guyet),

Master: Géoinformation, M2, Agrocampus Ouest Rennes (L. Bonneau, T. Guyet, C. Largouët)

### **10.2.2. Supervision**

PhD: Serge Vladimir Emteu Tchagou, "Stream mining techniques for online monitoring of MP-SoC applications", december 15th 2015, co-supervisors Alexandre Termier, René Quiniou, Miguel Santana and Jean-François Méhaut

PhD in progress: Clément Gautrais, "Mining massive data from client purchases", october 1st 2015, Alexandre Termier, Peggy Cellier, Thomas Guyet and René Quiniou

PhD in progress: Yann Dauxais, "Query-language for care-pathway mining and analysis", february 1st 2015, David Gross-Amblard, Thomas Guyet, André Happe

### **10.2.3. Juries**

Committee member of Serge Vladimir Emteu Tchagou Phd defense (Université de Grenoble Alpes): R. Quiniou, A. Termier.

Committee member of Ying Xiao Phd defense (Université de Lorraine): C. Largouët

Thesis advisory committee member of Benoit Bellot (INRA/IGEPP): T. Guyet.

Comittee member of Haykel Boukadida Phd defense (Université de Rennes 1): A. Termier

Comittee member of Elisa Fromont HDR defense (Université Jean Monet, St Etienne): A. Termier

## **10.3. Popularization**

M.-O. Cordier is editorial board member of Interstices webzine.



## EX-SITU Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- Paper Electronics Workshop, February 2015: Wendy Mackay (organizer)
- MIDWAY Workshop, May 2015: Michel Beaudouin-Lafon, Wendy Mackay, Joe Malloch (co-organizers)
- MOCO 2015, *International Workshop on Movement and Computing*: Sarah Fdili Alaoui (organizing committee)
- Workshop on *Supporting Creative Design Processes in Blended Interaction Spaces* at ACM Creativity and Cognition 2015: Wendy Mackay (organizing committee)

### 10.1.2. Scientific events selection

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

- ACM CHI 2015, *ACM Conference on Human Factors in Computing*: Wendy Mackay, Theophanis Tsandilas
- ACM UIST 2015, *ACM Symposium on User Interface Software and Technology*: Michel Beaudouin-Lafon, Wendy Mackay
- NIME 2015, *New interfaces for Musical Expression*: Theophanis Tsandilas, Sarah Fdili Alaoui
- CMIS 2015, *Workshop on Collaboration Meets Interactive Surfaces*: Theophanis Tsandilas
- IHM 2015, *Conférence Francophone d'Interaction Homme-Machine*: Theophanis Tsandilas
- GRAPP 2015, *Conference on Computer Graphics Theory and Applications*: Cédric Fleury
- 3DCVE 2015, *IEEE VR Workshop on Collaborative Virtual Environments*: Cédric Fleury
- MOCO 2015, *International Workshop on Movement and Computing*: Michel Beaudouin-Lafon, Sarah Fdili Alaoui

#### 10.1.2.2. Reviewer

- ACM CHI 2016 *ACM Conference on Human Factors in Computing*: Michel Beaudouin-Lafon, Cédric Fleury, Sarah Fdili Alaoui, Joseph Malloch, Ignacio Avellino, Ghita Jalal, Nolwenn Maudet, Carla Griggio, Germán Leiva, Jessalyn Alvina, Sarah Alaoui, Joseph Malloch, Alex Zinenko
- ACM UIST 2015 *ACM Symposium on User Interface Software and Technology*: Theophanis Tsandilas, Cédric Fleury, Ignacio Avellino
- ACM TEI 2016 *ACM Conference on Tangible Embodied Interaction*: Sarah Fdili Alaoui
- IEEE InfoVis 2015, *IEEE Information Visualization Conference*: Theophanis Tsandilas
- GI 2015, *Graphics Interface Conference*: Theophanis Tsandilas
- UBICOMP 2015, *ACM International Joint Conference on Pervasive and Ubiquitous Computing*: Michel Beaudouin-Lafon
- IHM 2015, *Conférence Francophone d'Interaction Homme-Machine*: Cédric Fleury

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Editor for the Human-Computer Interaction area of the new ACM Books Series (published with Morgan & Claypool Publishers): Michel Beaudouin-Lafon (2013-)
- CACM, *Communications of the ACM Web Editorial Board*, ACM: Wendy Mackay (2008-)
- CACM *Communications of the ACM New Publications Board*, ACM: Wendy Mackay (2015-)
- TOCHI, *Transactions on Computer Human Interaction*, ACM: Michel Beaudouin-Lafon (2009-)
- JIPS, *Journal d'Interaction Personne-Système*, AFIHM: Michel Beaudouin-Lafon (2009-)
- IJHCS, *International Journal of Human-Computer Study*, Elsevier: Michel Beaudouin-Lafon (Member of the Advisory Board, 2009-)
- JCSCW, *Journal of Computer Supported Cooperative Work*, Springer: Michel Beaudouin-Lafon (Member of the Advisory Board, 2010-)

#### 10.1.3.2. Reviewer - Reviewing activities

- Transactions on Visualization and Computer Graphics (TVCG): Theophanis Tsandilas
- Transactions on Computer-Human Interaction (TOCHI): Wendy Mackay
- Ubiquitous Computing (UbiComp'15): Wendy Mackay
- International Journal of Human-Machine Studies (IJHMS): Wendy Mackay

#### 10.1.4. Invited talks

- Keynote address at ACM/TEI'15 (Tangible, Embedded and Embodied Interaction) *Interactive Paper: Tangible Computing from the Digital Desk to Music Composition* 19 January 2015: Wendy Mackay
- Keynote address at LTM21C (Learning and Teaching Music in the Twenty-First Century: The Contribution of Science and Technology) *Supporting Creative Expression with Co-Adaptive Human-Computer Partnerships* 5 November 2015: Wendy Mackay
- Keynote address at Paper Electronics Workshop *Interactive Paper: A Whirlwind Tour of Tangible Computing from the Digital Desk to Music Composition* 20 February 2015: Wendy Mackay
- Research Seminar at University of Munich *Interactive Paper: Tangible Computing from the Digital Desk to Music Composition* 8 July 2015: Wendy Mackay
- Research Seminar at KTH, Sweden *Interactive Paper: Tangible Computing from the Digital Desk to Music Composition* 30 January 2015: Wendy Mackay
- Microsoft Faculty Summit *Dynachord* July 08 2015: Jianqiao Li
- GT Interco3D @ IHM 2015, "*Perception spatiale dans des systèmes de téléprésence adaptés à des murs d'images*", 27 October 2015: Cédric Fleury
- Microsoft Research - Devices and Networking Summit - 11-13 May 2015, Paris - panel The Next Big Hurdle, "*The myth of perfection*": Michel Beaudouin-Lafon
- NCRS-CNRS Korean-French workshop - 30 June 2015, "*Human-Computer Interaction*": Michel Beaudouin-Lafon
- CNRS workshop "Sciences Sociales et Cognitives du Comportement" - 16 July 2015, "*Interaction Humain-Machine et Sciences du Comportement*": Michel Beaudouin-Lafon
- TedX Leuven, "*Instrumented Bodies: Designing Interfaces for Digital Performance*", 20 February 2015: Joseph Malloch
- Centre National de la Danse, "*Rencontre entre notateurs*", 2 December 2015: Sarah Fdili Alaoui
- Inria Lille, "*Interaction Beyond Computation*", 16 October 2015: Michel Beaudouin-Lafon
- Inria Lille, "*Sketch-based interaction for creative exploration*", 11 March 2015: Theophanis Tsandilas
- Journées Scientifiques Inria, InriART, "*Supporting Computer-Aided Composition with Interaction on Paper*", 17 Juin 2015: Theophanis Tsandilas

- Université Paris Sud, “*la journée Sciences du Mouvement FEDEV*”, 27 Novembre 2015: Sarah Fdili Alaoui
- Inria Lille, “*Designing Interfaces for Digital Performance*”, 15 July 2015: Joseph Malloch
- Inria Lille, “*Interactive Systems for Music and Dance Performance*”, 7 December 2015: Joseph Malloch

### **10.1.5. Leadership within the scientific community**

- Digiscope “Equipement d’Excellence”: Michel Beaudouin-Lafon (Scientific director)
- Doctoral School in Computer Science (EDSTIC), Université Paris-Saclay: Michel Beaudouin-Lafon (co-director, Data, Knowledge, Learning & Interaction section)
- DigiCosme “Laboratoire d’Excellence”: Michel Beaudouin-Lafon (chair of theme Interaction-Visualization and member of scientific committee)

### **10.1.6. Scientific expertise**

- European Research Council (ERC), Avanced Grants Expert Panel: Michel Beaudouin-Lafon (external expert)
- FWF (Austrian Science Fund): Wendy Mackay (external expert)
- Sapere Aude Starting Grant, Danish Council for Independent Research, International Advisory Board: Wendy Mackay (external expert)
- Agence Nationale de la Recherche (ANR), appel à projets génériques “IHM, Contenus, Connaissances, Big Data, simulation, HPC”: Cédric Fleury (reviewer), Theophanis Tsandilas (reviewer)
- CNRS Mission pour l’Interdisciplinarité, Action “Sciences Sociales et Cognitives des Comportements Collectifs”: Michel Beaudouin-Lafon (committee member)

### **10.1.7. Research administration**

- Computer Science Department (“GT-STIC”), Université Paris-Saclay: Michel Beaudouin-Lafon (member of steering committee)
- “Institut de la Société Numérique”, IDEX Laboratory of Université Paris-Saclay: Michel Beaudouin-Lafon (member of steering committee)
- Telecom ParisTech: Michel Beaudouin-Lafon (member of research committee)
- IRCAM: Michel Beaudouin-Lafon (member of scientific committee)
- “Conseil de Laboratoire”, LRI: Wendy Mackay, Cédric Fleury (members)
- “Conseil Scientifique”, LRI: Michel Beaudouin-Lafon (member)
- CCSU, “Commission Consultative de Spécialistes de l’Université”, Computer Science department: Michel Beaudouin-Lafon, Wendy Mackay (members)

### **10.1.8. Professional service**

- ACM SIGCHI Conference Management Committee: Wendy Mackay (member)
- ACM SIGCHI Lifetime Service Award Committee: Wendy Mackay (member)
- ACM nominating committee: Michel Beaudouin-Lafon (member)
- ACM Europe Council: Michel Beaudouin-Lafon (member)
- EUACM Steering Committee, policy office of ACM Europe Council: Michel Beaudouin-Lafon (member)
- AFIBM Working Group on Ethics: Wendy Mackay (chair)

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

### **10.2.1. Teaching administration**

Interaction Specialty, Master in Computer Science, Univ. Paris-Sud & Université Paris-Saclay: Michel Beaudouin-Lafon (chair), Cédric Fleury (internships)

HCID Masters (EIT Digital European Master in Human-Computer Interaction and Design), Univ. Paris-Sud: Michel Beaudouin-Lafon (chair)

### 10.2.2. Teaching

Interaction & HCID Masters: Wendy Mackay, *Formation à la Recherche* 21 hrs, M2, Univ. Paris-Sud

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

Interaction & HCID Masters: Sarah Fdili Alaoui & Theophanis Tsandilas, *Programming of Interactive Systems*, 21 hrs, M1, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Design of Interactive Systems*, 42 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Business Development Lab* 21 hrs, M1, Univ. Paris-Sud

Interaction & HCID Masters: Joseph Malloch *Digital Fabrication*, 10 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Michel Beaudouin-Lafon & Cédric Fleury, *Groupware and Collaborative Interaction*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Sarah Fdili Alaoui, *Creative Design*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Sarah Fdili Alaoui, *Design Project*, 15 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Sarah Fdili Alaoui, *Gesture and Mobile Interaction*, 4 hrs, M1/M2, Univ. Paris-Sud

Polytech Fifth year: Cédric Fleury, *Réalité Virtuelle et Interaction*, 48 hrs, M2, Univ. Paris-Sud

Polytech Fifth year: Sarah Fdili Alaoui, *Informatique Graphique et visualisation*, 42 hrs, M2, Univ. Paris-Sud

Polytech Third year: Cédric Fleury, *Projet Java-Graphique-IHM*, 24 hrs, M1, Univ. Paris-Sud

Polytech First year: Cédric Fleury, *Introduction à l'Informatique*, 64 hrs, L1, Univ. Paris-Sud

### 10.2.3. Supervision

#### PhD students

PhD: Can Liu, *Collaborative Multiscale Navigation and Interaction*, Université Paris-Saclay, defended on 17 December 2015 [10]. Advisors: Michel Beaudouin-Lafon, Olivier Chapuis (LRI & Inria ILDA), Eric Lecolinet (Telecom ParisTech)

PhD in progress: Ghita Jalal, *Co-Adaptive Systems*, September 2013, Wendy Mackay

PhD in progress: Oleksandr Zinenko, *Interactive Code Restructuring*, September 2013. Advisors: Stéphane Huot (Inria Lille) & Cédric Bastoul (Université de Strasbourg)

PhD in progress: Ignacio Avellino, *Remote Collaboration in Large Interactive Spaces*, September 2014. Advisors: Michel Beaudouin-Lafon & Cédric Fleury

PhD in progress: Jessalyn Alvina, *Mobile Co-Adaptive Instruments*, September 2014. Advisor: Wendy Mackay

PhD in progress: Nolwenn Maudet, *Substrates and Co-Adaptive Instruments*, September 2014. Advisors: Wendy Mackay & Michel Beaudouin-Lafon

PhD in progress: Marc-Emmanuel Perrin, *Novel Interaction Models for Multi-surface Visualization*, September 2014. Advisors: Michel Beaudouin-Lafon & James Eagan (Télécom ParisTech)

PhD in progress: Marianela Ciolfi Felice, *Substrates and Co-adaptive Instruments for Creativity*, September 2015. Advisors: Wendy Mackay & Sarah Fdili Alaoui

PhD in progress: Carla Griggio, *Interactive Human-Machine Learning*, September 2015. Advisor: Wendy Mackay

PhD in progress: Germán Leiva, *Interaction-driven Software Development*, September 2015. Advisor: Michel Beaudouin-Lafon

PhD in progress: Wanyu Liu, *Modeling the speed-accuracy trade-off of pointing tasks using the tools of information theory*, October 2015. Advisors: Olivier Rioul (Institut Mines Telecom) & Michel Beaudouin-Lafon

PhD in progress: Yujiro Okuya, *Sensorimotor interface for Collaborative Virtual Environments based on heterogeneous interactive devices: application to industrial design*, October 2015. Advisors: Patrick Bourdot (LIMSI-CNRS) & Cédric Fleury

PhD in progress: Michael Wessely, *Sketching and Physical Prototyping for Creative Fabrication Design*, November 2015. Advisors: Theophanis Tsandilas & Wendy Mackay

#### Masters students

Jean-Baptiste Louvet, Insa Rouen, “Touch-based Interaction Technique for 3D Manipulation on Wall-sized Displays”: Cédric Fleury

Niyati Roy Chowdhury, Univ. Paris-Sud, “Brain on the wall: An observational study with a novel brain image analysis tool, BrainTwister”: Wendy Mackay & Michel Beaudouin-Lafon

Panagiota Tziouva, Univ. Paris-Sud, “Bad Hacks and Good tricks: How professional designers appropriate creativity tools”: Wendy Mackay

Xu Yuebai, Univ. Paris-Sud, “Interactive Brain Visualization”: Michel Beaudouin-Lafon & Wendy Mackay

Maxence Bobin, Univ. Paris-Sud “Internet of Things for stroke rehabilitation in a home-based context”: Wendy Mackay (reviewer)

#### 10.2.4. Juries

PhD committee of Carl Unanader-Sharin (KTH Royal Institute of Technology, January 2015, Stockholm, advisor: K. Hook): Wendy Mackay (Opponent examiner)

PhD committee of Jérémie Boy (Inria University Paris-Sud, May 2015, advisors: Françoise Detienne and Jean-Daniel Fekete): Wendy Mackay (President)

PhD committee of Olivier Perrotin (LIMSI, Sept 2015, advisor: Ch. d’Alessandro): Michel Beaudouin-Lafon (President).

PhD committee of Jonathan Aceituno (Inria Lille, Octobre 2015, advisor: Nicolas Roussel): Michel Beaudouin-Lafon (Reviewer).

PhD committee of William Delamare (LIG Grenoble, Nov. 2015, advisor: Laurence Nigay): Michel Beaudouin-Lafon (President).

PhD committee of Quentin Roy (Telecom ParisTech, Dec. 2015, advisor: Y. Guiard & E. Lecolinet): Michel Beaudouin-Lafon (President).

PhD committee of Weiya Chen (LIMSI, Dec. 2015, advisor: P. Bourdot): Michel Beaudouin-Lafon (President).

Hiring Committee for Professor position, Univ. Paris-Sud: Wendy Mackay (member)

Hiring Committee for Assistant Professor position, Univ. Paris-Sud: Wendy Mackay (member)

### 10.3. Popularization

*BD Interactive: 2101 Sciences et science-fiction*, Chromatiques (Web documentaire) April 2015: Wendy Mackay (interview) <http://www.chroma-tv.com>

Journée d'étude robots/travail/intelligence : La Chaire des Bernadins -- L'Humain au défi du numérique, FING, 8 Oct 2015 *Table Ronde: Les robots : substitution ou complément ?*: Wendy Mackay (panel member)

Lindau, Film on the Attractivity of Research in France, Ministère de Recherche, June 2015: Wendy Mackay (interview)

Ableton Loop Summit, 1 November 2015 *Panel: New Instruments and Evolving Performance Practices*: Joseph Malloch (panel member)

Fête de la Science, LRI, 9 October 2015, *Wilder*: Olivier Gladin, Rémi Hellequin, Amani Kooli, and Jonathan Thorpe

## EXMO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Jérôme Euzenat was organiser of the 10th Ontology matching workshop of the 14th ISWC, Bethlehem (US), 2015 (with Pavel Shvaiko, Ernesto Jiménez Ruiz, Okie Hassanzadeh and Michele Cheatham),

#### 10.1.1.2. Member of the organizing committees

- Jérôme David has been member of the organisation committee of the “Web of data summer school”, Saint-Étienne (FR).
- Jérôme Euzenat was part of the Ontology alignment evaluation initiative (OAEI) organising team.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Member of conference program committees

- Manuel Atencia and Jérôme Euzenat were programme committee members of the “International Joint Conference on Artificial Intelligence (IJCAI)”, 2015.
- Jérôme Euzenat was programme committee member of the 14th “International semantic web conference (ISWC)” 2015.
- Manuel Atencia, Jérôme David and Jérôme Euzenat have been programme committee members for the 12th “European Semantic Web Conference (ESWC)”, 2015.
- Jérôme Euzenat was programme committee member of the “International and Interdisciplinary Conference on Modeling and Using Context (Context)” 2015.
- Jérôme Euzenat was programme committee member of the “Pacific-rim conference on multi-agent systems (PRIMA)”, 2015
- Jérôme Euzenat was programme committee member of the “Brazilian conference on ontological research (OntoBras)”, 2015.
- Jérôme David was programme committee member of the "Semantic Publishing Challenge" (colocated with ESWC 2015) 2015.
- Jérôme David and Jérôme Euzenat were programme committee members of the “knowledge engineering (ingénierie des connaissances)” conference 2015.
- Jérôme David was programme committee member of the 10th “Ontology matching workshop (OM)”, 2015.

#### 10.1.2.2. Reviewer

- Jérôme David and Adam Sanchez-Ayte have been reviewers for the “International Joint Conference on Artificial Intelligence (IJCAI)”, 2015.
- Jérôme David has been a reviewer for the 4th “International semantic web conference (ISWC)” 2015.
- Tatiana Lesnikova has been a reviewer for the 12th “European Semantic Web Conference (ESWC)”, 2015.
- Tatiana Lesnikova and Jérôme Euzenat have been reviewers for the 10th “Language Resources and Evaluation Conference (LREC)”, 2016.

### 10.1.3. Journal

#### 10.1.3.1. Member of editorial boards

- Jérôme Euzenat is member of the editorial board of *Journal of web semantics* (area editor), *Journal on data semantics* and the *Semantic web journal*.

#### 10.1.3.2. Reviewer - Reviewing activities

- Jérôme David has been reviewer for the *Semantic web journal*.
- Jérôme Euzenat has been reviewer for *Applied ontologies*.
- Jérôme Euzenat has been reviewer for the *ACM transactions on the Web*.

### 10.1.4. Scientific expertise

- Jérôme Euzenat has been evaluator for European projects (FP7, H5: Smart cities and sustainability communication networks, content and technology), 2015

### 10.1.5. Research administration

Jérôme Euzenat has been scientific coordinator of the evaluation seminar for the “Data and knowledge representation and processing” theme of Inria, 2015.

### 10.1.6. Seminars

- Jérôme Euzenat, Data interlinking with link keys, Seminar Tsinghua university, Beijing (CN), 08/04/2015 (oral presentation)
- Jérôme David and Jérôme Euzenat, A link key approach to data interlinking, Seminar Xerox Europe Research centre, Meylan (FR), 23/04/2015 (oral presentation)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### 10.2.1.1. Responsibilities

- Jérôme David has been coordinator, with Benoît Lemaire, of option “Web, Informatique et Connaissance” of Master “Ingénierie de la Cognition, de la Création, et des Apprentissages” (UPMF, UJF & INPG);
- Manuel Atencia and Jérôme David are coordinators of option “Web, Informatique et Connaissance” of Master “Ingénierie de la Cognition, de la Création, et des Apprentissages” (UPMF, UJF & INPG);
- Jérôme Euzenat is, with Éric Gaussier, coordinator of the “AI and the web” option of the M2R in computer science and applied mathematics (UJF & INPG).

#### 10.2.1.2. Courses

Licence: Jérôme David, Algorithmique et programmation par objets, 90h, L2 MASS, UPMF, France

Licence: Manuel Atencia, Introduction aux technologies du Web, 60h, L3 MASS, UPMF, France

Licence: Jérôme David, JavaEE, 25h, Licence Pro. SIL, UPMF, France

Licence: Jérôme David, Introduction à Python, Licence ESSIG, 24h, UPMF, France

Master: Jérôme David, Programmation Java 2, 30h, M1 IC2A, UPMF, France

Master: Jérôme David, Documents XML, 30h, M1 IC2A, UPMF, France

Master: Manuel Atencia, Langages et technologies du Web 1, 30h, M1 IC2A, UPMF, France

Master: Manuel Atencia, Langages et technologies du Web 2, 30h, M1 IC2A, UPMF, France

Master: Jérôme David, JavaEE, 30h, M2 IC2A, UPMF, France

Master: Jérôme David, Développement Web Mobile, 30h, M2 IC2A, UPMF, France

Master: Manuel Atencia, Web Sémantique, 30h, M2 IC2A, UPMF, France



Master: Jérôme Euzenat, Semantic web: from XML to OWL, 22heqTD, M2R, Université Joseph Fourier & INPG, France

Post-graduate level: Jérôme Euzenat, “Data interlinking”, 3h+3h, Tutorial+Practical, “linked data for smart cities” summer school, Cercedilla (ES), 2015

Post-graduate level: Jérôme Euzenat, “Data interlinking”, 1h, Tutorial, Web intelligence summer school, Saint-Étienne (FR), 2015

Post-graduate level: Jérôme Euzenat, “Dynamic interoperability: from ontology matching to cultural knowledge evolution”, 3h, Tutorial, ESSENCE summer school, Edinburgh (UK), 2015

Post-graduate level: Manuel Atencia, Jérôme David, Philippe Genoud, “What is this thing called linked data?”, 6h, Tutorial, ACM Document engineering symposium, Lausanne (CH), 2015

### 10.2.2. Supervision

- PhD in progress: Tatiana Lesnikova, Cross-lingual RDF data interlinking, 1/10/2012, supervisors: Jérôme Euzenat and Jérôme David
- PhD in progress: Armen Inants, Ontology alignment algebra, 1/12/2012, supervisor: Jérôme Euzenat
- PhD in progress: Adam Sanchez Ayte, Ontology alignment and data interlinking evolution on the web of data, 1/12/2013, supervisor: Jérôme Euzenat and Jérôme David

### 10.2.3. Juries

- Jérôme Euzenat has reviewed the PhD dissertation of Amélie Gyrard, Designing cross-domain semantic web of things applications, Telecom ParisTech, 24/04/2015, supervisors: Christian Bonnet and Karima Boudaoud
- Jérôme Euzenat has been external examiner of the PhD dissertation of Mathew Joseph, Query answering over contextualized RDF/OWL knowledge with expressive bridge rules: decidable classes, Università degli studi di Trento, 29/04/2015, supervisor: Luciano Serafini
- Jérôme Euzenat has been external examiner of the PhD dissertation of Esther Lozano Hontecillas, A semantic approach to problem-based learning with conceptual models, Universidad Politécnica de Madrid, 30/06/2015, supervisors: Asunción Gómez-Pérez and Jorge Gracia
- Jérôme Euzenat has reviewed the PhD dissertation of Benoit Christophe, Semantic-based middleware to support nomadic users in IoT-enabled smart environments, Université Pierre et Marie Curie, 07/09/2015, through VAE
- Jérôme Euzenat has been external examiner of the PhD dissertation of José Angel Ramos Gargantilla, Descubrimiento de mappings en recursos geoespaciales, Universidad Politécnica de Madrid, 22/09/2015, supervisors: Asunción Gómez-Pérez and Mariano Fernandez Lopez
- Jérôme Euzenat has reviewed the HDR dissertation of Freddy Lécué, Semantics for scalable machine reasoning in the web of data, Université de Nice-Sophia Antipolis, 06/11/2015

## 10.3. Popularization

- Jérôme Euzenat gave a talk to the Grilog networking business meeting “Big data” on “Publication et exploitation des données avec les technologies sémantiques (Publishing and exploiting data with semantic technologies)”, Meylan (FR), 2015-04-28.

## FLOWERS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair

D Roy organized and was general chair of Colloque Robotique et Education (june 2015) : Research, users reports, talks and workshops about robotics for education. Program : [http://dm1r.fr/wp-content/uploads/2015/05/colloque\\_robotique\\_education\\_2324062015.pdf](http://dm1r.fr/wp-content/uploads/2015/05/colloque_robotique_education_2324062015.pdf). Videos: <https://www.youtube.com/playlist?list=PL9T8000j7sJDcOoHA8r18561F3jDXZASN>.

#### 10.1.1.2. Member of the organizing committees

- PY Oudeyer was member of the steering committee of the fOSSa international conference on Free Open Source Software, Nantes: <https://fossa.inria.fr>.
- PY Oudeyer was workshop chair of the IJCNN 2015 International Joint Conference on Neural Networks, Killarney, Ireland: <http://www.ijcnn.org>
- PY Oudeyer has been member of the steering committee of the IEEE ICDL-Epirob International Conference on Development and Learning and Epigenetics Robotics.

### 10.1.2. Scientific events selection

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

- David Filliat was Associate Editor for IROS, and member of the conference committee for ECMR.
- Manuel Lopes was member of the conference committee for HRI, AAMAS.
- PY Oudeyer was member of the program committee of IEEE ICDL-Epirob

#### 10.1.2.2. Reviewer

- Manuel Lopes was reviewer for IJCAI, IROS, ICRA.
- David Filliat was reviewer for ESANN, RFIA, ECMR.
- Pierre Rouanet was reviewer for IROS.
- Thibaut Munzer was reviewer for IROS.
- PY Oudeyer was reviewer for IEEE ICDL-Epirob, IROS, ICRA.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- PY Oudeyer has been Editor-in-Chief of the IEEE CIS Newsletter on Cognitive and Developmental Systems, <http://icdl-epirob.org/cdsnl>
- PY Oudeyer and Clément Moulin-Frier guest edited a special issue of the Journal of Phonetics, on the cognitive nature of speech sounds.
- PY Oudeyer has been associate editor of IEEE Transactions on Autonomous Mental Development, Frontiers in Humanoid Robotics, Frontiers in Neurorobotics, IEEE RAS Letters.
- Manuel Lopes is an associated editor for the, IEEE Transactions on Autonomous Mental Development

#### 10.1.3.2. Reviewer - Reviewing activities

- Pierre Rouanet has reviewed papers for the IEEE Robotics and Automation Letters (RA-L).

- Anna-Lisa Vollmer was reviewer for *Frontiers in Robotics and AI* and *Transactions on Autonomous Mental Development*
- David Filliat was reviewer for *International Journal of Robotics Research*, *IEEE Transaction on Robotics*
- PY Oudeyer was reviewer for *Infancy*, *Journal of Infant Behavioral Development*, *Journal of Phonetics*, *IEEE TAMM*.

#### 10.1.4. Invited talks

- PY Oudeyer gave a keynote talk at the Evostar 2015 international conference on bio-inspired computation: <http://www.evostar.org/2015/>, entitled “Open-source baby robots for science, education and art, april 2015.
- PY Oudeyer gave a keynote talk at the Devoxx 2015 international conference, entitled “Building open-source robots capable of autonomous learning” <http://www.devoux.fr>, april 2015.
- PY Oudeyer gave a keynote talk at the BICA 2015 international conference on Biologically Inspired Cognitive Architecture, entitled “Developmental robotics and open-ended learning”, <https://liris.cnrs.fr/bica2015/wiki/doku.php/start>, nov. 2015.
- PY Oudeyer gave a Spotligh talk at the OEB 2015 international conference on technology supported learning and training
- PY Oudeyer gave a talk at “Journée Brain”, Univ. Bordeaux, entitled “Open-source baby robots: modelling sensorimotor development with robots”, may 2015.
- PY Oudeyer gave a talk at Colloque GEII entitled “Poppy: Open-sour ce educational robot platform”, june 2015
- PY Oudeyer, “Modélisation robotique du développement cognitif, sensorimoteur et social”, CogTalk, Zig Zag bar/Association of cognitive science students of Univ. Bordeaux, feb. 2015.
- PY Oudeyer, “Robotique développementale et sociale”, Workshop Interactions Homme-Robots dans le contexte d’applications culturelles, La Rochelle, sept. 2015.
- PY Oudeyer, “Online optimization and personalization of teaching sequences: from developmental robotics to e-learning”, International Teacher’s Cognition workshop, Ecole Normale Supérieure, Paris
- PY Oudeyer, “Auto-organisation et curiosité dans le développement et l’évolution du langage”, Séminaire du laboratoire du LATTICE, Ecole Normale Supérieure de Paris.
- PY Oudeyer, “Histoire et enjeux éducatifs de l’intelligence artificielle et de la robotique”, dialog with JG Ganascia and M Doueïhi at the Artificial Intelligence and Society seminar at College des Bernardins, Paris, oct. 2015.
- F. Stulp, Robot Skill Learning: Back to the Future, 22.10.2015, Josef Stefan Institute, Ljubljana, Slovenia.
- F. Stulp, Many regression algorithms, one unified model - A tutorial”, 23.10.2015, Josef Stefan Institute, Ljubljana, Slovenia
- A.-L. Vollmer, Teaching, a bidirectional process: Evidence from adult-child and human-robot interaction, 09.09.2015, Tenth International School on Mind, Brain and Education, Ettore Majorana Foundation, Erice, Italy.
- M. Lopes, Interactive Learning for Cooperative Human-Robot Tasks, Algorithms for Human Robot Interaction Workshop, University of Berkeley, USA
- M. Lopes, Exploration Biases for Task Learning In Machines and Animals, Redwood Center for Theoretical Neuroscience, USA
- W. Schueller, Active Learning and Active Control of Complexity Growth in Naming Games, Complexity & Quantitative Linguistics Lab, Universitat Politècnica de Catalunya, Barcelona, Spain

- Boussoles du numérique (october 2015), Didier Roy, Stéphanie Noirpoudre, Thibault Desprez
- Assises nationales de la médiation numérique (novembre 2014), Didier Roy, Pierre-Yves Oudeyer
- Escales de l'éducation (ligue de l'enseignement) (september 2015), Didier Roy
- Symposium Scratch Amsterdam (août 2015) : presentation of Snap! programming
- Cap Sciences (several events during the year), Didier Roy
- Forum EIDOS 64 Pau : talks about educational robotics, Didier Roy

### 10.1.5. Leadership within the scientific community

PY Oudeyer has been Chair of IEEE CIS Autonomous Mental Development Technical Committee, and led its transformation into the IEEE CIS Cognitive and Developmental Systems Technical Committee.

Through his role of editor-in-chief of the IEEE CIS Newsletter on Cognitive and Developmental Systems, PY Oudeyer contributed to strengthn the interdisciplinary exchanges among developmental sciences, and in particular organized two interdisciplinary dialogs on key scientific issues: <http://icdl-epirob.org/cdsnl>.

### 10.1.6. Scientific expertise

- PY Oudeyer was expert for the EU Commission scientific programme.
- PY Oudeyer was expert for the OPECST office at Assemblée Nationale, about the role and evolution of robotics within society.
- PY Oudeyer was an expert for the Cherry Project, IPB, Bordeaux.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Freek Stulp is responsible for the coordination of the 5 first year computer science courses at ENSTA-ParisTech (140 students per year). He organized, gave lectures and was a tutor in the courses "IN101: Algorithmics and Programming (in Python)" and "IN104: Computer Science Project" (140 students each). He was a tutor in the course "IN102: Algorithms and Systems (in C)". With Michele Sebag he organized the course "Reinforcement Learning" (20 students) as part of the M2 "Machine Learning, Information and Content" at the Université Paris Saclay.

License: Introduction to Matlab, 21 heures. L3, ENSTA - ParisTech (David Filliat).

Master: Apprentissage, 5 heures. M2, Enseirb-Matmecca (Manuel Lopes, Pierre-Yves Oudeyer).

Master: La robotique de compagnie: concepts et techniques, 9 heures. M2, ENSTA - ParisTech (Manuel Lopes).

Master: Robotique Mobile, 21 heures. M2, ENSTA - ParisTech (David Filliat).

Master: Perception pour la robotique, 12 heures. M2 Systemes Avances et Robotique, University Pierre et Marie Curie (David Filliat)

Licence 2: Graphe, Langage, Cryptologie, 21 heures. Pôle universitaire français de Ho Chi Minh Ville

Pedagogical resources : Développement and diffusion of IniRobot pedagogical kit (see highlights), Didier Roy, Thomas Guitard et Pierre-Yves Oudeyer

Licence, Master: Seminar Developmental Robotics, 21 heures, Bielefeld University, Germany (Anna-Lisa Vollmer)

Master: Robotique Développementale, 3 hours, CogMaster, [http://sapience.dec.ens.fr/cogmaster/www/e\\_01\\_portail.php](http://sapience.dec.ens.fr/cogmaster/www/e_01_portail.php) (PY Oudeyer)

Pedagogical resources : Développement and diffusion of IniRobot pedagogical kit (see highlights), Didier Roy, Thomas Guitard et Pierre-Yves Oudeyer

Design of the conceptual framework and educational objectives of the Poppy Education courses to be finalized in 2016 (PY Oudeyer and D Roy)

Master: Robotique et Desig, 2 hours Master Design, Univ. Bordeaux.

Teaching at EPFL (3 interventions per year, 2 days each), Didier Roy

Teachers training for ESPE Aquitaine (1 day), teachers training of partner schools for Poppy Education, Didier Roy

Training facilitators TAP Pessac (3h), Talence (3h), CapSciences (3h), Petits débrouillards (3h), Didier Roy

Teacher trainings and education consultants DSDEN : 2015, 24 participants, Didier Roy

### 10.2.2. Supervision

HdR : Manuel Lopes, Autonomous Learning in Intelligent Agents and Robots, University of Bordeaux, September 2015

PhD in progress: Thomas Hecht, Bio-inspired sensor fusion, started November 2013 (superv. Alexander Gepperth).

PhD in progress: Egor Sattarov, Multimodal vehicle perception architecture, started November 2013 (co-superv. Alexander Gepperth).

PhD in progress: Thomas Kopinski, Machine Learning for human-machine interaction, started November 2012 (superv. Alexander Gepperth).

PhD in progress: Alexandre Armand, Contextual electronic copilot for driving assistance, started feb. 2011 (superv. David Filliat)

PhD in progress: Yuxin Chen, Interactive learning of objects and names on a humanoid robot, started oct. 2013 (superv. David Filliat).

PhD in progress: Celine Craye, Curiosity and visual attention for the guidance of an exploration robot, started apr. 2014 (superv. David Filliat).

PhD in progress: Adrien Matricon : Task dependent visual feature selection for optimising and generalizing robotics skills (superv. David Filliat, Pierre-Yves Oudeyer, and Freek Stulp).

PhD in progress: Clement Masson, Unsupervised learning of sensori-motor representations, started Oct. 2015 (superv. David Filliat, Olivier Sigaud and Freek Stulp).

PhD in progress: José Magno Mendes Filho, Planning and control of an autonomous AGV in environment shared with humans, started Oct. 2015 (superv. David Filliat and Eric Lucet (CEA))

PhD in progress: Joris Guery, Domain adaptation for visual object recognition, started Oct. 2014 (superv. David Filliat and Bertrand Le Saulx (ONERA))

PhD in progress: Benjamin Clement, Intelligent Tutoring Systems, started oct 2015 (superv. Manuel Lopes and Pierre-Yves Oudeyer).

PhD in progress: Thibaut Munzer, Learning from Instruction, started oct 2013 (superv. Manuel Lopes).

PhD in progress: Baptiste Busch, Interactive Learning, started oct 2014 (superv. Manuel Lopes).

PhD in progress: Alexandra Delmas, Auto-Apprentissage Auto-Adaptable pour la compliance au traitement, started oct 2014 (superv. Manuel Lopes).

PhD in progress: Fabien Benureau, Exploration strategies in developmental robotics (superv. PY Oudeyer)

### 10.2.3. Juries

Ben-Manson Toussaint, Modeling Perceptual-Gestural Knowledge for Intelligent Tutoring Systems, supervised by Vanda Luengo, University of Grenoble, France

Emanuel Sousa, Emergence de Concepts Multimodaux, supervised by Estela Bicho, and Wolfram Erlhagen, University of Minho, Portugal

Antoine Cully (21/12/15, David Filliat, Rapporteur) : Creative Adaptation through Learning

Elena Stumm (23/11/2015, David Filliat, Rapporteur) : Location Models For Visual Place Recognition

Alexandre Ravet (13/10/15, David Filliat, Examineur) : Introducing Contextual Awareness within the State Estimation Process

Cédric Le Barz (30/06/15, David Filliat, Rapporteur) : Navigation visuelle pour la navigation autonome des petits drones

Romain Drouilly (29/06/15, David Filliat, Rapporteur) : Cartographie hybride métrique topologique et sémantique pour la navigation dans de grands environnements

Erwan Birem (12/03/2015, David Filliat, Rapporteur) : Localisation et détection de fermeture de boucle basées sur la saillance visuelle : algorithmes et architectures matérielles

Alain Droniou (09/03/2015, David Filliat, Examineur) : Apprentissage de représentations et robotique développementale : quelques apports de l'apprentissage profond pour la robotique autonome.

PY Oudeyer was in the PhD jury of Alain Droniou (Univ. Paris VI, France, reviewer), Adam White (Univ. Alberta, Canada, reviewer), Vieri Santucci (Univ. Plymouth, UK, reviewer), Didier Roy (Univ. Bordeaux, examiner), Renaud Gervais (Univ. Bordeaux, examiner).

PY Oudeyer was in the HdR jury of Julien Diard (Univ. Grenoble, reviewer), Jean-Baptiste Mouret (Univ. Paris, reviewer), Manuel Lopes (Univ. Bordeaux).

### 10.3. Popularization

IniRobot: Development, evaluation and dissemination of the IniRobot program for initiating young kids (primary schools) to computer science and robotics. This has been used and deployed in several major towns in France, including Lille, Talence and Lormont. It is now used by more than **7000** primary school children. Several days of formation for teachers have been organized to foster dissemination. The kit is Creative Commons, and available on the dedicated web site created: <https://dm1r.inria.fr/c/kits-pedagogiques/inirobot>

The Flowers team was a partner of several art/science projects studying various dimensions of the role and evolution of robots and society, and in particular

- The Comacina project exploring the role of movements and light in expressing emotions: <http://comacina.org>. This project was implemented through several residencies during the year, and several performances at various cultural places in Aquitaine, including at Pole Evasion in Ambares-et-Lagrave. a report is available at <https://flowers.inria.fr/RencontreAutourDuGeste.pdf>. It benefitted from funding from the Art/Science Idex call for project.
- The Marionnettes Electriques project studies animation techniques allowing to express fast and rich interaction in real-time on the stage. Various realizations can be seen from <https://www.poppy-project.org/project/marionnettes-electriques/>.
- The School of Moon project, from the Shonen dance company (headed by Eric Minh Cuong Castaing), is working on the design of a dance show about robots and posthumanity. It is using multiple robots, including the Poppy Humanoid robot in dynamic physical interaction with dancers. The premiere will happen in January 2016 at Ballet de Marseille. Web site: <http://shonen.info/schoolofmoon/>.

PY Oudeyer published a milestone popular science book together with astrophysicists Jean Audouze, biologist Georges Chapouthier, architect Denis Laming, on the common threads related to the origins of complexity at different scales in the universe. The title is “Mondes Mosaïques, Astres, Villes, Vivant et Robots”.

PY Oudeyer wrote a popular science article about developmental robotics in "Pour la Science" (the french version of Scientific American), entitled: "L'éveil des bébés robots", available here: <http://www.pyoudeyer.com/eveilRobotsPourLaScienceOudeyer15.pdf>

PY Oudeyer gave several interviews in the general press and at radio and TV programs (e.g. Le Monde, Les Echos, Sciences et Avenir, RFI, Nova/PBS, Arte) to explain societal issues of robotics, <http://www.pyoudeyer.com/press/>

January 29, 2015: Pierre Rouanet, Matthieu Lapeyre and Nicolas Rabault presented the Poppy Project in the TTFX conference in Bordeaux.

Robots Makers'day (january) : First Lego League, Poppy and Thymio workshops

January 31, 2015: Aquitec 2015, Yoan Mollard presented the Poppy platform to students and visitors

February 11, 2015: Benjamin Clément, Manuel Lopes, Pierre Rouanet, and Pierre-Yves Oudeyer were invited to present the Kidlearn and Poppy projects to the French senate in Paris.

May 28 to 29, 2015: William Schueller, Baptiste Busch and Yoan Mollard participated to the jury of students option "Informatique et Sciences du numérique", Lycée Saint Genes, Bordeaux

June 03 to 06, 2015: Didier Roy, Sébastien Forestier and William Schueller participated to the event "Science and You" in Nancy, by presenting Poppy and Inirobot projects.

June 13, 2015: Thibault Desprez, Antoine Darfeuil, Amandine Spriet, Theo Segonds and Pierre Rouanet participated to the Robot Makers Day where they organized a half day workshop on how to program Poppy Torso in Bordeaux.

August 08, 2015 : David Filliat gave a Talk at "Festival de Fleurance", a science festival in Fleurance (south of France) : Les robots, bientôt nos egaux ?

August 11-14, 2015: Theo Segonds and Pierre Rouanet were invited to present their work on the connection between Snap and Poppy robots to the 2015 Scratch conference in Amsterdam.

August 25, 2015 : David Filliat gave a Talk at "Rencontre enseignant-entreprises" at Ecole Polytechnique : Remplacer les hommes par les robots : jusqu'ou ira-t-on ?

September 28 to October 2, 2015: Baptiste Busch, Yoan Mollard, and other participants of the 3rd hand consortium presented the project on a booth among other EU projects at the IROS conference, Hamburg, Germany

October 13, 2015: Rencontre Inria Industrie: Baptiste Busch, Benjamin Clément and Alexandra Delmas presented respectively the projects 3rdHand, KidLearn and 5APC on a booth, Bordeaux

October, 16, 2015: Pierre Rouanet and Yoan Mollard presented the Poppy robots to the Bdx I/O Conference in Bordeaux.

