RESEARCH CENTER

FIELD
Digital Health, Biology and Earth

Activity Report 2017

Section Dissemination

Edition: 2018-02-19

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ABS Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. 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 2017 Edition, which took place at the CNRS center in Cargese, focused on *Protein design*, see https://algosb2017.sciencesconf.org/. It attracted 40 participants from worldwide institutions.

7.1.2. Scientific Events Selection

7.1.2.1. Member of Conference Program Committees

– Frédéric Cazals was member of the following program committees:

- Symposium On Geometry Processing
- Symposium on Solid and Physical Modeling
- Intelligent Systems for Molecular Biology (ISMB), PC member of Protein Interactions & Molecular Networks
- ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics
- JOBIM

7.1.3. Journal

7.1.3.1. Reviewer - Reviewing Activities

- Journal of mathematical biology
- Bioinformatics
- Journal of computational chemistry

7.1.4. Invited Talks

– Frédéric Cazals gave the following invited talks:

- *Beyond two-sample-tests: localizing data discrepancies in high-dimensional spaces*, NIPS workshop of Topological Data Analysis, Los Angeles, December 2017.
- *Modeling in structural bioinformatics: the tryptic structure - dynamics - function*, GDR Bioinformatique moléculaire, Paris, November 2017.
- *Modèles géométriques pour la prédiction des interactions macro-moléculaires*, seminar for the course *Géométrie algorithmique Données, Modèles, Programmes*, by Jean-Daniel Boissonnat, Chaire d'informatique et sciences numériques, Collège de France, March 2017.

7.1.5. Leadership within the Scientific Community

– Frédéric Cazals:

- 2010-.... Member of the steering committee of the *GDR Bioinformatique Moleculaire*, for the *Structure and macro-molecular interactions* theme.
- 2017-.... Co-chair, with Yann Ponty, of the working group / groupe de travail *(GT MASIM - Méthodes Algorithmiques pour les Structures et Interactions Macromoléculaires*, within the *GDR de BIoinformatique Moléculaire* (GDR BIM, http://www.gdr-bim.cnrs.fr/).

7.1.6. Research Administration

– Frédéric Cazals:

- 2017-.... President of the *Comité de suivi doctoral* (CSD), Inria Sophia Antipolis - Méditerranée. The CSD supervises all aspects of PhD student's life within Inria sophia antipolis.

– Dorian Mazauric:

- 2016-2019. Member of the *Comité de Centre*, Inria Sophia Antipolis - Méditerranée.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Master: Frédéric Cazals (Inria ABS) and Frédéric Chazal (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)

7.2.2. Supervision

PhD thesis, ongoing, 3rd year. Romain Tetley, *Structural alignments: beyond the rigid case*. Université Côte d'Azur. Under the supervision of Frédéric Cazals.

PhD thesis, ongoing, 3rd year. Augustin Chevallier, *Sampling biomolecular systems*. Université Côte d'Azur. Under the supervision of Frédéric Cazals.

PhD thesis, ongoing, 1st year. Denys Bulavka, *Modeling macro-molecular motions*. Université Côte d'Azur. Under the supervision of Frédéric Cazals.

PhD thesis, ongoing, 1st year. Méliné Simsir, *Modeling drug efflux by Patched*. Université Côte d'Azur. Thesis co-supervised by Frédéric Cazals and Isabelle Mus-Veteau, IPMC/CNRS.

Postdoctoral research of Rémi Watrigant, 2016 - 2017. Projet de Recherche Exploratoire (Inria). *Improving inference algorithms for macromolecular structure determination*. Under the supervision of Dorian Mazauric and Frédéric Havet (Inria COATI project-team).

7.2.3. Juries

– Frédéric Cazals:

- Clément Viricel, University of Toulouse, December 2017. Rapporteur on the PhD thesis *Contributions au développement d'outils computationnels de design de protéines : méthodes et algorithmes de comptage avec garantie*. Advisors: T. Schiex and S. Barbe.

7.3. Popularization

This section describes the activities of Dorian Mazauric (member of the popularization committee of Inria Sophia Antipolis - Méditerranée).

– **Founding**.

- Coordinator of the project GALEJADE (*Graphes et ALgorithmes : Ensembles de Jeux À Destination des Écoliers*) founded by Fondation Blaise Pascal (2017 - 2018). We aim at developing an educational kit for primary schools in order to play with the notions of graphs and algorithms. We also propose conferences for the general public.

– **Resources**.

- 13 posters - *Transmission de pensée - La magie du binaire*: [22].
- 2 posters - *Tour de cartes - La magie des graphes et du binaire*: [21].

– **Activities**.

- Training with Laurent Giauffret of 30 teachers (cycle 1) of Académie de Nice (*Jeux avec les graphes et les algorithmes*).
- Stage MathC2+: half day activities for 40 high school students (Boruvka algorithm for the minimum spanning tree problem played on "real" graphs constructed with plastic hoops and slats).
- Fête de la Science 2017
  - Village des sciences et de l'innovation au Palais des Congrès d'Antibes Juan-les-Pins.
  - Conferences (classe préparatoire, 2 classes de seconde, une classe de sixième, 2 classes de CM1).
- 4 conferences in high schools (Aix-en-Provence, Antibes, Grasse, Miramas), dispositif Science Culture PACA.
- One conference in a secondary school (French *college*) (Cagnes-sur-Mer).

AMIBIO Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events Organisation

7.1.1.1. General Chair, Scientific Chair

- RECOMB'18: Y. Ponty, M. Regnier (co-chair)

7.1.2. Scientific Events Selection

7.1.2.1. Member of the Conference Program Committees

- RECOMB'17: Y. Ponty, M. Regnier
- ISMB/ECCB'17: Y. Ponty
- ACM/BCB'17: A. Héliou
- MCCMB'17: M. Régnier
- BiCoB'17: Y. Ponty

7.1.2.2. Reviewer

- CPM'17: Y. Ponty

7.1.3. Journal

7.1.3.1. Member of the Editorial Boards

M. Régnier is an editor of PeerJ Computer Science