October 20 to 22, 2015: Baptiste Busch, Pierre Rouanet, Yoan Mollard and Manuel Lopes showcased 3rd hand and Poppy robots to the ICT Forum in Lisbon, Portugal

November 16, 2015: Yoan Mollard gave a talk to the ESAC Alumni meeting 2015 about the 3rd hand project, European Space Agency, Madrid, Spain

October, 5, 2015: Nicolas Rabault presented the Poppy platform at the developer day from orange lab, Bordeaux.

March, 30 to 31, 2015: Nicolas Rabault presented "what is robotics" to primary school children for the "Festival jeune public du documentaire scientifique"

May, 29 to 30, 2015 : Matthieu Lapeyre and Nicolas Rabault : participated to the "open bidouille camp", Aix en Provence

## GRAPHDECO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events selection

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

A. Bousseau served on the Eurographics 2015 international program committee and on the SIGGRAPH 2015 program committee. G. Drettakis served on the SIGGRAPH 2015, Eurographics Symposium on Rendering and Eurographics 2015 program committees.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial boards

G. Drettakis is an associate editor of the ACM Transactions on Graphics and the Computational Visual Media journal.

### 10.1.3. Invited talks

K. Vanhoey gave invited talks at Technische Universität Darmstadt (Darmstadt, Germany), Karlsruhe Institut für Technologie (Karlsruhe, Germany), laboratoire LIRIS (Lyon, France), and laboratoire I3S (Sophia-Antipolis, France). K. Vanhoey presented the project “Unifying Color and Texture Transfer for Predictive Appearance Manipulation” at the French workshop on Rendering (GT Rendu) in Paris.

### 10.1.4. Leadership within the scientific community

G. Drettakis chairs the Eurographics working group on Rendering and chairs the local “Jacques Morgenstern” Colloquium organizing committee.

### 10.1.5. Research administration

#### 10.1.5.1. Reviewer - Reviewing activities

A. Bousseau and G. Drettakis were reviewers for several major conferences (Eurographics, SIGGRAPH Asia etc.). K. Vanhoey is a regular reviewer for the Computer and Graphics Journal.

#### 10.1.5.2. Research Evaluation

G. Drettakis served as an evaluator for the KAUST Visual Computing Center and the EC Fet Open Call in November-December.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Masters II: G. Drettakis, A. Bousseau: Foundations of Image Synthesis, CentralSupélec, Paris, 28h.

Masters I: A. Bousseau, G. Drettakis: Image Synthesis International Masters I, University of Nice Sophia-Antipolis, 12h.

Masters I: G. Drettakis, A. Bousseau: Image Synthesis, Masters MAPI Cannes, University of Nice Sophia-Antipolis, 12h.

Bachelors (Licence): A. Djelouah; Teaching assistant for the course of computer science at the university of Nice.

Bachelors (Licence): J. Delanoy; Teaching assistant for the course of databases and supervisor of student projects at IUT - University Nice Sophia-Antipolis.



Bachelors (Licence) K. Vanhoey teaches the Programming course (C language) in 3rd year of the “Electronics” department of Polytech Nice Sophia-Antipolis (32h).

### **10.2.2. Supervision**

- PhD defended: Sylvain Duchêne, Computer Drawing Tools for Assisting Learners, Hobbyists, and Professionals , University Nice Sophia Antipolis, since October 2012 (defended May 2015), Advisor: George Drettakis, Co-advisor: A. Bousseau.
- PhD defended: Emmanuel Iarussi, Computer Drawing Tools for Assisting Learners, Hobbyists, and Professionals , University Nice Sophia Antipolis, since October 2012 (defended September 2015), Advisor: George Drettakis, Co-advisor: A. Bousseau
- PhD in progress: Rodrigo Ortiz-Cayon, Advisor: G. Drettakis. Started December 2013 (CR-PLAY)
- PhD in progress: Johanna Delanoy, Advisor: A. Bousseau. Started October 2015 (Inria)
- PhD in progress: Théo Thonat, Advisor: G. Drettakis. Started October 2015 (Region and SEMAPO-LIS)
- HDR defended: Adrien Bousseau, Depicting shape, materials and lighting: observation, formulation and implementation of artistic principles , University Nice Sophia Antipolis, defended September 2015

### **10.2.3. Juries**

G. Drettakis was a member of the thesis committee for A. Djelouah (Inria Grenoble) in March, for S. Pujades (Inria Grenoble) in September, and external examiner for the Ph.D. of J. Imber (Surrey) in November.

## **10.3. Popularization**

Adrien Bousseau presented his work on sketch-based modeling as an invited seminar in the course of Marie-Paule Cani at Collège de France. Our work with the Institut Claude Pompidou was featured in a news article in the eldiario.es online magazine. GRAPHDECO was presented in the Inria Sophia-Antipolis internal letter in November.

## GRAPHIK Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

Madalina Croitoru co-organized the workshop GKR@IJCAI (international workshop on graph structures for knowledge representation and reasoning) co-located with IJCAI 2015. This is the 4th edition of this workshop series, that she initiated for IJCAI 2011. <https://www.lirmm.fr/~croitoru/GKR/>

Marie-Laure Mugnier co-organized the workshop “Ontologies and logic programming for query answering” co-located with IJCAI 2015. <http://iaoa.org/jowo/calls/>

### 10.1.2. Scientific events selection

We are regularly members of the program committees of the main generalist conferences in AI (i.e., IJCAI, AAAI, ECAI) and more specialized conferences and workshops (KR, the main conference in knowledge representation and reasoning, RR — Web reasoning and Rule Systems, SUM — International Conference on Scalable Uncertainty Management, COMMA — International Conference on Computational Models of Argument, Metadata and Semantics Research Conference, etc.)

In 2015, those conferences were:

- AAAI 2015: 1 senior PC member (Marie-Laure Mugnier) and 2 PC members (Federico Ulliana, Jean-François Baget)
- IJCAI 2015: 4 PC members (Jean-François Baget, Madalina Croitoru, Marie-Laure Mugnier, Federico Ulliana)
- KR 2016 (Marie-Laure Mugnier)
- RR 2015: 1 PC member (Marie-Laure Mugnier)
- SUM 2015 (Madalina Croitoru)
- MTSR 2015, special track on Metadata and Semantics for Agriculture, Food & Environment [AgroSEM'15] (Patrice Buche)
- PRIMA 2015 (Pierre Bisquert)

### 10.1.3. Journal

Madalina Croitoru is member of the editorial board of the International Journal of Conceptual Structures and Smart Applications (IJCSSA).

### 10.1.4. Invited talks

- 8th International colloquium GeCSO Gestion des connaissances dans la société et les organisations (GECSO 2015), Bordeaux, June 2015, ‘Intégration de modèles en ingénierie des connaissances aide à la décision pour le choix d’emballages alimentaires’, Patrice Buche
- Seminar INRA DID’IT (Diet impact and determinants), May 2015, Intégration de modèles en ingénierie des connaissances aide à la décision pour le choix d’emballages alimentaires, Patrice Buche
- Building the next generation of sustainable food packaging from the conversion of food wastes: Decision Support System. Milano Expo 2015 – October 2015, Patrice Buche
- Environmental Life Cycle Analysis using knowledge engineering based approach for assessing sustainability of biorefinery systems, GDR CNRS-INRA Symbiose, November 2015, Patrice Buche

- Open data: éléments de contexte, enjeux, initiatives, Séminaire d'automne du département INRA CEPIA, October 2015, Patrice Buche

### 10.1.5. Leadership within the scientific community

- **Scientific animation at INRA:** Patrice Buche co-animates the national network INRA IN-OVIVE, devoted to methods and tools for big data management in life sciences, agronomy and food processing <http://www6.inra.fr/reseau-in-ovive>  
In particular, he co-organized three editions of the IN-OVIVE workshop dedicated to heterogeneous data sources integration in life sciences during the French conference IC (ingénierie des connaissances) in 2013, 2014 and 2015 [https://colloque.inra.fr/in\\_ovive\\_2015](https://colloque.inra.fr/in_ovive_2015)  
Patrice Buche is also co-animator (2012-2016) at the national level of the INRA CATI ICAT “Ingénierie des connaissances et analyse textuelle” <http://www6.inra.fr/cati-icat/Presentation>. Moreover, he co-animates the regional seminar MIAD (Mathematical models for decision making in environment, agronomy and processing of agricultural resources) <http://umr-iate.cirad.fr/seminaires/aide-a-la-decision>
- **Scientific animation at the national level:** Marie-Laure Mugnier is member of the organizing committee of the workshop “Journées d’Intelligence Artificielle Fondamentale” (JIAF, the annual meeting of the French community on the foundations of AI) [http://icube-web.unistra.fr/gdri3/index.php/Th%C3%A8me\\_1\\_:\\_Intelligence\\_Artificielle\\_Fondamentale](http://icube-web.unistra.fr/gdri3/index.php/Th%C3%A8me_1_:_Intelligence_Artificielle_Fondamentale)  
We will locally organize the next JIAF, which will be held in Montpellier in June 2016, in conjunction with the JFPC, the Journées de Programmation par Contraintes (JFPC), the annual workshop of French researchers on constraint programming. [https://www.supagro.fr/jfpc\\_jiaf\\_2016/](https://www.supagro.fr/jfpc_jiaf_2016/)

### 10.1.6. Scientific expertise

Rallou Thomopoulos and Madalina Croitoru are members of the management committee of the European cooperation network (COST) "Mathematical and Computer Science Methods for Food Science and Industry", accepted in Nov. 2105. [http://www.cost.eu/COST\\_Actions/ca/CA15118](http://www.cost.eu/COST_Actions/ca/CA15118)[http://www.cost.eu/COST\\_Actions/ca/CA15118?management](http://www.cost.eu/COST_Actions/ca/CA15118?management)

Scientific advisory board of the Food and Bioproducts department (CEPIA) at INRA (Marie-Laure Mugnier, since 2011).

Scientific advisory board of **ABES** (National Bibliographic Agency for Universities), Michel Chein (since 2010)

Participation to the Wheat Data initiative of Research Data Alliance (Patrice Buche from June 2015), whose objective is to propose recommendations for wheat and other cereals data  
<http://ist.blogs.inra.fr/wdi/>

Punctual expertise tasks: Experts for ANR, INRA and Inria.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

The next table details the number of lecture hours as well as the number of module responsibilities for each team member.

Name	Position	2014/15	Cursus (*)	Module Resp. (per year)
J.-F. Baget	Research Scientist	40	M (UM2)	1
M. Croitoru	Assistant Prof.	198	L2	2
M. Bienvenu	Research Scientist	15	M(UM2)	no
J. Fortin	Assistant Prof	230	Polytech	2
M. Leclère	Assistant Prof.	196	L and M (UM2)	2
M. -L. Mugnier	Professor	192	L and M (UM2)	3
A. Arioua	PhD	12	L (UM2)	no
F. Ulliana	Assistant Prof.	192	L and M (UM2)	3
N. Patel	PhD	64	L(UM2)	no

(\*) L =Licence, M = Master (M1 = first year, M2 = second year), UM2 = Univ. Montpellier 2 (Sciences), IUT = Institute of Technology of UM2 (Licence Cursus), Polytech = Engineering School of UM2, UM3 = Univ. Montpellier 3 (Art and Humanities)

The courses organized by team members are mainly in Logics (in Licence), Artificial Intelligence, Knowledge Representation, Knowledge Engineering, Social and Semantic Web. We are also responsible of modules in Web Technologies (Professional L at IUT).

We have some specific responsibilities in the Computer Science Licence and Master:

- Michel Leclère (Faculty): since Sept. 2015, he is deputy manager of the Computer Science teaching Department from the Science Faculty. Moreover, since 2011, he manages the program “Data, Knowledge and Natural Language Processing” (DECOL), part of the Master of Computer Science (about 30 students).
- Marie-Laure Mugnier (Faculty): since 2011, she is (co)-director of the Master in Computer Science, which gathers 6 programs. She also led the Master project for the next four years (LMD4, from 2015/16 to 2018/2019).
- Madalina Croitoru (IUT): since Sept. 2014, she manages the “année spéciale” (about 25 students).

### 10.2.2. Supervision

The PhDs in progress are:

*Fabien Garreau* (ANR ASPIQ grant), Algorithms for stable model semantics and existential rules (ANR ASPIQ, with Univ. of Angers), started Sept. 2012, supervised by Igor Stephan, Jean-François Baget and Laurent Garcia.

*Swan Rocher* (ANR Qualinca grant), Reasoning with inconsistent knowledge bases in presence of existential rules (ANR Qualinca), started Sept. 2013, supervised by Marie-Laure Mugnier and Jean-François Baget.

*Namrata Patel* (Univ. Montpellier grant), Preference Handling in Decision Problems (ministry grant), started Oct. 2013, supervised by Souhila Kaci and Roland Ducournau.

*Abdallah Arioua* (ANR Dur-Dur& INRA Grant), Argumentation Theory and its Application to Knowledge-based Systems, started Nov. 2013, supervised by Patrice Buche, Madalina Croitoru and Jérôme Fortin.

*Stathis Delivorias* (Univ. Montpellier grant), Module extraction in existential rule knowledge bases, started Oct. 2015, supervised by Federico Ulliana, Michel Leclère and Marie-Laure Mugnier.

*Abdelraouf Hecham* (Averroes grant), Cognitive biases in argumentation, started Oct. 2015, supervised by Madalina Croitoru.

### 10.2.3. Juries

HDR reviewer - Freddy Lécué - Scalable Machine Reasoning in the Web of Data - Nov. 2015 - University of Nice (Marie-Laure Mugnier)

PhD jury co-director - Lilia Berrahou - Extraction d'arguments de relations n-aires dans les textes guidée par une Ressource Termino-Ontologique de domaine, application aux domaines de la bioraffinerie des ligno-celluloses et des emballages alimentaires - Sept. 2015 - University of Montpellier (Patrice Buche).

PhD jury member - Zied Bouraroui - Inconsistency and uncertainty handling in lightweight description logics - June 2015 - University of Lens (Marie-Laure Mugnier)

President of a recruitment jury (comité de sélection) for a professorship position at the University of Montpellier - Spring 2015 (Marie-Laure Mugnier)

President of an evaluation jury for INRA IT project managers, Oct. 2015, Patrice Buche.

## HEPHAISTOS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- J-P. Merlet is a member of the scientific committee of the European Conference on Mechanism Science (EUCOMES), chairman of the scientific Committee of the Computational Kinematics workshop, a member of the steering Committee of IROS
- Y. Papegay is a permanent member of the International Steering Committee of the International Mathematica Symposium conferences series, and member of the Program Committee of the edition 2015 held in Prague in January.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Reviewer

- J-P. Merlet has been reviewing Editor for IROS 2015.
- The members of the team reviewed numerous papers for numerous international conferences.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- J-P. Merlet is board member of the Journal of Behavioral Robotics

#### 10.1.3.2. Reviewer - Reviewing activities

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

### 10.1.4. Invited talks

- J-P. Merlet has given a talk on assistance robotics at the MESROB, a talk on cable-driven parallel robots in the workshop *robotics and biology*. He was invited to give a talk at Berkeley for the workshop *Algorithmic Human-Computer Interaction*.

### 10.1.5. Leadership within the scientific community

- J-P. Merlet is Inria representative to PPP Eurobotics aisbl. He is a member of the IFToMM (International Federation for the Promotion of Mechanism and Machine Science) Technical Committees on History and on Computational Kinematics and has been re-elected as one of the 10 members of IFToMM Executive Council, the board of this federation. He has candidated as President of the Federation. He is a member of the scientific committee of the CNRS GDR robotique and of the CAC of UCA COMUE.
- O. Pourtallier is a board member of SeaTech, an Engineering School of University of Toulon.

### 10.1.6. Scientific expertise

- J-P. Merlet was an HCERES expert for Institut Pascal. He has initiated, together with Nathalie Nevejans from University of Douai, a meeting with the OPECST at the French. He was involved in project evaluations for several foreign funding agencies (Israel, Austria, Finland). He was also appointed as *Nominator* for the Japan's Prize and interviewed for challenge prizes for the European Commission's Horizon 2020 framework. National Assembly to discuss legal and ethical aspects of robotics. He was a member of the jury of the PhD Award of GDR robotique

- B. Senach participated to the Innovative City Convention (June 2015, Nice) and the 1st EIT Health Summer school (Dublin and Barcelona, July 2015)

### 10.1.7. Research administration

- J-P. Merlet is an elected member of Inria Scientific Council.
- Y. Papegay is a member of the Inria CUMIR and of the ADT committee
- O. Pourtallier is a member of the Inria CSD (doctoral students monitoring), and is responsible of the Inria NICE committee (long term invited scientists and post-doctoral student selection).
- B. Senach participated in the Inria communication action "Graine d'entrepreneur"

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: J-P. Merlet lectured 8 hours on robotics and connected objects to Master NeuroMoteur (M2) at University Paris Est

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

### 10.2.2. Supervision

PhD: A. Berti, Forward kinematics of cable driven parallel robots, supervisors: M. Carricato, J-P. Merlet [21]

PhD: L. Blanchet, Contribution to modeling of cable-driven parallel robots for command and design, University Nice Sophia Antipolis, supervisor: J-P. Merlet

PhD in Progress : A. Masseur, Design of Smart Environment for Human Behaviour Recognition, 2013-2016, supervisors: D.Daney, Y.Papegay

PhD in Progress : K. Bakal, Biomechanics of the upper limb, 2013-2016, supervisors: D. Daney, J-P. Merlet, P. Gorce

PhD in Progress :M. Beninati, Legal aspect of assistance robotics, 2015-2018, supervisor: J-P. Merlet

### 10.2.3. Juries

J-P. Merlet has been the member of the jury of 4 PhD defense and of one HdR

## 10.3. Popularization

- M. Gautier has introduced robotics in a lycée in Aix
- J-P. Merlet has presented robotics assistance during an associations meeting organized by the Conseil Général. He has introduced modern robotics to 100 students of preparatory school in Cannes.
- Y.Papegay is actively participating to the Math.en.Jeans initiative for Mathematics teaching for undergraduate students. He organized and animated a summer school in experimental mathematics and computer sciences. Two one week sessions have been held in Oxford in June gathering 30 high-school students - most of them were awardees in Mathematics Olympiad
- O. Pourtallier has presented our activity to Laurence ROSSIGNOL, Secrétaire d'Etat chargée de la famille, de l'enfance, des personnes âgées et de l'autonomie
- the team has exhibited its experimental flat to about 100 visitors
- the team has organized a 5 days workshop *Computer science for artists*. Fours artists have been submitted to a crash course on the use of sensors and actuation and have proposed a musical/dancing show the last day, based on the use of numerous motors and sensors

## HYBRID Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Bruno Arnaldi was Chair of "Journées de l'AFRV" 2015, Bordeaux, France.

#### 10.1.1.2. Member of the organizing committees

- Bruno Arnaldi was Supporters Chair of IEEE Virtual Reality 2015.
- Ferran Arguelaguet was Research Demos Chair of IEEE Virtual Reality 2015.
- Florian Nouviale was Exhibit Chair of IEEE Virtual Reality 2015.
- Maud Marchal was Research Demos Chair of IEEE Virtual Reality 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of the conference program committees

- Anatole Lécuyer was Program Chair of IEEE Virtual Reality 2015.

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

- Bruno Arnaldi was Member of the conference program committee of IEEE Virtual Reality 2015 and Motion in Game 2015.
- Ferran Arguelaguet was Member of the conference program committee of IEEE Virtual Reality 2015, IEEE Symposium on 3D User Interfaces 2015, ACM Virtual Reality Software and Technology 2015, and ACM Symposium on Spatial User Interfaces 2015.
- Maud Marchal was Member of the conference program committee of IEEE Symposium on 3D User Interfaces 2015, ACM Symposium on Virtual Reality Software and Technology 2015.
- Valérie Gouranton was Member of the program committee of 3DCVE Workshop 2015.

#### 10.1.2.3. Reviewer

- Bruno Arnaldi was Reviewer for Motion in Game 2015.
- Ferran Arguelaguet was Reviewer for ACM CHI 2015.
- Maud Marchal was Reviewer for IEEE Virtual Reality 2015, IEEE Symposium on 3D User Interfaces 2015, Worldhaptics 2015, ACM VRST 2015, ACM CHI 2015, ACM MIG 2015, IHM 2015.
- Valérie Gouranton was Reviewer for IEEE Virtual Reality 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Anatole Lécuyer is Associate Editor of Frontiers in Virtual Environments, and Presence:Teleoperators and Virtual Environments.
- Ferran Arguelaguet is Review Editor of Frontiers in Virtual Environments.
- Maud Marchal is Associate Editor of Computer Graphics Forum, Review Editor of Frontiers in Virtual Environments, and Member of the Editorial Board of Revue Francophone d'Informatique Graphique.

#### 10.1.3.2. Reviewer - Reviewing activities



- Ferran Arguelaguet was Reviewer for IEEE Transactions on Visualization and Computer Graphics.
- Maud Marchal was Reviewer for IEEE Transactions on Visualization and Computer Graphics, IEEE Transactions on Haptics, IEEE Transactions on Automation Science and Engineering, SMC Magazine, Presence, Medical Image Analysis.
- Valérie Gouranton was Reviewer for Revue d'Intelligence Artificielle.

#### **10.1.4. Invited talks**

- Maud Marchal was invited at Journées Jeunes Chercheurs de l'Association Française en Informatique Graphique 2015.

#### **10.1.5. Leadership within the scientific community**

- Bruno Arnaldi is Vice-President of AFRV (French Association for Virtual Reality).
- Valérie Gouranton is Member of Executive Committee of AFRV.

#### **10.1.6. Scientific expertise**

- Valérie Gouranton was Expert for French ANR (Agence Nationale de la Recherche).

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

- Bruno Arnaldi is Deputy Director of IRISA and Vice-President of Scientific Committee of INSA de Rennes
- Maud Marchal is Co-Head of MRI Master Research in Computer Science since August 2015.
- Valérie Gouranton was Co-Head of MRI Master Research in Computer Science until August 2015.

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

Anatole Lécuyer:

Master MNRV: "Haptic Interaction", 9h, M2, ENSAM, Laval, FR

Ecole Centrale de Nantes : "Haptic Interaction and Brain-Computer Interfaces", 4,5h, M1-M2, Ecole Centrale de Nantes, FR

Master SIBM: "Haptic and Brain-Computer Interfaces", 4,5h, M2, University of Rennes 1, FR

Bruno Arnaldi:

Master INSA Rennes: "VAR: Virtual and Augmented Reality", 12h, M2, INSA Rennes, FR

Master INSA Rennes: "Virtual Reality", 6h, M2, INSA Rennes, FR

Master INSA Rennes: Projects on "Virtual Reality", 20h, M1, INSA Rennes, FR

Ferran Argelaguet:

Master STS Informatique MITIC: "Techniques d'Interaction Avancées", 26h, M2, ISTIC, University of Rennes 1, FR

Maud Marchal:

Master INSA Rennes: "Modeling and Engineering for Biology and Health Applications", 48h, M2 and responsible of this lecture, INSA Rennes, FR

Master SIBM: "Biomedical simulation", 3h, M2, University of Rennes 1, FR

Valérie Gouranton:

Licence: "Introduction to Virtual Reality", 12h, L2 and responsible of this lecture, INSA Rennes, FR

Licence: Project on "Virtual Reality", 16h, L3 and responsible of this lecture, INSA Rennes, FR

Master INSA Rennes: "Virtual Reality", 16h, M2, INSA Rennes, FR

Master INSA Rennes: Projects on "Virtual Reality", 30h, M1, INSA Rennes, FR

### 10.2.1. Supervision

PhD : Merwan Achibet, "Contributions to the Design of Novel Hand-Based Interaction Techniques for Virtual Environments", INSA Rennes, December 14th, Supervised by M. Marchal and A. Lécuyer

PhD : Jonathan Mercier, "Contribution to the Study of the Use of Brain-Computer Interfaces in Virtual and Augmented Reality", INSA Rennes, October 12th 2015, Supervised by M. Marchal and A. Lécuyer

PhD in progress: Jean-Baptiste Barreau, "Virtual Reality and Archaeology", Started in February 2014, Supervised by V. Gouranton and B. Arnaldi

PhD in progress: Benoit Le Gouis, "Multi-scale physical simulation", Started in October 2014, Supervised by B. Arnaldi, M. Marchal and A. Lécuyer

PhD in progress: Lorraine Perronet, "Neurofeedback applications based on EEG, fMRI and VR", Started in January 2014, Supervised by C. Barillot and A. Lécuyer

PhD in progress: Jérémy Lacoche, "Plasticity for user interfaces in mixed reality", Started in September 2013 at b<>com Research Institute, Supervised by T. Duval, B. Arnaldi, É. Maisel and J. Royan

PhD in progress: Morgan Le Chénéchal, "Activity and perception for distant collaboration in virtual environments", Started in September 2013 at b<>com Research Institute, Supervised by B. Arnaldi, T. Duval, V. Gouranton and J. Royan

PhD in progress: Lucas Royer, "Visualization tools for needle insertion in interventional radiology", Started in September 2013 at b<>com Research Institute, Supervised by A. Krupa, M. Marchal and G. Dardenne

PhD in progress: Andéol Evain, "BCI-based Interaction", Started in September 2013, Supervised by N. Roussel, G. Casiez, F. Argelaguet and A. Lécuyer

PhD in progress: Guillaume Claude, "Synthesis and Simulation of Process Models ", Started in September 2013, Supervised by V. Gouranton and B. Arnaldi

PhD in progress: François Lehericey, "Collision Detection HPC", Started in October 2013, Supervised by V. Gouranton and B. Arnaldi

PhD in progress: Gwendal Le Moulec, "Automatic generation of VR applications", Started in October 2015, Supervised by V. Gouranton, B. Arnaldi and A. Blouin (Team Diverse)

PhD in progress: Anne-Solène Dris-Kerdreux, "Training in virtual reality for construction applications", Started in November 2015, Supervised by V. Gouranton and B. Arnaldi

PhD in progress: Antoine Costes, "Haptic texturing", Started in November 2015, Supervised by A. Lécuyer and F. Argelaguet

PhD in progress: Guillaume Cortes, "Improving tracking in VR", Started in November 2015, Supervised by A. Lécuyer

### 10.2.2. Juries

#### 10.2.2.1. Selection committees

- Bruno Arnaldi was President of Selection committee of Full-time Professor Position at University of Rennes 1 (ISTIC) and Member of Selection committee of Full-time Professor Position at University of Rennes 1 (ENSSAT) and and Member of Selection committee of Full-time Professor Position at Ecole Normale Supérieure de Rennes.
- Maud Marchal was Member of Selection committee of Research Scientist (CR2 and CR1) Inria Nancy.

#### 10.2.2.2. PhD and HDR juries

- Anatole Lécuyer was Member of PhD juries of Merwan Achibet (INSA de Rennes), Jonathan Mercier (INSA de Rennes), Lucile Dupin (Univ. Paris 5), Jérémy Frey (Univ. Bordeaux), Toinon Vigier (Ecole Centrale de Nantes), and Member of HDR committee of Reinhold Scherer (TU Graz, Austria).
- Bruno Arnaldi was President of PhD juries of Merwan Achibet (INSA de Rennes), Jonathan Mercier (INSA de Rennes), Kevin Jordao (INSA de Rennes), Karl Jorgensen (University of Rennes 1), Steve Tonneau (INSA de Rennes) and Member of PhD jury of Mukesh Barange (ENIB Brest), Siju WU (Evry University)
- Maud Marchal was Member of PhD juries of Merwan Achibet (INSA de Rennes), Julien Bosman (Univ. Lille 1), Jonathan Mercier (INSA de Rennes), Alvaro Perez (Univ. Rey Juan Carlos, Madrid, Spain).

### **10.3. Popularization**

The team has participated to numerous events in 2015 :

- "Futur en Seine 2015" (Paris, 05/15) : booth and demo of the PREVIZ project results.
- "Festival de la Science 2015" (Rennes, 10/15) : booth and demos of the team.
- "Journées Science et Musique 2015" (Rennes, 11/15) : co-organization of this event, and presentation of several demos.
- Technoférence du Pôle Images et Réseaux (Rennes, 02/15) : presentation from Anatole Lécuyer on VR.

The results of the team were also disseminated in several TV appearances and media coverages :

- « Télématin », France2 channel (02/15) : presentation of the Mind-Mirror system.
- « On est pas que des cobayes », France 3 channel (04/15) : presentation and testings of the FlyVIZ system.
- « E=M6 », M6 channel (05/15) : presentation and testing of the Mind-Mirror system.
- « Thalassa », France3 channel (05/15) : presentation of several cultural heritage applications of Hybrid.
- « Future Mag », Arte channel (12/15) : presentation of several cultural heritage applications of Hybrid.

## ILDA Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events selection

#### 9.1.1.1. Chair of conference program committees

- CHI 2015, 33rd ACM SIGCHI Conference on Human Factors in Computing Systems: Caroline Appert (SC - subcommittee chair)

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

- CHI 2015, 33rd ACM SIGCHI Conference on Human Factors in Computing Systems: Anastasia Bezerianos, Emmanuel Pietriga (AC - associate chairs)
- VL/HCC 2015, 32nd IEEE Symposium on Visual Languages and Human-Centric Computing: Emmanuel Pietriga
- InfoVis 2015, IEEE Information Visualization Conference: Anastasia Bezerianos (AC - associate chair)
- Mobile HCI 2015, 17th ACM SIGCHI International Conference on Human-Computer Interaction with Mobile Devices and Services: Caroline Appert (AC - associate chair)
- DocEng 2015, 15th ACM SIGWEB International Symposium on Document Engineering: Emmanuel Pietriga
- MobiSys 2015 – Future Mobile User Interfaces workshop, 13th ACM SIGCHI International Conference on Mobile Systems, Applications, and Services: Caroline Appert
- VOILA @ ISWC 2015, Visualizations and User Interfaces for Ontologies and Linked Data, workshop co-located with ISWC 2015: Emmanuel Pietriga
- IHM 2015 – Conference of the Association Francophone d’Interaction Homme-Machine: Olivier Chapuis (AC - associate chair)

#### 9.1.1.3. Reviewer

- ACM CHI, Conference on Human Factors in Computing Systems: Olivier Chapuis
- ACM UIST, Symposium on User Interface Software and Technology: Caroline Appert, Anastasia Bezerianos, Olivier Chapuis, Emmanuel Pietriga
- ACM ITS, International Conference on Interactive Tabletops and Surfaces: Caroline Appert, Anastasia Bezerianos, Olivier Chapuis
- ACM Mobile HCI, International Conference on Human-Computer Interaction with Mobile Devices and Services: Anastasia Bezerianos
- ACM UbiComp, International Joint Conference on Pervasive and Ubiquitous Computing: Anastasia Bezerianos
- IEEE InfoVis, Information Visualization Conference: Emmanuel Pietriga
- IEEE Virtual Reality: Olivier Chapuis
- GI, International conference on Graphics, Visualization and Human-Computer Interaction: Anastasia Bezerianos
- IHM, Conférence Francophone sur l’interaction Homme-Machine: Caroline Appert

### 9.1.2. Journal

#### 9.1.2.1. Member of the editorial boards

- Semantic Web Journal: Emmanuel Pietriga (guest editor, special issue on Visual Exploration and Analysis of Linked Data)

#### 9.1.2.2. Reviewer - Reviewing activities

- ACM ToCHI, Transactions on Computer-Human Interaction: Caroline Appert, Olivier Chapuis, Emmanuel Pietriga
- IEEE TVCG, Transactions on Visualization and Computer Graphics: Anastasia Bezerianos, Emmanuel Pietriga
- IWC, Interacting with Computers: Emmanuel Pietriga
- IHCS International Journal of Human-Computer Studies: Olivier Chapuis
- IEEE CG&A, Computer Graphics and Applications: Anastasia Bezerianos

#### 9.1.3. Invited talks

- Emmanuel Pietriga, Advances in Human-Computer Interaction for Operations Monitoring and Control and Exploratory Data Analysis, III Taller Astroingeniería, November 2015, Santiago de Chile
- Emmanuel Pietriga, Interactive, collaborative visualization of large datasets on ultra-high-resolution wall-sized displays, March 2015, Viseo, Grenoble, France

#### 9.1.4. Scientific expertise

- Evaluator for European Commission's H2020 Programme Future and Emerging Technologies Open Scheme RIA: Emmanuel Pietriga
- Evaluation Committee member for the appel générique, ANR (French National Research Agency), CES Contenus, connaissances, interactions: Caroline Appert
- Referee for the appel générique, ANR (French National Research Agency): Emmanuel Pietriga

#### 9.1.5. Research administration

##### Hiring committees

- Univ. Paris-Sud hiring committee, Commission Consultative des Spécialistes de l'Université 27ème section (computer science), members: Caroline Appert.
- Univ. Paris-Sud hiring committee, Comités de Sélection 27ème section (computer science), members: Caroline Appert, Anastasia Bezerianos.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: Caroline Appert, Design Project in HCI, 25h TD, M1 HCID, Univ. Paris-Sud

Master: Caroline Appert, Evaluation of Interactive Systems, 48h CM, M1 HCID, Univ. Paris-Sud

Master: Caroline Appert, Evaluation of Interactive Systems – Intro, 21h CM, M1 HCID + M2R Interaction, Univ. Paris-Sud

Master: Caroline Appert, Programming Interactive Systems, 3h CM, M1 HCID + M2R Interaction, Univ. Paris-Sud

Master: Anastasia Bezerianos, Mixed Reality and Tangible Interaction, 11h CM, M2R Interaction + M1 HCID + M2 HCID, Univ. Paris-Sud.

Master: María-Jesús Lobo, Programming Project, 11h, M1 HCID, Univ. Paris-Sud.

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

Licence: Bruno Fruchard, Initiation à la Programmation Orientée Objet (Java) - 13h - Télécom Paristech.

Licence: Bruno Fruchard, Paradigmes de programmation - 3h - Télécom Paristech.

Licence: María-Jesús Lobo, Informatique Graphique, 28h, L3 Univ. Paris-Sud

Licence: María-Jesús Lobo, Programmation d'Interfaces Interactives avancées, 29h, L3 Univ. Paris-Sud

Licence: Arnaud Prouzeau, Interaction Homme-Machine - 12h - Polytech Paris-Sud.

Licence: Arnaud Prouzeau, Projet de Programmation Concurrentielle et Interfaces Interactives - 25h - L3 Université Paris-Sud.

Licence: Olivier Chapuis, Interaction Homme-Machine - 12h - Polytech Paris-Sud.

### 9.2.2. Supervision

PhD : Can Liu, Embodied Interaction for Data Manipulation Tasks on a Wall-Sized Display, Université Paris-Sud, Dec 17th, 2015: Advisors: Olivier Chapuis, Michel Beaudouin-Lafon, Eric Lecolinet

PhD in progress : María-Jesús Lobo, Interaction Techniques for Map Multiplexing, since October 2014, Advisors: Caroline Appert, Emmanuel Pietriga

PhD in progress : Rafael Morales Gonzalez, Surface Gestures for Advanced Graphical Interfaces: Which Gesture for What, November 2014, Advisors: Caroline Appert, Gilles Bailly, Emmanuel Pietriga

PhD in progress : Arnaud Prouzeau, Collaboration around Wall-Displays in Time Critical and Command and Control Contexts, since October 2014, Advisors: Anastasia Bezerianos, Olivier Chapuis

PhD in progress : Evanthia Dimara, Merging Interactive Visualization and Automated Analysis for Group Decision-Making Involving Large Datasets, October 2014, Advisors: Pierre Dragicevic, Anastasia Bezerianos

PhD in progress : Bruno Fruchard, Techniques d'interaction exploitant la mémoire spatiale pour faciliter l'accès rapide aux commandes et aux données, October 2015, Advisors: Eric Lecolinet, Olivier Chapuis

## 9.3. Popularization

- Publication in Bits de Ciencia about our research and development activities on wall-sized displays [18].
- *Antenna Dance at ALMA* movie, in collaboration with Denis Barkats (ALMA). <http://almaobservatory.org/en/press-room/announcements-events/790-antenna-dance-at-alma>

## IMAGINE Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

#### 8.1.1.1. General chair, scientific chair

- Rémi Ronfard was co-chair of the second Eurographics workshop on « Intelligent Cinematography and Editing » (WICED), Lisbon, Portugal, May 2016 (with Marc Christie, Inria/MIMETIC and Quentin Galvane, Technicolor).  
See <https://wiced.inria.fr/>.
- Co-chair of Computational Model of Narrative (CMN 2016) conference, Crakow, Poland, July 2016, with Mark Finlayson (Florida International University), Antonio Lieto (University of Torino) and Ben Miller (Georgia State University).  
See <http://narrative.csail.mit.edu/cmnl6/>.

#### 8.1.1.2. Member of the organizing committees

- Damien Rohmer was member of the organization committee for the Journées Informatiques et Géométrie (JIG) in November in Paris.
- Rémi Ronfard was member of the organization committee for the Workshop on Intelligent Narrative Technologies (INT), and International Conference on 3D Imaging (IC3D).

### 8.1.2. Scientific events selection

#### 8.1.2.1. Chair of conference program committees

- Stefanie Hahmann is the program co-chair of the next SPM 2016 conference in Berlin.

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

- Marie-Paule Cani was in the International Program Committee for SMI 2015, Expressive 2015, MIG 2015, and is preparing for EUROGRAPHICS 2016.
- Stefanie Hahmann served in the International Program Committee for GD/SPM'15 SIAM Conf. on Geometric and Physical Modeling, Salt Lake City, CGI'15 Computer Graphics International, Strasbourg and EUROGRAPHICS 2016.
- Damien Rohmer was in the International Program Committee for EUROGRAPHICS Short paper, ACM SIGGRAPH Asia Technical Briefs and Posters. He was also member of the jury of the best paper for AFIG-EGFR.

#### 8.1.2.3. Reviewer

- Damien Rohmer was reviewer for ACM SIGGRAPH and EUROGRAPHICS.
- Rémi Ronfard was reviewer for CVPR, CHI, and SIGGRAPH.

### 8.1.3. Journal

#### 8.1.3.1. Member of the editorial boards

- Stefanie Hahmann is associate Editor of the Journal Computers and Graphics (Elsevier) since 2015 and co-editor of a special edition[36] of the journal Computer-Aided Design (CAD) on Geometric Modeling.

#### 8.1.3.2. Reviewer - Reviewing activities

- Damien Rohmer was reviewer for ACM Transactions on Graphics, Computer Graphics Forum, and REFIG.

#### 8.1.4. Invited talks

- In addition to holding the chair *Informatics and Computational sciences* at College de France, and giving 9 lectures there, Marie-Paule Cani gave the following invited talks :
- Stefanie Hahmann gave an invited talk at Universität Linz, Autriche, June 2015
  - ENS Lyon (Avril 2015),
  - Seminar *Jeudis de l'Imaginaire*, Télécom Paris-Tech (Avril 2015),
  - Seminar of the ICUBE laboratory, Strasbourg (Octobre 2015)
  - Seminar of the DI, ENS Paris, (October 2015)
  - Two invited conferences organized by the French Embassy in Tunisia, one open to the general public, and a specialized one for student and faculty members.
- Rémi Ronfard gave the following invited talk
  - Variations sur La Ronde with Adéla Barbuлесcu, Gérard Bailly, Georges Gagneré. Biennale Arts-Sciences, EXPERIMENTA, Grenoble, October 2015.
  - Mettre en scène les mondes virtuels, Séminaire Création et digital dans le spectacle vivant, Relais Culture Europe, Festival International de Théâtre, Avignon, July 2015.
  - Mettre en scène les mondes virtuels, Journées scientifiques Inria, June 2015.

#### 8.1.5. Leadership within the scientific community

Marie-Paule Cani was

- At international level
  - Vice chair of the Eurographics association.
  - Chair of the steering committee of the Eurographics conference
  - Member of the awards committee of Eurographics
  - Member of the steering committees of the Expressive symposium and of the SMI conference
- And in France
  - Member of the scientifique council of the institute INSII of CNRS
  - Member of the scientifique council of the ESIEE engineering school Member of the executive board of the GDR IGVR of CNRS
  - Elected member of the executive board of EG-France

Stefanie Hahmann was

- Head of the french working group GT Modelisation Geometrique part of the GDR IGRV and GDR IM of CNRS.
- Member of the executive board of the GDR IGVR of CNRS.
- Member of the steering committee of annual international SPM conferences.
- Elected member of the international Executive Committee of the SMA – Solid Modeling Association since 2013.

Rémi Ronfard is

- Elected to the board of the French Chapter of Eurographics in 2015.
- Elected to the board of the French association for Computer Graphics (AFIG) in 2015.
- Part of the InriaRT open network of Inria researchers and teams working with IRCAM on Art/science projects, which also includes Arshia Cont (HYBRID), Laurent Grisoni (MINT), Pierre-Yves Oudeyer (FLOWERS) and Martin Hachet (POTIOC). The goal of the InriaRT network is to extend IRCAM's expertise in art & science beyond music, and to showcase Inria research work in art projects featured by IRCAM. A coordinated project for an interactive opera is currently being planned for production in 2017-2018.



### 8.1.6. Scientific expertise

- Marie-Paule Cani was reviewer of an ERC project.
- Stefanie Hahmann is member of the Advisory Board for the European Marie-Curie Training Network ARCADES, 2014-2018.
- Rémi Ronfard is a scientific expert for the European Commission, and was a reviewer for the final review of EC funded project IMP-ART (December 2015).

### 8.1.7. Research administration

- Marie-Paule Cani is at the head of the Imagine project-team.
- Rémi Ronfard is
  - Director of the « Geometry and Image » department of Laboratoire Jean Kuntzman, UMR CNRS 5224 , Grenoble University.
  - Project leader at Inria for ANR funded project SPECTACLENLIGNES (2013-2015) : The project ended in December 2014 and the main results were presented publicly at Centre Pompidou, Paris in February 2015 (see <http://spectacleenlignes.fr/>).
  - Project leader at Inria for national « investing in the future » project ACTION 3DS (2011-2014) : The project ended in September 2015 and the final review took place in October 2015 See <http://www.action3ds.com/fr/>.
  - Project leader at Inria for ANR-funded project CHROME (2012-2015) : The project ended in October 2015.
- Damien Rohmer was elected as a member of the Conseil d'Administration of the Association Française d'Informatique Graphique (AFIG).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

- Marie-Paule Cani is responsible for two courses at Ensimag/Grenoble-INP: 3D Graphics (a course that attracts about 80 master 1 students per year) and IRL (Introduction à la recherche en laboratoire), a course enabling engineering students to work on a personal project in a research lab during one semester, to get an idea of what academic research is.
- Stefanie Hahmann is co-responsible of the MMIS (Images and Applied Maths) (<http://ensimag.grenoble-inp.fr/cursus-ingenieur/modelisation-mathematique-images-simulation-124674.kjsp>) department at University ENSIMAG/Grenoble INP. Stefanie Hahmann is responsible of 3 courses at Ensimag/Grenoble INP: Numerical Methods (240 students, 3rd year Bachelor level), Geometric Modeling (60 students, Master 1st year) and Surface Modeling (30 students, Master 2nd year).
- Olivier Palombi is responsible of the French **Campus numérique** of anatomy. Olivier Palombi is responsible and national leader of the project SIDES (<http://side-sante.org/>). All the French medical schools (43) have planned to use the same e-learning framework (SIDES) to manage evaluations (exams) and to create a large shared database of questions.
- François Faure was responsible of the GVR-(Graphics, Vision and Robotic) program in the MOSIG Master.
- Damien Rohmer is coordinator of the Math, Signal, Image program at the engineering school CPE Lyon in supervising the scientific and technical content of the program. He is also co-responsible of the *Image, Modeling & Computing* specialization program attracting 35 students per year. He gives, and is responsible, for of one Computer Science class (130 student, 3rd year Bachelor level), an introductory Computer Graphics class (110 students, Master 1st year), and 5 specialization classes on C++ programming, OpenGL programming, 3D modeling, animation and rendering (35 students, Master 1st and 2nd year). Damien Rohmer also gave an invited course in Collegium Da Vinci, Poznan University on Computer Graphics (15 M1 students in Computer Game Programm) and a formation on the Python language to high school teachers starting the *Informatique et Sciences du Numérique* program.

- Rémi Ronfard taught courses in Advanced 3D animation, M2R MOSIG, University of Grenoble (12 hours) on advanced concepts in 3D character animation; Game Engine Programming, M2R IMAGINA, University of Montpellier (36 hours); Computer Vision Analysis of Actors and Actions in the I2S Doctoral School of Montpellier (3h). Rémi Ronfard also created a new introductory course in narratology for doctoral students in computer science: *Computational modeling of narrative texts, movies and games*, Grenoble University.

Note that MOSIG is joint master program between University Joseph Fourier (UJF) and Institut Polytechnique de Grenoble (INPG) taught in English since it hosts a number of internal students. It belongs to the doctoral school MSTII.

Most of the members of our team are Professor or Assistant Professor in University where the common teaching load is about 200h per year. Rémi Ronfard who is only researcher usually perform some teaching in vacations.

### 8.2.2. Supervision

PhD : Quentin Galvane, Automatic Cinematography and Editing in Virtual Environments, Grenoble Université, October 2015, Rémi Ronfard, Marc Christie (IRISA/Inria).

PhD : Adela Barbulescu, Directing virtual actors by interaction and mutual imitation, Grenoble Université, November 2015, Rémi Ronfard, Gérard Bailly (Gipsa-Lab).

PhD : Rémi Brouet, Multi-touch gesture interactions and deformable geometry for 3D edition on touch screen, Grenoble Université, March 2015, Marie-Paule Cani, Renaud Blanch (LIG).

PhD : Sergi Pujades Rocamora, Camera models and algorithms for creating stereoscopic 3-D video, Grenoble Université, March 2015, Rémi Ronfard, Frédéric Devernay (PRIMA).

PhD : Martin Guay, Sketching 3D Character Animation, Grenoble University, June 2015, Marie-Paule Cani, Rémi Ronfard.

PhD : Kevin Jordao, Crowd Sculpting, Rennes University, December 2015, Marie-Paule Cani, Julien Pettré (Inria Rennes).

PhD : Léo Allemand-Giorgis, Grenoble University, Reconstruction de surfaces à partir de complexes de Morse-Smale, S. Hahmann, GP. Bonneau

PhD : Richard Malgat, Computational modeling of internal mechanical properties of plant cells, Grenoble University, September 2015, Francois Faure, Arezki Boudaoud (RDP).

PhD in progress : Armelle Bauer, the Living Book of Anatomy, UJF, Francois Faure, Olivier Palombi.

PhD in progress : Guillaume Cordonnier, Design of Mountains, Grenoble University, Marie-Paule Cani, Eric Galin (LIRIS).

PhD in progress : Pablo Coves, From Point Cloud Data to Functional CAD Model, INP Grenoble, Jean-Claude Léon, Damien Rohmer, Raphaëlle Chaine (LIRIS).

PhD in progress : Even Entem, Animal sketching, INP Grenoble, Marie-Paule Cani,

PhD in progress : Geoffrey Guingo, Animated Textures, INP Grenoble, Marie-Paule Cani, Jean-Michel Dischler (ICUBE).

PhD in progress : Pierre-Luc Manteaux, Frame Based Simulation, Grenoble University, Francois Faure, Marie-Paule Cani.

PhD in progress : Aarohi Singh Johal, CAD construction graph generation from B-Rep model, Grenoble University and EDF, Jean-Claude Léon, Raphel Marc (EDF).

PhD in progress : Camille Schreck, Modélisation et déformation de formes actives, Grenoble University, Stefanie Hahmann, Damien Rohmer.

PhD in progress : Robin Roussel, Function-preserving editing, Grenoble University, Marie-Paule Cani, Jean-Claude Léon, Niloy Mitra.

PhD in progress : Tibor Stanko, Modélisation de surfaces lisses maillées à partir de capteurs inertiels, Grenoble University and CEA, Stefanie Hahmann, Georges-Pierre Bonneau (LJK/Inria-Morpheo), collaboration with Nathalie Seguin (CEA-Leti).

PhD in progress : Ulysse Vimont, Complex scene sculpture, Grenoble University, Marie-Paule Cani, Damien Rohmer.

### **8.3. Popularization**

- The images of the flat torus rendered by Damien Rohmer within the collaboration with the HEVEA team were presented during the mathematical Abel Price ceremony in favor of John Nash.

### **8.4. Service to University**

Stefanie Hahmann is responsible of *specialité Maths-Info* at the Grenoble Graduate School of Computer Science and Mathematics MSTII (with about 400 PhD students registered)

## LAGADIC Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Patrick Rives was the co-organizer and the scientific chair of the Journées Nationales de la Recherche en Robotique (JNRR'15) held in October at Cap Hornu.

#### 10.1.1.2. Member of the organizing committees

- Paolo Robuffo Giordano co-organized the 7-th International Workshop on Human-Friendly Robotics, Pontedera, Italy

### 10.1.2. Scientific events selection

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

- François Chaumette: ICRA'2015, RSS'2015, ICRA'2016
- Eric Marchand: Orasis'15, IROS'2015, ICRA'2016
- Patrick Rives: ICRA'2016, RFIA'2016
- Paolo Robuffo Giordano: ICRA'2015, ICRA'2016

#### 10.1.2.2. Reviewer

- Marie Babel: ICRA 2016 (2), IROS 2015 (1)
- François Chaumette: IROS'2015 (3), Humanoids'2015 (1)
- Vincent Drevelle: IROS'2015 (4)
- Alexandre Krupa: IROS'2015 (2), ISBI'2015 (1), ICRA'2016 (4)
- Eric Marchand: Orasis'15 (3), ICRA'2015 (3), IROS'2015 (2), ICRA'2016 (2)
- Patrick Rives: ICCV'2015 (2), ICRA'2015 (3), IROS'2015 (3), IV'2015 (1), MVIGRO'2015 (1)
- Paolo Robuffo Giordano: ICRA'15, IROS'15, IROS'15, MED'15

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- François Chaumette: Editorial Board of the Int. Journal of Robotics Research, Senior Editor of the IEEE Robotics and Automation Letters
- Alexandre Krupa: Associate Editor of the IEEE Robotics and Automation Letters
- Eric Marchand: Associate Editor of the IEEE Robotics and Automation Letter, Guest Editor (with Peter Corke and Jana Kosecka) of a Special Issue of the Int. Journal of Robotics Research on Robot Vision.
- Paolo Robuffo Giordano: Associate Editor of IEEE Trans. on Robotics, Area Chair of RSS 2015

#### 10.1.3.2. Reviewer - Reviewing activities

- Marie Babel: Autonomous Robots (1)
- François Chaumette: IEEE Trans. on Robotics (4), Robotics and Autonomous Systems (1)
- Patrick Rives: IEEE Trans. on Robotics (1), Robotics and Autonomous Systems (1), TSI (2)
- Paolo Robuffo Giordano: IEEE Trans. on Robotics (2)

#### **10.1.4. Invited talks**

- Marie Babel and François Pasteau were invited to give a talk during the final workshop of the Interreg 4A France Channel COALAS project at Kent University, UK, in May 2015.
- François Chaumette: Plenary talk at DICTA'2015, Adelaide, Australia [58]; Tutorial at SIDRA'2015 (Ph.D. Summer School on Robot Control), Bertinoro, Italy
- Eric Marchand: Plenary talk at Orasis'2015, Amiens, France.
- Paolo Robuffo Giordano. Invited Talk: Control of Quadrotors in Unstructured Environments. RSS 2015 Symposium: Frontiers of Robotics, April 2015
- Fabien Spindler: Plenary talk and visual servoing atelier at RPRA'2015 summer school (Recent Progress in Robotics Applications), Alicante, Spain

#### **10.1.5. Leadership within the scientific community**

- François Chaumette and Patrick Rives are members of the scientific council of the “GdR Robotique” and JNRR.
- François Chaumette has been elected to serve in the Administrative Committee of the IEEE Robotics and Automation Society (RAS). He chaired the 2015 IEEE RAS Chapter of the year Award Committee and served in the 2015 IEEE RAS Fellow Nomination Committee. He also served in the Advisory Board of the Peraspera project. This project funded by the EC is in charge of drafting the roadmap of the EC Strategic Research Cluster on Space Robotics.
- Alexandre Krupa is a member of the GestChir project at the IRT b<>com in Rennes.
- Eric Marchand is in the board of the “Images et réseaux” competitiveness cluster. He is also a member of the scientific council of the “École supérieure d'ingénieurs de Rennes” (ESIR).
- Patrick Rives has represented Inria's robotic community at European Robotics Forum 2015 for the election of the Board of Directors of euRobotics AISBL.

#### **10.1.6. Scientific expertise**

- François Chaumette and Patrick Rives served in the jury to select the best French Ph.D. thesis in robotics.
- François Chaumette served as a Panel member for the ERC PE7 consolidator grants. He also served as evaluator of the FP7 Euroc project and reviewed a set of ANR proposals.
- Eric Marchand served in the jury to select the best French Ph.D. thesis in image processing and computer vision.
- Patrick Rives served as a member of the Inria evaluation committee until July 2015. He also served in the local CR2 (Rocquencourt) and national DR2 recruitment juries.
- Paolo Robuffo Giordano served as External Reviewer for the EU FP7 Sherpa Project.

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

- Marie Babel is a member of the “Comité de Centre” of Inria Rennes-Bretagne Atlantique.
- François Chaumette serves as the president of the committee in charge of all the temporary recruitments (“Commission Personnel”) at Inria Rennes-Bretagne Atlantique and Irisa. He is also a member of the Head team of Inria Rennes-Bretagne Atlantique.
- Eric Marchand served as secretary in the board of the “Association Française pour la Reconnaissance et l'Interprétation des Formes (AFRIF)”. He is also in charge of the Irisa Ph.D. students in the committee in charge of all the temporary recruitments (“Commission Personnel”) at Inria Rennes-Bretagne Atlantique and Irisa.
- Alexandre Krupa is a member of the CUMIR (“Commission des Utilisateurs des Moyens Informatiques pour la Recherche”) of Inria Rennes-Bretagne Atlantique.

### 10.1.8. Patents

- François Pasteau and Marie Babel are the main authors of a patent (No FR 3 021 400) entitled “Méthode de correction d’une trajectoire dans un dispositif d’aide au déplacement de personnes”.
- Lucas Royer, Alexandre Krupa and Maud Marchal (Hybrid group at Inria Rennes-Bretagne Atlantique and Irisa) submitted a patent application (No. FR15/60541) to INPI entitled “Process for tracking a clinical target in medical images”.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Marie Babel:

Master INSA3: “Statistical Signal Processing”, 24 hours, M2, INSA Rennes

Master INSA1: “Architecture”, 30 hours, L3, INSA Rennes

Master INSA2: “Computer science project”, 30 hours, M1, INSA Rennes

Master INSA2: “Image analysis”, 18 hours, M1, INSA Rennes

Master INSA1: “Remedial math courses”, 50 hours, L3, INSA Rennes

François Chaumette:

Master ESIR3: “Visual servoing”, 8 hours, M2, Ecole supérieure d’ingénieurs de Rennes

Vincent Drevelle:

Master CTS: “Instrumentation, localization, GPS“, 6 hours, M2, Université de Rennes 1

Master Info: “Mobile robotics“, 38 hours, M2, Université de Rennes 1

Master GLA: “Terrain information systems“, 16 hours, M2, Université de Rennes 1

Master Info: “Artificial intelligence“, 12 hours, M1, Université de Rennes 1

Alexandre Krupa:

Master SIBM (Signals and Images in Biology and Medicine): “Medical robotics guided from images”, 4.5 hours, M2, Université de Rennes 1, Brest and Angers

Master FIP TIC-Santé: “Ultrasound visual servoing”, 6 hours, M2, Télécom Physique Strasbourg

Master INSA3: “Modeling and engineering for Biology and Health applications”, 12 hours, M2, INSA Rennes

Master ESIR3: “Ultrasound visual servoing”, 9 hours, M2, Esir Rennes

Eric Marchand:

Master Esir2: “Colorimetry”, 24 hours, M1, Esir Rennes

Master Esir2: “Computer vision: geometry”, 24 hours, M1, Esir Rennes

Master Esir3: “Special effects”, 24 hours, M2, Esir Rennes

Master Esir3: “Computer vision: tracking and recognition”, 24 hours, M2, Esir Rennes

Master MRI: “Computer vision”, 24 hours, M2, Université de Rennes 1

Master MIA: “Augmented reality”, 4 hours, M2, Université de Rennes 1

Paolo Robuffo Giordano:

Master in Robotics: “Analysis and Control of Multi-Robot Systems”, 16 hours, M2, Department of Computer and System Sciences, University of Rome “La Sapienza”

### 10.2.2. Supervision

Ph.D.: Manikandan Bakthavatchalam, “Utilisation des moments photométriques en asservissement visuel”, defended on March 2015, supervised by François Chaumette [8]

Ph.D.: Tawsif Gokhool, “Représentations valides à long terme pour la navigation et l’apprentissage des modèles 3D”, defended on June 2015, supervised by Patrick Rives [10]

Ph.D.: Romain Drouilly, “Représentation hybride métrique, topologique et sémantique d’environnement 3D pour la localisation temps réel”, defended on June 2015, supervised by Patrick Rives [9]

Ph.D.: Riccardo Spica, “Contributions to Active Visual Estimation and Control of Robotic Systems”, defended on December 2015, supervised by Paolo Robuffo Giordano and François Chaumette [11]

Ph.D. in progress: Le Cui, “Nano-manipulation by visual servoing”, started in October 2012, supervised by Eric Marchand

Ph.D. in progress: Lucas Royer, “Visual tool for percutaneous procedures in interventional radiology”, started in September 2013, supervised by Alexandre Krupa, Maud Marchal (Hybrid group at Inria Rennes-Bretagne Atlantique and Irisa) and Guillaume Dardenne (IRT b<>com)

Ph.D. in progress: Pierre Chatelain, “Multi-modal visual servoing for intra-operative imaging”, started in September 2013, supervised by Alexandre Krupa and Nassir Navab (Technische Universität München)

Ph.D. in progress: Vishnu Karakkat Narayanan, “Semi-autonomous navigation of a wheelchair by visual servoing and user intention analysis”, started in September 2013, supervised by Marie Babel and Anne Spalanzani (e-Motion group at Inria Rhône-Alpes)

Ph.D. in progress: Suman Raj Bista, “Visual navigation of a humanoid robot”, started in October 2013, supervised by Paolo Robuffo Giordano and François Chaumette

Ph.D. in progress: Nicolas Cazy, “Model predictive visual servoing of a humanoid robot”, started in October 2013, supervised by Paolo Robuffo Giordano, François Chaumette and Pierre-Brice Wieber (Bipop group at Inria Rhône-Alpes)

Ph.D. in progress: Renato José Martins, “Robust navigation and control of an autonomous vehicle”, started in November 2013, supervised by Patrick Rives and Samuel Siqueira Bueno (CTI)

Ph.D. in progress: Aly Magassouba, “Audio-based control”, started in December 2013, supervised by François Chaumette and Nancy Bertin (Panama group at Inria Rennes-Bretagne Atlantique and Irisa)

Ph.D. in progress: Jason Chevie, “Control of a flexible needle by visual servoing using B-mode ultrasound images”, started in September 2014, supervised by Alexandre Krupa and Marie Babel

Ph.D. in progress: Quentin Bateux, “Visual servoing from global descriptors”, started in October 2014, supervised by Eric Marchand

Ph.D. in progress: Fabrizio Schiano, “Collective control with onboard sensors for multiple quadrotor UAVs”, started in October 2014, supervised by Paolo Robuffo Giordano

Ph.D. in progress: Pedro Patlan-Rosales, “Robotic insertion of a biopsy needle by visual servoing using elastography images”, started in October 2014, supervised by Alexandre Krupa

Ph.D. in progress: Noël Mériaux, “Landing by visual servoing”, started in October 2014, supervised by François Chaumette, Eric Marchand and Patrick Rives

Ph.D. in progress: Lesley-Ann Dufлот, “Soft tissue deformation tracking using optical coherence tomography (OCT) and ultrasound imaging”, started in November 2014, supervised by Alexandre Krupa and Brahim Tamadazte (Minarob group at FEMTO-ST, Besançon)

Ph.D. in progress: Firas Abi Farraj, “Shared Control Architectures for Visual Servoing Tasks”, started in October 2015, supervised by Paolo Robuffo Giordano

Ph.D. in progress: Salma Jiddi, “Analyses géométrique et photométrique pour des applications de réalité mixte”, started in October 2015, supervised by Eric Marchand and Philippe Robert (Technicolor)

Ph.D. in progress: Ide Flore Kenmogne Fokam, “Cooperative localization in multi-robot fleets using interval analysis”, started in October 2015, supervised Vincent Drevelle and Eric Marchand

Ph.D. in progress: Bryan Penin “Model predictive visual servoing for UAVS”, started in October 2015, supervised by Paolo Robuffo Giordano and François Chaumette

Ph.D. in progress: Muhammad Usman, “Robust Vision-Based Navigation for Quadrotor UAVs”, started in October 2015, supervised by Paolo Robuffo Giordano

Ph.D. in progress: Louise Devigne, “Contribution d’une aide technique robotique à l’évaluation de pathologies neurologiques : Application à la navigation d’un fauteuil roulant”, started in November 2015, supervised by Marie Babel and Philippe Gallien (Pôle Saint Hélier)

Master internship: Marwan Osman from Master Erasmus Mundus Vibot, Le Creusot, “Visual servoing using the trifocal tensor”, supervised by François Chaumette

Master 1 internship: Pierre Le Bihan from Insa Rennes, “Camera-laser triangulation”, supervised by François Pasteau and Marie Babel

Bachelor internship: Grégoire Bonin from Université de Rennes 1, “Rigidity-based Formation Control for the case of Distance and Bearing Constraints”, supervised by Paolo Robuffo Giordano

### 10.2.3. Juries

- François Chaumette: Cédric Pradalier (HdR, reviewer, Laas, Toulouse), Julien Pettré (HdR, president, Irisa, Rennes), Augustin Manecy (Ph.D., reviewer, ISM, Marseille), Victor Rosenzveig (Ph.D., president, Ircyn, Nantes), Nathan Crombez (Ph.D., reviewer, Mis, Amiens), Don Joven Agravante (Ph.D., president, Lirimm, Montpellier)
- Alexandre Krupa: Ederson Antonio Gomes Dorileo (Ph.D., reviewer, Lirimm, Montpellier)
- Eric Marchand: François Chadebecq (Ph.D., reviewer, Institut Pascal, Clermont-Ferrand), Xialu Sun (Ph.D., reviewer, CVLAB EPFL, Lausanne), Datta Ramadasan (Ph.D., reviewer, Institut Pascal, Clermont-Ferrand), Zaynab Habibi (Ph.D., reviewer, MIS, Amiens), Manikandan Bakthavatchalam (Ph.D., president, Inria, Rennes)
- Patrick Rives: Francisco Moreno Dueñas (Ph.D, reviewer, Malaga, Spain), Danilo Alves de Lima (Ph.D, reviewer, Heudiasyc, Compiègne), Emilie Wirbel (Ph.D, president, Mines-Paritech, Paris), Guillaume Duceux (Ph.D, examiner, ENSTA, Paris)

## 10.3. Popularization

- Due to the visibility of our experimental platforms, the team is often asked to present its research activities to students, researchers or industry. Our panel of demonstrations allows us to highlight recent results concerning the positioning of an ultrasound probe by visual servoing, the construction of a tower by combining 3D model-based visual tracking and visual servoing techniques to pick up cubes that are assembled, vision-based detection and tracking for space navigation in a rendezvous context, the semi-autonomous navigation of a wheelchair, and augmented reality applications.
- Marie Babel, François Chaumette and Fabien Spindler participated to a “Café des Sciences” in Rennes in November 2015: <http://www.espace-sciences.org/conferences/cafes-de-l-espace-des-sciences/les-robots-sont-partout>
- Marie Babel and François Pasteau participated as exhibitors to the robotics exhibition “Innorobo” in Lyon in July 2015: <http://innorobo.com/en/home/> and to the “Autonomic” exhibition dedicated to the handicap and the autonomy in Rennes in October 2015: <http://www.autonomic-expo.com/>
- Fabien Spindler is a member of the editorial board of “Ouest Inria”, the internal journal at Inria Rennes-Bretagne Atlantique.



## LARSEN Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- Amine Boumaza co-organized “Tentatives, tentations, intentions”, the first workshop of the PsyPhINe project (<http://www.msh-lorraine.fr/actualites/single-calendar/tentatives-tentations-intentions/2015/12/>).
- François Charpillat co-organized with Jan Jaigl and Olivier Simonin the IROS 2015 workshop “On-line decision-making in multi-robot coordination” (<http://robotics.fel.cvut.cz/demur15/>).
- Serena Ivaldi organized the ICRA 2015 Workshop on Force & Tactile sensing. She also co-organized the BMVA Workshop on Force, vision & tactile sensing for robotics manipulation (<http://www.ausy-tu-darmstadt.de/Workshops/ICRA2015TactileForce>).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Serena Ivaldi was co-chair of the track “Learning and Adaptive Systems III” at the IEEE International Conference on Robotics and Automation (ICRA) 2015.
- Jean-Baptiste Mouret was chair of the “Generative and Developmental Systems” track at international Genetics and Evolutionary Computation Conference (GECCO) 2015.

#### 10.1.2.2. Member of Conference Program Committees

- Amine Boumaza was PC member of GECCO’2015 (Genetic and Evolutionary Computation Conference), ECAL’2015 (European Conference on Artificial Life), CEC’2015 (Congress on Evolutionary computation), EA’2015 (Artificial Evolution).
- François Charpillat was a PC member of MSDM 2015 (International Workshop on Multiagent Sequential Decision Making Under Uncertainty), DEMUR’15 (International Workshop on On-line Decision-Making in Multi-Robot Coordination), ICAART’2015 (International Conference on Agents and Artificial Intelligence), SENSORNETS’2015 (International Conference on Sensor Networks).
- Serena Ivaldi was PC member of RSS 2015 (Robotics: Science and Systems), associate editor of IROS 2015 (IEEE International Conference on Intelligent Robots and Systems), associate editor of ICRA 2015 (IEEE International Conference on Robotics and Automation), associate editor of HRI 2015 (ACM International Conference on Human-Robot Interaction), associate editor of HUMANOIDS 2015 (IEEE/RAS International Conference on Humanoid Robots). She was also a PC member in several workshops at international conferences (ICRA 2015, AIRO 2015, ACII 2015, ENHANCE 2015).
- Jean-Baptiste Mouret was PC member of GECCO’2015 (Genetic and Evolutionary Computation Conference), ECAL’2015 (European Conference on Artificial Life), and EVOstar’2015.

#### 10.1.2.3. Reviewer

- François Charpillat was a reviewer for the 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) and the 2016 IEEE International Conference on Robotics and Automation (ICRA).

- Francis Colas was a reviewer for the 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), the Fifth Joint IEEE International Conference on Development and Learning and on Epigenetics Robotics (ICDL-EPIROB), and the 2016 IEEE International Conference on Robotics and Automation (ICRA).
- Serena Ivaldi was a reviewer for the 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), the 2015 IEEE/RAS International Conference on Robotics and Automation (ICRA), the 2015 ACM Conference on Human-Robot Interaction (HRI), the 2015 IEEE/RAS International Conference on Humanoid Robots (HUMANOIDS).
- Jean-Baptiste Mouret was a reviewer for the 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) and the 2016 IEEE International Conference on Robotics and Automation (ICRA).

### **10.1.3. Journal**

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

- Serena Ivaldi is member of the editorial board of the Springer Journal of Intelligent Service Robotics.

#### *10.1.3.2. Reviewer - Reviewing activities*

- Amine Boumaza is a Review Editor for Frontiers in AI and Robotics.
- François Charpillet was a reviewer for Signal Processing: Image Communication.
- Francis Colas was a reviewer for Autonomous Robots, the Journal of Intelligent and Robotics Systems, and the Journal of Field Robotics.
- Serena Ivaldi was a Review Editor for Frontiers in Robotics and AI, a guest Editor for the Springer Journal Autonomous Robots, and a reviewer for IEEE Transaction on Robotics.
- Jean-Baptiste Mouret was a Review Editor for Frontiers in AI and Robotics, a guest Editor for PLOS Computation Biology, and a reviewer for IEEE Transactions on Evolutionary Computation, PLOS One, Evolutionary Computation, and IEEE Transactions on Robotics.

### **10.1.4. Invited Talks**

- François Charpillet was invited to a round table discussion on acceptability of robotics technology, Entretiens Jacques-Cartier, in Lyon, France.
- Serena Ivaldi gave invited talks on “Social and physical interaction between humans and robots” at the University of Plymouth, UK, at the Technical University of Munich, Germany, at the NETT Workshop 2015 - Neural Engineering and related fields, Nancy, France.
- Jean-Baptiste Mouret gave invited talks on “Robots that can adapt to damage in minutes” at the EvoEvo workshop (Satellite workshop at ECAL, the European Conference for Artificial Life), York, UK, at the Ifsttar (PhD days), Aix en Provence, France, and at the Institut des Neurosciences de la Timone (PhD Days), Marseille, France.

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

- François Charpillet is member of the scientific committee of Robotics GDR.
- Serena Ivaldi is member of the CIS task force -web presence- for the IEEE Technical Committee on “Cognitive and Developmental Systems”.
- Jean-Baptiste Mouret is chair of the “Evo-Devo-Robot” task force of the IEEE Technical Committee on “Cognitive and Developmental Systems”.

### **10.1.6. Research Administration**

- Amine Boumaza is a board member of the Évolution Artificielle association.
- François Charpillet is member of the LORIA laboratory board (*conseil de laboratoire*) and is member of the computer science committee of the doctoral school IAEM.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Master: Serena Ivaldi, “Analysis of Human Behavior”, 15h eq. TD, M2 Sciences de la Cognitive et Applications, Université de Lorraine, France;
- Master: Vincent Thomas, “Agent intelligent et collectifs”, 20h eq. TD, M1 Sciences de la Cognition et Applications, Université de Lorraine, France;
- Master: Vincent Thomas, “Game Design”, 20h eq. TD, M1 Sciences de la Cognition et Applications, Université de Lorraine, France;
- Master: Vincent Thomas, “Serious Game”, 12h eq. TD, M2 Sciences de la Cognition et Applications, Université de Lorraine, France;
- Master: Vincent Thomas, “Apprentissage numérique”, 16h eq. TD, M2 Informatique, Université de Lorraine, France.

### 10.2.2. Supervision

- PhD: Mihai Andries, “*Object and Human Tracking, and Robot Control through a Load-Sensing Floor*”, Université de Lorraine, 15 Dec. 2015, F. Charpillet (advisor), O. Simonin [6].
- PhD: Arsène Fansi Tchango, “*Reconnaissance comportementale et suivi multi-cible dans des environnements partiellement observés*”, Université de Lorraine, 04 Dec. 2015, A. Dutech (advisor), V. Thomas, O. Buffet [7].
- PhD in progress: Adrian Bourgaud, “*Multi-sensor Fusion and Active Sensing*”, started in Jul. 2015, François Charpillet (advisor).
- PhD in progress: Konstantinos Chatzilygeroudis, “*Diagnosis-free Damage Recovery in Robotics with Machine Learning*”, started in Oct. 2015, Jean-Baptiste Mouret (advisor).
- PhD in progress: Oriane Dermay, “*Learning to control the physical interaction of a humanoid robot with humans*”, started in Nov. 2015, François Charpillet (advisor), Serena Ivaldi.
- PhD in progress: Abdallah Dib, “*Assistance à la personne en perte d'autonomie : étude de l'apport d'un robot compagnon*”, started in Mar. 2013, F. Charpillet (advisor).
- PhD in progress: Iñaki Fernández Pérez, “*Apprentissage incrémental évolutionnaire*”, started in Oct. 2013, F. Charpillet (advisor), A. Boumaza.
- PhD in progress: Nassim Kaldé, “*Exploration et reconstruction d'un environnement inconnu par une flottille de robots*”, started in Oct. 2012, F. Charpillet (advisor), O. Simonin.
- PhD in progress: Van Quan Nguyen, “*Mapping of a sound environment by a mobile robot*”, started in Dec. 2014, E. Vincent (advisor), F. Colas, F. Charpillet.

### 10.2.3. Juries

- Jean-Baptiste Mouret was member of the PhD committee of:
  - Fabien Benureau, Inria Bordeaux, 18th of May, 2015.
- François Charpillet was member of the HDR committee of:
  - Jean-Baptiste Mouret, Université Pierre et Marie Curie, 16th of June, 2015.
- François Charpillet was reviewer of the HDR of:
  - Fabien Michel, Université de Montpellier, 15th of June, 2015.
- François Charpillet was reviewer of the PhD of:
  - Alan Ali, Ecole Centrale de Nantes, 21st September 2015;
  - Youwei Dong, Ecole centrale de Lille, 16th December 2015.
- François Charpillet was examiner of the PhD of:
  - Dung Tran, Université de Lorraine, 20th November 2015.

### 10.3. Popularization

- Amine Boumaza coached a team of programmers that participated in the R2T2 (Remote Rescue using Thymio2) Robot challenge organized by EPFL. The challenge brought together 100 children from 5 countries to save a Martian base using a group of robots (<https://www.thymio.org/en:thymio-r2t2>).
- Serena Ivaldi was portrayed in the book “Le cerveau fait-il deux choses à la fois ?” by Fiamma Luzzatti.
- Jean-Baptiste Mouret gave a talk on “Robots that can adapt to damage in minutes” at Café Neu Romance, Prague (28th of November, 2015)
- Vincent Thomas gave a talk and proposed a tutorial on “physics simulation” during “journées ISN-EPI” (15th of Mars, 2015)
- Vincent Thomas made a presentation about planning for students of Lycée Bichat-Lunéville (19th of Mars, 2015)
- Vincent Thomas participated in “journées Village Master” (9th of April, 2015)
- Vincent Thomas participated in the preparation of “Computer Science Exporoute” (conducted by Inria Nancy - Grand Est) planned for 2016
- Vincent Thomas created the exposition “jeux ateliers de la pensée” ([http://ticri.univ-lorraine.fr/wicri-lor.fr/index.php/Exposition\\_Jeu](http://ticri.univ-lorraine.fr/wicri-lor.fr/index.php/Exposition_Jeu)) in 2013 with master students from cognitive sciences. This exposition is still presented in several *Bibliothèques Universitaires of Université de Lorraine (BU Brabois, BU St Dié)*.

## LEAR Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- C. Schmid was general chair for IEEE Conference on Computer Vision and Pattern Recognition, 2015.

#### 10.1.1.2. Member of the organizing committees

- C. Schmid and K. Alahari organized the ALLEGRO Workshop on weakly supervised learning and video recognition, Grenoble, 2015.
- J. Verbeek: Co-organizer Physionomie workshop at European Academy of Forensic Science conference, Prague, Czech Republic, September 9
- Z. Harchaoui: Co-organizer of the Optimization and Statistical Learning workshop, Les Houches, France, January 2015.
- Z. Harchaoui and J. Mairal: Co-organizers of the Large-scale Learning summer school, Grenoble, France, Spring 2015.
- Z. Harchaoui: Co-organizer of the Future of Artificial Intelligence Symposium, New York University, January 2016.
- G. Rodez: co-organizer of the IEEE CVPR Workshop on Observing and Understanding hands in action (HANDS 2015)

### 10.1.2. Scientific events selection

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

- C. Schmid: area chair for ICCV'15.
- J. Mairal: area chair for ICML'15, ICCV'15, CVPR'16, ICLR'16, NIPS'16.
- Z. Harchaoui: area chair for ICML'15, ICML'16, NIPS'16.
- J. Verbeek: area chair for CVPR'15. tutorial chair for ECCV'16.

#### 10.1.2.2. Reviewer

The permanent members of the team reviewed numerous papers for numerous international conferences in computer vision and machine learning: CVPR, ECCV, NIPS, ICML, AISTATS.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- C. Schmid: Editor in Chief of the International Journal of Computer Vision, since 2013.
- C. Schmid: Associate editor for Foundations and Trends in Computer Graphics and Vision, since 2005.
- J. Verbeek: Associate editor for Image and Vision Computing Journal, since 2011.
- J. Verbeek: Associate editor for the International Journal on Computer Vision, since 2014.
- J. Mairal: Associate editor of the International Journal of Computer Vision (IJCV), since 2015.
- J. Mairal: Senior associate editor for IEEE Signal Processing Letters, since August 2014 (senior editor since Feb. 2015).

- J. Mairal: Associate editor of Journal on Mathematical Imaging and Vision (JMIV), since 2015.
- J. Mairal: Guest editor for the Special Issue on Sparse Coding of the International Journal of Computer Vision. 2015.
- K. Alahari. Guest editor for the Special Issue on “Higher Order Graphical Models in Computer Vision: Modelling, Inference & Learning” IEEE Transactions on Pattern Analysis and Machine Intelligence, Volume 37, Issue 7, July 2015

#### *10.1.3.2. Reviewer - Reviewing activities*

The permanent members of the team reviewed numerous papers for numerous international journals in computer vision (IJCV, PAMI,CVIU), machine learning (JMLR, Machine Learning). Some of them are also reviewing for journals in optimization (SIAM Journal on Optimization), image processing (SIAM Imaging Science), information theory (IEEE Transactions on Information Theory), statistics (Bernoulli, Annals of Statistics, Journal of American Statistical Association).

#### **10.1.4. Invited talks**

- C. Schmid: Speaker at the Scenes from Video Workshop, Santa Cruz, Chile, December 2015.
- C. Schmid: Invited speaker at the Google Deep Video Workshop, Santa Cruz, USA, November 2015.
- C. Schmid: Invited speaker at the Human Robot Interaction Workshop at UC Berkeley, November 2015.
- C. Schmid: Invited speaker at workshop on pose recovery, action recognition, and cultural event recognition, in conjunction with CVPR'15, June 2015.
- C. Schmid: Seminar at Berkeley University, November 2015.
- C. Schmid: Seminar at Stanford University, June 2015.
- C. Schmid: Seminar at Google, Mountain View, June 2015.
- C. Schmid: Seminar at Facebook AI Research lab, New York, May 2015.
- C. Schmid: Seminar at CMU, Pittsburgh, May 2015.
- C. Schmid: Seminar at Oxford University, March 2015.
- C. Schmid: Seminar at Gatsby Computational Neuroscience Unit, London, March 2015.
- C. Schmid: Seminar at MPI, Tübingen, February 2015.
- K. Alahari: Keynote talk at 5th Workshop on Algorithmic issues for Inference in Graphical Models (AIGM), Paris, France, September 2015
- K. Alahari: Invited talk at Universidad de Cordoba, Cordoba, Spain, May 2015
- K. Alahari: Invited talk at 36th Pattern Recognition and Computer Vision Colloquium, CTU, Prague, Czech Republic, April 2015
- Z. Harchaoui: Seminar at New-York university, March 2015.
- Z. Harchaoui: Invited talk at the Inria at Silicon valley workshop, May 2015.
- Z. Harchaoui: Invited talk at the workshop on “large-scale kernel learning”, ICML, Lille, July 2015.
- J. Verbeek: DGA workshop on Big Data in Multimedia Information Processing, invited speaker, Paris, France, October 22.
- J. Verbeek: Physionomie workshop at European Academy of Forensic Science conference, speaker, Prague, Czech Republic, September 9.
- J. Verbeek: StatLearn workshop, invited speaker, April 13, 2015, Grenoble, France.
- J. Verbeek: Société Française de Statistique, Institut Henri Poincaré, Paris, France, October 23.
- J. Verbeek: Center for Machine Perception, Czech Technical University, Prague, Czech Republic, September 8.

- J. Verbeek: Dept. of Information Engineering and Computer Science, University of Trento, Italy, March 16.
- J. Verbeek: Computer Vision Center, Barcelona, Spain, February 13.
- J. Mairal: Invited talk at the BASP frontiers workshop, February 2015.
- J. Mairal: StatLab Seminar at Cambridge University, March 2015.
- J. Mairal: Invited talk at the CIMI workshop, Toulouse, October 2015.
- H. Lin: workshop TITAN, Grenoble, November 2015.

### 10.1.5. Scientific expertise

- C. Schmid is member of the PAMI-TC awards committee, and the PAMI-TC executive committee.
- K. Alahari: Reviewer for the National Sciences and Engineering Research Council of Canada (NSERC).
- J. Mairal: reviewer for grant proposals from ANR and COFECUB.

### 10.1.6. Research administration

- C. Schmid is member of the “comité d’orientations scientifiques”. Inria Grenoble, 2015.
- J. Mairal participated to the prospecting group from the PROSPER network in 2015.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Doctorat: C. Schmid, Course on action recognition at Computational Vision Summer School, Freudenstadt, Germany, July 2015.

Doctorat: Z. Harchaoui, “Machine Learning for Computer Vision,” MLSS, Kyoto, Japan.

Doctorat: J. Mairal, “Dictionary Learning”, 6H, CIMI summer school, Toulouse, France.

Doctorat: J. Mairal, “Introduction to sparse estimation”, 4H, BigOptim summer school, Grenoble, France.

Master : C. Schmid, “Object recognition and computer vision”, 10H, M2, ENS Cachan, France.

Master: Z. Harchaoui, “Computational Machine Learning”, New York University.

Master : J. Verbeek and C. Schmid. “Machine Learning & Category Representation”, 27H eqTD, M2, Univ. Grenoble.

Master : J. Verbeek and J. Mairal, “Kernel Methods for Statistical Learning”, 27H eqTD, M2, ENSIMAG, Grenoble.

Master: J. Mairal, “Introduction to sparse estimation”, 4H, M2, PSL-ITI, France.

Master: M. Douze, K. Alahari, “Bases de données multimedia”, Grenoble INP - ENSIMAG, January 2015.

Licence: H. Lin, Apprentissage du raisonnement, algèbre linéaire et analyse élémentaire.” 38H, L1, Grenoble univ., France.

Licence: P. Weinzaepfel, “Introduction à UNIX et à la programmation en langage C”, 67.5H TD, L1, DLST Grenoble.

### 10.2.2. Supervision

PhD: D. Oneata, “Robust and efficient models for action recognition and localization”, Grenoble Univ, July 2015, advisors: C. Schmid and J. Verbeek.

PhD: D. Potapov, Supervised Learning Approaches for Automatic Structuring of Videos, July 2015. Advisors: Z. Harchaoui and C. Schmid.

### 10.2.3. Juries

C. Schmid: Vincent Lepetit, decembre 2015, HDR examinateur, univ. Grenoble

C. Schmid: Nicolas Thome, juillet 2015, HDR examinateur, univ. Pierre et Marie Curie, Paris

C. Schmid: Vincent Delaitre, avril 2015, these, examinateur, ENS Ulm

## LINKMEDIA Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

Teddy Furon co-organized a GdR-ISIS workshop on Biometrics, Multimedia Indexing and Privacy.

Guillaume Gravier was general chair of the ACM Multimedia Third Workshop on Speech, Language and Audio in Multimedia (SLAM 2015) and is president of the steering committee of the workshop.

Pascale Sébillot was a member of the acting presidency of Conf. Francophone en Traitement Automatique des Langues Naturelles.

Pascale Sébillot is a member of the permanent steering committee of Conf. Francophone en Traitement Automatique des Langues Naturelles.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

Vincent Claveau was area chair of Conf. Francophone en Traitement Automatique des Langues Naturelles.

Guillaume Gravier was chair of the program committee of the ACM Multimedia Third Workshop on Speech, Language and Audio in Multimedia (SLAM 2015).

Pascale Sébillot was area chair of Conf. Francophone en Traitement Automatique des Langues Naturelles.

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

Laurent Amsaleg was a PC member of: ACM Intl. Conf. on Multimedia; VISI, ACM Intl. Conf. on Multimedia Retrieval; IEEE Intl. Conf. on Multimedia and Exhibition; Intl. Conf. on Multimedia Modeling; Intl. Workshop on Content-Based Multimedia Indexing; Intl. Conf. on Similarity Search and Applications; Intl. Conf. on Signal Image Technology & Internet-based Systems.

Vincent Claveau was a PC member of: Conf. en Recherche d'Information et Applications; Intl. Conf. on Web Intelligence.

Teddy Furon was a PC member of: IEEE Work. on Information Forensics and Security; Intl. Conf. on Acoustics, Speech and Signal Processing; Intl. Conf. on Multimedia, Communication and Computing; ACM Intl. Conf. on Multimedia; European Signal Processing Conf.

Guillaume Gravier was a PC member of: ACM Intl. Conf. on Multimedia; IEEE Intl. Conf. on Multimedia and Exhibition; Annual Conf. of the Intl. Speech Communication Association; IEEE Intl. Workshop on Multimedia Signal Processing; Intl. Workshop on Content-Based Multimedia Indexing; Intl. Conf. on Knowledge and Systems Engineering; Intl. Conf. on Statistical Language and Speech Processing.

Ewa Kijak was a PC member of Intl. Workshop on Content-Based Multimedia Indexing.

Christian Raymond was a PC member of: Annual Conf. of the Intl. Speech Communication Association; Conf. Francophone en Traitement Automatique des Langues Naturelles.

Pascale Sébillot was a PC member of Intl. Conf. on Terminology and Artificial Intelligence.

#### 9.1.2.3. Reviewer

Vincent Claveau was a reviewer of: Intl. Conf. on Machine Learning.



### **9.1.3. Journal**

#### *9.1.3.1. Member of the editorial boards*

Vincent Claveau is member of the editorial board of the journal *Traitement Automatique des Langues*.

Teddy Furon was member of the editorial board of *IEEE Trans. on Information Forensics and Security* (up to March 2015).

Christian Raymond is member of the editorial board of the online journal *Discours*.

Pascale Sébillot is: editor of the *Journal Traitement Automatique des Langues*; member of the editorial committee of the *Journal Traitement Automatique des Langues*.

#### *9.1.3.2. Reviewer - Reviewing activities*

Laurent Amsaleg reviewed for *Knowledge and Information Systems*.

Vincent Claveau reviewed for: *Multimedia Tools and Applications*, *Traitement Automatique des Langues*.

Teddy Furon reviewed for: *IEEE Trans. on Information Forensics and Security*; *IEEE Trans. on Multimedia, Data Mining and Knowledge Discovery*; *ACM Trans. on Information Systems*; *IEEE Trans. on Circuits and Systems for Video Technology*; *Digital Signal Processing Journal*; *Applied and Computational Harmonic Analysis Journal*; *IET Information Security Journal*.

Guillaume Gravier reviewed for: *IEEE Trans. on Audio Speech and Language*; *IEEE Trans. on Image Processing*; *EURASIP Journal on Audio, Speech, and Music Processing*; *Journal of Computer Science and Technology*; *Multimedia Tools and Applications*;

Christian Raymond reviewed for *Computer Speech and Language*.

Pascale Sébillot was member of the reading committee for several issues of the *Journal Traitement Automatique des Langues*.

### **9.1.4. Invited talks**

Vincent Claveau gave an invited talk about biomedical NLP in Rennes University Hospital's computer science department.

### **9.1.5. Leadership within the scientific community**

Vincent Claveau is finance head of the *Association pour la Recherche d'Informations et ses Applications (ARIA)*.

Vincent Claveau is deputy head of the *GdR MaDICS*, a CNRS inter-lab initiative to promote research about Big Data and Data Science.

Guillaume Gravier is president of the *Association Francophone de la Communication Parlée (AFPC)*, French-speaking branch of the *Intl. Speech Communication Association*.

Guillaume Gravier is co-founder and general chair of the *ISCA SIG Speech, Language and Audio in Multimedia*.

Guillaume Gravier is member of the *Community Council of the Mediaeval Multimedia Evaluation series*.

Guillaume Gravier is the technical representative of Inria in the *cPPP Big Data Value Association*, actively working on technical aspects of data analytics.

### **9.1.6. Scientific expertise**

Vincent Claveau served as expert for the *ERC Consolidator grant programme*, for the *FNRS (Belgian Funding agency)*, for the *Programme Hubert Curien*.

Teddy Furon reviewed projects for *Alpes Grenoble Innovation* and *French National Research Agency (ANR)*.

Teddy Furon is the scientific adviser for startup company *Lamark* (20 % of his time since July 2015).

Guillaume Gravier was vice-president of the Scientific Evaluation Committee of the National Research Agency for the theme 'HCI, Content, Knowledge, Big Data, Simulation, HPC'.

Pascale Sébillot reviewed projects for the Natural Sciences and Engineering Research Council of Canada.

### **9.1.7. Research administration**

Guillaume Gravier is a member of the Board of the technology cluster Images & Réseaux.

Guillaume Gravier is a member of the Board of the Comité des Projets of Inria - Rennes Bretagne Atlantique.

Pascale Sébillot is a member of the Conseil National des Universités.

Pascale Sébillot is a member of the theses advisory committee of the Matisse doctoral school.

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

### **9.2.1. Teaching**

For reseachers, all activities are given. For professors and assistant professors, only courses at the M. Sc. level are listed.

Master: Laurent Amsaleg, Multidimensional indexing, 13h, M2R, University Rennes 1, France

Master: Vincent Claveau, Data-Based Knowledge Acquisition: Symbolic Methods, 20h, M1, INSA de Rennes, France

Master: Vincent Claveau, Text Mining, 36h, M2, Univ. Rennes 1, France

Master: Vincent Claveau, Machine Learning for symbolic and sequential data, 7h, M2, Univ. Rennes 1, France

Master: Vincent Claveau, Information Retrieval, 15h, M2, ENSSAT, France

Master: Vincent Claveau, Information Retrieval, 13h, M2, Univ. Rennes 1, France

Licence: Teddy Furon, Probabilities, 40h, L1, Agrocampus Rennes, France

Licence: Guillaume Gravier, Databases, 30h, L2, INSA Rennes, France

Licence: Guillaume Gravier, Probability and statistics, 10h, L3, INSA Rennes, France

Master: Guillaume Gravier, Data analysis and probabilistic modeling, 30h, M2, University Rennes 1, France

Master: Ewa Kijak, Image processing, 64h, M1, ESIR, France

Master: Ewa Kijak, Supervised learning, 15h, M2R, University Rennes 1, France

Master: Ewa Kijak, Statistical data mining, 13h, M2, University Rennes 1, France

Master: Ewa Kijak, Indexing and multimedia databases, 15h, M2, ENSSAT, France

Master: Ewa Kijak, Computer vision, 15h, M2, ESIR, France

Master: Simon Malinowski, Short-term time series prediction, 29h, M1, Univ. Rennes 1

Master: Simon Malinowski, Supervised Learning, 10h, M2, Univ. Rennes 1

Master: Pascale Sébillot, Advanced Databases and Modern Information Systems, 70h, M2, INSA Rennes, France

Master: Pascale Sébillot, Data-Based Knowledge Acquisition: Symbolic Methods, 18h, M1, INSA Rennes, France

Master: Pascale Sébillot, Logic Programming, 12h, M1, INSA Rennes, France

### 9.2.2. Supervision

PhD: Mohammed-Haykel Boukadida, Video summarization based on constraint programming, defended Dec. 2015, Patrick Gros

PhD: Bingqing Qu, Structure discovery in collections of recurrent TV programs, defended Dec. 2015, Guillaume Gravier

PhD: Anca Roxana Simon, Semantic structuring of video collections from speech: segmentation and hyperlinking, defended Dec. 2015, Guillaume Gravier and Pascale Sébillot

PhD in progress: Raghavendran Balu, Privacy-preserving data aggregation and service personalization using highly-scalable data indexing techniques, started Oct. 2013, Teddy Furon and Laurent Amsaleg

PhD in progress: Rémi Bois, Navigable directed multimedia hypergraphs: construction and exploitation, started October 2014, Guillaume Gravier and Pascale Sébillot

PhD in progress: Petra Bosilj, Content based image indexing and retrieval using hierarchical image representations, started October 2012, Ewa Kijak and Sebastien Lefèvre (with OBELIX, IRISA team)

PhD in progress: Ricardo Carlini Sperandio, Unsupervised motif mining in multimedia time series, started August 2015, Laurent Amsaleg and Guillaume Gravier

PhD in progress: Ahmet Iscen, Continuous memories for representing sets of vectors and image collections, started September 2014, Hervé Jégou and Teddy Furon

PhD in progress: Grégoire Jadi, Opinion mining in multimedia data, started October 2014, Vincent Claveau, Béatrice Daille (LINA, Nantes) and Laura Monceaux (LINA, Nantes)

PhD in progress: Raheel Kareem Qader, Phonology modeling for emotional speech synthesis, started January 2014, Gwénolé Lecorvé and Pascale Sébillot (with EXPRESSION, IRISA Team)

PhD in progress: Cédric Maigrot, Detecting fake information on social networks, started October 2015, Laurent Amsaleg, Vincent Claveau and Ewa Kijak

PhD in progress: Vedran Vukotič, Deep neural architectures for automatic representation learning from multimedia multimodal data, started October 2014, Guillaume Gravier and Christian Raymond

### 9.2.3. Juries

Laurent Amsaleg

PhD, Herwig Lejsek, Reykjavík University

Teddy Furon

PhD, Wei Fan, University of Grenoble

Guillaume Gravier

HDR, reviewer, Slim ESSID, Telecom ParisTech

PhD, president, Grégor Dupuis, Université du Maine

Ewa Kijak

PhD, Cyrille Beaudry, Université de la Rochelle

Simon Malinowsky

PhD, Racha Khelif, Université de Franche-Comté

Pascale Sébillot

PhD, reviewer, Munshi Asadullah, Univ. Paris-Sud

PhD, reviewer, Sondes Bannour, Univ. Paris-Nord

PhD, president, Valéria Lelli Leitão Dantas, , Univ. Rennes 1

PhD, president, Bingqing Qu, Univ. Rennes 1

PhD, Mohamed Haykel Boukadida, Univ. Rennes 1

## 9.3. Popularization

Pascale Sébillot: Invited speaker (6h) Introduction to issues and solutions in NLP, URFIST Bretagne et Pays de la Loire seminar, June 2015.

## LINKS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events selection

#### 10.1.1.1. Member of conference program committees

J. Niehren was member of the program committees of LPAR (International Conference on Logic Programming and Automatic Reasoning) 2016, LATA (International Conference on Language and Automata Theory and Applications) 2015, and WPTE (Rewriting Techniques for Program Transformations and Evaluation) 2015.

S. Tison is member of the program committees of FSCD (First International Conference on Formal Structures for Computation and Deduction) 2016, and CIAA (International Conference Implementation and Application of Automata) 2015.

S. Staworko is member of the program committees of PODS (ACM Symposium on Principles of Database Systems) 2016 and BICOD (British International Conference on Databases) 2015.

I. Boneva was member of program committee of EDBT (International Conference on Extending Database Technology) 2016 Vision Track.

P. Bourhis was member of program committee of RuleML (International Web Rule Symposium) 2015 and BDA (Journées Bases de données avancées) 2015

A. Bonifati was member of the program committees of VLDB (Very large Database Conference) 2015, ICDT (International Conference on Database Theory) 2015 and ICDE (International Conference of Data Engineering) 2015.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial boards

S. Tison is in the editorial committee of RAIRO-ITA (Theoretical Informatics and Applications).

J. Niehren is in the editorial board of Fundamenta Informaticae.

#### 10.1.2.2. Reviewer - Reviewing activities

To many to be enumerated

### 10.1.3. Leadership within the scientific community

S. Tison is member of the "Comité National de la Recherche Scientifique (CoNRS)" (Section 6).

I. Boneva is a member of the Data Shapes Working Group of the W3C which the mission is to produce a language for defining structural constraints on RDF graphs. <http://www.w3.org/2014/data-shapes/charter>

### 10.1.4. Research administration

S. Tison has been an elected member of the Administrative committee of University of Lille 1 until October 2015. She is an elected member of the academic council of "ComUE Lille Nord de France" since November 2015.

S. Tison is a vice president of the University of Lille 1 since October 2015, where she is responsible for industrial partnerships, innovation, and valorisation.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

License: A. Bonifati, Introduction to Databases, 54h, L3, Université Lille 1, France

Master (Mocad): P. Bourhis Information extraction, 18h, M2, Université Lille 1, France

Master (Mocad): A. Bonifati Information extraction, 9h, M2, Université Lille 1, France

Master (Mocad): J. Niehren Information extraction, 9h, M2, Université Lille 1, France

Master : S. Tison Advanced algorithms and complexity, M1, 57h, Université Lille 1, France

Master : S. Tison, Fouille de données, M1, 30h, Université Lille 1, France

Master: A. Lemay, XML Technologies, 16h, M2, Université Lille 3, France

DUT : I. Boneva, 100h, Université Lille 1, France

A. Bonifati was the co-responsible of the Master MOCAD of the University of Lille1.

A. Lemay is pedagogical responsible for Computer Science and numeric correspondent for UFR LEA Lille 3.

### 10.2.2. Supervision

PhD defended : R.CIUCANU, cross-model queries and schema mappings: evaluation and learning. Since Sept. 2012. Supervised by Bonifati.

PhD in progress : T. SEBASTIAN, Streaming algorithms for XPath. Since January 2011. Supervised by Niehren.

PhD in progress: A. BOIRET, Top-down tree transformations with look-ahead: foundations and learning. Since Sept. 2011. Supervised by Niehren and Lemay.

PhD in progress: D. Gallois started his PhD project on Recursive Queries under the supervision of Bourhis and Tison.

### 10.2.3. Juries

S. Tison was reviewer for the HDR of Sylvain Salvati at the University of Bordeaux, director of the HDR of Slawek Staworko at the University of Lille 1, and member of the HdR committee of Pierre-Alain Reynier from the University of Marseille. She was also a member of the PhD committee for Nadime Francis at the ENS Cachan.

### 10.2.4. Selection Committees

S. Tison was member of the selection committees for 2 professorships at University of Paris-Diderot, 1 assistant professorship at the Université Artois, and 2 assistant professorships at the University of Lille 3.

J. Niehren was member of the section committee for a professorship at the University of Bordeaux 1.

I. Boneva was member of the section committee for an assistant professorship at the University of Lens.

A. Lemay was member of the section committee for 2 assistant professorships at the University of Lille 3.

## 10.3. Popularization

Popularization on associate team Lille - Oxford: [Popularization on associate team Lille - Oxford](http://www.inria.fr/centre/lille/actualites/lille-et-oxford-une-double-expertise-au-service-de-la-donnee) par Inria à <http://www.inria.fr/centre/lille/actualites/lille-et-oxford-une-double-expertise-au-service-de-la-donnee>.

Popularization on awarded ICJAI paper of P. Bourhis on "Reasonable Highly Expressive Query Languages". Une avancée en équivalence de requêtes pour interroger les données sur le web distinguée à IJCAI <http://www.cnrs.fr/ins2i/spip.php?article1465>

## MAGNET Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

MIKAELA KELLER, GÉRAUD LE FALHER and PAULINE WAUQUIER were members of the organizing committee of CAp 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. General chair, scientific chair

PASCAL DENIS served as an Area Chair (Discourse, Coreference, Pragmatics) for ACL 2015.

#### 10.1.2.2. Chair of conference program committees

MARC TOMMASI was the program chair of CAp 2015.

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

PASCAL DENIS was member of the program committees of EMNLP 2015 and NAACL 2015.

PASCAL DENIS, RÉMI GILLERON, MIKAELA KELLER and MARC TOMMASI were members of the program committee of CAp 2015.

PASCAL DENIS and MIKAELA KELLER were members of the program committee of IJCAI 2015.

MIKAELA KELLER was member of the program committee of ICLR 2016.

MIKAELA KELLER and MARC TOMMASI were members of the program committee of NIPS 2015.

JAN RAMON was member of the program committee of BNAIC 2015.

JAN RAMON and MARC TOMMASI were members of the program committee of ICML 2015.

MARC TOMMASI was member of the program committee of CRI 2015.

FABIO VITALE was member of the program committees of COLT 2015 and WWW 2016.

#### 10.1.2.4. Other

PASCAL DENIS is the program co-chair of the Polaris Colloquium.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

JAN RAMON is member of the editorial boards of Machine Learning Journal (MLJ) and Data Mining and Knowledge Discovery (DMKD).

#### 10.1.3.2. Reviewer - Reviewing activities

AURÉLIEN BELLET was reviewer for IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), IEEE Transactions on Cybernetics (TCYB) and Signal Processing (SIGPRO).

MARC TOMMASI was reviewer for Computer Communications (COMCOM).

FABIO VITALE was reviewer for the European Journal of Operational Research (EJOR).

### 10.1.4. Invited talks

MIKAELA KELLER was invited to give a talk at "Journée scientifique sur gestion de la connaissance à l'aide des Méthodes formelles pour la prévision des crises en épilepsie" (CRAN, Nancy).

JAN RAMON was invited to give a talk at the International Conference on Concept Lattices and their Applications (CLA 2015).

MARC TOMMASI was invited to give a talk at Data, Learning and Inference (DALI 2015): Networks – Processes and Causality.

### 10.1.5. Scientific expertise

PASCAL DENIS was member of the PhD Award Committee of ATALA (French association for NLP).

RÉMI GILLERON was member of the AERES evaluation committee of the LITIS Computer Science research laboratory (Rouen, France).

RÉMI GILLERON was also head of the selection committee for PhD and postdoctoral researchers at Inria Lille.

RÉMI GILLERON, MIKAELA KELLER and MARC TOMMASI were members of evaluation committees for the French Research Agency (ANR).

MARC TOMMASI was president of the jury for the recruitment of Junior Research Scientists (CR1/CR2) at Inria Lille.

FABIEN TORRE is elected for "CNU section 27 (informatique)" since Oct 2011 (reelected in Oct 2015) and is also member of the bureau since Nov 2015.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### University courses

Licence Informatique: DAVID CHATEL, Initiation à l'informatique, 45.5h, L1, Université de Lille, France

Master MOCAD: PASCAL DENIS, Apprentissage artificiel et aide à la décision, 37.5h, M2, Université de Lille, France

Master MIASHS: RÉMI GILLERON, NoSQL databases, 24h, M1, Université de Lille, France

Master MIASHS: RÉMI GILLERON, Programming in R, 24h, M1, Université de Lille, France

Master MIASHS: RÉMI GILLERON, Search Engine Optimization, 24h, M2, Université de Lille, France

Licence SID: RÉMI GILLERON, Information Digital Representation, 24h, L2, Université de Lille, France

Licence MIASHS: RÉMI GILLERON, Data Processing with Spreadsheet Program, 24h, L1, Université de Lille, France

Licence: MIKAELA KELLER, C2i, 25h, L2, Université de Lille, France

Licence MIASHS: MIKAELA KELLER, Information digital representation, 42h, L1, Université de Lille, France

Licence Sociologie: MIKAELA KELLER, Programming and algorithms, 28h, L2, Université de Lille, France

Licence Digital Humanities: MIKAELA KELLER, Information digital representation, 24h, L2, Université de Lille, France

Licence MIASHS: MARC TOMMASI, Réseaux, 64h, L1, Université de Lille, France

Licence MIASHS: MARC TOMMASI, Programmation client, 24h, L2, Université de Lille, France

Licence: MARC TOMMASI, C2i, 25h, L2, Université de Lille, France

Licence: MARC TOMMASI, Culture numérique, 30h, L2, Université de Lille, France.  
Online courses for all students in Lille 3 university L1/L2/L3.

Master Information Documentation: FABIEN TORRE, Langages statiques du web, 37h, M1, Université de Lille, France

Master Information Documentation: FABIEN TORRE, Algorithmique et programmation PHP pour le web, 75h, M1, Université de Lille, France

Master SdL: FABIEN TORRE, Algorithmique et programmation pour l'extraction d'information, 55h, M2, Université de Lille, France

Master Information Documentation: FABIEN TORRE, Javascript langage dynamique du web, 38h, M2, Université de Lille, France

Master MIASHS: FABIEN TORRE, Informatique pour le référencement, 12h, M2, Université de Lille, France

Licence MIASHS: FABIO VITALE, Introduction à l'algorithmique, 66h, L2, Université de Lille, France

Licence Sociologie: FABIO VITALE, Algorithmique des graphes, 28h, L3, Université de Lille, France

Licence SID: FABIO VITALE, Information Coding, 24h, L1, Université de Lille, France

Master MIASHS: FABIO VITALE, Unsupervised Classification, 30h, M1, Université de Lille, France

Licence MIASHS: FABIO VITALE, Unsupervised Classification, 28h, L3, Université de Lille, France

#### **Invited lectures**

Séminaire de rentrée: MARC TOMMASI, ENS Cachan, France

Course on Graph-based Machine Learning: MARC TOMMASI, University of Yaoundé, Cameroon.

#### **Administration**

MARC TOMMASI is a council member of the UFR MIME.

### **10.2.2. Supervision**

Master: MATHIEU DEHOUCK, Graph-based Semi-Supervised Learning for Dependency Parsing, Université de Lille, Aug 2015, PASCAL DENIS and MARC TOMMASI

PhD: CHLOÉ BRAUD, Discourse Relation Identification from Labeled and Unlabeled Data, Université Paris-Diderot, Dec 2015, PASCAL DENIS (co-supervision with Laurence Danlos, Université Paris-Diderot)

PhD: EMMANUEL LASSALLE, Structured Learning with Latent Trees: a Joint Approach to Coreference Resolution, Université Paris-Diderot, May 2015, PASCAL DENIS (co-supervision with Laurence Danlos, Université Paris-Diderot)

PhD: THOMAS RICATTE, Hypernode graphs for learning from binary relations between sets of objects, Université de Lille, Jan 2015, RÉMI GILLERON

PhD in progress: DAVID CHATEL, Supervised Spectral Clustering and Information Diffusion in Graphs of Texts, since Sep 2012, PASCAL DENIS and MARC TOMMASI

PhD in progress: MATHIEU DEHOUCK, Graph-based Learning for Multi-lingual and Multi-domain Dependency Parsing, since Oct 2015, PASCAL DENIS and MARC TOMMASI

PhD in progress: GÉRAUD LE FALHER, Machine Learning in Signed Graphs, since Oct 2014, MARC TOMMASI, FABIO VITALE and CLAUDIO GENTILE (Università dell'Insubria, Italy)

PhD in progress: PAULINE WAUQUIER, Recommendation in Information Networks, since Dec 2013, MARC TOMMASI and MIKAELA KELLER

### **10.2.3. Juries**

PASCAL DENIS was member of the PhD committee of Juliette Conrath (IRIT, Université Paul Sabatier) in Toulouse.



RÉMI GILLERON was member of the following committees: PhD committee of Marta Soare (Lille), Habilitation committee of Jérémie Mary (Lille), head of the selection committee for assistant professor (Lille).

MIKAELA KELLER was member of the following selection committees: assistant professor in Université de Lille 1, in Université de Lille 3 and at INSA Rouen.

MARC TOMMASI was member of the following committees: selection committee for assistant professor at UPMC (Paris 6), PhD committee (and reviewer) of Nadia Ouali Sebti (LITIS, Rouen), PhD committee of Fragkiskos D. Malliaros (École polytechnique, Paris) and PhD committee of Thomas Ricatte (Lille).

### **10.3. Popularization**

MIKAELA KELLER was involved in the Fête de la Science as a "chercheur itinérant".

MARC TOMMASI was co-author of the article "L'apprentissage automatique : le diable n'est pas dans l'algorithme" in the blog Binaire of the newspaper Le Monde.

## **MAGRIT Project-Team**

## **9. Dissemination**

### **9.1. Promoting Scientific Activities**

#### **9.1.1. Scientific events selection**

##### *9.1.1.1. Member of the conference program committees*

- M.-O. Berger was member of program committee of the following conferences: International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2015) and of the International Symposium on mixed and augmented reality (ISMAR 2015).
- Erwan Kerrien was a member of the program committee of MICCAI 2015 and of IPCAI 2016.
- G. Simon was a member of the program committee of ISMAR 2015, of the ISMAR UrbanAR workshop and of the french conference on computer vision ORASIS 2015.
- P.-F. Villard was a member of the program committee of MICCAI 2015 and Eurographics Workshop on Visual Computing for Biology and Medicine 2015.

#### **9.1.2. Journal**

##### *9.1.2.1. Reviewer - Reviewing activities*

The members of the team reviewed articles for IEEE Transactions on Visualization and Computer Graphics, IEEE Transactions on Services Computing, SIAM Journal on Imaging Sciences, The Visual Computer, Experimental Mechanics, Traitement du Signal.

#### **9.1.3. Invited talks**

P.-F. Villard gave invited talks at:

- Markey Cancer Center and Radiology Department, September 18th, University of Kentucky
- Department of Mechanical Engineering and Department Of Biomedical Engineering ( **program of the seminar**), William Maxwell Reed Seminar Series, September 18th, University of Kentucky.

#### **9.1.4. Research administration**

- Marie-Odile Berger is president of the Association française pour la reconnaissance et l'interprétation des formes (AFRIF).
- Marie-Odile Berger was a member of the jury d'admissibilité for chargé de recherche at Inria Nancy.
- Marie-Odile Berger was a member of the hiring committees for Professor position at Univ. Rouen.

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

### **9.2.1. Teaching**

The four associate professors of the MAGRIT team actively teach at Université de Lorraine with an annual number of around 200 teaching hours in computer science, 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 tightly related to image processing and computer vision is detailed below:

- Master: Signal analysis, 50 h, Université de Lorraine.
- Master: Augmented reality, 24 h, Télécom-Nancy, Université de Lorraine.

- Master: Introduction to computer vision, 12 h, Université de Lorraine.
- Master: Shape recognition, 15 h, Université de Lorraine.
- Master: Computer vision: foundations and applications, 15 h, Université de Lorraine.
- Master: Introduction to image processing, 21 h, École des Mines de Nancy
- Master: Image processing for Geosciences, ENSG, 12 h.
- Master : Introduction to signal processing and applications, 21 h, Ecole des Mines de Nancy
- Master: Augmented reality, 24 h, M2 IHM Metz
- Master: Augmented reality, 3 h, SUPELEC Metz.

### 9.2.2. Supervision

PhD defended in 2015: Nazim Haouchine, Modèles physiques pour la réalité augmentée des organes déformables, Marie-Odile Berger, Stéphane Cotin (MIMESIS).

PhD in progress: Pierre Rolin, Calcul de pose par simulation de points de vue pour la réalité augmentée, octobre 2013, Marie-Odile Berger, Frédéric Sur.

PhD in progress: Charlotte Delmas, Reconstruction 3D des outils chirurgicaux en radiologie interventionnelle, avril 2013, Marie-Odile Berger, Erwan Kerrien.

PhD in progress: 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 in progress: Jaime Garcia Guevara, Vers une utilisation clinique de la réalité augmentée pour la chirurgie hépatique, novembre 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).

### 9.2.3. Juries

- Marie-Odile Berger was external reviewer of the PhD thesis of Z. Habibi and a member of the jury for the PhD thesis of F. Chadebecq.
- F. Sur was examiner for the PhD thesis of I. Rey-Otero.

## 9.3. Popularization

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

- Gilles Simon attended a forum on digital technologies in Lorraine (GEN#3) and gave a talk about the role of augmented reality in the industry 4.0.
- Erwan Kerrien is Chargé de Mission for scientific mediation at Inria Nancy-Grand Est. 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 secondary and high school curricula. Among other activities, he was also an associate researcher to a MATH.en.JEANS workshop.

<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*

## MANAO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Organization of Dagstuhl Seminar on “Computational Imaging”

#### 10.1.1.2. Member of the organizing committees

Steering Board Eurographics Workshop on Graphics and Cultural Heritage

### 10.1.2. Scientific events selection

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

CCD 2015, CVPR 2015, Digital Heritage 2015, Eurographics 2016, Expressive 2015 (NPAR-SBIM-CAe), ICCP 2015, ICCV 2015, GMP 2016

#### 10.1.2.2. Reviewer

ACM Siggraph 2015, ACM Siggraph Asia 2015, CCD 2015, CHI 2015 CVPR 2015, Eurographics 2016, Eurographics Symposium on Rendering 2015, ICCP 2015, ICCV 2015, Pacific Graphics 2015

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing activities

SIAM Journal on Scientific Computing, OSA Journal of the Optical Society of America A, IEEE Transactions on Pattern Analysis and Machine Intelligence, ACM Transaction on Graphics, IEEE Transaction on Visualization and Computer , Computer Graphics Forum, Visual Computer, Graphics, GMOD

### 10.1.4. Invited talks

Journée de la Recherche en Robotique, Carl Zeiss Inc., RWTH Aachen, KAUST, Bordeaux University, Heidelberg University

FMX 2015 - Conference on Animation, Effects, Games and Transmedia [www.fmx.de](http://www.fmx.de) Stuttgart, Germany, Filmakademie Baden-Wuerttemberg [16]

### 10.1.5. Scientific expertise

DFG grant proposal, Schloss Dagstuhl seminar proposal

### 10.1.6. Research administration

Some members are part of: Committee of the Bordeaux Sud-Ouest Inria Center, Evaluation Committee of Inria, Scientific Council of the Image & Sound team at LaBRI.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

The members of our team are involved in teaching computer science at University of Bordeaux, ENSEIRB Engineering School, and Institut d'Optique Graduate School (IOGS). General computer science is concerned, as well as the following graphics related topics:

Master : Pierre Bénard and Romain Pacanowski, Photorealistic and Expressive Image Synthesis, 60 HETD, M2, Univ. Bdx, France.

Master : Xavier Granier, Numerical Techniques, 45 HETD, M1, IOGS, France

Master : Xavier Granier, Image Synthesis, 14 HETD, M2, IOGS, France

Master : Gaël Guennebaud, Geometric Modeling, 22 HETD, M2, IOGS, France

Master : Xavier Granier, Romain Pacanowski, Boris Raymond Brett Ridet, Algorithmic and Object Programming, 60 HETD, M1, IOGS, France

Master : Xavier Granier, Radiometry, 10 HETD, M1, IOGS, France

Master : Xavier Granier, Romain Pacanowski, Colorimetry and Appearance Modeling, 20 HETD, M1, IOGS, France.

Master : Gaël Guennebaud and Pierre Bénard, High-performance 3D Graphics, 60 HETD, M1, Univ. Bdx and IOGS, France.

Master : Pierre Bénard, Virtual Reality, 24 HETD, M2, Univ. Bdx, France.

Master : Ivo Ihrke, Computational Optical Imaging, 30 HETD, M1, IOGS, France

Master : Ivo Ihrke, Introduction to Image Processing, 30 HETD, M1, IOGS, France

Master : Ivo Ihrke, Advanced Display Technology, 12 HETD, M1, IOGS, France

Master : Christophe Schlick, Pierre Bénard, Image Synthesis, 60 HETD, M2, ENSEIRB, France

Licence : Patrick Reuter, Digital Imaging, 36 HETD, L3, Univ. Bdx, France.

Some members are also in charge of some fields of study:

Master : Xavier Granier, Optics and Computer Science, M1/M2, IOGS, France.

License : Patrick Reuter, Science and Modeling, L2, Univ. Bdx, France.

### 10.2.2. Supervision

PhD : Alkhazur Manakov, Calibration and Characterization of Advanced Image-Based Measurement Systems, Saarland University, I. Ihrke

PhD : Boris Raymond, Rendering and manipulation of anisotropic materials, Univ. Bordeaux, P. Barla & G. Guennebaud & X. Granier

PhD : John Restrepo, Plenoptic Imaging and Computational Image Quality Metrics, Univ. Bordeaux, I. Ihrke

PhD : Brett Ridet, Interactive spatial augmented reality, Univ. Bordeaux, P. Reuter & X. Granier

PhD : Carlos Zubiaga Pena, Image-space editing of appearance, Univ. Bordeaux, P. Barla & X. Granier

PhD : Florian Canezin, Implicit Modeling, Univ. Toulouse III, G. Guennebaud & Loïc Barthe

PhD : Mathieu Diawara, Computer-Assisted 2D Animation, Univ. Bordeaux, P. Barla, P. Bénard & X. Granier

PhD : Arthur Dufay, Adaptive high-quality of virtual environments with complex photometry, Univ. Bordeaux, J.-E. Marvie R. Pacanowski & X. Granier

PhD : Thibaud Lambert, Real-time rendering of highly detailed 3D models, Univ. Bordeaux, G. Guennebaud & P. Bénard

PhD : Loïs Mignard-Debize, Plenoptic function and its application to spatial augmented reality, Univ. Bordeaux, P. Reuter & I. Ihrke

PhD : Antoine Lucat, Appearance Acquisition and Rendering, CNRS (LP2N) & IOGS, R. Pacanowski & X. Granier

### **10.3. Popularization**

February 2015: Journée numérique au Sénat on the showroom "Modèles 3D, réalité augmentée et sauvegarde du patrimoine", [http://www.senat.fr/evenement/journee\\_numerique\\_inria.html](http://www.senat.fr/evenement/journee_numerique_inria.html).

## MAVERICK Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific events selection

##### 9.1.1.1. Chair of conference program committees

- Eurographics 2015 Tutorials: Cyril Soler (co-chair)

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

- Eurographics 2015: Nicolas Holzschuch
- Eurographics Symposium on Rendering 2015: Nicolas Holzschuch, Cyril Soler
- Interactive 3D Graphics 2015: Nicolas Holzschuch
- Interactive 3D Graphics 2016: Nicolas Holzschuch
- Expressive 2015: Joëlle Thollot
- Solid and Physical Modeling 2015: Georges-Pierre Bonneau
- Eurographics VisSym Short Papers: Georges-Pierre Bonneau
- Environmental Visualization: Georges-Pierre Bonneau
- Topology in Visualization (workshop): Georges-Pierre Bonneau
- Jury du meilleur papier à l'AFIG: Romain Vergne

##### 9.1.2. Research administration

- Nicolas Holzschuch is an elected member of Inria *Evaluation Committee*, a reserve member of Inria *Scientific Board* and of Inria *Comité Technique*.

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

Licence : Enseignant, titre du cours, nombre d'heures en équivalent TD, niveau (L1, L2, L3), université, pays

Licence: Joëlle Thollot, Théorie des langages, 27h, L3, ENSIMAG, France

Licence: Georges-Pierre Bonneau, Algorithmique, Polytech'Grenoble, France

Licence: Romain Vergne, Introduction à l'Algorithmique, 66.5, L1, Université de Grenoble, France

Licence: Romain Vergne, WebGL, 29, L3, IUT2 - Université de Grenoble, France

Master: Romain Vergne, Synthèse d'images, 32h, M1, Université de Grenoble, France

Master: Romain Vergne, Synthèse d'images avancée, 13.5h, M2, Université de Grenoble, France

Master: Romain Vergne, Reconstruction et géométrie algorithmique, 36h, M2, Université de Grenoble, France

Master: Georges-Pierre Bonneau, Synthèse d'Images, Polytech'Grenoble, France

Master: Georges-Pierre Bonneau, Visualisation Scientifique, Polytech'Grenoble, France

Master: Georges-Pierre Bonneau, Visualisation d'information, G-INP, France

Master: Georges-Pierre Bonneau, Scientific Visualization, G-INP, France

Master: Georges-Pierre Bonneau, Géométrie numérique, Université de Grenoble, France

Master: Georges-Pierre Bonneau et Nicolas Holzschuch, Computer Graphics II, 36 h, M2, Université de Grenoble, France

Master : Nicolas Holzschuch, Synthèse d'Images et Animation, 60 h, M2, ENSIMAG, France

Master: Joëlle Thollot, Responsable du cursus en alternance, 48h, M1-M2, ENSIMAG, France

Master: Joëlle Thollot, Tutorat d'apprentis, 70h, M1-M2, ENSIMAG, France

Master: Joëlle Thollot, Tutorat d'apprentis, 70h, M1-M2, ENSIMAG, France

Master: Romain Vergne, Responsable de stages, 27h, M1-M2, Polytech'Grenoble, France

Master: Romain Vergne, Tutorat, 16h; M1-M2, Polytech'Grenoble, France

### 9.2.2. Supervision

PhD: Hugo Loi, Synthèse programmable de textures vectorielles et application à la cartographie, Université de Grenoble, December 16, 2015, Joëlle Thollot, Romain Vergne, Thomas Hurtut.

PhD in progress: Leo Allemand-Giorgis, Visualisation de champs scalaires guidée par la topologie, October 1, 2012, Georges-Pierre Bonneau, Stefanie Hahmann.

PhD in progress: Benoit Arbelot, Statistical studies of shape, material, and environment for appearance manipulation, October 1, 2013, Joëlle Thollot, Romain Vergne.

PhD in progress: Alexandre Bleron, Stylization of animated 3D scenes in a painterly style, October 1, 2015, Joëlle Thollot, Romain Vergne.

PhD in progress: Alban Fichet, Efficient representation for measured reflectance, October 1, 2015, Nicolas Holzschuch.

PhD in progress: Aarohe Johal, Algorithmes de génération automatique d'arbres de construction à partir de modèles géométriques CAO B-Rep, September 2013, Jean-Claude Léon, Georges-Pierre Bonneau, thèse CIFRE EdF R&D.

PhD in progress: Guillaume Loubet, Représentations efficaces de l'apparence sous-pixel, October 1, 2014, Fabrice Neyret.

PhD in progress: Jeremy Wambecke, Data Visualization for non-experts, October 1, 2014, Renaud Blanch, Georges-Pierre Bonneau, Romain Vergne.

PhD in progress: Benoit Zupancic, Acquisition of reflectance properties, October 1, 2014, Cyril Soler.

### 9.2.3. Juries

- Nicolas Holzschuch has been a member of the jury for the PhD of Jonathan Dupuy (Lyon, Dec 2015), Adrien Pilleboue (Lyon, Nov 2015) and Gurprit Singh (Lyon, Sep 2015).
- Joëlle Thollot has been a member of the jury for the PhD of Martin Guay (Grenoble, Dec 2015).

## 9.3. Popularization

Every year, "MobiNet" (see section 5.7) classes are conducted with high school pupils of the large Grenoble area to practice initiation and intuition on Computer Science, Maths and Physics. Depending on the year, we have 2 to 4 groups in the scope of INP-Grenoble "Engineering weeks", and 0 to 2 groups in the scope of Math-C2+ operations.



## MIMETIC Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Marc Christie, co-Program Chair, ACM Motion in Games, MIG 2015, Paris

#### 10.1.1.2. Member of the organizing committees

Marc Christie, Steering Committee and Conference Organiser, Smartgraphics 2015, Chengdu, China

### 10.1.2. Scientific events selection

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

Marc Christie, ACM Motion in Games MIG 2015, Paris, France, November 2015

Marc Christie, Smartgraphics, Chengdu, China, August 2015

Ludovic Hoyet, ACM Motion in Games MIG 2015, Paris, France, November 2015

Ludovic Hoyet, International Conference on Computer Graphics Theory and Applications (GRAPP), Rome, Italy, February 2016

Richard Kulpa, International Conference on Computer Graphics Theory and Applications (GRAPP), Rome, Italy, February 2016

Franck Multon, member of the International Steering committee of MIG, International steering committee of the symposium "From humans and non-humans primates to robots: motion", member of the International Program Committee of MIG, STARs International Program Committee Eurographics

Anne-Hélène Olivier, IEEE VR 2016, Greenville, United-States, March 2016

#### 10.1.2.2. Reviewer

Ludovic Hoyet, Eurographics 2016, Lisbon, Portugal, May 2016

Ludovic Hoyet, IEEE VR 2016, Greenville, United-States, March 2016

Richard Kulpa, IEEE VR 2016, Greenville, United-States, March 2016

Richard Kulpa, VISIGRAPP, Rome, Italy, February 2016

Franck Multon, ICRA2016, IEEE VR 2016, ISBS 2015

Charles Pontonnier, IHM 2015, Toulouse, France, October 2015

Marc Christie, Eurographics, CHI, Smartgraphics, VISIGRAPP, Motion in Games,

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Franck Multon, Editorial board of Presence MIT Press

Marc Christie, Associate Editor, The Visual Computer, Springer

#### 10.1.3.2. Reviewer - Reviewing activities

Ludovic Hoyet, Computer Animation and Virtual Worlds, Computer Graphics Forum, Transactions on Graphics, Transactions on Applied Perception

Richard Kulpa, Journal of Sports Engineering and Technology, Journal of Sports Sciences

Franck Multon, Gait and Posture, Applied Computing and Informatics, Journal of Applied Biomechanics, Sensors, International Journal of Sports and Exercise Medicine

Anne-Hélène Olivier, Gait and Posture, Journal of Experimental Psychology Human Perception and Performance

Charles Pontonnier, Applied Ergonomics

Marc Christie, TVCG, The Visual Computer, Computer Graphics Forum

#### **10.1.4. Invited talks**

Ludovic Hoyet, Perception of Biological Human Motion: Towards New Perception-Driven Virtual Character Simulations, Inria Grenoble, Equipe Imagine, France, September 2015

Ludovic Hoyet, Perception of Biological Human Motion: Towards New Perception-Driven Virtual Character Simulations, Northumbria University, United Kingdom, November 2015

Franck Multon, Virtual Reality and Sports, applied session, International Society of Biomechanics in Sports, 2015

Franck Multon, Physical Activity on VR, Invited talk, International Society of Biomechanics in Sports, 2015

Richard Kulpa, Virtual Reality and Sports, applied session, International Society of Biomechanics in Sports, 2015

Charles Pontonnier Muscle based control for avatar animation: a synergy based approach, From Humans and Non-Human Primates to Robots: Motion, International Meeting, CNRS Primatology Station, Rousset sur Arc, France, December 2015

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

- Franck Multon, reviewer for a full-length ANR Proposal
- Franck Multon, reviewer for 12 short ANR proposals

#### **10.1.6. Research administration**

- Franck Multon is member of the University Rennes2 Research steering committee "commission recherche", and Academic Council "CAC",
- Franck Multon is member of the M2S Lab steering committee,
- Richard Kulpa is member of the University Rennes2 Research steering committee "commission recherche", and Academic Council "CAC",
- Franck Multon is member of the UFR-APS steering committee in University Rennes2
- Benoit Bideau is director of the M2S Lab
- Georges Dumont is director of mechatronics teaching department at École Normale Supérieure de Rennes
- Georges Dumont is president of the elected group at scientific council of École Normale Supérieure de Rennes, member of the scientific council of École Normale Supérieure de Rennes
- Georges Dumont is scientific head of Media and Interaction Department at IRISA
- Georges Dumont is scientific head of Immerstar platforms (Immersia + Immermove) jointly for Inria and Irisa Partners

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

### **10.2.1. Teaching**

#### *10.2.1.1. Master level*

Master : Franck Multon, "Images et Mouvement - IMO", leader of the module, 20H, Master 2 research in computer sciences, University Rennes1, France

Master : Franck Multon, "Santé et Performance au Travail : étude de cas", leader of the module, 30H, Master 1 M2S, University Rennes2, France

Master : Franck Multon, "Analyse Biomécanique de la Performance Motrice", leader of the module, 30H, Master 1 M2S, University Rennes2, France

Master : Franck Multon, "Modélisation et Simulation du Mouvement", leader of the module, 30H, Master 2 M2S, University Rennes2, France

Master: Marc Christie, "Multimedia Mobile", Master 2, leader of the module, 32h, Computer Science, University of Rennes 1, France

Master: Marc Christie, "Projet Industriel Transverse", Master 2, 32h, leader of the module, Computer Science, University of Rennes 1, France

Master: Marc Christie, "Outils pour la Conception d'IHM", Master 2, 32h, leader of the module, Computer Science, University of Rennes 1, France

Master : Armel Créteil, "Méthodologie", leader of the module, 20H, Master 1 M2S, University Rennes2, France

Master : Armel Créteil, "Biostatistiques", leader of the module, 15H, Master 2 M2S, University Rennes2, France

Master: Charles Pontonnier, "Numerical methods", leader of the module, Mechanics, École Spéciale Militaire de Saint-Cyr Coëtquidan, France

Master: Charles Pontonnier, "Numerical simulation of mechanical systems", leader of the module, Mechanics, École Spéciale Militaire de Saint-Cyr Coëtquidan, France

Master: Charles Pontonnier, "Analytical Mechanics" , Mechanics, École Spéciale Militaire de Saint-Cyr Coëtquidan, France

Master: Charles Pontonnier, "Design and control of mobile robots", leader of the module, Electronics, École Spéciale Militaire de Saint-Cyr Coëtquidan, France

Master: Charles Pontonnier, "Design, simulation and control of mechanical systems", leader of the module, Lecturers training in mechatronics, École Normale Supérieure de Rennes, France

Master : Richard Kulpa, "Contrôle moteur", leader of the module, Master 1 M2S, Université Rennes 2, France

Master : Richard Kulpa, "Boucle analyse-modélisation-simulation du mouvement", leader of the module, Master 2 M2S, Université Rennes 2, France

Master : Richard Kulpa, "Méthodes numériques d'analyse du geste", leader of the module, Master 2 M2S, Université Rennes 2, France

Master : Richard Kulpa, "Cinématique inverse", leader of the module, Master 2 M2S, Université Rennes 2, France

Master: Fabrice Lamarche, "Compilation pour l'image numérique", 29h, Master 1, ESIR, University of Rennes 1, France

Master: Fabrice Lamarche, "Synthèse d'images", 12h, Master 1, ESIR, University of Rennes 1, France

Master: Fabrice Lamarche, "Synthèse d'images avancée", 28h, Master 1, ESIR, University of Rennes 1, France

Master: Fabrice Lamarche, "Modélisation Animation Rendu", 36h, Master 2, ISTIC, University of Rennes 1, France

Master: Fabrice Lamarche, "Jeux vidéo", 26h, Master 2, ESIR, University of Rennes 1, France

Master : Georges Dumont, Mechanical simulation in Virtual reality, 36H, Master Mechatronics, Rennes 1 University and École Normale Supérieure de Rennes, France

Master : Georges Dumont, Responsable of the second year of the master Mechatronics, Rennes 1 University and École Normale Supérieure de Rennes, France

Master : Georges Dumont, Mechanics of deformable systems, 40H, Master FE, École Normale Supérieure de Rennes, France

Master : Georges Dumont, oral preparation to agregation competitive exam, 20H, Master FE, École Normale Supérieure de Rennes, France

Master : Georges Dumont, Vibrations in Mechanics, 10H, Master FE, École Normale Supérieure de Rennes, France

Master : Georges Dumont, Multibody Dynamics, 9H, Master FE, École Normale Supérieure de Rennes, France

Master : Georges Dumont, Finite Element method, 12H, Master FE, École Normale Supérieure de Rennes, France //

Master : Anne-Hélène Olivier, "Biostatistiques", 18H, Master 2 M2S, University Rennes2, France

Master : Anne-Hélène Olivier, "Biostatistiques", 12H, Master 1 2SEP, École Normale Supérieure de Rennes, France

Master : Anne-Hélène Olivier, "Contrôle moteur : loi de contrôle de la locomotion", 3H30, Master 1 M2S, Université Rennes 2, France

Master : Anne-Hélène Olivier, "Contrôle moteur : Boucle perceptivo-motrice", 3H30, Master 1 M2S, Université Rennes 2, France

Master : Anne-Hélène Olivier, "Analyse Biomécanique de la Performance Motrice", 15H, Master 1 M2S, University Rennes2, France

#### 10.2.1.2. Licence level

Licence : Franck Multon, "Ergonomie du poste de travail", Licence STAPS L2 & L3, University Rennes2, France

Licence : Marc Christie, "Système d'information Tactiques", Computer Science, University of Rennes 1, France

Licence : Marc Christie, "Programmation Impérative 1", leader of the module, University of Rennes 1, France

Licence : Armel Créteil, "Analyse cinématique du mouvement", 100H, Licence 1, University Rennes 2, France

Licence: Charles Pontonnier, "Numerical control", leader of the module, Electronics, École Inter-Armes de Saint-Cyr Coëtquidan, France

Licence : Richard Kulpa, "Biomécanique (dynamique en translation et rotation)", Licence 2, Université Rennes 2, France

Licence : Richard Kulpa, "Méthodes numériques d'analyse du geste", Licence 3, Université Rennes 2, France

Licence : Richard Kulpa, "Statistiques et informatique", Licence 3, Université Rennes 2, France

Licence: Fabrice Lamarche, "Initiation à l'algorithmique et à la programmation", 56h, License 3, ESIR, University of Rennes 1, France

Licence: Fabrice Lamarche, "Programmation en C++", 46h, License 3, ESIR, University of Rennes 1, France

Licence: Fabrice Lamarche, "IMA", 24h, License 3, ENS Rennes, ISTIC, University of Rennes 1, France

Licence : Anne-Hélène Olivier, "Analyse cinématique du mouvement", 100H , Licence 1, University Rennes 2, France

Licence : Anne-Hélène Olivier, "Anatomie fonctionnelle", 8H , Licence 1, University Rennes 2, France

Licence : Anne-Hélène Olivier, "Effort et efficacité", 12H , Licence 1, University Rennes 2, France

Licence : Anne-Hélène Olivier, "Locomotion et handicap", 12H , Licence 1, University Rennes 2, France

Licence : Anne-Hélène Olivier, "Biomécanique du vieillissement", 12H , Licence 1, University Rennes 2, France

### 10.2.2. Supervision

PhD: Steve Tonneau, Synthèse et planification de mouvement pour des personnages virtuels en environnements contraints, INSA Rennes, 2011-2015, Franck Multon & Julien Pettré

PhD: Carl-Johan Jorgensen, Peuplement automatisé d'environnements urbains pour l'étude et la validation d'aménagements, University of Rennes 1, Fabrice Lamarche & Kadi Bouatouch

PhD: Kevin Jordao, Peuplement massif de maquettes numériques immenses, University Rennes1, Julien Pettré

PhD: Julien Bruneau, Foules immersives, University Rennes1, Julien Pettré

PhD: Billal Merabti, Style-driven virtual camera control in 3D environments, University of Rennes 1, Kadi Bouatouch & Marc Christie

PhD: Quentin Galvane, Automatic cinematography and editing in virtual environments, University of Grenoble, Rémi Ronfard & Marc Christie

PhD in progress: Marion Morel, Suivi et étude des interactions pour l'analyse des tactiques durant un match de basket-ball, UPMC - University Rennes 2, septembre 2014, Catherine Achard & Séverine Dubuisson & Richard Kulpa

PhD in progress: Sean D. Lynch, Perception visuelle du mouvement humain dans les interactions lors de tâches locomotrices, M2S - University Rennes 2, septembre 2015, Anne-Hélène Olivier & Richard Kulpa

PhD in progress: Pierre Touzard, Suivi longitudinal du service de jeunes joueurs de tennis élite : identification biomécanique des facteurs de performance et de risque de blessures, University Rennes 2, septembre 2014, Benoit Bideau & Richard Kulpa & Caroline Martin

PhD in progress: Yacine Said Bouhalia, Approche transversale pour l'analyse et la reconnaissance de gestes 2D et 3D, INSA of Rennes, septembre 2015, Richard Kulpa & Franck Multon & Eric Anquetil

PhD in progress: Pierre Plantard, Estimation des efforts musculaires à partir de données in situ pour l'évaluation ergonomique d'un poste de travail, 2013-2016, Franck Multon & Anne-Sophie LePierres

PhD in progress: Ana Lucia Cruz Ruiz, Contributions to muscle based control: a synergy based approach, Ecole normale supérieure, Georges Dumont & Charles Pontonnier

PhD in progress: Antoine Muller, Design of a modular and multiscale musculoskeletal model as a support to motion analysis-synthesis, Ecole normale supérieure, Georges Dumont & Charles Pontonnier

PhD in progress: Hui-yin Wu, Validated temporal structures in Interactive Storytelling, University Rennes1, Marc Christie

PhD in progress: Cunka Sanokho, Data-driven Virtual Cinematography, University Rennes1, Marc Christie

### 10.2.3. Juries

PhD: Eray Molla, Precise and Responsive Performance Animation for Embodied Immersive Interactions, EPFL, September 25th, Richard Kulpa, rapporteur

PhD: Guay Martin, Sketching free-form poses and movements for expressive character animation, Univ. Grenoble, July 2nd, Franck Multon, Examineur

PhD: Omran Sahab, Génération de trajectoires de marche de robots humanoïdes établies sur les modèles pendulaires bio-inspirés de l'humain, November 30th, Univ. Nantes, Franck Multon, Examineur

PhD: Vallee Pascal, Estimation du risque de chute suite à une perturbation d'équilibre, November 26th, Univ. Claude Bernard Lyon1., Franck Multon, Rapporteur

HDR: Watier Bruno, De l'analyse du mouvement in-vitro à la génération de mouvements des systèmes anthropomorphes, November 16th, Univ. Toulouse3, Franck Multon, Rapporteur

HDR: Hayashibe Mitsuhiro, Computational Modeling and Control for Personalized Neuroprosthetics and Rehabilitation, October 12nd, Univ. Montpellier, Franck Multon, Rapporteur

PhD: Fourati Nesrine, Classification et Caractérisation de l'Expression Corporelle des Emotions dans des Actions Quotidiennes, September 9th, Telecom Paristech, Franck Multon, Examineur

PhD: Maurice Pauline, Virtual ergonomics for the design of collaborative robots, June 16th, Univ. Pierre et Marie Curie, Franck Multon, Rapporteur

PhD: Vigier Toinon, Suggestion et perception des ambiances climatiques dans les environnements virtuels urbains, July 3rd, Ecole Centrale de Nantes, Franck Multon, Président

PhD: Han Yuan, Static and Dynamic Stiffness Analysis of Cable-Driven Parallel Robots, INSA Rennes, March 11th, Georges Dumont, Examineur

PhD: Brian Ravenet, Modélisation de comportements non-verbaux et d'attitudes sociales dans la simulation de groupes conversationnels, Telecom Paristech, Dec 7, Marc Christie, Examineur

PhD: Zaynab Habibi, Vers l'assistance à l'exploration pertinente et réaliste d'environnements 3D très denses, Université de Picardie Jules Verne, Dec 8, Marc Christie, Examineur

## MINT Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

Frédéric Giraud: General co-chair EMR'2015 (Lille)

#### 9.1.1.2. Member of the organizing committees

Laurent Grisoni: Workshop on Collaboration Meets Interactive Surfaces (CMIS): workshop at ACM ITS tabletop. Co-organised with Andres Lucero, Craig Anslow, Pedro Campos

### 9.1.2. Scientific events selection

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

Laurent Grisoni: Computer Graphics International (CGI, 32nd event) , GRAPP (Computer Graphics theory and applications, 11th event), ISEA (21st International Symposium on Electronic Art), MOCO (2nd International workshop on Motion and Computing), VRIPHYS (12th workshop on Virtual Reality Interaction and Physical Simulation)

#### 9.1.2.2. Reviewer

Florent Berthaut: Reviewer for ACM CHI Conference

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

Frédéric Giraud: Associate Editor IEEE Transactions on Haptics

#### 9.1.3.2. Reviewer - Reviewing activities

Frédéric Giraud: reviewer for IEEE Transactions on Mechatronics, IEEE Transactions on Power Electronics, Elsevier Sensors and Actuators

Christophe Giraud-Audine: reviewer for IEEE Transactions on Mechatronics, IEEE Transactions on Power Electronics, IEEE Transactions on Haptics, IEEE Transactions on Industrial Electronic

### 9.1.4. Scientific expertise

Frédéric Giraud: Expert for the ANR (france), MITACS acceleration (CANADA) Laurent Grisoni: ANR CES 38 2015, 2016 («numérique et société» committee), Fondecyt (CHILE national research agency), CIR (credit impot recherche) evaluation for French ministry of industry.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Licence: Florent Berthaut, Tableur et Programmation VBA, LEA L3 TCI (22h), Université Lille 3, France
- Licence: Frédéric Giraud, Physique pour le génie électrique (30h), Université Lille 1
- Master: Christophe Giraud-Audine: Control of electrical machines (30h), Power Electronics (30h), signal processing (30h), niveau M1, ENSAM, France
- Master: Florent Berthaut, Conception Web, LEA M1 TSM (16,5h) et LEA M1 RIC1 (48h), Bases de données, LEA M1 ANI (22h), Université Lille 3, France
- Master : Frédéric Giraud, Control of electrical machines (30h), Power Electronics (40h) niveau M1, Université Lille1, France
- Master : Laurent Grisoni, NIHM : nouvelles Interactions Homme-Machine, (6h), niveau M2, Université Lille 1, France
- Master: Laurent Grisoni, représentation et compression de données (24h), introduction à la programmation (38h), cryptographie (8h), Ecole Polytech'lille (dept IMA)
- Master : Laurent Grisoni, IHM et Interface à Gestes, (24h), niveau M2 (IMA5), Polytech Lille, France

### 9.2.2. Supervision

- PhD in progress: Ehsan Enferad, Modélisation et Commande d'une Interface Tactile à Stimulation Hybride par Modulation de Friction et Retourneement Temporel, nov. 2015, F. Giraud, C. Giraud-Audine
- Phd in progress: Cagan Arslan, Fusion de données pour l'interaction homme-machine, oct. 2015, L. Grisoni/J. Martinet
- Phd in progress: Farzan Kalantari, Interaction sur dispositif à retour tactile et kinesthésique, oct. 2014, L. Grisoni, F. Giraud
- PhD in progress: Sofiane Ghenna, Contrôle multimodal d'acionneurs piézo-électriques pour applications tactiles, F.Giraud, C.Giraud-Audine
- PhD in progress: Eric Vezzoli, oct 2013, B. Lemaire-Semail, F. Giraud
- PhD in progress: Wael ben Messaoud, Développement et contrôle d'un Stimulateur Tactile pour textures réelles, oct 2012, B. Lemaire-Semail, M.-A. Bueno
- Phd in progress: Hanae Rateau, l'interaction esquissée, oct. 2012, L. Grisoni
- Phd in progress: Nicolas Bremard, oct 2012, L. Grisoni/F. Aubert
- Phd in progress: Vincent Gouezou: L'architecte et ses outils, au travers de l'histoire et dans sa relation actuelle au numérique, oct. 2014, L. Grisoni 25% (with F. Vermandel, architect, Lille school of architecture)
- Phd in progress: Charlotte Planckeel, Le sens de la lacunae en archéologie de l'Âge du bronze, archéologie et outils numériques, L. Grisoni (25%, with A. Lehoerff, Lille 3, archeologist)

## 9.3. Popularization

### 9.3.1. Laurent Grisoni

*Geste d'interaction, immersion, RV: une vue sur les enjeux*, workshop VR/Rehabilitation, Tourcoing (imaginarium), mars 2015.

*La réalité augmentée (sa réalité)*, Déjeuner technologiques du master Informatique de Lille 1, mars 2015



*Dessin et Interaction (homme-machine)*, Journée épistémologie Sciences et Cultures du Visuel, Tourcoing (imaginarium), juin 2015

*Situated Interaction and contemporary art*, Journées scientifiques Inria, juin 2015, nancy

*Hands on 3D Models (Virtual Reality and Physicality)*, 4th Sino-French Symposium on VR, Xi' An (Chine), aout 2015

*Sketch and Human-Computer Interaction*, invited talk at the LJK (Inria Rhones-Alpes), Nov 2015 and at the doctoral school of LACTH (Lille school of architecture) Nov. 2015

*L'interaction en général, le geste et le tactile en particulier*, Séminaire Inria/Euratechnologie, déc. 2015

### **9.3.2. Florent Berthaut**

*Reflets: a mixed-reality display for musical performances*. Public demonstration for the Bristol Bright Night at the @Bristol Science Museum, September 2015, Bristol, UK

## Mjolnir Team

# 9. Dissemination

## 9.1. Promoting scientific activities

### 9.1.1. Scientific events organisation

- **CHI** (ACM): Stéphane Huot (video previews co-chair)
- **UIST** (ACM): Stéphane Huot (video previews co-chair)
- **VIS** (IEEE): Fanny Chevalier (arts program co-chair)
- **IHM** (AFIHM): Stéphane Huot (*alt.IHM* co-chair)
- **RES#01**: Nicolas Roussel

### 9.1.2. Scientific events selection

Conference program committees:

- **UIST** (ACM): Géry Casiez
- **InfoVis** (IEEE): Fanny Chevalier
- **UbiComp** (ACM): Stéphane Huot
- **IHM** (AFIHM): Sylvain Malacria
- **MOCO**: Nicolas Roussel

Reviewing activities:

- **CHI** (ACM): Géry Casiez, Fanny Chevalier, Stéphane Huot, Sylvain Malacria, Thomas Pietrzak, Nicolas Roussel
- **UIST** (ACM): Alix Goguy, Stéphane Huot, Sylvain Malacria, Thomas Pietrzak, Nicolas Roussel
- **MobileHCI** (ACM): Sylvain Malacria
- **ITS** (ACM): Sylvain Malacria
- **VR** (IEEE): Stéphane Huot
- **NIME**: Stéphane Huot
- **ICMI** (ACM): Géry Casiez
- **IHM** (AFIHM): Géry Casiez, Fanny Chevalier, Nicolas Roussel

### 9.1.3. Journal

Editorial boards:

- *Journal d'Interaction Personne-Système* (AFIHM): Géry Casiez

Reviewing activities:

- *Transactions on Computer Human Interaction* (ACM): Sylvain Malacria, Thomas Pietrzak
- *Transactions on Visualization and Computer Graphics* (IEEE): Fanny Chevalier
- *Behaviour & Information Technology* (Taylor & Francis): Thomas Pietrzak

#### 9.1.4. Scientific expertise

- *IDEX Université de Lille* project: Nicolas Roussel (strategic research council and writing committee member)
- PICOM competitiveness cluster: Nicolas Roussel (scientific board member)
- HAP2U startup: Nicolas Roussel (scientific board member)
- IRISA lab: Nicolas Roussel (scientific orientation committee member)
- Pictanovo: Nicolas Roussel (*Expériences Interactives* jury member)
- Agence Nationale de la Recherche (ANR): Fanny Chevalier (reviewer), Stéphane Huot (reviewer), Sylvain Malacria (reviewer), Thomas Pietrzak (reviewer)
- Aquitaine and Nord - Pas de Calais regions: Nicolas Roussel (reviewer)
- Délégation Régionale à la Recherche et à la Technologie Nord-Pas-de-Calais (DRRT): Fanny Chevalier (reviewer)

#### 9.1.5. Research administration

For Inria:

- **Evaluation committee:** Nicolas Roussel (member)
- Gender equity and equality committee: Nicolas Roussel (member)
- Strategic orientation committee for the information system (COSS scientifique): Nicolas Roussel (member)
- International relations working group (COST-GTRI): Stéphane Huot (member)

For Inria Lille – Nord Europe:

- Scientific officer (délégué scientifique): Nicolas Roussel
- Technical development committee (CDT): Nicolas Roussel (member)
- Research jobs committee (CER): Nicolas Roussel (member)
- Support to researchers (accompagnement des chercheurs): Nicolas Roussel (adviser)
- Consultative committee (Comité de centre): Fanny Chevalier (member), Alix Goguy (member)
- Operational legal and ethical risk assessment committee (COERLE): Stéphane Huot (local correspondent)
- Activity reports (RAweb): Fanny Chevalier & Nicolas Roussel (local correspondents)

For the CRISAL lab of Univ. Lille 1:

- Laboratory council: Géry Casiez (elected member)

#### 9.1.6. Learned societies

- Association Francophone d'Interaction Homme-Machine (AFIHM): Géry Casiez (board member, president), Stéphane Huot (board member and scientific council member), Thomas Pietrzak (board member)

#### 9.1.7. Hiring committees

- Inria's eligibility jury for senior researcher positions (DR2): Nicolas Roussel
- Inria Lille's eligibility jury for junior researcher positions (CR2 & CR1): Stéphane Huot (vice-president)
- Univ. Lille 1's hiring committee for a Computer Science Professor position: Géry Casiez (president)
- Univ. Paris-Sud's hiring committee for a Computer Science Assistant Professor position: Géry Casiez (member), Fanny Chevalier (member)

## 9.2. Teaching, supervision, juries

### 9.2.1. Teaching

- DUT Informatique: Géry Casiez, *Algorithmique*, 80 hrs, 1<sup>st</sup> year, IUT A de Lille - Univ. Lille 1
- DUT Informatique: Géry Casiez, *Modélisation mathématique*, 14 hrs, 2<sup>nd</sup> year, IUT A de Lille - Univ. Lille 1
- DUT Informatique: Géry Casiez, *Projets*, 18 hrs, 2<sup>nd</sup> year, IUT A de Lille - Univ. Lille 1
- Licence Informatique: Thomas Pietrzak, *AEL : Automates et Langages*, 36 hrs, L3, Univ. Lille 1
- Licence Informatique: Thomas Pietrzak, *ASD : Algorithmes et Structures de Données*, 36 hrs, L3, Univ. Lille 1
- Master Informatique: Thomas Pietrzak (32 hrs), Nicolas Roussel (8 hrs), Sylvain Malacria (8 hrs), *IHM : Interaction Homme-Machine*, M1, Univ. Lille 1
- Master Informatique: Géry Casiez, *Multi-Touch Interaction*, 10 hrs, M1, Univ. Lille 1
- Master Informatique *Image Vision Interaction (IVI)*: Géry Casiez (16 hrs), Fanny Chevalier (16 hrs), Thomas Pietrzak (16 hrs), *NIHM : Nouvelles Interactions Homme-Machine*, M2, Univ. Lille 1
- Master: Thomas Pietrzak, *IHM et Interface à Gestes*, 12 hrs, IMA5 (M2 level), Polytech Lille
- Master: Géry Casiez (6 hrs), Thomas Pietrzak (10.5 hrs), *3DETech : 3D Digital Entertainment Technologies*, M2 level, Télécom Lille
- Master Sociologie *Réseaux Sociaux Numériques (RSN)* : Fanny Chevalier, *Statistiques et visualisation de données*, 8 hrs, M2, Univ. Lille 1
- Master Sociologie *Réseaux Sociaux Numériques (RSN)*: Fanny Chevalier, *Outils et Pratiques Numériques*, 6 hrs, M1, Univ. Lille 1
- Research Masters in Computer Science & HCID Masters (EIT ICT Labs European Master in Human-Computer Interaction and Design): Stéphane Huot, *Mixed Reality and Tangible Interaction*, 18 hrs, M2, Univ. Paris Sud
- Research Masters in Computer Science & HCID Masters (EIT ICT Labs European Master in Human-Computer Interaction and Design): Stéphane Huot, *Advanced Programming of Interactive Systems*, 13.5 hrs, M1 & M2, Univ. Paris Sud

### 9.2.2. Supervision

- PhD in progress: Thibault Raffailac, *Languages and system infrastructure for interaction*, started October 2015, advised by Stéphane Huot & Stéphane Ducasse
- PhD in progress: Amira Chalbi, *Comprendre et mieux concevoir les animations dans le contexte des interfaces graphiques*, started October 2014, advised by Nicolas Roussel & Fanny Chevalier
- PhD in progress: Alexandre Kouyoumdjian, *Multimodal selection of numerous moving targets in large visualization platforms: application to interactive molecular simulation*, started October 2013, advised by Stéphane Huot, Patrick Bourdot & Nicolas Ferey (in Saclay)
- PhD in progress: Alix Goguet, *Interacting between physical and digital tools*, started October 2013, advised by Géry Casiez
- PhD in progress: Andéol Evain, *BCI-based interactions*, started September 2013, advised by Anatole Lecuyer, Géry Casiez & Nicolas Roussel (in Rennes)
- PhD in progress: Oleksandr Zinenko, *Interactive code restructuring*, started September 2013, advised by Stéphane Huot & Cédric Bastoul (Université de Strasbourg)
- PhD in progress: Justin Mathew, *New visualization and interaction techniques for 3D spatial audio*, started June 2013, advised by Stéphane Huot & Brian Katz (in Saclay)
- PhD: Jonathan Aceituno, *Direct and expressive interaction on the desktop: increasing granularity, extent, and dimensionality*, Univ. Lille 1, defended in October 2015, advised by Nicolas Roussel

### 9.2.3. Juries

- Merwan Achibet (PhD, Université de Rennes): Géry Casiez, examiner
- Louis-Pierre Bergé (PhD, Université de Toulouse): Géry Casiez, reviewer
- Mohamed Ikbel Boulabiar (PhD, Université de Bretagne Sud): Géry Casiez, reviewer
- William Delamare (PhD, Université de Grenoble): Géry Casiez, reviewer
- Camille Fayollas (PhD, Université de Toulouse): Nicolas Roussel, reviewer
- Jérémy Frey (PhD, Université de Bordeaux): Nicolas Roussel, president
- Nazim Haouchine (PhD, Université Lille 1): Géry Casiez, president
- Leonhard Lichtschlag (PhD, RWTH Aachen University): Stéphane Huot, reviewer
- Gustavo Rovelo (PhD, Universitat Politècnica de València): Géry Casiez, reviewer
- Quentin Roy (PhD, Télécom ParisTech): Stéphane Huot, reviewer
- Matthias Schwaller (PhD, Université de Fribourg): Nicolas Roussel, reviewer
- Siju Wu (PhD, Université d'Evry): Géry Casiez, reviewer

### 9.3. Popularization

- “*L’onde de choc des attentats du 13 Novembre, jusque dans Wikipédia*” article published on Rue89’s Web site, December: Fanny Chevalier
- “*Data Visualization - Voir grand, petit à petit*”, talk at the Big Data day organized at EuraTechnologies, November: Fanny Chevalier
- “*Mouvement & Informatique*”, talk for **TEDx Valenciennes**, October: Nicolas Roussel
- “*Des ordinateurs et des Hommes - les défis de l’Interaction Homme-Machine*”, talk at Lycée César Baggio as part of Inria Lille’s “Chercheurs Itinérants” program, October: Stéphane Huot
- “*Adoiraccourcix : l’identification des doigts au service de raccourcis tactiles*”, talk at Lycée Thérèse d’Avila and Lycée Queneau during as part of Inria Lille’s “Chercheurs Itinérants” program, October: Alix Goguey
- “*J’étudie les relations homme-machine, posez-moi vos questions*”, Ask-me-anything article published on Rue89’s Web site, October: Fanny Chevalier
- “*La Recherche en Interaction Homme-Machine*”, talk at Rue89, October: Fanny Chevalier
- “*Recherche en Sciences du Numérique & Design*”, talk for **Lille Design** at EuraTechnologies, September: Nicolas Roussel
- “*Inria and its Lille – Nord Europe research center*”, talk as part of the press visit organized for the ICML conference, July: Nicolas Roussel
- “*Mieux explorer pour mieux raisonner - la visualisation interactive au service du savoir-faire de l’analyse*”, talk at EuraTechnologie, July: Fanny Chevalier
- “*Des ordinateurs et des Hommes - les défis de l’Interaction Homme-Machine*”, talk for the Centre de Vulgarisation de la Connaissance at Université Paris-Sud, January: Stéphane Huot

## MORPHEO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Edmond Boyer was general chair for 3DV 2015.

#### 10.1.1.2. Member of the organizing committees

- Franck Hétroy-Wheeler was publication chair for 3DV 2015.
- Jean-Sébastien Franco was tutorial chair for 3DV 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

- Edmond Boyer was area chair for BMVC 2015.
- Jean-Sébastien Franco was area chair for 3DV 2015.

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

- Stefanie Wuhrer was on the program committee for: Eurographics Short Papers 2015, Eurographics Workshop 3DOR 2015, SOCG Multimedia Exposition 2015.
- Lionel Reveret was on the program committee for: Symposium on Computer Animation 2015.

#### 10.1.2.3. Reviewer

- Edmond Boyer has reviewed for: CVPR 2015, ICCV 2015, CVMP 2015, SIGGRAPH 2015, ORASIS 2015.
- Jean-Sébastien Franco has reviewed for: CVPR 2015, ICCV 2015.
- Franck Hétroy-Wheeler has reviewed for: 3DV 2015.
- Lionel Reveret has reviewed for: SIGGRAPH 2015, SIGGRAPH Asia 2015, Symposium on Computer Animation 2015, Motion in Game 2015, EUROGRAPHICS 2016.
- Stefanie Wuhrer has reviewed for: ICCV 2015, SIGGRAPH Asia 2015.
- Julien Pansiot has reviewed for: MobiHealth 2015, ICCV 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Edmond Boyer is associate editor of IJCV.

#### 10.1.3.2. Reviewer - Reviewing activities

- Edmond Boyer has reviewed for: IJCV, IEEE Transactions on PAMI.
- Lionel Reveret has reviewed for: TOG, Computer and Graphics.
- Stefanie Wuhrer has reviewed for: Graphical Models, IEEE Transactions on Visualization and Computer Graphics, The Visual Computer.
- Julien Pansiot has reviewed for: Journal of 3D Research.

### 10.1.4. Scientific expertise

- Edmond Boyer was on the evaluation committees of: European Research Council (evaluation of consolidator ERC proposals), HCERES (evaluation of the LP2N lab at Bordeaux) and ANR (French academic projects).
- Edmond Boyer was on the recruitment committees for CR2 positions at the Inria Grenoble Rhône-Alpes.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: J.S. Franco, Algorithmics, 60h, Ensimag 1st year, Grenoble INP

Licence: J.S. Franco, C Project, 30h, Ensimag 1st year, Grenoble INP

Master: J.S. Franco, End of study project (PFE) Project Tutoring, 18h, Ensimag 2nd year, Grenoble INP

Master: J.S. Franco, 3D Graphics, 50h, Ensimag 2nd year, Grenoble INP

Master: J.S. Franco, Modelisation et programmation C++, 9h, Ensimag 2nd year, Grenoble INP

Master: J.S. Franco, Introduction to Computer Vision, 27h, Ensimag 1st year, Grenoble INP

Master: J.S. Franco, co-responsability of the Graphics, Vision, Robotics specialty of the Mosig Masters program, Second year Masters, Grenoble INP, Université Joseph Fourier

Licence: F. Hétry-Wheeler, Algorithmics and programming, 45h, Ensimag dual education through apprenticeship 1st year, Grenoble INP

Master: F. Hétry-Wheeler, Algorithmics and Discrete Optimisation, 18h, Ensimag 2nd year, Grenoble INP

Master: Edmond Boyer, 3D Modeling, 9h, M2R GVR, Université Joseph Fourier Grenoble, France.

Master: Edmond Boyer, projet de programmation, 30h, M1 informatique - M1 MoSig, Université Joseph Fourier Grenoble, France.

Master: Edmond Boyer, Introduction to Image Analysis, 15h, M1 MoSig, Université Joseph Fourier Grenoble, France.

Master: J. Pansiot, Introduction to Computational Anatomy, 2h, Grenoble University Hospital.

Master: J. Pansiot, Introduction to Computer Vision, 27h, Ensimag 3rd year, Grenoble INP.

### 10.2.2. Supervision

HdR: Franck Hétry-Wheeler, Segmentation and skeleton methods for digital shape understanding, Université Grenoble Alpes, 20/11/2015.

PhD in progress : Benjamin Allain, Geometry and Appearance Analysis of Deformable 3D shapes, Université de Grenoble, started 01/10/2012, supervised by J.S. Franco and E. Boyer.

PhD in progress: Adnane Boukhayma, 4D model synthesis, Université de Grenoble, started 01/10/2013, supervised by Edmond Boyer.

PhD in progress: Georges Nader, Evaluation de la qualité perceptuelle de maillages dynamiques et ses applications, Université Claude Bernard - Lyon 1, started 01/10/2013, supervised by Florent Dupont, Kai Wang and Franck Hétry-Wheeler.

PhD in progress: Romain Rombourg, Digital tree: from the acquisition to a high-level geometric model, Université Grenoble Alpes, started 01/10/2015, supervised by Franck Hétry-Wheeler and Eric Casella.

PhD in progress : Vagia Tsiminaki, Appearance Modelling and Time Refinement in 3D Videos, Université de Grenoble, started 01/10/2012, supervised by J.S. Franco and E. Boyer.

PhD in progress: Li Wang, Transport optimal pour l'analyse de formes en mouvement, Université de Grenoble, started 01/10/2013, supervised by Edmond Boyer and Franck Hétry-Wheeler.

PhD in progress: Timo Bolkart, Statistical analysis of 3D human faces in motion, Saarland University, started 01/01/2012, supervised by Stefanie Wuhrer.

PhD in progress: Aurela Shehu, Geometric processing of near-isometrically deforming surfaces, Saarland University, started 01/04/2012, supervised by Stefanie Wuhrer.

PhD in progress : Jinlong Yang, Learning shape spaces of dressed 3D human models in motion, Université de Grenoble, started 01/10/2015, supervised by Franck Hétroy-Wheeler and Stefanie Wuhrer.

### **10.2.3. Juries**

- Edmond Boyer was president of the Habilitation committee of Vincent Lepetit at Grenoble University.
- Jean-Sébastien Franco was examiner of the PhD thesis of Kun Liu (Université de Lorraine, Inria Nancy)
- Franck Hétroy-Wheeler is a member of the PhD monitoring committee of Van Tho Nguyen (University of Lorraine, INRA Nancy and Office National des Forêts).

## **10.3. Popularization**

- Edmond Boyer gave invited talks at the ENS Cachan and at the Inria Paris, and the inaugural talk at the Kinovis platform inauguration.
- Franck Hétroy-Wheeler gave two talks on digital geometry to secondary school pupils and their families.
- Interactive Kinovis platform demonstration over 2 days for the "Fête de la Science" (within Morpheo: M. Heudre and J. Pansiot).



## **MULTISPEECH Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific events organisation**

#### *10.1.1.1. General chair, scientific chair*

General co-chair, 3rd CHiME Speech Separation and Recognition Challenge, Scottsdale, USA, December 2015 (E. Vincent)

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

Chair, Challenges Subcommittee, IEEE Technical Committee on Audio and Acoustic Signal Processing (E. Vincent)

Co-chair, special session on Audio for Robots – Robots for Audio, 2015 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (E. Vincent)

Co-chair, Workshop-satellite event of ICPhS2015. Phonetic Learner Corpora. Glasgow, GB, 08/12/15 (A. Bonneau)

#### *10.1.1.2. Special session organisation*

Special session Structuring Multimedia Streams, International Conference on Information Systems & Economic Intelligence, Hammamet, Tunisia, February 2015 (I. Illina, D. Fohr)

Co-organiser Workshop-satellite event of ICPhS2015. Phonetic Learner Corpora. Glasgow, GB, 08/12/15 (A. Bonneau)

#### *10.1.1.3. Member of organizing committees*

Member of the organizing committee, FAAVSP - The 1st Joint Conference on Facial Analysis, Animation and Auditory-Visual Speech Processing (S. Ouni)

### **10.1.2. Scientific events selection**

#### *10.1.2.1. Chair of conference program committees*

Program chair, 12th International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA), Liberec, Czech Republic, August 2015 (E. Vincent) [71]

#### *10.1.2.2. Member of conference program committees*

Area chair for Analysis of Speech and Audio Signal, INTERSPEECH'2015 (D. Jouvét)

Area chair for Audio and Speech Source Separation, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (E. Vincent)

IROS'2015 - 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (D. Jouvét)

ICNLSP'2015 - International Conference on Natural Language and Speech Processing (D. Jouvét)

FAAVSP - The 1st Joint Conference on Facial Analysis, Animation and Auditory-Visual Speech Processing (S. Ouni)

#### *10.1.2.3. Reviewer*

EUSIPCO'2015 - European Signal Processing Conference (D. Jouvét)

ICNLSP'2015 - International Conference on Natural Language and Speech Processing (D. Jouvét)

INTER\_SPEECH'2015 (I. Illina, A. Bonneau, S. Ouni, Y. Laprie)

ICASSP'2016 - 41th International Conference on Speech, Acoustic and Signal Processing (D. Jovet, S. Ouni, Y. Laprie)

FAAVSP - The 1st Joint Conference on Facial Analysis, Animation and Auditory-Visual Speech Processing (S. Ouni)

### **10.1.3. Journal**

#### *10.1.3.1. Member of editorial boards*

Speech Communication (D. Jovet)

Traitement du signal (E. Vincent)

Computer Speech and Language, special issue on Multi-Microphone Speech Recognition in Everyday Environments (E. Vincent)

Eurasip Journal on Audio, speech and music processing (Y. Laprie)

#### *10.1.3.2. Reviewer - reviewing activities*

IEEE Transactions on Audio, Speech, and Language Processing (D. Jovet)

Journal of Phonetics (Y. Laprie)

Journal of the Acoustical Society of America (Y. Laprie)

IEEE Signal Processing Letters (Y. Laprie)

### **10.1.4. Invited talks**

Keynote, 2015 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (E. Vincent) [85]

Lecture, LVA/ICA 2015 Summer School on Latent Variable Analysis and Signal Separation (E. Vincent) [84]

Invited talk, Expressive Virtual Actors workshop, Nov 2015, Grenoble, France (S. Ouni) [22]

Reconnaissance de la parole, application aux personnes sourdes et malentendantes. Inria Scientific Days 2015. Nancy-Inria Grand-Est, June 19th 2015 (A. Piquard-Kipffer)

Dyslexie-dysorthographe et situation de handicap. Journées des dys, AFON. Vandœuvre-Lès-Nancy, Faculty of Medicine, October 20th 2015 (A. Piquard-Kipffer)

Invited talk, Contribution of the acoustic cues to the non-native accent, Spring ASA meeting Pittsburgh (Y. Laprie) [20]

### **10.1.5. Leadership within the scientific community**

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

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

### **10.2.1. Teaching**

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

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

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

DUT: Slim Ouni, Programming in Java, 24 hours, L1, University of Lorraine, France

DUT: Slim Ouni, Web Programming, 24 hours, L1, University of Lorraine, France

DUT: Slim Ouni, Graphical User Interface, 96 hours, L1, University of Lorraine, France

DUT: Slim Ouni, Advanced Algorithms, 24 hours, L2, University of Lorraine, France

Licence: Vincent Colotte, C2i - Certificat Informatique et Internet, 50h, L1, University of Lorraine, France

- Licence: Vincent Colotte, System, 115h, L3, University of Lorraine, France
- Licence: Joseph Di Martino, Programming in C 1, 67 hours, L1, University of Lorraine, France
- Licence: Joseph Di Martino, Programming in C 2, 85 hours, L2, University of Lorraine, France
- Licence: Joseph Di Martino, Programming in C/C++, 45 hours, L3, University of Lorraine, France
- Licence: Odile Mella, C2i - Certificat Informatique et Internet, 28h, L1, University of Lorraine, France
- Licence: Odile Mella, Introduction to Web Programming, 30h, L1, University of Lorraine, France
- Licence: Odile Mella, Computer Networking, 81h, L2-L3, University of Lorraine, France
- Licence: Agnès Piquard-Kipffer, Psycholinguistics, 30 hours, L1, University of Lorraine, France
- Licence: Agnès Piquard-Kipffer, Reading and Writing, 24 hours, L2, Département Orthophonie, University of Lorraine, France
- Master: Vincent Colotte, Introduction to Speech Analysis and Recognition, 18h, M1, University of Lorraine, France
- Master: Vincent Colotte, Supervising student in research internship, M2, University of Lorraine, France
- Master: Yves Laprie, Analysis, Perception and recognition of speech, 30 hours, M1, University of Lorraine,
- Master: Odile Mella, Computer Networking, 66h, M1, University of Lorraine, France
- Master: Odile Mella, Supervising students in company internship, M2, University of Lorraine, France
- Master: Slim Ouni, Multimedia in Distributed Information Systems, 31 hours, M2, University of Lorraine, France
- Master: Agnès Piquard-Kipffer, Dyslexia, 25 hours, Département Orthophonie, University of Lorraine, France
- Master: Agnès Piquard-Kipffer, Deaf People and Reading, 9 hours, Département Orthophonie, University of Lorraine, France
- Master: Agnès Piquard-Kipffer, Psycholinguistics, 12 hours, Département Orthophonie, University Pierre et Marie Curie-Paris, France
- Master: Agnès Piquard-Kipffer, Psychology, 70 hours, ESPE, University of Lorraine, France
- Master: Agnès Piquard-Kipffer, French Language Didactics, 80 hours, ESPE, University of Lorraine, France
- Master: Agnès Piquard-Kipffer, Psychology, 6 hours, University Blaise Pascal, Clermont-Ferrand, France
- Ecole Audioprothèse: Anne Bonneau, Phonétique, 16 hours, Université de Lorraine, France
- School of engineers: Vincent Colotte, XML, 20h, Telecom Nancy, France
- Doctorat: Piquard-Kipffer Agnès, Language Pathology, 15 hours, EHESP, University of Sorbonne-Paris Cité, France
- Adults: Odile Mella, Computer science courses for secondary school teachers (Informatique et Sciences du Numérique courses) (10h), ESPE of Academy Nancy-Metz, University of Lorraine, France
- Other: Vincent Colotte, Responsible for "Certificat Informatique et Internet" for the University of Lorraine, France (50000 students, 30 departments)

### 10.2.2. Supervision

- PhD: Xabier Jaureguiberry, "Fusion pour la séparation de sources audio", Télécom ParisTech, 16 June 2015, Gaël Richard and Emmanuel Vincent [8].

PhD : Dung Tran, "Uncertainty learning for noise robust ASR", University of Lorraine, 20 November 2015, Emmanuel Vincent and Denis Juvet [11].

PhD: Nathan Souviraà-Labastie, "Détection de motifs audio pour la séparation de sources guidée. Application aux bandes-son de films.", University Rennes 1, 23 November 2015, Frédéric Bimbot and Emmanuel Vincent [10].

PhD : Luiza Orosanu, "Speech recognition for helping communication for deaf or hard-of-hearing people", University of Lorraine, 11 December 2015, Denis Juvet [9].

PhD in progress: Imran Sheikh, "OOV proper name retrieval", February 2014, Irina Illina and Georges Linares.

PhD in progress: Baldwin Dumortier, "Contrôle acoustique d'un parc éolien", September 2014, Emmanuel Vincent and Madalina Deaconu.

PhD in progress: Quan Nguyen, "Mapping of a sound environment by a mobile robot", November 2014, Francis Colas and Emmanuel Vincent.

PhD in progress: Aditya Nugraha, "Deep neural networks for source separation and noise-robust speech recognition", January 2015, Antoine Liutkus and Emmanuel Vincent.

PhD in progress: Ken Deguernel, "Apprentissage de structures musicales en situation d'improvisation", March 2015, Emmanuel Vincent and Gérard Assayag.

PhD in progress: Amal Houdidhek, "Élaboration et analyse d'une base de parole arabe pour la synthèse vocale", November 2015, Denis Juvet and Vincent Colotte (France) and Zied Mnasri (Tunisia).

PhD in progress: Imène Zangar, "Amélioration de la qualité de synthèse vocale par HMM pour la parole arabe", November 2015, Denis Juvet and Vincent Colotte (France) and Zied Mnasri (Tunisia).

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

Participation in Habilitation thesis Jury for Pavel Král (University of West Bohemia, May 2015), D. Juvet, reviewer.

Participation in PhD thesis Jury for Grégor Dupuy (Université du Maine, July 2015), D. Juvet.

Participation in PhD thesis Jury for Sarah Flora Samson Juan (Université de Grenoble, July 2015), D. Juvet, reviewer.

PhD thesis reviewer for Marc Evrard (Université de Paris Sud, September 2015), Y. Laprie.

PhD thesis reviewer for Heikki Kallasjoki (Aalto University, Finland, October 2015), E. Vincent.

Participation in PhD thesis Jury for Adela Barbulescu (Université de Grenoble, November 2015), S. Ouni.

### **10.2.4. Participation in other juries**

Chairman of Scientific « Baccalauréat », specialty Earth Sciences (Académie de Nancy-Metz and Université de Lorraine, June 2015), A. Piquard-Kipffer.

Participation in PGCE (french CAFIPEMF) Juries for Master Learning Facilitator (DSDEN 54, April, June 2015), A. Piquard-Kipffer.

Participation in the Competitive Entrance Examination into Speech-Language Pathology Department (University of Lorraine, June 2015), A. Piquard-Kipffer.

### **10.2.5. Participation to external committees**

Member of the Scientific Committee of an Institute for deaf people (La Malgrange), A. Piquard-Kipffer

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

Titular member of the National Council of Universities (CNU section 61), E. Vincent.

Member of the "Conseil de secteur IAEM" at the Faculté de sciences et technologie- Université de Lorraine, V. Colotte

Elected member, and member of the board of the "Conseil du pôle AM2I" Université de Lorraine, Y. Laprie

#### **10.2.6. Participation to internal committees**

Titular member of the "Comité de Centre Inria", E. Vincent

Member of the Comipers, E. Vincent

Member of the "Comité Espace Transfert", E. Vincent

Member of the "Commission locale de développement durable", D. Fohr

Head of the "Commission des utilisateurs des moyens informatiques" (CUMI), D. Fohr

Member of the "Bureau de la Commission de Mention Informatique", I. Illina

Member of the "Commission de développement technologique", A. Bonneau

Elected member of the "Conseil de Laboratoire" (LORIA), S. Ouni

Appointed member of the "Conseil de Laboratoire" (LORIA), Y. Laprie

Appointed member at "Conseil de la Fédération Charles Hermite", S. Ouni

### **10.3. Popularization**

Demonstration at Forum des métiers, Collège Peguy, Le Chesnay, March 2015 (A. Piquard-Kipffer).

Demonstration at Village Sciences LORIA, April 2015 (S. Ouni, J. Di Martino).

Demonstration at Science & You, Nancy, June 2015 (K. Deguernel, E. Vincent).

Demonstration to students of the Master Erasmus Mundu Program DESEM, Inria, July 2015 (Y. Laprie).

Demonstration at Fête de la Science, Artem, October 2015 (A. Liutkus, N. Souviraà-Labastie, E. Vincent).

Demonstration to students of ENS Cachan, Inria, December 2015 (S. Ouni, E. Vincent).

Les troubles Dys : la dyslexie-dysorthographe. Conf' curieuses, Museum & Aquarium of Nancy, Grand Nancy & University of Lorraine. Nancy, January 15th 2015 (A. Piquard-Kipffer).

“Séparation de sources audio”, Interstices, to appear (A. Liutkus and E. Vincent).

“Loria : un articulographe pour étudier la production de la parole”, Eureka Lorraine, 21/10/2015 (S. Ouni).

## OAK Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

I. Manolescu has been a co-chair of the Digicosme Spring School in Databases (May 2015) <http://labex-digicosme.fr/SpringSchool+2015+%28en%29>.

### 9.1.2. Scientific events selection

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

- I. Manolescu has been a Review Board member of PVLDB 2015 (Experiment and Analysis track), and a PC member for PODS 2015, SIGMOD 2015 (Demonstrations track), BICOD 2015, the Data Engineering and the Semantic Web (DESWeb) workshop 2015 as well as BDA (the French database conference) 2015

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- I. Manolescu has been an associate editor for the ACM Transactions on the Web since september 2015.
- I. Manolescu is a member of the editorial board of the Springer "Data-Centric Systems and Applications" book series

### 9.1.4. Invited talks

- I. Manolescu gave two keynote talks: on efficient query answering techniques for RDF at the SEBD 2015 conference [4], and on RDF summarization at DESWeb workshop in conjunction with ICDE 2015 [5].

### 9.1.5. Leadership within the scientific community

N. Bidoit and I. Manolescu are members of the BDA steering committee.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : B. Groz, Introduction to Databases, 28 ETD, L2, Univ. Paris-Sud, France

Licence : B. Groz, Databases, 71 ETD, L3 (and M1), Univ. Paris-Sud, France

Master : B. Groz, Data Warehouses and Olap, 65 ETD, M1 MIAGE, Univ. Paris-Sud, France

Master : I. Manolescu, Architectures for Massively Distributed Data Management, 28 ETD, M2R IAC, Univ. Paris-Sud, France

### 9.2.2. Supervision

PhD: Katarina Tzompanaki: "Foundations and Algorithms to Compute the Provenance of Missing Data", defended in December 2015, Melanie Herschel and Nicole Bidoit.

PhD: Stamatis Zampetakis: "Massively Parallel Algorithms for Semantic Web Data", defended in September 2015, François Goasdoué and Ioana Manolescu.

PhD in progress : Raphael Bonaque: “Structured, Social and Semantic Search”, since October 2013, Bogdan Cautis, François Goasdoué, and Ioana Manolescu.

PhD in progress : Damien Bursztyn: “Scalable Techniques for Web Data Management”, since January 2014, François Goasdoué and Ioana Manolescu.

PhD in progress : Sejla Čebirić: “CloudSelect: Data Mobility Within, Across and Outside Clouds”, since September 2015, A.Bounfour, F. Goasdoué and I. Manolescu.

PhD in progress : Paul Lagrée: “Adaptive Learning for Intelligent Crowdsourcing and Information Access”, since October 2014, Bogdan Cautis.

### 9.2.3. *Juries*

Nicole Bidoit has been a member of the PhD committee of Katarina Tzompanaki.

François Goasdoué has been a member of the PhD committee of Stamatis Zampetakis.

Ioana Manolescu has been a member of the PhD committee of Stamatis Zampetakis, and of the HDR committee of Sarah Cohen-Boulakia (Université de Paris Sud).

## 9.3. Popularization

- I. Manolescu has given a conférence “Big Data and the Internet” in January in the *UniverCité Ouverte* conference series organized by the city of Gif sur Yvette for the general public .
- R. Bonaque, D. Bursztyn, S. Cebiric and I. Manolescu have presented a game based on RDF graphs and social networks as part of Fête de la Science in Inria Saclay, in October.
- I. Manolescu has presented a vision of data management techniques for journalistic fact-checking at the congress of the french Association of the Information Press Journalists (Association des Journalistes de la Presse d’Information) in October. The same topic has lead to articles in the general press, in Ouest France (<http://www.ouest-france.fr/leditiondusoir/data/569/reader/reader.html#!preferred/1/package/569/pub/570/page/8>), the canadian Le Devoir (<http://www.ledevoir.com/politique/canada/450937/sur-la-piste-du-mensonge>), Le Monde (<http://data.blog.lemonde.fr/2015/10/23/le-fact-checking-peut-il-sautomatiser/>), Rue89 (<http://rue89.nouvelobs.com/2015/10/26/algorithmes-antimensonge-fin-bobards-politique-261827>), as well as in the Journal du CNRS (<https://lejournel.cnrs.fr/articles/un-logiciel-qui-decrypte-la-politique>) and Inria’s national Web site (<http://www.inria.fr/centre/saclay/actualites/un-logiciel-de-fact-checking-pour-comprendre-le-monde-qui-nous-entoure>).
- I. Manolescu has presented a database management vision for Data Science in the Big Data Business Convention in November, attended by 600 participants among which half were academics and half from the industry. S. Zampetakis has presented CliqueSquare at the Business Convention.

## ORPAILLEUR Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

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

- “CCC”. Emmanuel Nauer co-organized the “Computer Cooking Contest” at ICCBR 2015 which held this year in Bad Homburg (Germany) (see <http://ccc2015.loria.fr/>).
- “FCA4AI 2015”. Amedeo Napoli organized with Sergei O. Kuznetsov (HSE Moscow) and Sebastian Rudolph (TU Dresden) the fourth workshop FCA4AI (“What can do FCA for Artificial Intelligence”) which was associated with the IJCAI Conference in Buenos Aires (Argentina, July 2015, see <http://www.fca4ai.hse.ru/2015> and <http://ceur-ws.org/Vol-1430>).

#### 9.1.1.1. 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/?p=1>). 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 team are also aware of the BINGO seminar which is organized by the Capsid Team (composed of former members of the Orpailleur Team), whose topics are related to biology, chemistry, and medicine. Actually, both seminars are active and are useful instruments for researchers in the team.
- 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 (ECAI, ECML-PKDD, ICCBR, ICDM, ICFCA, IJCAI, KDD...), as members of editorial boards, and finally in the organization of journal special issues.

## 9.2. Teaching - Supervision - Juries

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



## PANAMA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

Rémi Gribonval is a member of the IEEE Technical Committee on Signal Processing Theory and Methods (2012–2014), and a member of the Awards sub-committee.

Rémi Gribonval is a member of the program committee of the GRETSI.

Rémi Gribonval is a member of the Steering Committee of the SPARS international workshop (chairman until 2013).

Frédéric Bimbot is the Head of the "Digital Signals and Images, Robotics" in IRISA (UMR 6074).

Frédéric Bimbot is a member of the International Advisory Council of ISCA (International Speech Communication Association).

Rémi Gribonval and Frédéric Bimbot are the scientific coordinators of the Science and Music Day (Journée Science et Musique) organized by IRISA.

R. Gribonval was a keynote speaker at LVA/ICA15, and a tutorial speaker at IEEE-SchoolOfICASSP15.

R. Gribonval is guest editor of a special issue of IEEE Journal on Selected Topics in Signal Processing, on Structured Matrices in Signal and Data Processing.

R. Gribonval was vice-president of the jury of the GDR ISIS / GRETSI / Club EAA thesis prize in signal and image processing 2014.

Nancy Bertin is a member of the IEEE Technical Committee on Audio and Acoustic Signal Processing (2013–2015).

Nancy Bertin and Frédéric Bimbot guest edited a special issue of the journal "Traitement du Signal" (Lavoisier).

Laurent Albera is substitute member of the french national board of universities (section 61) (2015-2019).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : N. Bertin, "Discovery of selected topics in audio signal processing research", 9 hours, L3, École Supérieure de Réalisation Audiovisuelle (ESRA), France.

Master : N. Bertin, "Audio rendering, coding and source separation", 9 hours, M2, Université Rennes 1, France.

Master : N. Bertin, "Audio indexing and classification", 9 hours, M2, Université Rennes 1, France.

Master : N. Bertin, "Fundamentals of Signal Processing", 24 hours, M1, Ecole Normale Supérieure de Bretagne, Rennes, France.

Master : R. Gribonval, "Signal and image representations", 8 hours, M2, Université Rennes 1, France.

Master: R. Gribonval, coordination of the ARD module "Acquisition et Représentation de Données", M2, Université Rennes 1, France.

Laurent Albera gives lectures in Mathematics and in Signal Processing, and he supervises end of school year projects, mainly at the university of Rennes 1:

Licence: L. Albera, "Mathematics for electronics", 6 hours, L2, Université Rennes 1, France.

Licence: L. Albera, "Mathematics for electronics", 21 hours, L3, Université Rennes 1, France.

Licence: L. Albera, "Mathematics", 53 hours, L3, Ecole Supérieure d'Ingénieurs de Rennes, France

Master: L. Albera, "Cardiac source localization from ECG signals", project supervision (with Ansys), M2, Ecole Supérieure d'Ingénieurs de Rennes, France.

Master : L. Albera, "Blind equalization", 4.5 hours, M2, Université Rennes 1, France.

Master : L. Albera, "Inverse problems", 3 hours, M2, Université Rennes 1, France.

Laurent Albera is responsible of the "Signal Processing" branch of the SISEA (Signal, Images, Embedded Systems and Control) Master 2 of University of Rennes 1.

## 10.3. Popularization

### 10.3.1. *Journée science et musique*

**Participants:** Nicolas Keriven, Luc Le Magoarou, Stéphanie Lemaile, Frédéric Bimbot, Rémi Gribonval, Gilles Puy, Nancy Bertin, Corentin Guichaoua, Srdan Kitic, Ewen Camberlein, Romain Lebarbenchon, Nathan Souviraà-Labastie.

*with contributions and support from: Valérie Gouranton, Laurent Perraudeau, Nathalie Denis, Evelyne Orain, Julie Newton, Agnès Cottais, Cagdas Bilen, and many more.*

PANAMA coordinated the organization of a public event called "Journée Science et Musique" (Day of Music and Science). This yearly event organized by the METISS/ PANAMA Team since 2011 aims at sharing with the wide audience the latest innovations and research projects in music. The motivation for hosting this event is to explain and promote the technology behind audio-processing that people face in their daily lives. The event is free to everyone and people have the possibility to attend talks by selected speakers or meet numerous experts that demonstrate current projects in which people can interactively participate. Edition 2015 hosted more than 250 visitors and was the official opening event of the "Festival des Sciences" week in Rennes.

### 10.3.2. *Radio and press*

Nancy Bertin and Rémi Gribonval co-authored a popularization article about compressed acoustic holography (with L. Daudet and F. Ollivier). It was published in the journal "Pour la Science" in May 2015 [46].

Nancy Bertin was interviewed for the local press (Rennes Métropole journal) at the occasion of "Journée Science et Musique".

## PERCEPTION Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events selection

#### 9.1.1.1. Chair of conference program committees

Radu Horaud was program co-chair of ACM ICMI'15, November 2015, Seattle WA, USA.

### 9.1.2. Journal

#### 9.1.2.1. Member of the editorial boards

Radu Horaud is a member of the following editorial boards:

- advisory board member of the *International Journal of Robotics Research*, Sage,
- associate editor of the *International Journal of Computer Vision*, Kluwer, and
- area editor of *Computer Vision and Image Understanding*, Elsevier.

### 9.1.3. Invited talks

Radu Horaud gave an invited talk at the IEEE ICCV Worskhop on 3D Reconstruction and Understanding with Video and Sound, Santiago de Chile, Chile, 17 December 2015.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

**E-learning:** MOOC on *Binaural Hearing for Robots*, May-June 2015, 5 hours over five weeks.  
Teacher: Radu Horaud.

**Tutorial:** *Embodied Audition for Robots* at the European Signal Processing Conference (EUSIPCO), Nice, France, 31 August 2015, 3 hours. Teachers: Radu Horaud, Heinrich Loellmann (Friedrich Alexander Universitat Erlangen) and Christine Evers (Imperial College London).

### 9.2.2. Supervision

- PhD in progress: Israel Dejene Gebru, October 2013, Radu Horaud and Sileye Ba.
- PhD in progress: Dionyssos Kounades-Bastian, October 2013, Radu Horaud and Laurent Girin.
- PhD in progress: Vincent Drouard, October 2014, Radu Horaud and Sileye Ba.
- PhD in progress: Benoit Massé, October 2014, Radu Horaud and Sileye Ba.
- PhD in progress: Stéphane Lathuilière, October 2014, Radu Horaud.
- PhD in progress: Yutong Ban, October 2015, Radu Horaud.

## POTIOC Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- Workshop organizer Interco3D (workshop on 3D Interaction & Cognition), ACM IHM conference, Toulouse, October 2015 (Anke Brock & Fabien Lotte)
- Doctoral Consortium, ACM IHM conference, Toulouse, October 2015 (Anke Brock)
- Panel Chair, ACM womENCourage conference, Uppsala, Sweden, September 2015 (Anke Brock)
- Workshop Organizer "Accessible Interaction for Visually Impaired People", MUC'15, Stuttgart, Germany, September 2015 (Anke Brock)
- Workshop co-organizer "Affective Brain-Computer Interface", ACII 2015, Xi'an, China (Fabien Lotte)
- Special session on "Robust EEG signal processing towards practical BCI design" at EUSIPCO 2015, Nice, France (Fabien Lotte)
- Special session on "user training" in the BCI workshop at the SMC2015 conference, Hong Kong, October 2015 (Fabien Lotte & Camille Jeunet)
- 4th Sino-French Workshop on Virtual Reality Co-organizer, Xi'an, August 2015 (Pascal Guitton)

### 10.1.2. Scientific events selection

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

- ACII 2015: Program Committee Member (Fabien Lotte)
- Assets' 15: Poster Committee Member (Anke Brock)
- Augmented Humans 2016: Program Committee Member (Fabien Lotte)
- CAA 2015: Program Committee Member (Pascal Guitton)
- CHI 2015: Program Committee Member (Martin Hachet)
- EUSIPCO 2015: Program Committee Member (Fabien Lotte)
- IEEE 3DUI: Best paper award Committee (Martin Hachet)
- IEEE SMC 2015: Program Committee Member (Fabien Lotte, Camille Jeunet)
- International Winter Conference on Brain-Computer Interfaces: Program Committee Member (Fabien Lotte)
- ITS' 15: Program Committee Member (Anke Brock)
- Journées scientifiques Inria 2015 : Program Committee Member (Pascal Guitton)

#### 10.1.2.2. Reviewer

- ACII 2015 (Fabien Lotte)
- Augmented Humans 2016 (Fabien Lotte)
- CHI' 15 (Anke Brock, Camille Jeunet, Fabien Lotte)
- CHI' 16 (Jérémy Frey, Fabien Lotte, Anke Brock, Camille Jeunet)
- EUSIPCO 2015 (Fabien Lotte)
- ICASSP 2015 (Fabien Lotte)

- IHM'15 (Anke Brock)
- Interact'15 (Anke Brock, Fabien Lotte)
- Jetsan'15 (Anke Brock)
- MobileHCI'15 (Anke Brock)
- NIPS 2015 (Fabien Lotte)
- PRNI 2015 (Fabien Lotte)
- SMC2015 (Camille Jeunet, Fabien Lotte)
- UIST'15 (Anke Brock, Martin Hachet)
- womENCourage'15 (Anke Brock)

### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

- Review Editor for *Frontiers in Robotics and AI* (Martin Hachet)
- Review Editor for *Frontiers in Neuroprosthetics* (Fabien Lotte)
- Review Editor for *Frontiers in Human-Media Interaction* (Fabien Lotte)

#### *10.1.3.2. Reviewer - Reviewing activities*

- *ACM Journal on Computing and Cultural Heritage* (Anke Brock)
- *Frontiers in Human Media Interaction* (Fabien Lotte)
- *Frontiers in Neurosciences* (Fabien Lotte)
- *IEEE Journal on Selected Topics in Signal Processing* (Fabien Lotte)
- *IEEE Transactions on Affective Computing* (Fabien Lotte)
- *IEEE Transactions on Biomedical Engineering* (Fabien Lotte)
- *IEEE Transactions on Haptics* (Anke Brock)
- *IEEE Transactions on Human-Machine Systems* (Fabien Lotte, Camille Jeunet)
- *IEEE Transactions on Neural Systems and Rehabilitation Engineering* (Fabien Lotte)
- *International Journal of Psychophysiology* (Camille Jeunet)
- *Journal of Medical Imaging and Health Informatics* (Fabien Lotte)
- *Journal of Neural Engineering* (Fabien Lotte)
- *Journal of Visualized Experiments* (Camille Jeunet)
- *NeuroImage* (Fabien Lotte)
- *Proceedings of the IEEE* (Fabien Lotte)
- *T&F Behavior & Information Technology* (Anke Brock)

#### **10.1.4. Invited talks**

- "Towards Improved BCI based on Human Learning Principles", 3rd International Winter Conference on Brain-Computer Interfaces, South Korea, January 2015 (Fabien Lotte)
- "Human Learning-based Brain-Computer Interface Design", University of Freiburg, Brain Links/Brain Tools excellence cluster, Germany, January 2015 (Fabien Lotte)
- "Interactions tangibles et réalités augmentées au service de l'éducation", Journées scientifiques Inria, Nancy, June 2015 (Martin Hachet)
- "Brain-Computer Interaction research at Potioc team », "Handicap & Système Nerveux" laboratory, The University of Bordeaux, Bordeaux, France, June 2015 (Fabien Lotte, Camille Jeunet, Jérémy Frey)
- "Towards practical BCI Technologies", RIKEN BSI, Japan, July 2015 (Fabien Lotte)

- “Robust EEG signals classification towards practical Brain-Computer Interface technologies”, Sugiyama Laboratory, the University of Tokyo, Tokyo, Japan, July 2015 (Fabien Lotte)
- “Towards practical BCI Technologies”, Cinet, Osaka, Japan, July 2015 (Fabien Lotte)
- “Popular Interaction” and “Interacting with spatial information”, EPFL, Lausanne, Switzerland, August 2015 (Martin Hachet & Anke Brock)
- “Popular Interaction”, Dassault Systèmes, Campus 3DS - Paris, September 2015 (Martin Hachet)
- “Towards practical EEG-based Brain-Computer Interface Technologies”, South China University of Technology, Guangzhou, China, October 2015 (Fabien Lotte)
- “Interacting with spatial information”, DFKI Saarbruecken, Germany, November 2015 (Anke Brock)
- “Improving BCI-user training: Towards a new generation of reliable, efficient and accessible brain-computer interfaces”, Donders Discussions, Netherlands, November 2015 (Camille Jeunet)

### **10.1.5. Leadership within the scientific community**

- IEEE 3DUI Steering Committee - leader (Martin Hachet)

### **10.1.6. Scientific expertise**

- Review for “Crédit Impot Recherche” (Martin Hachet)
- Review of two research projects for the Research Foundation Flanders (Anke Brock)
- Review of one research project for HES-SO (Switzerland) (Pascal Guitton)
- Review of an ANR project (Fabien Lotte)

### **10.1.7. Research administration**

- Member of Inria Ethical Committee (COERLE) (Pascal Guitton)
- Member of Inria Comité Parité et Egalité (Pascal Guitton)
- Member of Comité de Pilotage de Software Heritage (Pascal Guitton)
- Member of Commission de recrutement des Inspecteurs Généraux de l’Education Nationale (IGEN) (Pascal Guitton)
- Member of Committee for technological development at Inria Bordeaux Sud Ouest (CDT) (Fabien Lotte)

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

### **10.2.1. Teaching**

#### **Licence**

- Licence : Julia Chatain, Algorithms and programmation, TP, 32h eqtd, First year (L1), IUT de Bordeaux, France
- Licence : Jérémy Frey, Programming, CM-TD, 30h eqtd, L1 Computer Science, University of Bordeaux, France
- Licence : Damien Clergeaud, Functional and Symbolic Programming, TP, 32h eqtd, L3 Computer Science, University of Bordeaux, France

#### **Master**

- Master : Jérémy Frey, Programming projects, TD, 32h eqtd, M1 Computer Science, University of Bordeaux, France
- Master : Pascal Guitton, Virtual and Augmented Realities, CM, 36h eqtd, M2 Computer Science, University of Bordeaux, France

- Master : Pascal Guitton, Digital accessibility, CM, 12h eqtd, M1 Cognitive Science, University of Bordeaux, France
- Master : Pascal Guitton, Assistive technologies, CM, 30h eqtd, M2 Cognitive Science, University of Bordeaux, France
- Master : Anke Brock, Virtual Reality and 3D Interaction, CM, 7,5h eqtd, M2 Cognitive Science, University of Bordeaux, France
- Master : Martin Hachet, Virtual Reality and 3D Interaction, CM, 12h eqtd, M2 Cognitive Science, University of Bordeaux, France
- Master : Fabien Lotte, Virtual Reality and 3D Interaction, CM, 4h eqtd, M2 Cognitive Science, University of Bordeaux, France
- Master : Anke Brock, Handicap, Autonomy & Technology, TP, 4h eqtd, M2 Cognitive Science, University of Bordeaux, France
- Master : Anke Brock, Video Games and Interaction, CM-TD, 12h eqtd, 3rd year (M2), Enseirb, Bordeaux, France
- Master : Martin Hachet, Video Games and Interaction, CM-TD, 8h eqtd, 3rd year (M2), Enseirb, Bordeaux, France
- Master: Fabien Lotte, Virtual Reality, Accesibility and Brain-Computer Interfaces, 4h eqtd, 3rd year (M2), ENSSAT, Lannion, France
- Master: Fabien Lotte, Brain Computer Interfaces, 6h eqtd, 3rd year (M2), ESIEA, Laval, France
- Master : Anke Brock, Human-Computer Interaction, CM-TD, 12h eqtd, M2 Intelligent Systems and Robotics (M2SIR), University Toulouse, France

### 10.2.2. Supervision

#### PhD

- PhD : Jérémy Frey, Leveraging human-computer interactions and social presence with physiological computing, Université de Bordeaux, defended 8/12/2015, (Martin Hachet & Fabien Lotte)
- PhD : Renaud Gervais, Interaction and Introspection with Tangible Augmented Objects, Université de Bordeaux, defended 9/12/2015, (Martin Hachet)

#### PhD in progress

- Julia Chatain (PhD Student in Computer Science, University of Bordeaux), "Design and evaluation of augmented geographic maps", since September 2015 (Anke Brock & Martin Hachet)
- Damien Clergeaud (PhD Student in Computer Science, University of Bordeaux), "Collaborative interaction for aerospace scenarios", since November 2014 (Pascal Guitton)
- Camille Jeunet (PhD Student in Cognitive Science, University of Bordeaux), "Improving User training approaches for Brain-Computer Interface", since October 2013 (Martin Hachet, Fabien Lotte, co-supervision with Bernard N'Kaoua, University of Bordeaux and Sriram Subramanian, University of Sussex)
- Stephanie Lees (PhD student in Computer Science, Ulster University, UK): "Assessing and Optimising Human-Machine Symbiosis through Neural signals for Big Data Analytics", since February 2014 (Fabien Lotte, co-supervision with Damien Coyle, Paul McCullagh and Liam Maguire, Ulster University)
- Lorraine Perronnet (PhD student in Computer Science, Rennes University): "Neurofeedback and Brain Rehabilitation based on EEG and fMRI", since January 2014 (Fabien Lotte, co-supervision with Anatole Lécuyer, Christian Barillot, Inria Rennes and Maureen Clerc, Inria Sophia Antipolis)

- Joan Sol Roo (PhD Student in Computer Science, University of Bordeaux), "Interaction with Spatial Augmented Reality", since December 2014 (Martin Hachet)

#### Internships

- Julia Chatain (Master Student in Computer Science, Polytechnique France & EPFL Switzerland), "SyMAPse: Augmented Interactive Maps for Subjective Expression", February to July 2015, (Anke Brock & Martin Hachet, co-supervised by D. Laval at Cap Sciences)
- Pierre-Antoine Cinquin (M2 Cognitive Sciences, University of Bordeaux), "Digital accessibility for e-learning" (Pascal Guitton)
- Maxime Daniel (M2 Computer Science, University of Bordeaux), "Create a virtual environment that could validate the use of electroencephalography as an evaluation tool for 3D interactions", January to June 2015 (Jérémy Frey, Fabien Lotte, co-supervision with Julien Castet at Immersion)
- Adrien Dax (M2IHM, University Toulouse), "Design of Tangible Objects and Interaction Techniques for Visually Impaired Students", March to August 2015 (Anke Brock, co-supervision with C. Jouffrais, M. Macé & J. Ducasse at Irit Toulouse)
- Marie Demangeat (M1 Cognitive Science, University Bordeaux), "Design and evaluation of interactive devices for the museum", April to May 2015, (Anke Brock, Julia Chatain & Martin Hachet)
- Maxime Duluc (last year in engineering school "Institut d'Optique Graduate School"), "Create an instrumented version of the tangible interface of electroencephalographic signals' visualization Teegi", January to June 2015 (Jérémy Frey)
- Alexis Gay (M2 Design, University of Bordeaux Montaigne), "Design of Tobe, a tangible out-of-body experience", April to June 2015 (Jérémy Frey and Renaud Gervais)
- Emilie Jahanpour (M1 Cognitive Sciences, University of Bordeaux), "Is it possible to predict BCI performance from the performance obtained at simple motor tasks? (Camille Jeunet, Fabien Lotte, co-supervision with Bernard N'Kaoua)
- Houda Lamqaddam (M2IHM, University Toulouse), "Design of Innovative Interaction Techniques for Interactive Maps", March to August 2015 (Anke Brock, co-supervision with E. Dubois & M. Serrano at Irit Toulouse)

#### Other Supervision

- Charles Coeurderoy & Violaine Sudret (M2 Enseirb, Bordeaux), "GPS Narratif", Student Project, November 2015 to January 2016 (Julia Chatain & Anke Brock)
- Paul Ecoffet, Florian Gouet, Elias Rhouzlane, Mathieu Seurin, "Detecting frustration during a training from physiological and neurophysiological markers" (Camille Jeunet & Fabien Lotte)
- Ilias Ainseba, Théo Geral, Charles Gouverneur, "Les Interfaces Cerveau-Ordinateur : La technologie peut-elle compenser les défaillances du corps humain ? ", TPE 1ère S, 2015 (Camille Jeunet)

#### 10.2.3. Juries

- PhD (rapporteur): William Delamarre, Nov. 2015, Grenoble (Martin Hachet)
- PhD (rapporteur): Jonhatan Mercier, Oct. 2015, Rennes (Martin Hachet)
- PhD (rapporteur): Jean-Claude Morgère, April 2015, Lorient (Pascal Guitton)
- PhD (examineur): Paul-Antoine Arras, Feb. 2015, Bordeaux (Pascal Guitton)
- PhD (examineur): Remy Brouet, March 2015, Grenoble (Martin Hachet)
- PhD (examineur): Gautier Durantin, ISAE, Toulouse (Fabien Lotte)



- HdR (examinateur): Julien Pettré, June 2015, Rennes (Pascal Guitton)
- PhD (examinateur): Raphaëlle N. Roy, CEA, Grenoble (Fabien Lotte)
- PhD qualification examen ("mi-thèse"): Tracy Brandmeyer, Toulouse (Fabien Lotte)

## 10.3. Popularization

### 10.3.1. Job Fairs

- Salon Aquitec (Regional Career Fair), Bordeaux, January 2015 (Anke Brock & Camille Jeunet)

### 10.3.2. Science Festivals

- Fête de la Science, Talence, September 2015 (Julia Chatain)
- TechFest 2015, Mumbai, India. January. (Jérémy Frey, Jérémy Laviolle)

### 10.3.3. Popularization Talks

- "Ma Thèse en 180s", Public Prize of the University of Bordeaux Final and regional final, April 2015 (Camille Jeunet)
- "Rencontres Numériques", Cultures scientifiques et techniques, Créteil, October 2015 (Martin Hachet)
- "Peut-on tout contrôler par la pensée", DocForum, Lyon, Lavoisier Public, November 2015 (Fabien Lotte, with Jérémie Mattout and Emmanuel Maby, Inserm Lyon)

### 10.3.4. Popularization Articles

- "Publication : du papier au numérique", Blog Binaire - Le Monde (Pascal Guitton) [45]
- "Publication : le temps des dérives", Blog Binaire - Le Monde (Pascal Guitton), [46]

### 10.3.5. Demonstrations

- Augmented Michelson Interferometer, ETOP, June 2015 (David Furio, Martin Hachet).
- Fête du centre: virtual reality demo (Inria), June 2015

### 10.3.6. Women In Science

- Printemps de la Mixité (Event for High-School Students with the aim to increase the interest in science, specifically in girls), Université de Bordeaux, Mai 2015 (Anke Brock: Organisation for Inria and Panel Talk & Potioc team: Demos)
- Panelist "Témoignages de femmes dans des professions scientifiques des secteurs public et privé et à différents niveaux de carrière" at the Colloque femmes & sciences (women in science annual meeting), Toulouse, November 2015 (Anke Brock)
- Panelist at the "Journées Femmes et Informatique" (women in computing conference) of the Société Informatique de France (French association on computing), Orléans, February 2015 (Anke Brock)
- Panelist "Out of the ordinary jobs in Computer Science" at the ACM womENCourage conference, Uppsala, Sweden, September 2015 (Anke Brock)
- Django Girls, Bordeaux, November 2015 (Julia Chatain)

### 10.3.7. Inria Media Channels

- Inside Inria Video <https://www.youtube.com/watch?v=8bNS6JHmCwo> (Anke Brock + the whole Potioc team)
- Podcast "Comment améliorer l'accès aux cartographies pour les déficients visuels ?" for Interstices, April 2015 [https://interstices.info/jcms/ni\\_78646/comment-ameliorer-laces-aux-cartographies-pour-les-deficients-visuels](https://interstices.info/jcms/ni_78646/comment-ameliorer-laces-aux-cartographies-pour-les-deficients-visuels) (Anke Brock)

## PRIMA Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. General chair, scientific chair

- Sabine Coquillart has served as general co-chair for IEEE VR 2015, Arles, France
- Sabine Coquillart will be general co-chair for IEEE VR 2016, Greenville, USA
- Sabine Coquillart chairs the steering committee for the EGVE Working Group EUROGRAPHICS Working group on Virtual Environments.

### 9.1.2. Member of the organizing committees

- Sabine Coquillart serves as member of the steering committee for the ICAT conference ñ International Conference on Artificial Reality and Telexistence.
- Sabine Coquillart has served as member of the steering committee for the 3DCVE Workshop on 3D Collaborative Virtual Environments in Arles, France, March 2015.
- Anne Spalanzani served on the organizing committee as Financial chair for IEEE ARSO 2015, Lyon, France

### 9.1.3. Chair of conference program committees

- James L. Crowley chaired the Best Paper award committee for ACM ICMI 2015

### 9.1.4. Member of the conference program committees

- Sabine Coquillart has served as a member of the program committee for GRAPP'2015 - International Conference on Computer Graphics Theory and Applications ñ Berlin, Germany, March 2015.
- Sabine Coquillart has served as a member of the program committee for VRST 2015 - 21st ACM Symposium on Virtual Reality Software and Technology, Beijing, China, Nov. 2015.
- Sabine Coquillart has served as a member of the program committee for ICAT-EGVE 2015 - 25th International Conference on Artificial Reality and Telexistence (ICAT 2015) and the 20th Eurographics Symposium on Virtual Environments (EGVE 2015) - Kyoto, Japan, 2015.
- James L. Crowley will serve on the program committee for Ubicomp 2016
- Dominique Vaufreydaz served on the program committee of the 10th IEEE International Workshop on Multimedia Technologies for E-Learning (MTEL2015).
- Dominique Vaufreydaz served on the program committee for the 7th international on Knowledge and Systems Engineering (KSE 2015)
- Dominique Vaufreydaz served on the program committee for UBICOMM2015

### 9.1.5. Reviewer for conferences

- James L. Crowley served as review for IEEE CVPR 2015
- James L. Crowley served as review for ICCV 2015
- James L. Crowley served as review for ACM ICMI 2015
- James L. Crowley served as review for IEEE ICRA 2015
- James L. Crowley served as review for AMI 2015
- James L. Crowley served as review for Interact 2015

- Dominique Vaufreydaz served as reviewer for International Journal On Advances in Internet Technology, v 8 n 3-4 2015
- Dominique Vaufreydaz served as reviewer pour IROS 2015
- Anne Spalanzani served as reviewer for IROS 2015,
- Anne Spalanzani served as reviewer for Social Robotics

#### **9.1.6. Member of the editorial board of Journals**

- Sabine Coquillart is a member of the Editorial Board of the Advances in Human-Computer Interaction
- Sabine Coquillart is a member of the Scientific Committee of the Journal of Virtual Reality and Broadcasting.
- Sabine Coquillart is a member of the Advisory/Editorial Board for the International Journal of Computer Graphics SERSC.
- Sabine Coquillart is a Member of the Editorial Board of Peer Computer Science open access Journal in Computer Science.
- Sabine Coquillart is a member of the Editorial board (computer Sciences) of the Scientific World Journal.
- Sabine Coquillart is Review Editor for the iFrontiers in Virtual Environments journal.
- Anne Spalanzani is a member of the editor for a special issue on Assistive and Rehabilitation Robotics of the Journal of Autonomous Robots

#### **9.1.7. Reviewing activities for Journals**

- James L. Crowley has reviewed papers for IEEE Pervasive
- Dominique Vaufreydaz served as reviewer for the journal Autonomous Robots
- Dominique Vaufreydaz served as reviewer for the journal Robotics and Autonomous Systems

#### **9.1.8. Invited talks**

- James L. Crowley, An Ecological Approach to Smart Home Systems, Joint CNRS-ALSTOM International Workshop: From Industry 4.0 to Smart cities, CNRS 1 rue Michel Ange, 26-27 Nov 2015.
- James L. Crowley, Context Aware Mobile Assistant, Smart City and Mobility Innovations, Organised by Inria in San Francisco, 11 May 2015

#### **9.1.9. Leadership within the scientific community**

- Sabine Coquillart is elected member of the EUROGRAPHICS Executive Committee.
- Sabine Coquillart is member of the EUROGRAPHICS Working Group and Workshop board.

#### **9.1.10. Scientific expertise**

- James L. Crowley served on the selection committee for Institut Université de France (IUF)
- James L. Crowley reviewed proposals for H2020 FET program and other H2020 PHC program
- Dominique Vaufreydaz served as evaluator pour l'ANR

#### **9.1.11. Research administration**

- James L. Crowley has been elected member of the Conseil d'Administration of the COMUE Université Grenoble Alpes
- James L. Crowley has been elected member of the Conseil du Laboratoire of the Laboratoire Informatique de Grenoble.

- James L. Crowley serves on the Administrative Office (Bureau) for the Laboratoire Informatique de Grenoble.
- James L. Crowley Serves on the Commission d'Habilitation de Dirigé la Recherche (HDR) for the Pole Informatics and Mathematics of the University Grenoble Alpes.
- James L. Crowley Serves on the Comité Scientifc (COS) d'Inrial Grenoble Rhone-Alpes Research Center
- James L. Crowley Serves on Steering Committee of the Inovallée TARMAC technology Incubator.
- James L. Crowley is director of the Amiqua4Home Equipment of Excellence (EquipEx).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

#### 9.2.1.1. James Crowley

James Crowley is Director of the Master of Science in Informatics at Grenoble.

Master : Computer Vision, Course 24h EqTD, M2 year, Master of Science in Informatics at Grenoble,

Master : Intelligent Systems, Cours 54h EqTD, ENSIMAG.

#### 9.2.1.2. Sabine Coquillart

- Master : Sabine Coquillart teaches a course on Virtual Reality and 3D User Interfaces for the GVR Master 2R, 2013-2014.
- Master : Sabine Coquillart teaches a one day course on 3D User Interfaces and Augmented Reality for the Numerical Modeling and Virtual Reality Master 2 in Laval, 2013-2014.

#### 9.2.1.3. Thierry Fraichard

Master: Thierry Fraichard, Introduction to Perception and Robotics, 23h eqTD, M1 MOSIG, Univ. of Grenoble, France.

Master: Thierry Fraichard, Motion in Dynamic Workspaces, 2h eqTD, Computer Science Master, Bar Ilan Univ., Israel.

Co-responsibility of the Graphic, Vision and Robotics track of the international MOSIG Master programme.

#### 9.2.1.4. Patrick Reignier

- Patrick Reignier has been elected member of the Conseil Academic du Pole Math-Stic of the Université Grenoble Alpes
- Patrick Reignier Supervises the industrial part of the "formation en apprentissage" of the ENSIMAG engineering school.
- Master: Patrick Reignier, Projet Genie Logiciel, 55h eqTD, M1, ENSIMAG/Grenoble INP, France.
- Master : Patrick Reignier, Developpement d'applications communicantes, 18h eqTD, M2, ENSIMAG/Grenoble - INP, France
- Master : Patrick Reignier, Introduction aux applications reparties, 18h eqTD, M2, ENSIMAG/Grenoble - INP, France
- Master: Patrick Reignier, Programmation Internet, 18h eqTD, M1, ENSIMAG/Grenoble INP, France
- Master : Patrick Reignier, Algorithmique, 50h eq TD, M1, ENSIMAG/Grenoble INP, France
- Licence: Patrick Reignier, Projet C, 20h eqTD, L3, ENSIMAG/Grenoble INP, France.

### 9.2.2. Supervision

#### 9.2.2.1. PhD defended in 2015

- Varun Jain, Visual Perception of Emotions, Doctoral Thesis of the Université Grenoble-Alpes, defended 30 March 2015. Thesis director James L. Crowley
- Sergi Pujades-Rocamora, Modeles de cameras et algorithmes pour la creation de contenu video 3D, Doctoral Thesis of the Université Grenoble-Alpes, defended 14 October 2015. Thesis director Remi Ronfard (HDR) and Frederic Devernay
- Anne Spalanzani defended her HDR "Contribution à la navigation autonome en environnement dynamique et humain" in June 2015

#### 9.2.2.2. Current Doctoral Students

- Etienne Balit, Multimodalite et interaction sociale, Doctoral student of University of Grenoble-Alpes, Started October 2013, Patrick Reignier (Professor), Dominique Vaufreydaz.
- Viet Cuong Ta, Multiple Users localization in public large-scale space, Doctoral student of University of Grenoble-Alpes, Started October 2013, Eric Castelli (HDR, Mica laboratory Hanoi, Vietnam), Dominique Vaufreydaz.
- Remi Paulin, Human-Robot Motion, University of Grenoble-Alpes, started in October 2013, Thierry Fraichard (HDR).
- Chen Jingtao, "Pseudo-haptic feedback without active haptic feedback devices", University of Grenoble-Alpes, Started in October 2014, co-directed by S. Coquillart
- Grégoire Nieto, « Lightfield Remote Vision », University of Grenoble-Alpes, Started in January 2015, co-directed by F. Devernay and J. L. Crowley
- Romain Bregier, « 3D Bin Picking », University of Grenoble-Alpes, CIFRE doctoral student with Siléane, Started in October 2014, Co-directed by F. Devernay and J.L. Crowley
- Alberto Quintero Delgado, University of Grenoble-Alpes, Started in October 2014, , directed by F. Devernay
- Julien Cumin, « Fouille de données de l'habitat connecté », University of Grenoble-Alpes, CIFRE doctoral student with Orange Labs, Started in October 2015, Directed by James L. Crowley.
- Sandra Nabil, « Video Panoramic 3D », University of Grenoble-Alpes, Started in October 2015, Co-directed by F. Devernay and J.L. Crowley

#### 9.2.3. Juries

- James L Crowley served on the 2015 Selection committee for the IUF Senior awards.
- Dominique Vaufreydaz served on the recruiting juries for ATER and M&C for the Université de Grenoble Alpes.
- James L. Crowley served on the Doctoral Jury of Arsène FANSI TCHANGO, Doctoral thesis of the Univ of Nancy, defended 4 Dec 2015.
- Dominique Vaufreydaz served as examinateur on the thesis jury of Wafa Johal "Du Style pour des Robots Compagnons : Vers la Plasticité en Interaction Homme-Robot", on 30 Oct 2015

## **RITS Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific events organisation**

#### *10.1.1.1. General chair, scientific chair*

Vicente Milanés Montero: advisory Committee Chair at the 2015 2nd International Conference on Computer Engineering (ICOCE 2015), Dubai, UAE October 17-18 2015.

Fawzi Nashashibi: Member of the steering committee at the 1st International Workshop on Vehicular Networking and Intelligent Transportation Systems (VENITS) at the 12th IEEE CNCC'2015 conference, January 9 - 12 2015, Las Vegas, Nevada USA.

#### *10.1.1.2. Member of the organizing committees*

Fawzi Nashashibi was member of the organizing committee of the IEEE ARSO'15 (International Workshop on Advanced Robotics and its Social impacts).

### **10.1.2. Scientific events selection**

#### *10.1.2.1. Chair of conference program committees*

Fawzi Nashashibi was the Chair of the Special Sessions Committee at the IEEE ARSO 2015 (International Workshop on Advanced Robotics and its Social impacts) workshop, 1-3 June 2015, Lyon, France.

#### *10.1.2.2. Member of the conference program committees*

Vicente Milanés Montero: member of the International technical committee and of "Los 20 Valientes" committee of IEEE-ITSC 2015; member of the International Program Committee (IPC) in the IEEE International Conference on Vehicular Electronics and Safety 2015 and in the IEEE/TRB ICCVE 2015 (the International Conference on Connected Vehicles & Expo).

Fawzi Nashashibi: member of the Awards Committee of the IEEE International Conference on Intelligent Transportation Systems (ITSC'15), September 15-18 2015, Las Palmas, Spain.  
IPC member of the IEEE ARSO 2015.

Member of the scientific committee of the JNRR (French conference on Robotics Research), October 21-23 2015, Cap Hornu, France.

Oyunchimeg Shagdar: technical program committee member of the International Workshop on Vehicular Networking and Intelligent Transportation Systems (VENITS 2015), program committee member of the IEEE International Conference on Advanced Information Networking and Applications (AINA 2016).

Anne Verroust-Blondet: technical program committee member of MMEDIA 2015.

#### *10.1.2.3. Reviewer*

Jean-Marc Lasgouttes: Intelligent Vehicles Symposium (IV2015).

Pierre Merdrignac: IEEE International Conference on Intelligent Transportation Systems (ITSC 2015), IEEE International Conference on Vehicular Electronics and Safety (ICVES 2015).

### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

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

Vicente Milanés Montero: editor-in-chief of Journal of Computer and Communications, associate Editor of Journal of Intelligent Transportation and Urban Planning and guest Editor SI of Electronics journal on Intelligent and Cooperative Vehicles, April 2015.

Fawzi Nashashibi: associate editor of IEEE Transactions on Intelligent vehicles.

Oyunchimeg Shagdar: associate editor of Wiley International Journal of Communication Systems.

#### 10.1.3.2. Reviewer - Reviewing activities

Guy Fayolle: PTRF, MPRF, QUESTA, IEEE-IT, JSP, AMS Mathematical Reviews.

Jean-Marc Lasgouttes: Journal of Applied Probability.

G rard Le Lann: IEEE Communications Letters.

Vicente Milan s Montero: Journal of Dynamic Systems, Measurement and Control, Sensors, IEEE Intelligent Transportation Systems Magazine, etc.

Fawzi Nashashibi: Journal Transportation Research Part C, IJRR, IEEE Transactions on Instrumentation and Measurement, IEEE Robotics and Automation Magazine, IEEE Transactions on ITS, IEEE Transaction on Intelligent Vehicles, IEEE Robotics and Autonomous Systems, IEEE Transactions on Robotics; IEEE International Conference on Robotics and Automation (ICRA), IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), IEEE Multisensor Fusion Integration (MFI), IEEE Intelligent Transportation Systems Conference (ITSC), IEEE Int. Symposium on Intelligent Vehicles (IV).

Michel Parent: Journal of Intelligent Transportation Systems, Transportation Research Board Journal.

Joshu  P rez Rastelli: IEEE Robotics and Automation Magazine, Ad Hoc Networks, Mathematics and Computers in Simulation, Information Sciences, Dyna, Revista Bimestral de Ingenier a Multidisciplinar, Robotics, Electronics, IEEE Intelligent Transportation Systems Magazine.

Oyunchimeg Shagdar: the IEEE Wireless Communications magazine.

Anne Verroust-Blondet: Pattern Recognition, Science Magazine.

#### 10.1.4. Invited talks

Guy Fayolle was invited speaker and session Chairman at the Symposium Honouring Professor Erol Gelenbe, Imperial College, London 21st – 24th September 2015. He presented the paper [44].

G rard Le Lann: "Safe Fully Automated Driving on Roads and Highways: Pie in the Sky or Future Reality?", SystemX Seminar, Palaiseau, October 20, 2015.

Fawzi Nashashibi was an invited at the ITS World Congress, Topic 6: Automated Roads, Automated Management, Automated Driving, Session II08 - "What's the science inside the autonomous vehicle", October 8, 2015, Bordeaux, France.

#### 10.1.5. Scientific expertise

Guy Fayolle is scientific advisor at the Robotics Laboratory of Mines ParisTech. He has been working in particular on the COVADEC project (type FUI/FEDER 15), which deals with the implementation of ADAS (Advanced Driver Assistance Systems).

Vicente Milan s Montero: reviewer for UAE national projects.

Fawzi Nashashibi: expert/reviewer of Dutch and Portuguese National projects.

Anne Verroust-Blondet: expert/reviewer for the French National Research Agency ("Blanc" programme of ANR) and for the Italian Ministry of Cultural Heritage and Activities (JPI Cultural Heritage program).

#### 10.1.6. Research administration

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

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

Michel Parent is a member of ISO TC184 SC2 (Service Robots) and of ISO TC204 WG14 on the standards for driving assistance and full automatic driving.

Anne Verroust-Blondet is the scientific correspondent of the European affairs and of the International relations of Inria Paris-Rocquencourt. She is member of the COST-GTRI committee at Inria.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

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

Licence: Guillaume Tréhard, “C++ programming language”, 20h, L1, DUT Génie Electrique et Informatique Industrielle, IUT Chartres, France

Master: Jean-Marc Lasgouttes, “Analyse de données”, 59.5h, second year of Magistère de Finance (M1), University Paris 1 Panthéon Sorbonne, France

Master: Fawzi Nashashibi, “Programmation C++/OpenGL”, 16h, 2nd year (MAREVA), Mines ParisTech, France

Master: Fawzi Nashashibi, “Synthèse d’images”, 12h, M2, INT Télécom SudParis

Master: Fawzi Nashashibi, “Détection d’obstacle et fusion multicapteurs”, 4h, M2, INSA de Rouen

Master: Joshué Pérez Rastelli, "Robotique et contrôle temps réel", 15h, M1, Leonard Da Vinci University -l'ESILV- (La Defense, France), Apr-May 2015.

Master: Joshué Pérez Rastelli, "Standards for Automobiles", 30 h, M2, François Rabelais University (Tours, France), François Rabelais University (Tours, France), Feb-March 2015.

Master: Joshué Pérez Rastelli, "Digital environment and road -ITS applications-", 32.5 h, M2, Feb-March 2015.

Master: Oyunchimeg Shagdar, “Nouvelles technologies de communication”, 32h, M2, University Versailles Saint-Quentin, France.

Master: Guillaume Tréhard, “C++ programming language“, M1, 20h, Paris 8 University, France

Master: Vicente Milanés Montero and Anne Verroust-Blondet, "Le véhicule autonome. Présentation des recherches de l'équipe-projet RITS", 1.5 h, 2nd year, Ecole des Ponts ParisTech, France, Sept. 2015.

### 10.2.2. Supervision

PhD : Pierre Merdrignac, "Système coopératif de perception et de communication pour la protection des usagers vulnérables", Mines ParisTech, October 2015, supervisor: Fawzi Nashashibi, co-supervisor: Oyunchimeg Shagdar.

PhD : Sofiene Mouine, "Identification d'espèces végétales par une description géométrique locale d'images de feuilles", Télécom ParisTech, April 2015, supervisor: Anne Verroust-Blondet, co-supervisor: Itheri Yahiaoui.

PhD : Zahraa Yasseen, "Garment Design and Shape description for Sketch-Based Applications", Télécom ParisTech, June 2015, supervisor: Anne Verroust-Blondet, co-supervisor: Ahmad Nasri.

PhD in progress : Mohammad Abu Alhoul, “Communications par lumière visible et communications radio pour La Conduite Automatique”, Mines ParisTech, September 2013, supervisor: Fawzi Nashashibi, co-supervisor: Oyunchimeg Shagdar.

PhD in progress : Zayed Al-Sayed, “Système de localisation redondant en environnement extérieur ouvert pour véhicule urbain automatique”, Télécom ParisTech, October 2014, supervisor: Anne Verroust-Blondet, co-supervisor: Guillaume Bresson.



PhD in progress : Younes Bouchaala, "Utilisation de la communication véhicule-à-véhicule pour l'amélioration de la sécurité sur la route", Université de Versailles, October 2014, supervisor: Paul Muhlethaler, co-supervisor: Oyunchimeg Shagdar.

PhD in progress : David Gonzalez Bautista, "Contrôle coordonné et planification dynamique des trajectoires pour un système de transport cybernétique en milieu urbain instrumenté", Mines ParisTech, January 2014, supervisor: Fawzi Nashashibi, co-supervisor: Joshué Pérez-Rastelli.

PhD in progress : Fernando Garrido, "Optimal trajectory generation for autonomous vehicles in smart cities", Mines ParisTech, November 2014, supervisor: Fawzi Nashashibi, co-supervisor: Joshué Pérez-Rastelli.

PhD in progress : Mohamed Yassine Maddouri, "Intégration multi-sensorielle multi-capteurs pour la protection des personnes vulnérables", January 2015, supervisor: Abelaziz Bensrhair, co-supervisor: Fawzi Nashashibi.

PhD in progress : Francisco Navas Matos, "Synthesis of stable control algorithms for dynamic multi-input plants", Mines ParisTech, October 2015, supervisor: Fawzi Nashashibi, co-supervisor: Vicente Milanés Montero.

PhD in progress : Dinh-Van Nguyen, "Wireless sensor networks for indoor mapping and accurate localization for low speed navigation in smart cities", Mines ParisTech, December 2015, supervisor: Fawzi Nashashibi, co-supervisor: Eric Castelli.

PhD in progress : Carlos Eduardo Flores Pino, "Analysis and design of cooperative systems for trains of green cars", Mines ParisTech, December 2015, supervisor: Fawzi Nashashibi, co-supervisor: Vicente Milanés Montero.

PhD in progress : Guillaume Trehard, "Gestion des intersections pour la conduite urbaine autonome", Mines ParisTech, October 2012, supervisor: Fawzi Nashashibi, co-supervisor: Evangeline Pollard.

### 10.2.3. Juries

Fawzi Nashashibi was a reviewer of the following HDR defense:

Jean-Philippe LAUFFENBURGER, "Vers l'autonomie des véhicules routiers : de la commande des systèmes à la perception de l'environnement", Université de Haute-Alsace, Mulhouse, defended on December 7th, 2015.

Fawzi Nashashibi was a reviewer of the following PdD thesis defense:

Alan ALI, "Modélisation et commande d'un convoi de véhicules urbains", Ecole Centrale de Nantes, September 21, 2015.

José Miguel VILCA-VENTURA, "Safe and Flexible Hybrid Control Architecture for the Navigation in Formation of a Group of Vehicles", Université Blaise Pascal-Clermont II, October 26, 2015.

Nawal ALIOUA, "Extraction et analyse des caractéristiques faciales: Application à l'hypovigilance chez le conducteur", Université de Normandie (INSA de Rouen) & Université Mohamed V du Maroc, March 23, 2015.

Wenjie LU, "Contribution à la Localisation de Véhicules Intelligents à partir de Marquages Routiers", Université de Paris Sud Orsay, February 9, 2015.

Fawzi Nashashibi was a reviewer and member of the GdR Robotique PhD thesis Award Committee. He reviewed 2 PhD thesis.

Anne Verroust-Blondet was a reviewer of the following PhD thesis defense:

Nicolas Chérin, "Modélisation géométrique à partir de croquis", Université de Haute-Alsace, Mulhouse, defended on September 23, 2015.

### 10.3. Popularization

As part of the week of mathematics organized by the Ministry of Education, which theme this year was “les mathématiques nous transportent”, Jean-Marc Lasgouttes presented the transportation-related research at Inria, as well of some simple traffic jam models.

Fawzi Nashashibi participated to the "Rencontres Inria Industrie" organized by Inria@SiliconValley on the topic of "Smart City and Mobility". He gave a speech on "On-demand transportation system for sustainable mobility in smart cities", May 11, San Francisco, USA.

Fawzi Nashashibi participated to a round table organized by La Recherche and Le Monde on "The vehicle of the future: which car in 10 years ?" at Arts-et-Métiers, May 28, Paris, France.

Fawzi Nashashibi participated to the round table on "Ethical and legal questions in robotics" at the 1st National day on "Ethics of digital research" organized by the CERNA at the Mines Telecom Institute, June 15, 2015, Paris, France.

Fawzi Nashashibi organized with Christian Laugier the round table on "Intelligent Mobility" at the joint Innorobo/IEEE ARSO'15 workshop day, July 2, Lyon, France.

Fawzi Nashashibi gave a presentation on "How does the climate change affect mobility and transportation ?" at Solution COP21 exhibition, Paris, December 2015. (Video Link: <http://www.dailymotion.com/video/x3h8vpm>)

## SEMAGRAMME Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific events organisation

##### 8.1.1.1. General chair, scientific chair

- Maxime Amblard organized the workshop (In)Cohérence du discours 3, with the SLAM project (Schizophrenia and Language: Analysis and Modeling).

The objective of the workshop was to discuss the latest advances in the modelling of discourses in particular those with pathological issues. The adopted modeling paradigm is that of formal semantics, which falls within the scope of both linguistics and logic while also making ties to the philosophy of language.

- Maxime Amblard co-organized with Karen Fort and Gilles Adda the first workshop ETeRNAL about ethics in natural language processing.

##### 8.1.1.2. Member of the organizing committees

- Maxime Amblard and Jiří Maršík were members of the organization committee of the workshop (In)Cohérence du discours 3.

#### 8.1.2. Scientific events selection

##### 8.1.2.1. Chair of conference program committees

- Philippe de Groote and Sylvain Pogodalla are members of the steering committee of the international conference series *Logical Aspects of Computational Linguistics (LACL)*.
- Maxime Amblard is member of the steering committee of the workshop (In)Coherence of Discourse

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

- Guy Perrier was member of the program committee of the ACL workshop “Grammar Engineering Across Frameworks” (GEAF2015), 30 July 2015, Beijing (China).
- Philippe de Groote was member of the program committee of the 20th Conference on Formal Grammar (Barcelona, Spain, August 8–9, 2015).

##### 8.1.2.3. Reviewer

- Maxime Amblard:
  - Reviewer for Traitement Automatique des Langues Naturelles (TALN) 2015
  - Reviewer for Journées de Phonétique Clinique (JPC) 6
  - Reviewer for (In)Cohérence du discours 3
  - Reviewer for the workshop ETeRNAL 1
- Sylvain Pogodalla:
  - Reviewer for the international workshop on *Logic and Engineering of Natural Language Semantics 12 (LENLS12)*.
- Bruno Guillaume:
  - Reviewer for the international conference *Language Resources and Evaluation Conference (LREC 2016)*.

#### 8.1.3. Journal

##### 8.1.3.1. Member of the 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.

#### 8.1.3.2. Reviewer - Reviewing activities

- Maxime Amblard: Reviewer for the special issue of the TAL revue (55-3) 'TAL et Cognition'
- Guy Perrier: reviewer for the *Journal of Logic, Language and Information*.
- Sylvain Pogodalla:
  - reviewer for the **Computational Linguistics**.
  - reviewer for **Linguistic Issues in Language Technology LiLT**

#### 8.1.4. Scientific expertise

- Maxime Amblard has provided scientific evaluation for the AAP ASTRID (Accompagnement spécifique des travaux de recherches et d'innovation défense)

#### 8.1.5. Research administration

Maxime Amblard is member of:

- Scientific council of the Univ. Lorraine
- board of the Scientific council of the Univ. Lorraine
- Lab council (LORIA)
- management council of the "Maison des sciences de l'homme" MSH-Lorraine

Maxime Amblard is the head of the master second year in Natural Language Processing.

Bruno Guillaume is the head of the department Natural Language Processing and Knowledge Discovery.

Bruno Guillaume was one of the two animators 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 are implied.

Bruno Guillaume is an elected member of the "Pôle scientifique AM2I" of the Université de Lorraine.

Bruno Guillaume is a member of the Comipers (Inria committee for PhD and Post-doctoral selection).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Licence: Maxime Amblard, Traitement Automatique des Langues, 3h, L1, Univ. Lorraine, France

Master: Maxime Amblard, Formalisms: from Syntax to Discourse, 50h, M2, Univ. Lorraine, France

Master: Maxime Amblard, Remise à niveau TAL, 5h, M2, Université de Lorraine, France

Master: Maxime Amblard, Algorithms for Artificial Intelligence, 43h, M1, Univ. Lorraine, France

Master: Philippe de Groote, Formal logic, 35h, M2, Université de Lorraine, France

Master: Philippe de Groote, Computational structures and logics for natural language modeling, 18h, M2, Université Paris Diderot, France

Licence: Bruno Guillaume, Algorithmique et programmation, 44h, L1, Université de Lorraine, France

Master: Bruno Guillaume, Linguistic resources and NLP toolchain, 30h, M2, Université de Lorraine, France

Licence: Jiří Maršík, Ingénierie linguistique, 25h, L3, Université de Lorraine, France

Master: Jiří Maršík, IA fondamentale : représentation des connaissances et fouille de données, 11.5h, M1, Université de Lorraine, France

Master: Jiří Maršík, Communication scientifique, 15.5h, M1, Université de Lorraine, France

Master: Jiří Maršík, Cognitive Aspect of Computational Linguistic, 31.5h (15h in English and 16.5h in French), M2, Université de Lorraine, France

Master: Jiří Maršík, Remise à niveau TAL, 10h, M2, Université de Lorraine, France

Master: Sylvain Pogodalla, Formal Language Theory, 27.5h, M2, Univ. Lorraine, France

### 8.2.2. Supervision

- PhD in progress: Clément Beysson, "Quantificateurs généralisés dynamiques pour l'analyse discursive", since september 2015, Philippe de Groote and Bruno Guillaume
- PhD in progress: Jiří Maršík, "Modeling Discourse in a Dynamics framework: formal integration and evaluation", since september 2013, Philippe de Groote and Maxime Amblard
- PhD in progress : Aleksandre Maskharashvili, "Generation and Discourse with Abstract Categorical Grammars", since November 2012, Philippe de Groote and Sylvain Pogodalla.

### 8.2.3. Juries

- Guy Perrier was reviewer of the PhD thesis of Jérôme Kirman, *Mise au point d'un formalisme syntaxique de haut niveau pour le traitement automatique des langues*, Dec. 4, 2015, Université de Bordeaux.
- Philippe de Groote was member of the jury of the HDR of Sylvain Salvati, Dec. 10, 2015, Université de Bordeaux.

## 8.3. Popularization

- Maxime Amblard is member of the editorial board of *interstice* (i), a french revue popularisation for computer sciences (<http://interstices.info>). He is the head of the rubric informatique -ou presque- dans les films and co-author of the series of article on where we could find computer science in real life.
- Maxime Amblard delivered an invited talk "Le langage, logique !" at the "Conférence Curieuse" of Univ. Lorraine, at the Nancy musée aquarium (September 17th 2015).
- Maxime Amblard delivered an invited talk "Le langage, logique !" at the Luxembourg University (October 15th 2015).
- Bruno Guillaume presentend the game ZombiLingo during the conference Science&You in Nancy (June).
- Nicolas Lefebvre demonstrated the prototype ZombiLingo and Jiří Maršík the ACGtk during the "Forum Sciences Cognitive" in Nancy (November).

## SIROCCO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. Member of the organizing committees

- C. Guillemot has been area chair of Eusipco 2015 and IEEE-ICIP 2015, and award chair of IEEE-ICME 2015.
- A. Roumy is local liaison officer for Eurasip.

### 10.1.2. Scientific events selection

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

- C. Guillemot has been a member of technical program committees of international conferences: EUSIPCO 2015, IEEE-ICIP 2015.
- C. Labit is member of the GRETSI technical program committee.
- O. Le Meur has been a member of technical program committees of international conferences: IEEE-ICME 2015, QoMex 2015.
- O. Le Meur co-organized a special session on Visual attention modelling at EUSIPCO'2015.
- A. Roumy is member of the GRETSI technical program committee.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- C. Guillemot is associate editor of the Eurasip International Journal on Image Communication.
- C. Guillemot is associate editor of the IEEE Trans. on Image Processing.
- C. Guillemot is associate editor of the International Journal on Mathematical Imaging and Vision.
- C. Guillemot is senior member of the editorial board of the IEEE Journal on selected topics in signal processing.
- O. Le Meur has been guest editor of the Special Issue on Recent Advances in Saliency Models, Applications and Evaluations, in Signal Processing: Image communication journal.
- A. Roumy is associate editor of the Hindawi Journal on Mathematical Problems in Engineering.

### 10.1.4. Invited talks

- C. Guillemot has been invited as member of a panel on computational imaging at IEEE-ICME 2015.
- O. Le Meur gave a seminar dealing with exemplar-based inpainting at INSA Rennes, June 2015.
- T. Maugey has been invited for a talk at INSA Rennes on "Interactive multi-view video coding", June 2015.
- T. Maugey has been invited for a talk at the GDR-Isis meeting on "Multi-view imaging from acquisition to rendering", June 2015.

### 10.1.5. Leadership within the scientific community

- C. Guillemot is member of the IEEE IVMSPP technical committee.
- A. Roumy has co-animated with F. Bimbot and N. Bertin (PANAMA team, IRISA) the workshop "Les défis de dimensionnalité soulevés par les nouvelles générations de capteurs audiovisuels", at the Data Science Symposium, IRISA, Nov. 2015.

### 10.1.6. Scientific expertise

- C. Guillemot is member of the Selection and Evaluation Committee of the “Pôle de Compétitivité” Images and Networks of the Region of Ouest of France (until June 2015).
- C. Guillemot is member as scientific expert of the CRRDT (Regional Committee of Research and Technological Development) of the Brittany region.
- C. Guillemot is member of the committee in charge of the IEEE Brillouin-Glavieux award.
- C. Labit is member of the ICT strategic steering committee (CPS-7) of the National Research Agency (ANR).
- A. Roumy is a member of the Selection and Evaluation Committee (CDT Commission Développement Technologique) for the Inria technological development grants.

### 10.1.7. Research administration

- C. Guillemot is, since Sept. 2015, vice-chair of Inria’s evaluation committee.
- C. Guillemot is member of the “bureau du Comité des Projets”.
- C. Labit is the Vice-president of the Scientific Board, in charge of Research and Innovation, for the University of Rennes1 (since June 1st, 2008).
- C. Labit is president of the Rennes-Atalante Science Park and of the start-up incubator Emergys (since April, 2007).
- A. Roumy is titular member of the National Council of Universities (CNU section 61, 2012-2015).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: C. Guillemot, Image and video compression, 8 hours, M2 computer science, Univ. of Rennes 1, France.

Master: C. Guillemot, Image and video compression, 8 hours, M2 SISEA, Univ. of Rennes 1, France.

Master: O. Le Meur, Selective visual attention, 13 hours, M2, Univ. of Paris 8, France.

Master: O. Le Meur, Acquisition/Image Processing/Compression, 22 hours, M2 MITIC, Univ. of Rennes 1, France.

Master: T. Maugey, "Multi-view / 3D video coding", 2H, EPFL, Lausanne, Switzerland, March 2015.

Master: A. Roumy, Information Theory, 18 hours Master Computer science and telecommunications, Ecole Normale Supérieure de Rennes, Ker Lann campus, France.

Engineer degree: C. Guillemot, Video communication, 10 hours, Télécom Lille 1, Villeneuve-d’Ascq, France.

Engineer degree: C. Labit, Entrepreneurship and innovation, 3 hours, ESIR, Rennes, France.

Engineer degree: O. Le Meur, Image Processing, video analysis and compression, 54 hours, ESIR2, Univ. of Rennes 1, France.

Engineer degree: O. Le Meur, Visual communication, 65 hours, ESIR3, Univ. of Rennes 1, France.

Engineer degree: A. Roumy, Image processing, 14 hours, ECAM Rennes, France.

Professional training: O. Le Meur, Image Processing and OpenCV, 42 hours, Technicolor Rennes.

### 10.2.2. Supervision (PhDs defended during the year)

PhD : B. Huang, Second-order prediction and residue vector quantization for video compression, University of Rennes 1, defense on the 8th of July 2015, C. Guillemot (contract with Orange labs.)

PhD : J. Aghaei Mazaheri, Representations parcimonieuses et apprentissage de dictionnaires pour la compression et la classification d'images satellites, Univ. of Rennes 1, defense on the 20th of July 2015, C. Labit and C. Guillemot (contract with Astrium)

### **10.2.3. Juries**

- C. Guillemot has been member (rapporteur) of the jury of the PhD committee of:
  - Y. Xing, Télécom ParisTech, Jan. 2015
  - M. Suryanarayana, MidSweden Univ., June 2015
  - M. Farajallah, Univ. Nantes, June 2015
  - M. S. Farid, Universita Degli Studi Di Torino, Sept. 2015
  - S. Karygianni, EPFL, Oct. 2015
- C. Guillemot has been member (president) of the jury of the PhD committee of:
  - M. Daisy, Univ. of Caen, Dec. 2015
  - A. Arrufat, INSA of Rennes, Dec. 2015
  - A. Basset, Univ. Rennes 1, Dec. 2015
- O. Le Meur has been member (rapporteur) of the jury of the PhD committee of:
  - S. Lemonnier, Univ. Paris VIII, November 2015
- O. Le Meur has been member (examiner) of the jury of the PhD committee of:
  - L. Yi, INSA of Rennes, March 2015
  - J. Liang, Univ. of Hong Kong, April 2015
  - N. Riche, Univ. of Mons, October 2015



## SMIS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organization

#### 9.1.1.1. General chair, scientific chair

- Philippe Pucheral: Co-founder of the bi-annual French Summer School 'Masses de Données Distribuées' and co-organizer of this school in 2016
- Benjamin Nguyen: Organizer and chair of 'Atelier sur la Protection de la Vie Privée' (APVP) in 2015

### 9.1.2. Scientific events selection

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

- Philippe Pucheral: EDBT'15, MOBIWIS'15, DATA'15, BDA'15
- Luc Bouganim: EDBT'15, EDBT'16
- Nicolas Ancaux: BDA'15, Int. Conference on Sustainable Energy and Environmental Engineering (SEEE'15)
- Benjamin Nguyen: BDA 2015, ACOMP'15, ECML-PKDD'15, EDA 2015
- Iulian Sandu Popa: MOBILWARE 2015, IEEE Mobile Cloud 2016, APVP 2015

#### 9.1.2.2. Reviewer

- Iulian Sandu Popa: EDBT'15, ACM SIGSPATIAL'15

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- Nicolas Ancaux: Area Editor of the VLDB Journal (since 2015)
- Benjamin Nguyen: Member of the editorial committee of TSI (Techniques et Sciences Informatiques), French Journal, Eds. Lavoisier since 2012

#### 9.1.3.2. Reviewer - Reviewing activities

- Iulian Sandu Popa: ACM Transactions on Storage 2015

### 9.1.4. Invited talks

- Invited tutorial: Towards an Era of Trust in Personal Data Management, Tutorial at ADBIS'15 conference, N. Ancaux, B. Nguyen, I.Sandu Popa, 2015
- Invited talk: Gestion de données personnelles respectueuse de la vie privée. "1/2 heure de science", N. Ancaux, June 2015
- Invited talk: Gestion de données embarquées dans des calculateurs sécurisés, une solution pour la protection des données personnelles ?, Journée ASF, COMPAS conference, L. Bouganim, June 2015
- Invited talks and demonstrations: PlugDB: towards the Secure Personal Cloud. Smart City & Mobility Innovations, Cities, IoT and Analytics mobility, RII, San Francisco, N. Ancaux, 2015

### 9.1.5. Research administration

- Philippe Pucheral: Member of the HDR committee of the STV doctoral school (UVSQ) since 2014

- Philippe Pucheral: Philippe Pucheral: Member of the steering committee of the ED STIC doctoral school of University Paris-Saclay, 'Data, Knowledge and Interactions' committee (about 250 PhD students) since 2014
- Luc Bouganim: Co-president of the Inria 'Emplois Scientifiques' commission (includes PhD grant, Post-Doc and Délégation attributions), 2015
- Nicolas Ancaux: Co-director of the 'Privacy and digital identity' WG at Digital Society Institute (DSI), since January 2015
- Nicolas Ancaux: President of the 'Comité de Suivi Doctoral' (CSD) at Inria Paris-Rocquencourt, since 2015
- Nicolas Ancaux: Member of Commission de Developpement Technologique (CDT) at Inria Rocquencourt since 2012
- Benjamin Nguyen: Director of Digital Affairs (INSA CVL)
- Benjamin Nguyen: Member of the Executive Committee of INSA CVL

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : Philippe Pucheral, responsible of the DataScale master, courses in M1 and M2, UVSQ, France

Master: Nicolas Ancaux, Courses on database internal mechanisms and database security, 80, in Master1 and Master2 (AFTI, Orsay) and in engineering school (ENSTA ParisTech, Telecom Paristech)

Master : Luc Bouganim, Bases de données, 39, niveau M2, CFA AFTI/UVSQ, France

Master : Luc Bouganim, Systèmes d'information Privacy by Design, 30, niveau M2, ENSIIE, France

Master : Luc Bouganim, Sécurité des bases de données, 15, niveau M2, Télécom ParisTech, France

Licence : Iulian Sandu Popa, Fondaments de l'informatique, 37, niveau L1, UVSQ, France

Licence : Iulian Sandu Popa, Initiation aux bases de données, 66, niveau L2, UVSQ, France

Master : Iulian Sandu Popa, Bases de données relationnelles, 60, niveau M1, UVSQ, France

Master : Iulian Sandu Popa, Mécanismes internes des bases de données, M2, niveau M2, UVSQ, France

Master : Iulian Sandu Popa, Sécurité des bases de données, 9, niveau M2, UVSQ, France

Master : Iulian Sandu Popa, Projet bases de données, 27, niveau M2, UVSQ, France

Master : Benjamin Nguyen, Databases, IA, Security, 192, INSA CVL, France

### 9.2.2. Supervision

PhD : Cuoc-Quong To, Privacy-Preserving Query Execution using Tamper Resistant Hardware : Design and Performance Considerations, UVSQ, Octobre 2015, Benjamin Nguyen and Philippe Pucheral

PhD : Mathias Bjorling, Operating System Support for High-Performance Solid State Drives, IT University of Copenhagen, August 2015, Philippe Bonnet and Luc Bouganim

PhD : Niv Dayan, Modelling and Managing SSD Write Amplification, IT University of Copenhagen, August 2015, Philippe Bonnet and Luc Bouganim

PhD in progress : Saliha Lallali, A Scalable Search Engine for the Personal Cloud, October 2012, Nicolas Ancaux, Philippe Pucheral, and Iulian Sandu Popa

PhD in progress : Dai Hai Ton That, Efficient Management and Secure Sharing of Mobility Traces, November 2012, Iulian Sandu Popa and Karine Zeitouni (UVSQ)

PhD in progress : Paul Tran Van, Partage de documents sécurisé dans le Cloud Personnel , October 2014, Nicolas Anciaux and Philippe Pucheral

PhD in progress : Chao Chen, A Pivacy-by-Design Middleware for Urban-scale Mobile Crowdsensing, December 2015, Nicolas Anciaux and Valérie Issarny (MiMOVE)

PhD in progress : Axel Michel, Secure Distributed Computations, October 2015, Benjamin Nguyen and Philippe Pucheral

### 9.2.3. *Juries*

Philippe Pucheral: member of the PhD jury of Benjamin Billet (UVSQ, 19/03/2015)

Benjamin Nguyen: Reviewer of the PhD of Regina PAIVA MELO MARIN (Supélec Rennes, 7/9/2015)

Benjamin Nguyen: Reviewer of the PhD of Maria Laura NECULA MAAG (Université Pierre et Marie Curie (Paris-VI), 8/4/2015)

Benjamin Nguyen: President of the PhD jury of Mouhamadou Lamine BA (Telecom ParisTech, 30/3/2015)

## 9.3. Popularization

- Round table: Privacy & Personal Data. Who owns the data? International Conference on Digital Assets, Data Philanthropy, and Public Benefit, CITRIS, Inria, EIT ICT Labs, San Francisco. N. Anciaux, 2015
- General public (large audience magazines, television, videos): Gestion sécurisée de données personnelles. 1024 - Bulletin de la Société Informatique de France, numéro 5, pp. 17-41, N. Anciaux and B. Nguyen, 2015
- Institutions, decision makers and industrials: Présentation du Pôle Vie Privée de l'ISN (DSI), Cabinet de Mme Axelle Lemaire, Secrétaire d'Etat chargée du numérique, Ministère de l'économie, Paris, N. Anciaux and L. Bouganim, May 2015
- Round table: Peut-on être seul maître de son espace numérique ? Comprendre et construire la société numérique. Conférence de l'Institut de la Société Numérique (ISN/DSI), Hôtel Potocki, Paris, N. Anciaux, March 2015
- Round table: P. Pucheral, "Données personnelles, approche interdisciplinaire". Busines Convention on Big Data, Campus HEC, 24-25 Nov. 2015

## STARS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

François Brémond was organizer of a PANORAMA (see section 9.2.1.2 ) workshop, part of SPIE Electronic Imaging (EI) event (8-12 February 2015, San Francisco).

François Brémond was editor of a PANORAMA (see section 9.2.1.2 ) special issue of Journal of Electronic Imaging Letters (JEI): Ultra Wide Context and Content Aware Imaging.

#### 10.1.1.2. Member of the organizing committee

François Brémond was a member of the Management Committee and COST Action IC1307 in 2015.

### 10.1.2. Scientific events selection

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

François Brémond was program committee member of the conferences and workshops: AAAI-15, GROW2015, ICDP2015, KSE 2015, PETS2015, PR4MCA and ICVS15.

François Brémond was publication chair and session chair of AVSS-15.

Jean-Paul Rigault is a member of the *Association Internationale pour les Technologies à Objets* (AITO) which organizes international conferences such as ECOOP.

#### 10.1.2.2. Reviewer

François Brémond was reviewer for the conferences : CVPR2015-6, ECCV2015, VOT2015, Grets2015, ICIP2015, MSF2015, ChaLearn2015, ICCV2015, WACV 2016.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

François Brémond was handling editor of the international journal "Machine Vision and Application".

#### 10.1.3.2. Reviewer - Reviewing activities

François Brémond was reviewer for the journal *Frontiers in Human Neuroscience*.

### 10.1.4. Invited talks

François Brémond was invited to give a talk at Bristol University, SPHERE Seminar, 25 June 2015.

François Brémond was invited to give a tutorial at Leuven University at the 1st iV&L Net Training School, 3 June 2015.

François Brémond has participated to the Workshop Innovation Alzheimer, 12 November, 2015.

Antitza Dantcheva gave an invited talk at SBA, Vienna, Austria, July 2015.

Antitza Dantcheva gave an invited talk at the University of Cyprus, Nicosia, Cyprus, April 2015.

Antitza Dantcheva presented a demo at the Workshop Innovation Alzheimer (IA 2015), November 2015.

### 10.1.5. Scientific expertise

François Brémont was expert for EU European Reference Network for Critical Infrastructure Protection (ERNICIP) - Video Analytics and surveillance Group, at European Commission's Joint Research Centre in Brussels in 15 September 2015.

François Brémont was expert for the Foundation Médéric Alzheimer, for the doctoral fellowship selection, October 2015.

François Brémont was expert for the Sophia Labex Network, for the doctoral fellowship selection, October 2015.

François Brémont was expert for Inria Sophia Working Group, for Inria Team Proposals.

François Brémont was expert for reviewing Computer Science Discovery Grant application for the Natural Sciences and Engineering Research Council of Canada (NSERC).

François Brémont was expert for reviewing Consolidator Grant proposal for European Research Council (ERC).

François Brémont was expert for the Foundation Médéric Alzheimer, for the Alzheimer's Outlook, Paris, 11 December 2015.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : Annie Ressousche, Safety in Middleware for Internet of Things, 10h, niveau (M2), Polytech Nice School of Nice University.

Jean-Paul Rigault is Full Professor of Computer Science at Polytech'Nice (University of Nice): courses on C++ (beginners and advanced), C, System Programming, Software Modeling.

### 10.2.2. Supervision

PhD : Julien Badie, Optimizing process for tracking people in video-camera network, 17-11-2015, François Brémont.

PhD in progress : Auriane Gros, Evaluation and Specific Management of Emotionnal Disturbances with Activity Recognition Systems for Alzheimer patient, Sept 2014, François Brémont.

PhD in progress : Minh Khue Phan Tran, Man-machine interaction for older adults with dementia, May 2013, François Brémont.

PhD in progress : Michal Koperski, Detecting critical human activities using RGB/RGBD cameras in home environment, François Brémont.

PhD in progress : Thi Lan Anh Nguyen, Complex Activity Recognition from 3D sensors, Dec 2014, François Brémont.

PhD in progress : Ines Sarray, Activity Recognition System Design, Oct 2014, Sabine Moisan.

PhD in progress : Farood Negin, People detection for activity recognition using RGB-Depth sensors, Jan 2015, François Brémont.

### 10.2.3. Juries

François Brémont was jury member of the following PhD theses:

PhD, Dana Codreanu, Toulouse University, 21 May 2015.

PhD, Matthieu Rogez, Lyon University, LIRIS, Foxstream, 9 June 2015.

PhD, Cédric Le Barz, Pierre and Marie Curie University, Thales, 30 June 2015.

PhD, Owais Mehmood, School of centrale de Lille, IFSTTAR, 28th September 2015.

PhD, Geoffroy Cormier, Rennes University, ECAM Rennes Louis de Broglie, NeoTec-Vision, 10 Novembre 2014.

PhD Thi Khanh Hong Nguyen, Nice University - LEAT, 18 November 2015.

PhD Cyrille Beaudry, La Rochelle University, MIA, 26 November 2015.

PhD Arsène Fansi Tchango, Lorraine University, 4 December 2015.

PhD, Andrei Stoian, CNAM, Paris, 15 January 2016.

### **10.3. Popularization**

François Brémond was invited to give a talk at Conférence des métiers at International Lycée (CIV) in Sophia 28 January 2015.

François Brémond was invited to give a talk at Nice University Conférence, La sSnté du Futur, 5 November 2015.

François Brémond was invited to give a talk at Aditel, Bank Forum, La Baule, Palais des congrès 1 and 2 October 2015.

François Brémond was interviewed by Industry Magazine, 1 October 2015.

## TITANE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Pierre Alliez was co-chair of the French JGA 2015 (Journées de Géométrie Algorithmique), organized in Cargèse, October 2015.

Florent Lafarge was co-chair of the ISPRS working group on point cloud processing.

#### 10.1.1.2. Member of the organizing committees

Pierre Alliez is a member of the Steering Board of the EUROGRAPHICS Workshop on Graphics and Cultural Heritage. He is also a member of the steering committee of the French chapter of EUROGRAPHICS since 2013.

Yuliya Tarabalka chaired 5 sessions at IEEE IGARSS 2015.

### 10.1.2. Scientific events selection

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

Pierre Alliez: EUROGRAPHICS Symposium on Geometry Processing (Graz, Austria) and Digital Heritage 2015.

Florent Lafarge: Laser Scanning 2015 and Digital Heritage 2015.

#### 10.1.2.2. Reviewer

Pierre Alliez was a reviewer for ACM SIGGRAPH, ACM SIGGRAPH Asia, EUROGRAPHICS.

Florent Lafarge was a reviewer for CVPR, ICCV, SIGGRAPH, SIGGRAPH Asia, EUROGRAPHICS, IJCV and JPRS.

Yuliya Tarabalka was a reviewer for the conferences IEEE ICIP 2015, IEEE IGARSS 2015, ICCV 2015, BMVC 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Pierre Alliez: associate editor of ACM Transactions on Graphics since 2009, Elsevier Graphical Models since 2010, Computer Aided Geometric Design since 2013, and the CGAL library since 2008.
- Florent Lafarge: associate editor of The Visual Computer since 2015.
- Yuliya Tarabalka was a co-editor of the special issue "Hyperspectral Imaging and Image Processing" of the Springer journal Sensing and Imaging.

### 10.1.4. Invited talks

Florent Lafarge was a keynote speaker at JURSE 2015, Lausanne, Switzerland on March 31 (talk:"Urban reconstruction from airborne data: how to combine semantics and geometry?"), and at Laser Scanning 2015, La grande Motte, France (talk:"Extracting and exploiting planar primitives from Laser scans").

### 10.1.5. Scientific expertise

Pierre Alliez was a member of the Horizon 2020 Advisory Group for Societal Challenge 6 ‘Europe in a changing world – Inclusive, Innovative and Reflective Societies. He was also an evaluator and reviewer for the H2020 and EuroSTARS programmes from the European commission. He is since October 2015 a member of the panel GEV 01 (mathematics and computer science) of ANVUR (Italian research evaluation agency). We are evaluating the period 2011-2014 through bibliometry and peer-review.

### 10.1.6. Research administration

Pierre Alliez: member of the BCP (bureau du CP) since 2015, comité MASTIC (popularization), and comité espace immersif.

Florent Lafarge: elected member of the CC “Comité de Centre” since 2013, and a member of the CSD “Commission de Suivi Doctoral” since 2011.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Masters: Pierre Alliez and Florent Lafarge, Ingénierie 3D, 24h, M2, University Nice Sophia Antipolis, France.

Masters: Pierre Alliez and Florent Lafarge, 3D Meshes and Applications, 32h, M2, Ecole des Ponts ParisTech, France.

Masters: Pierre Alliez, Mathématiques pour la géométrie, 24h, M2, EFREI, France.

Masters: Pierre Alliez, Modélisation géométrique, 16h, M2, Télécom SudParis, France.

Masters: Florent Lafarge, Traitement d’images numériques, 9h, M2, University Nice Sophia Antipolis, France.

Masters: Florent Lafarge, Imagerie numérique, 10h, M2, University Nice Sophia Antipolis, France.

L2: Yuliya Tarabalka, Advanced algorithms, 27.75h eq. TD (3h of lectures + 3h of TD + 27h of TP + 1h30 of exam), L2 Networks and Telecoms, IUT Nice Côte d’Azur, Sophia Antipolis, France.

Masters: Yuliya Tarabalka, Digital imaging, 7h eq. TD (2h of lectures + 4h of TD), M2 SVS ISAB, University Nice Sophia Antipolis, France.

### 10.2.2. Supervision

PhD: Simon Giraudot, Robust surface reconstruction, defended on May 22, Pierre Alliez.

PhD: Sven Oesau, Reconstruction of indoor scenes, defended on June 24, Florent Lafarge and Pierre Alliez.

PhD: Seong-Gyun Jeong, Curvilinear Structure Modeling and its Applications in Computer Vision, University Nice Sophia Antipolis, defended on November 2015, Yuliya Tarabalka and Josiane Zerubia.

PhD in progress: Manish Mandad, Shape approximation with guarantees, since October 2012, Pierre Alliez and David Cohen-Steiner from GEOMETRICA.

PhD in progress: Liuyun Duan, Semantized Elevation Maps, since October 2013, Florent Lafarge.

PhD in progress: Jean-Dominique Favreau, Sketch-based modeling in multi-view context, since October 2014, Florent Lafarge.

PhD in progress: Emmanuel Maggiori, Representation and Analysis of Multisensor Remote Sensing Images with Partition Trees, University Nice Sophia Antipolis, started in January 2015, Yuliya Tarabalka and Pierre Alliez.

### 10.2.3. Juries

Pierre Alliez:



- Paper and software award committees, EUROGRAPHICS Symposium on Geometry Processing.
- Inria CR2 recruitment committee, Inria Sophia Antipolis.
- PhD Thesis reviewer: Jérémy Levallois (LIRIS).
- PhD Thesis committee: Rodolphe Vaillant (Université Paul Sabatier / University of Victoria).
- PhD Thesis reviewer: Gilles-Philippe Paillé (Université de Montréal).
- PhD Thesis mid-term committee: Ana Vintescu (Télécom ParisTech).

Florent Lafarge:

- Thesis reviewer: Abdoulaye Abou Diakité (Université Lyon1).

Yuliya Tarabalka:

- Expert evaluator for an ANR project submission in May 2015.
- Monitoring committee for the thesis of Amine Bohi, Southern University of Toulon-Var in October 2015.

### **10.3. Popularization**

Pierre Alliez: two seminars in highschoools, participation to the “fête de la science” in Antibes, workshop on 3D reconstruction with Nicolas Douillet and cafe-in (Robust Shape Reconstruction) at Inria Sophia Antipolis.

## TYREX Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

#### 8.1.1.1. Member of the organizing committees

C. Roisin is a member of the steering committee of the [ACM Symposium on Document Engineering](#).

### 8.1.2. Scientific events selection

#### 8.1.2.1. Chair of conference program committees

P. Genevès is the PC Chair of the [ACM Symposium on Document Engineering 2015](#).

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

P. Genevès is member of the external review committee for the 42nd ACM Symposium on Principles of Programming Languages (POPL'15).

C. Roisin and N. Layaïda are program committee members for the 15th ACM Symposium on Document Engineering (DocEng'15).

#### 8.1.2.3. Reviewer - Reviewing activities

P. Genevès has been a referee for the ACM Transactions on Database Systems (TODS).

P. Genevès has been a referee for the International Colloquium on Automata, Languages and Programming (ICALP).

P. Genevès has been a referee for the International Conference for Human-Computer Interaction (CHI).

P. Genevès has been a referee for the International Conference on Relational and Algebraic Methods in Computer Science (RAMiCS).

N. Gesbert has been a referee for Logical Methods in Computer Science (LMCS).

### 8.1.3. Research administration

C. Roisin is a board member of the University Pierre Mendes-France, University of Grenoble, in charge of IT systems and TICE.

C. Roisin is president of the disciplinary commission of the University Pierre Mendes-France, University of Grenoble.

N. Layaïda is a permanent member of the pool of experts (project selection committee) of the Minalogic competitive cluster.

N. Layaïda is “référent budget” member of the budget commission of the Inria Grenoble – Rhône-Alpes research center. The role of this commission is to allocate yearly budget (“dotation”) to Inria project teams and services. On a yearly basis, we meet with team and service leaders individually, collect their financial needs and set their budget.

P. Genevès is a permanent member of the committee in charge of hiring research engineers at Inria Grenoble - Rhône-Alpes research center, since 2007.

P. Genevès is co-responsible of the doctoral school of Grenoble University for Computer Science (around 400 PhD students), since July 2015.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

P. Genevès: 18h (foundations for XML: logics, tree automata and grammars) in the Master of Science in Informatics at Grenoble (Université Joseph Fourier); 3h (tree automata and grammars) in the Master at Ecole Polytechnique Fédérale de Lausanne; 3h (XML Essentials) in the Master at Ecole Nationale Supérieure d'Informatique et de Mathématiques appliquées de Grenoble.

N. Layaïda: 9h of Master lectures on SMIL and Multimedia Principles at Grenoble Universities (Master of Science in Informatics at Grenoble, M2R SIGAL: UE IST, final year).

C. Roisin: 192h at License level on computer network and web technologies; responsible of a L3 degree in web technologies with 50 students per year involved in a dual education system.

C. Roisin is the contact person of the Grenoble Inria Centre for the doctoral schools of University of Grenoble (mainly the MSTII Doctoral School), until June 2015.

N. Gesbert: 223h at License and Master levels in an engineering school (Ensimag), including: 60h on algorithmics and 45h on logic at license level, and 45h on software analysis, conception and validation, 45h on logic and 22h30 on Web application development at master level, plus a few hours of tutoring.

### 8.2.2. Supervision

PhD defence: N. Guido, On the Static Analysis for SPARQL Queries using Modal Logic, 3<sup>rd</sup> October 2015, C. Roisin and P. Genevès

PhD in progress: D. Graux, Large scale evaluation of semantic web queries, since November 2013, N. Layaïda and P. Genevès

PhD in progress: A. Abbas, Web query rewriting for heterogeneous data sources, since October 2014, N. Layaïda and P. Genevès

PhD in progress: T. Michel, Mobile Augmented Reality Applications for Smart Cities, since October 2014, P. Genevès, N. Layaïda and H. Fourati

PhD in progress: L. Jachiet, Reasoning with NoSQL Data Flows in Massively Parallel Systems, since October 2014, N. Layaïda and P. Genevès

P. Genevès is co-responsible of a master-level university course entitled “Semantic Web: from XML to OWL”, given each year in the second year of the Master of Science in Informatics at Grenoble.

N. Layaïda is a permanent member of the jury in charge of evaluation harmonisation of the Master of Science in Informatics at Grenoble.

P. Genevès is co-responsible of the doctoral school of Grenoble University for Computer Science (around 400 PhD students), since July 2015.

N. Layaïda is member of the Scientific Board of Advanced Data-mining of the Parsyval Labex.

N. Layaïda is member of the experts pool (selection committee) of the minalogic competitive cluster.

## 8.3. Popularization

M. Razafimahazo developed a mobile application for the pupils of the école de la paix, Grenoble. The application uses Augmented Reality for a cultural heritage tour of Grenoble City with content produced by the pupils.

M. Razafimahazo animated a brainstorming during CitizenTIC around OpenStreetMap crowd-sourcing: “Les cartes changent la donne autour des parcours accessibles dans l’agglomération Grenobloise”.

N. Layaïda animated several workshops on Open Linked Data for Grenoble City and Grenoble Agglomeration (La métro).

TyReX received two pupils from secondary school, Jeremy Andreoletti and Hugo Kersaudy, for a one week initiation to research. We also hosted several pupils from primary school for one day for a presentation and demos.

## WILLOW Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- J. Sivic is a program co-chair of IEEE International Conference on Computer Vision (ICCV), 2015.

#### 10.1.1.2. Member of the organizing committees

- Workshop co-organizer, THUMOS Challenge 2015: Action Recognition with a Large Number of Classes, in conjunction with CVPR'15, Boston, USA (Ivan Laptev).

### 10.1.2. Scientific events selection

#### 10.1.2.1. Area chairs

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015 (I. Laptev, J. Ponce).
- International Conference on Computer Vision (ICCV), 2015 (I. Laptev).

#### 10.1.2.2. Member of the conference program committee

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015 (R. Arandjelović, P. Bojanowski, M. Cho, J. Sivic).
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016 (R. Arandjelović, P. Bojanowski, G. Cheron, M. Cho, S. Kwak, J. Sivic).
- International Conference on Computer Vision (ICCV), 2015 (R. Arandjelović, P. Bojanowski, M. Cho, J. Sivic).
- ACM Multimedia 15 doctoral consortium (R. Arandjelović).
- 29th Conference on Artificial Intelligence (AAAI), 2015 (I. Laptev).
- International Conference on Learning Representations, 2015 (J. Sivic).

### 10.1.3. Journals

#### 10.1.3.1. Member of the editorial board

- International Journal of Computer Vision (I. Laptev, J. Ponce, J. Sivic).
- IEEE Transactions on Pattern Analysis and Machine Intelligence (I. Laptev).
- Foundations and Trends in Computer Graphics and Vision (J. Ponce).
- Image and Vision Computing Journal (I. Laptev).
- I. Laptev and J. Sivic co-edit a special issue on "Video representations for visual recognition" in the International Journal of Computer Vision.
- J. Sivic co-edits a special issue on "Advances in Large-Scale Media Geo-Localization" in the International Journal of Computer Vision.

#### 10.1.3.2. Reviewer

- International Journal of Computer Vision (M. Cho).
- IEEE Transactions on Pattern Analysis and Machine Intelligence (R. Arandjelović, P. Bojanowski, M. Cho, S. Kwak).
- IEEE Transactions on Circuits and Systems for Video Technology (P. Bojanowski, B. Ham).
- IEEE Transactions on Image Processing (B. Ham).

- IEEE Signal Processing Letters (B. Ham).
- Computer Vision and Image Understanding (M. Cho).
- Elsevier Neurocomputing (B. Ham).
- EURASIP Journal on Image and Video Processing (B. Ham).

#### 10.1.4. Others

- J. Sivic is senior fellow of the Neural Computation and Adaptive Perception program of the Canadian Institute of Advanced Research
- R. Arandjelović obtained the Best reviewer award at International Conference on Computer Vision (ICCV), 2015

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Master : J. Ponce, “Introduction to computer vision”, M1, Ecole normale supérieure, 36h.
- Master : I. Laptev, J. Ponce and J. Sivic (together with C. Schmid, Inria Grenoble), “Object recognition and computer vision”, M2, Ecole normale supérieure, and MVA, Ecole normale supérieure de Cachan, 36h.
- Master : I. Laptev, J. Ponce and J. Sivic (together with Z. Harchaoui and J. Mairal, Inria Grenoble and F. Bach), Cours PSL-ITI - Informatique, mathématiques appliquées pour le traitement du signal et l’imagerie, 20h.
- Doctorat : I. Laptev gave a tutorial at the 9th Russian Summer School in Information Retrieval (RuSSIR), St Peresburg, August 2015, 5h.

### 10.2.2. Supervision

PhD : Mathieu Aubry, “Visual recognition and retrieval of 3D objects and scenes”, graduated in 2015, J. Sivic and D. Cremers (TU Munich).

PhD : Vincent Delaitre, “Modeling and recognition of human-object interactions”, graduated in 2015, I. Laptev and J. Sivic.

PhD in progress : Gül Varol, “Deep learning methods for video interpretation”, starting in Oct 2015, I. Laptev, C. Schmid.

PhD in progress : Julia Peyre, “Learning to reason about scenes from images and language”, starting in Oct 2015, C. Schmid, I. Laptev, J. Sivic.

PhD in progress : Jean-Baptiste Alayrac, “Structured learning from video and natural language”, started in 2014, I. Laptev, J. Sivic and S. Lacoste-Julien.

PhD in progress : Piotr Bojanowski, “Learning to annotate dynamic video scenes”, started in 2012, I. Laptev, J. Ponce, C. Schmid and J. Sivic.

PhD in progress : Rafael Sampaio de Rezende, started in 2013, J.Ponce.

PhD in progress : Guilhem Chéron, “Structured modeling and recognition of human actions in video”, started in 2014, I. Laptev and C. Schmid.

PhD in progress : Théophile Dalens, “Learning to analyze and reconstruct architectural scenes”, starting in Jan 2015, M. Aubry and J. Sivic.

PhD in progress : Vadim Kantorov, “Large-scale video mining and recognition”, started in 2012, I. Laptev.

PhD in progress : Maxime Oquab, “Learning to annotate dynamic scenes with convolutional neural networks”, started in Jan 2014, L. Bottou (MSR), I. Laptev and J. Sivic.

PhD in progress : Guillaume Seguin, “Human action recognition using depth cues”, started in 2010, I. Laptev and J. Sivic.

PhD in progress : Matthew Trager, “Projective geometric models in vision”, started in 2014, J. Ponce and M. Hebert (CMU).

PhD in progress : Tuang Hung VU, “Learning functional description of dynamic scenes”, started in 2013, I. Laptev.

### 10.2.3. *Juries*

PhD thesis committee:

- Vincent Buso, Université Bordeaux I, France, 2015 (I. Laptev).
- Danila Potapov, Université Grenoble Alpes, France, 2015 (I. Laptev, rapporteur).
- Thomas Pfister, University of Oxford, UK, 2015, (I. Laptev, external examiner)
- Xi Chen, Aalto University, Finland, 2015 (I. Laptev, rapporteur).

Other:

Member of the PSL Research Council, 2012- (J. Ponce).

Member of Inria Commission de developpement technologique (CDT), 2012- (J. Sivic).

### 10.3. Invited presentations

- R. Arandjelović, Invited talk, DeepMind, London, United Kingdom, October 13, 2015
- M. Cho, Invited talk, Postech, Pohang, South Korea, November 30, 2015
- I. Laptev, Amazon, Seattle, USA, Nov, 2015.
- I. Laptev, Deep Video Workshop, Santa Cruz, USA, Nov, 2015.
- I. Laptev, EHES, Paris, France, Nov 16 - 18, 2015.
- I. Laptev, Keynote Speaker, NCCV, Sept. 14-15, Lunteren, The Netherlands, 2015.
- I. Laptev, Institute for Computer Graphics and Vision TU Graz, Austria, July, 2015.
- I. Laptev, DALI Workshop, La Palma, Spain, April 2015.
- I. Laptev, Bauman Moscow State Technical University, Moscow, Russia, April 2015.
- I. Laptev, CVPR'15 Area Chair Workshop, Boston, MA, USA, March 2015.
- I. Laptev, GDR-ISIS, Paris, France, March, 2015.
- I. Laptev, Deep Learning Summit, San Francisco, USA, Jan. 2015.
- J. Ponce, IAS Workshop on Functoriality in Geometric Data, Hong Kong, April 2015.
- J. Ponce, ORASIS Workshop, Amiens, June 2015.
- J. Ponce, Optimization in Machine learning, vision and image processing Workshop, Toulouse, October 2015.
- J. Ponce, SAMSUNG DMC, Seoul, Korea, October 2015.
- J. Ponce, 12th International Conference on Ubiquitous Robots and Ambient Intelligence, Goyang City, Korea, October 2015.
- J. Ponce, International Conference in Big Data and Information Analytics, Xi'an, China, October 2015.
- J. Ponce, Xi'an Jiaotong University, Xi'an, China, October 2015.
- J. Ponce, Software and Digital Humanities Workshop, Paris, November 2015.
- J. Ponce, Algorithms for Human-Robot Interaction, Berkeley, USA, November 2015.
- J. Ponce, Distinguished speaker, Faculty of Engineering, Hong Kong University, December 2015.
- J. Sivic, Invited talk, the CIFAR workshop, Montreal, December 2015.
- J. Sivic, Invited talk, the Workshop on Visual Place Recognition in Changing Environments, CVPR 2015.
- J. Sivic, Invited talk, the Aristote seminar on scientific computing for smart cities, 2015.
- J. Sivic, Invited talk, the High Visual Computing seminar, 2015.
- J. Sivic, Talk at Inria ComDir, 2015.

## WIMMICS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

**Elena Cabrio:** Area chair (Semantics). CLIC-it 2015 (Italian Conf. on Computational Linguistics). Challenge co-chair, Extended Semantic Web Conference (ESWC 2015)

**Catherine Faron-Zucker:** Workshops co-chair at ESWC 2015, co-chair of SW4SH 2015 workshop.

**Fabien Gandon:** General chair of ESWC 2015, European Semantic Web Conference, Portoroz, Slovenia

**Alexandre Monnin:** co-chair of SW4SH 2015 workshop.

#### 9.1.1.2. Member of the organizing committees

**Alain Giboin:** co-organizer of JMIC 2015 Talence et JMIC 2015 Nantes.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

**Alain Giboin:** Associate Chair of CSCW 2015.

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

**Fabien Gandon:** IJCAI, ISWC, WWW, WI, ESWC, Hypertext, WebSci, ICWSM, SEMANTiCS, SAC, RFIA, EGC, IC.

**Michel Buffa:** Web Audio Conference.

**Elena Cabrio:** Association for Computational Linguistics conference (ACL 2015), Extended Semantic Web Conference (ESWC 2015), Language Resources and Evaluation Conference (LREC).

**Olivier Corby:** IC, GKR Workshop @ IJCAI, MOREBI

**Catherine Faron-Zucker:** i-KNOW, PRIMA, KEOD, LinkED, SW4SH, GKR, IC, EIAH

**Alain Giboin:** member of the steering committee of the COOP conference series (International Conferences on the Design of Cooperative Systems). Member of the program committee of: SEMANTICS 2015 - Research & Innovation Track; SEMANTICS 2015 - Posters and Demos; IC 2015; EPIQUE 2015.

**Isabelle Mirbel:**

26th International Conference on Advanced Information Systems Engineering (CAISE 2015), First International Workshop on Semantic Web for Cultural Heritage to be held in conjunction with the 19th East-European Conference on Advances in Databases and Information Systems (ADBIS 2015).

**Alexandre Monnin:** IC, ESWC, WWW, PhiloWeb, SW4SH.

**Andrea Tettamanzi:** FLAIR 2015 and 2016, EvoApps 2015, IC 2015, WIRN 2015, PRIMA 2015, PPSN 2016, GECCO 2016, and LREC 2016 conferences, as well as for the SW4SH workshop of ESWC and the MOD workshop.

**Serena Villata:** IJCAI, AAI, JURIX.

#### 9.1.2.3. Reviewer

**Michel Buffa:** ESWC, WWW Demo Track, SWCS, Web Audio Conference 2016.

**Olivier Corby:** ESWC, GraphQ, SIIM, TTCS.

**Alain Giboin:** CHI 2015, OZCHI 2015, ESWC 2015, IHM 2015, WWW 2016.

**Alexandre Monnin:** IC, ESWC, WWW Webscience track, TICE.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

**Nhan Le Thanh:** Journal of Science and Technology, Danang University- Issue on Information and Communications Technology<sup>0</sup>.

#### 9.1.3.2. Reviewer - Reviewing activities

**Elena Cabrio:** Journal of Web Semantics, and for the Computational Linguistics journal

**Olivier Corby:** Journal of Computer and System Sciences, Semantic Web Journal

**Catherine Faron-Zucker:** Int. Journal of Artificial Intelligence in Education (IJAIED), Int. Journal of Human Computer Studies (IJHCS)

**Fabien Gandon:** Intellectica

**Isabelle Mirbel:** Artificial Intelligence Review Journal (Springer), Neurocomputing (Elsevier), International Journal of Information System Modeling and Design (IGI Global).

**Andrea Tettamanzi:** Genetic Programming and Evolvable Machines

**Nhan Le Thanh:** Journal of Science and Technology, Danang University.

**Serena Villata:** Journal of Logic and Computation, Argument & Computation, ACM Transactions on Intelligent Systems and Technology.

### 9.1.4. Invited talks

**Michel Buffa:** Web Audio track at WWW2015, presentation of MT5, a HTML5 multitrack player for musicians, May, Florence, Italy.

**Fabien Gandon<sup>0</sup>:**

- Invited research Talk, Dassault Systèmes, “Relier trois des toiles du Web : ou comment tisser des liens entre le Web de données, le Web sémantique et le Web social”, 28/01/2015
- LIG Keynote Speech, “Bridging formal semantics and social semantics on the Web” 8/01/2015

**Olivier Corby:**

- *SPARQL Template Transformation Language* at ESIRIOI, University of La Réunion, April 16th.
- FunSPARQL: a Function Language on top of SPARQL, December 15th, Web/reactive programming seminar at Inria Sophia Antipolis organized by Indes team.

**Alexandre Monnin:**

- Participate in a closed seminar hosted by Peter Norvig at Google’s headquarter in Mountain View on the Philosophy of the Web (other invitees included such renown figures as David Bates, Warren Sack, Andy Clark, Henry S. Thompson, Brian Cantwell Smith, Alison Gopnik, Daniel Russell, Hubert L. Dreyfus, Geoffrey Hinton, Ramanathan Guha, Sam Goto, Erin Siegal, Alva Noe, Tania Lombrozo, Terry Winograd, David Kirsh, Fernando Flores, John Searle).
- In April, was invited to participate in a seminar at Paris 10 Nanterre organized by Louise Merzeau, on DBpedia, and controversy analysis.
- The same day, did a presentation at La Sorbonne, at the Obvil Labex seminar, on the ontology of the Web.

<sup>0</sup><http://jst.udn.vn/ict>

<sup>0</sup>see <http://www-sop.inria.fr/members/Fabien.Gandon/talks.html>



- In April, presentation along with philosopher Pierre Livet (Aix-Marseille University) at MSHS: "Séminaire invité, axe 2 "TICs, Usages et Communautés"", on "Architecture du Web et ontologie des opérations".
- In May, invited by the Digital Cultures Research Center (DCRL) of Leuphana University in Lüneburg (Germany) to participate in an international symposium: "Technological Conditions of Interventions. History, Epistemology, Dramaturgy". A book will be edited out of it (chapter "Making and caring: Philosophical engineering and the philosophy of the Web").
- In June, presentation during a two-day seminar at Mines ParisTech. A book will be published from the texts gathered there.
- In July, one-week long international conference at Cerisy-la-Salle on Scientific Philosophy, to celebrate the famous 1935 conferences on logical positivism that took place in Paris. He delivered a talk on the philosophical roots of the Semantic Web, in particular by insisting on the importance of two philosophers, Rudolf Carnap and Otto Neurath (logic and data visualization). The proceedings of this week will be published in 2016 by the Editions Matériologiques.
- In October, participate in the Heritage and Anthropocene conference in Dijon (Centre Georges Chevrier, CNRS, UMR 7366) where he presented a paper with Diego Landivar (Origen MediaLab). A publication venue for the papers presented there is now actively sought.
- La Sorbonne, in Paris, at the annual "Numérique et Société" seminar organized by the CRI (Centre de Recherche en Informatique, Paris 1 Panthéon-Sorbonne University) to deliver a presentation the 19th of November on "What the Web is not and what it is" with Aurélien Bénel (UTT). A publication of all the presentations delivered at this seminar since its inception will be published next year by the Publications de la Sorbonne (including our paper with A. Bénel).
- The 20th of November, presentation of an ongoing project with Lise Arena (UNS, Gredeg) and Bernard Conein (UNS, Gredeg) between Inria and UNS on "Digital artifacts and materialities". This was part of an event organized by Sylvie Mellet, vice president of the university for research, where the various interdisciplinary axes of UNS were introduced to an audience of peers.
- Presentation at the Institut für Transportation Design (ITD) of the Hochschule für Bildende Künste Braunschweig, on the 23rd of November (on digital design and sustain-ability: "Caring for all objects, caring for some of them: instauration (destauration)/disclosing (forclosing)/futuraing (defuturaing)").
- Lille, in December 2015, at the Espace Culture of the University, discussion on the "mappability of the Web". A short paper (3 pages long) was published by the Lettre d'Archimède journal of the University as a teaser for my presentation.
- 1st of December, Time and Temporality on the Web (TToW) international conference, celebrating the Web's 25th anniversary at ISCC (CNRS, Paris) with Fabien Gandon (Inria, Wimmics). Our presentation is dedicated to the history of the architecture of the Web.

### 9.1.5. Scientific expertise

Alexandre Monnin worked for *Foundation des Galeries Lafayette for Contemporary Art* on their digital platform, of which he is the architect. He worked on the project with Mnemotix, the startup that grew out of Wimmics, and with Telecom ParisTech (official partnership) through Jérôme Denis, who is a sociologist there. This project is very much a research project which aims to capture the practices involved in producing and judging contemporary artworks. Publications are expected to follow from it.

### 9.1.6. Research administration

Catherine Faron-Zucker coordinates the Web option of the 5th year of Polytech Nice Sophia engineering school and is in charge of continuous training for the computer science department of Polytech Nice Sophia Antipolis.

Fabien Gandon is the W3C Advisory committee representative for Inria.

Alain Giboin serves as scientific correspondent for Inria Sophia of COERLE (Inria Comité Opérationnel d'Evaluation des Risques Légaux et Ethiques), in tandem with the legal correspondent Sabine Landivier.

Isabelle Mirbel is Vice-dean of Science Department at University Nice-Sophia Antipolis.

Andrea Tettamanzi has coordinated the 3rd year of the *Licence* in Business Informatics (MIAGE) at the UFR Science of the Université Nice Sophia Antipolis (UNS)

Nhan Le Thanh is animator of a multidisciplinary cooperation working group (eHealth) and coordinator of the bilateral scientific cooperation program (NiceCampus) between Nice-Sophia Antipolis University and Danang University. He is Director of the computer science department, IUT, Nice-Sophia Antipolis University.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Amel Ben Othmane, Oracle, 64h, L1, IUT UNS.

Licence : Elena Cabrio, Algorithms, Object-oriented programming (labs), 18h, Licence 2, UNS.

Licence : Elena Cabrio, Introduction to the Web (labs), 12h, Licence 1, UNS.

Licence : Elena Cabrio, Web Server Programming (labs), 18h, Licence 1 UNS.

Licence : Olivier Corby, Semantic Web, 2h, L3, UTT.

Licence : Isabelle Mirbel, Databases, 58h, L3 MIAGE, UNS.

Licence : Isabelle Mirbel, Web programming (Persistence), 54h L3 MIAGE, UNS.

Licence : Alexandre Monnin, Analyse des controverses, 7h30, L1, Telecom ParisTech.

Licence : Alexandre Monnin, Philosophie du Web et controverses, 12h, L3, Université Paris 10.

Licence : Andrea Tettamanzi, Algorithmique – Programmation Objet – Python, 50 h, Licence 2, UNS.

Licence : Andrea Tettamanzi, Programmation Web Avancée (côté client), 39 h, Licence 2, UNS.

Licence : Andrea Tettamanzi, Web, 18h, L3 MIAGE, UNS.

Licence : Nhan Le Thanh, Databases, 150h, DUT S2, IUT UNS.

Licence : Nhan Le Thanh, Advanced Databases, 105h, DUT S3, IUT, UNS.

Licence: Nhan Le Thanh, Logical Data Models and Languages, 24h, L3, UNS.

Licence: Nhan Le Thanh, Design and Development of DBMS services, 24h, L3, UNS.

Licence : Serena Villata, Conception orientée objets, 6h, Licence Miage, UNS.

Master : Michel Buffa, Distributed Web Development, 40h, M2, UNS.

Master : Michel Buffa, Plasticity of User Interfaces, HTML5 8h, M2, Polytech UNS.

Master : Michel Buffa, New Interaction Means, HTML5, 8h, M2, Polytech UNS.

Master : Michel Buffa, Web 2.0, Web Services, HTML5, 40h, M2 MIAGE, UNS.

Master : Elena Cabrio, Knowledge Engineering, 7h, Master 2 KIS, UNS.

Master : Elena Cabrio, Web Science, 3h, Master 2 IFI, UNS.

Master : Olivier Corby, Catherine Faron-Zucker, Fabien Gandon, Semantic Web, 45h, M2, UNS.

Fabien Gandon, *Web Sémantique ou comment se déploient sur le Web les données liées et la sémantique de leurs schémas*, 2H/year, M2, Ecole Centrale Paris.

Master: Amosse Edouard, Development on the Android platform, 24h, M2, UNS, France

Master: Amosse Edouard, Web Services, 22h, M2, UNS, France

Master: Amosse Edouard, Web Architecture & Web Services, 25h, M2, University State of Haiti, Haiti

Master: Amosse Edouard, Mobile Development, 30h, M2, University State of Haiti, Haiti

- Master: Amosse Edouard, Introduction to Near Field Communication, 15h, M2, EMSI, Maroc
- Master: Amosse Edouard, Administration of Oracle Database, 16h, M1, UNS, France
- Master: Alain Giboin, Human-Computer-Interaction Design and Evaluation, 54h, M2, UNS.
- Master: Alain Giboin, Interaction Techniques and Mutlimodality, 8h, M2, UNS.
- Master: Alain Giboin, Task and Activity Analysis for HCI design and evaluation, 6h, M2 Sociology and Ergonomics of Digital Technologies, UNS.
- Master: Alain Giboin, HCI Design and Evaluation, 10h, M2 Sociology and Ergonomics of Digital Technologies, UNS
- Master : Alain Giboin, Economics and ICT: Ergonomics, 15h, M2 Economics and ICT, ISEM, UNS.
- Master : Isabelle Mirbel, Advanced databases, 48h, MASTER MIAGE 1, UNS.
- Master : Isabelle Mirbel, Requirement Engineering, 42h, MASTER MIAGE 1, UNS.
- Master : Isabelle Mirbel, Project Management, 20h, MASTER MIAGE 2, UNS.
- Master : Alexandre Monnin, Style d'architecture REST et prise en main de Wikipédia/DBpedia, 5h, M2, Université de Technologie de Troyes (UTT).
- Master : Alexandre Monnin, Ingénierie des connaissances : Wikipedia, DBpedia et Wikidata, 3h, M2 Miage, UNS.
- Master : Andrea Tettamanzi, Systèmes Distribués, 18h, Master MIAGE 1, UNS.
- Master : Andrea Tettamanzi, Concurrency and Parallelism, 18h, Master International 1, UNS.
- “Fuzzy Description Logics” and “Ontology Learning”, within the module *Ingénierie des connaissances*, Master 2 Web, Polytech'Nice, 10 h ETD.
- Master : Serena Villata, Knowledge Engineering & Argumentation Theory, 3h, M2 KIS, UNS.
- Master : Serena Villata, Web Science, 5h, Master Miage, UNS.

### E-learning

- Mooc: Fabien Gandon, Olivier Corby & Catherine Faron-Zucker, Semantic Web, 7 weeks, <http://www.france-universite-numerique.fr/>, Inria, France Université Numérique, Education for Adults, 4000 registered.
- Mooc: Michel Buffa, HTML 5 Part 1: HTML5 Coding Essentials and Best Practices, 6 weeks, <https://www.edx.org/course/html5-part-1-html5-coding-essentials-w3cx-html5-1x>, EDx, W3C, for all international public, 88K + 67K registered (2 sessions).
- Mooc: Michel Buffa, HTML 5 Part 2: Advanced Techniques for Designing HTML5 Apps, 4 weeks, <https://www.edx.org/course/html5-part-2-advanced-techniques-w3cx-html5-2x>, EDx, W3C, for all international public, 20K registered.

### 9.2.2. Supervision

- PhD : **Thi Hoa Hue Nguyen**, *La vérification de patrons de workflow métier basés sur les flux de contrôle : Une approche utilisant les systèmes à base de connaissances*, U. Nice-Sophia Antipolis & U. Danang, June 16th, Nhan Le Thanh
- PhD in progress : **Amel Ben Othmane**, *Temporal and Semantic Analysis of Information Retrieved from Short and Spatio-Temporal Messages in Social Networks*, UNS, Nhan Le Than.
- PhD in progress : **Papa Fary Diallo**, *Co-Construction of Community Ontologies and Corpus in a Limited Technological Environment*, Inria, UNS, UGB, Isabelle Mirbel, Olivier Corby, Moussa Lo.
- PhD in progress : **Amosse Edouard**, *Studies of Spatial Semantic Aspect, Real Time Filtering Mechanisms and Semantic Enrichment of Short Messages on Dynamic Spatio-Temporal Social Networks*, UNS, Nhan Le Thanh.
- PhD in progress : **Zide Meng**, *Temporal and Semantic Analysis of Richly Typed Social Networks from User-Generated-Content Sites on the Web*, UNS, Fabien Gandon, Catherine Faron-Zucker.

PhD in progress : **Franck Michel**, *Heterogeneous databases federation in distributed environment*, UNS, Johan Montagnat, Catherine Faron-Zucker.

PhD in progress : **Tran Duc Minh**, *Learning Ontologies from Linked Open Data*, Andrea Tettamanzi, UNS and Nguyen Thanh Binh, University of Danang.

PhD in progress : **Emilie Palagi**, *Design of a Model-based Method for Evaluating Exploratory Search Systems*, UNS, Labex UCN@Sophia, Alain Giboin, Fabien Gandon with Raphael Troncy (Eurecom).

PhD in progress : **Tuan Anh Pham**, *Study and integration of the mechanism of workflow control in MVC (Model View Controller) architecture: design and implementation of an APM (Activity Process Management) platform for dynamic information systems on the networks*, UNS, Nhan Le Thanh.

### 9.2.3. Juries

**Olivier Corby** was reviewer, together with Fabien Gandon, of the PhD thesis of Nicola Guido *On the Static Analysis for SPARQL Queries using Modal Logic* at Univ. Grenoble on December 3rd 2015.

**Catherine Faron-Zucker** was member of the jury of:

Pierre-Yves Buard, *Modélisation de sources anciennes et édition numérique*, Université de Caen, May 2015;  
Xuan Truong Vu, *User-centered and group-based approach for social data filtering and sharing*, Université de Technologie de Compiègne, April 2015;

Farouz Soualah-Alila, *CAMLearn : une architecture de système de recommandation sémantique sensible au contexte: application au domaine du m-learning*, Université de Dijon-Auxerre, March 2015.

**Fabien Gandon** was president of the jury of Freddy Lecue Habilitation *Semantics for Scalable Machine Reasoning in the Web of Data*, University Nice-Sophia Antipolis, November 6th 2015.

**Alain Giboin** was jury member of the PhD thesis of Aurore Defays: "Influence des communications multimodales sur le processus de grounding. Proposition d'une méthodologie d'analyse, appliquée dans le domaine de la conception architecturale", Université de Liège, Belgique, July 2015.

**Isabelle Mirbel** was jury member: Myriam FAKHRI, PAX : une vision des processus métier basée sur la co-ingénierie de compositions de services, Aix Marseille Université, December 2015.

**Andrea Tettamanzi** was jury member:

Seif-Eddine Kramdi, *A Modal Approach to Model Computational Trust*, Université Paul Sabatier, Toulouse, October 5, 2015;

María Martínez Rojas, *Tratamiento inteligente de datos en proyectos de edificación*, University of Granada, Spain, November 25, 2015.

## 9.3. Popularization

**Fabien Gandon's general talks**<sup>0</sup>:

- Invited general Talk, Agora des Savoir, Montpellier, "Les (r)évolutions de la planète Web" 29/4/2015
- Invited general Talk, DataLift Day, "Quand le Web fait sens" 9/04/2015

**Catherine Faron-Zucker's general talks:**

- Invited talk at the MOOC Lab Inria workshop in January 2015 on the Linked Data in e-Education

<sup>0</sup>see <http://www-sop.inria.fr/members/Fabien.Gandon/talks.html>

## ZENITH Project-Team

# 10. Dissemination

## 10.1. Scientific Animation

Participation in the editorial board of scientific journals:

- VLDB Journal: P. Valduriez.
- Journal of Transactions on Large Scale Data and Knowledge Centered Systems, R. Akbarinia.
- Distributed and Parallel Databases, Kluwer Academic Publishers: E. Pacitti, P. Valduriez.
- Internet and Databases: Web Information Systems, Kluwer Academic Publishers: P. Valduriez.
- Journal of Information and Data Management, Brazilian Computer Society Special Interest Group on Databases: P. Valduriez.
- Book series "Data Centric Systems and Applications" (Springer): P. Valduriez.
- Ingénierie des Systèmes d'Information, Hermès : P. Valduriez.
- Journal of Data Semantics (Springer): S. Cohen-Boulakia
- Multimedia Tools and Applications: A. Joly

Participation to the organization of conferences and workshops:

- Alexis Joly was the main chair of the LifeCLEF 2015 international workshop<sup>0</sup> dedicated to multimedia biodiversity data management (Toulouse, September 8-10, part of CLEF 2015 conference)
- Alexis Joly was in the organizing committee of the 2nd International Workshop on Environmental Multimedia Retrieval<sup>0</sup>, in conjunction with ICMR 2015, 23 June, Shanghai
- Alexis Joly was in the organizing committee of the Floris'tic national workshop hold during the "salon de l'écologie"<sup>0</sup>, Montpellier, France, 5-7 November

Participation in conference program committees :

- ACM SIGMOD Conf. 2015: R. Akbarinia, S. Cohen-Boulakia, 2016: R. Akbarinia, S. Cohen-Boulakia
- IEEE Int. Conf. on Data Engineering (ICDE) 2015: S. Cohen-Boulakia, 2016: R. Akbarinia, E. Pacitti, P. Valduriez (area chair)
- ADBIS 2015 - East-European Conference on Advances in Databases and Information Systems: R. Akbarinia, P. Valduriez (PC chair)
- VLDB 2015 : P. Valduriez (sponsor co-chair, and best paper award committee)
- Int. Conf. on Extending DataBase Technologies (EDBT), 2015: E. Pacitti
- BPM 2015 (Business Process Management (BPM) 2015: S. Cohen-Boulakia
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015: A. Joly
- ACM Multimedia conference (ACMMM), 2015: A. Joly
- International Conference and Labs of the Evaluation Forum (CLEF), 2015: A. Joly
- IEEE International Conference on Image Processing (ICIP), 2015: A. Joly
- ACM International Conference on Multimedia Retrieval (ICMR), 2015: A. Joly
- IEEE Int. Workshop on Environmental Acoustic Data Mining (EADM), 2015: A. Joly

<sup>0</sup><http://www.imageclef.org/lifeclef/2015>

<sup>0</sup><http://mklab.iti.gr/emr2015/>

<sup>0</sup><http://www.salon-ecologie.com/congres-ecolotech-montpellier/programme-du-congres/>

- Workshop on Theory and Practice of Provenance (TAPP) 2014 et 2015: S. Cohen-Boulakia
- ICDT workshop on Algorithms and Systems for MapReduce and Beyond (BeyondMR) 2015: S. Cohen-Boulakia
- IEEE Int. Conf. on Data Mining, 2015: F. Massegli (area chair)
- ACM Symposium on Applied Computing, 2015: F. Massegli
- Int. Conf. on Data Management Technologies and Applications, 2015: F. Massegli
- Pacific-Asia Conf. on Knowledge Discovery and Data Mining, 2015: F. Massegli
- European Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, 2015: F. Massegli
- IEEE Int. Conf. on Data Science and Advanced Analytics, 2015: F. Massegli
- Workshop on Big Data and Data Mining Challenges on IoT and Pervasive Systems, 2015: E. Pacitti
- 9th BRESKI - Brazilian e-Science Workshop, 2015: E. Pacitti

Reviewing in international journals :

- Distributed and Parallel Databases: R. Akbarinia
- ACM Transactions on Database Systems (TODS): A. Joly
- IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI): A. Joly
- IEEE Transactions on Knowledge and Data Engineering: R. Akbarinia
- Information Sciences: A. Joly
- Ecological Informatics: A. Joly
- Multimedia Tools and Applications Journal (MTAP): A. Joly
- Multimedia Systems: A. Joly
- Transactions on Information Forensics & Security: A. Joly
- International Journal of Computer Vision: A. Joly
- Transactions on Image Processing: A. Joly
- ACM Trans. on Database Systems: E. Pacitti
- Knowledge and Information Systems (KAIS): F. Massegli
- Int. Journal of Uncertainty, Fuzziness and Knowledge-Based Systems (IJUFKS): F. Massegli
- IEEE Transactions on Knowledge and Data Engineering (TKDE): F. Massegli

Other activities (national):

- Zenith participated in the Hemera and Grid'5000 communities by: contributing to the definition of "Storage 5000" (we help defining the financial model for teams to have their data in Grid5000) ; participating to Hemera meetings (Florent Massegli gave a talk on "Pattern Mining from Big Data, meeting of Sept. 18, Nantes); and contributing to the prospective document of Grid5000.
- P. Valduriez is the scientific manager for the Latin America zone at Inria Direction des Relations Internationales (DRI), Member of the Scientific Committee at Agence Nationale de la Recherche (ANR) - Défi 7 Information and communication society and Member of the Scientific Committee of the BDA conference.
- A. Joly gave several invited talks in national events: *industrial computer vision days 2015*<sup>0</sup>, Montpellier, 15 October, *ICAR-AMAP images days 2015*<sup>0</sup>, September 17 He defended his « Habilitation à Diriger les Recherches (HDR) » entitled *Large-scale Content-based Information Retrieval* in June.
- F. Massegli gave an invited talk at the CNRS national seminar on IST about "Publication Data Analytics" (Meudon, 10 November), and an invited talk to the DSI service of IRD on "Scientific Data Mining" (Montpellier, 18 September). Florent also participates in the Class'Code PIA project dedicated to teaching computational thinking for professionals of education (head of the working group on the definition of fundamental notions).
- S. Cohen-Boulakia gave invited tutorials at the DigiCosme Spring School 2015 on Data Management (Saclay, May 2015) and at the summer school Cumulo-Numbio : Cloud computing for the life sciences (Aussois, June 2015).

<sup>0</sup><http://www.captronic.fr/Image-vision-industrielle.html>

<sup>0</sup>[http://amap-collaboratif.cirad.fr/ecipp/?page\\_id=901](http://amap-collaboratif.cirad.fr/ecipp/?page_id=901)

Other activities (international):

- P. Valduriez gave several invited talks in international events: “Data-intensive HPC: opportunities and challenges”, Workshop on Big Data and Extreme-scale Computing (BDEC), Barcelona, January 2015; “Cloud & big data: opportunities and risks for developing countries” at AFRICOMM 2015, Cotonou (Bénin), December 2015; “Big Data Management in Zenith” at Fundação Getulio Vargas, Rio de Janeiro, December 2015.
- A. Joly gave an invited talk at the ERMITES 2015 international summer school <sup>0</sup>, 21-22 April 2015. He is the main chair of the LifeCLEF research platform and was the co-organizer of two of the challenges run within the lab in 2015 (the plant identification challenge and the bird identification challenge).
- S. Cohen-Boulakia gave invited talks at Universities of Pennsylvania, April, and Humboldt, Berlin, December.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Most permanent members of Zenith teach at the Licence and Master degree levels at UM2.

Reza Akbarinia:

Master Research: New approaches for data storage, 9h, level M2, Faculty of Science, UM

Licence: Computing Tools, 36h, Level L3, Faculty of Science, UM

Florent Maseglia:

Science Popularization: 4 Ph.D students, from 3 different doctoral schools are having a 30h doctoral module under Florent Maseglia’s supervision.

Esther Pacitti:

IG3: Database design, physical organization, 54h, level L3, Polytech’ Montpellier, UM2

IG4: Networks, 42h, level M1, Polytech’ Montpellier, UM2

IG4: Object-relational databases, 32h, level M1, Polytech’ Montpellier, UM2

IG5: Distributed systems, virtualization, 27h, level M2, Polytech’ Montpellier, UM2

Industry internship committee, 50h, level M2, Polytech’ Montpellier

Master Research: Large scale data management, 4,5h, level M2, Faculty of Science, UM2

Didier Parigot:

Master Research: Large scale data management, 6h, level M2, Faculty of Science, UM2

Patrick Valduriez:

Master Research: Large scale data management, 12h, level M2, Faculty of Science, UM2

Professional: Distributed Information Systems, 50h, level M2, Capgemini Institut

Professional: XML, 30h, level M2, Orsys Formation

Alexis Joly:

Master Research: Large-scale Content-based Visual Information Retrieval, 3h, level M2, Faculty of Science, UM2

---

<sup>0</sup><http://glotin.univ-tln.fr/ERMITES15/>

### 10.2.2. Supervision

- PhD in progress: Mehdi Zitouni Closed Pattern Mining in a Massively Distributed Environment started Sept. 2014, Univ. Tunis, Advisor: Florent Massegia, co-advisor: Reza Akbarinia
- PhD in progress : Ji Liu, Scientific Workflows in Multisite Cloud, started oct. 2013, Univ. Montpellier, Advisors: Esther Pacitti and Patrick Valduriez
- PhD in progress : Saber Salah, Optimizing a Cloud for Data Mining Primitives, started nov. 2012, Univ. Montpellier, Advisor: Florent Massegia, co-advisor: Reza Akbarinia
- PhD in progress : Valentin Leveau, Supervised content-based information retrieval in big multimedia data, started April 2013, Univ. Montpellier, Advisor: Patrick Valduriez, co-advisor: Alexis Joly and Olivier Buisson
- PhD in progress : Djamel-Edine Yagoubi, Indexing Time Series in a Massively Distributed Environment, started October 2014, Univ. Montpellier, Advisors: Florent Massegia and Patrick Valduriez, co-advisor: Reza Akbarinia
- PhD in progress : Sakina Mahboubi, Privacy Preserving Query Processing in Clouds, started October 2015, Univ. Montpellier, Advisor: Patrick Valduriez, co-advisor: Reza Akbarinia

### 10.2.3. Juries

Members of the team participated to the following Ph.D. committees:

- E. Pacitti: Sébastien Monnet (HDR, Univ. Paris 6), Luis Daniel Ibanez (Univ. Nantes), Maeva Antoine (Univ. Nice), Julien Lacroix (Univ. Aix-Marseille).
- P. Valduriez: Gerson Sunyé (HDR, Univ. Nantes, chair), Amin Mesmoudi (Univ. Lyon 1) Stamatis Zampetakis (Univ. Paris Sud).

## 10.3. Popularization

Today, one of the main questions in science popularization and computer science teaching at school in France is: "how to scale?". Some of our recent actions in the domaine are mainly oriented towards this goal of scaling, in particular with the Class'Code PIA project ([https://pixees.fr/?page\\_id=1980](https://pixees.fr/?page_id=1980), F. Massegia is member of the project).

F. Massegia has coordinated a national network of colleagues for promoting code learning. After several training sessions given to professionals of education F. Massegia has written a complete guide for setting up a similar training session (<https://pixees.fr/?p=5713>).

"La main à la pâte" is leading the writing of a school book on computer science teaching involving Inria (Gilles Dowek, Pierre-Yves Oudeyer, Florent Massegia and Didier Roy), "France-IOI" and the University of Lorraine. Florent Massegia has tested the pedagogical sequences of the book in a classroom near Montpellier.

Zenith participated to the following events in Montpellier:

- F. Massegia co-organized and co-animated the Inria's stand at "La fête de la science" (Montpellier), held by Genopolys (a science village).
- F. Massegia organized and animated several "Kid&Code" studios in the greater metropolitan area of Montpellier, involving the network of media libraries and the network of extracurricular activities. He also has proposed a two sessions training to activity leaders of "Les petits débrouillards". The goal is to accompany the activity leaders and help them until they are autonomous
- F. Massegia is member of the project selection committee for "La fête de la science" in Montpellier
- F. Massegia is co-author of a paper in the Scratch conference on code learning for kids [50]
- M. Servajean and A. Joly co-animated a stand at "La fête de la science" (Montpellier), held by the LIRMM laboratory
- M. Servajean, A. Joly and J. Champ collaborated to a participatory workshop at "Le salon de l'écologie", Montpellier



F. Masegla is scientific vice-editor of *interstices* ( <https://interstices.info>), and a member of the scientific committee for the edition of “Datagramme”, the game from Inria on science popularization. He has participated to the two days training sessions on "science popularization" given by Claude Vadel in Paris, on Dec. 4 and 5, 2014.

A. Joly and J. Champ participated to the set-up of a Pl@ntNet demo within the French pavillon at the Universal Exposition hold in Milan (about 2M visitors on the French pavillon).

As a member of the organizing committee of the Floris'tic project, A. Joly participated to several popularization and educational actions in collaboration with Tela Botanica NGO (cities, parks, schools, etc.)

F. Masegla is a member of the management board of "Les Petits Débrouillards" in Languedoc-Roussillon. He also is the scientific responsible for schools visits in the Lirmm Laboratory.

D. Shasha gave several talks: “the changing nature of invention in computer science” (Morgenstern seminar) and “Group Testing to Describe Causality in Gene Networks” at Inria Sophia-Antipolis in april, and “Statistics is easy” at IBC, Montpellier in march.

P. Valduriez gave a talk on “Integrating Big Data and Relational Data with CloudMdsQL” at the DGA seminar “Traitement de l’information multimodale et Big Data”, Arcueil, in october.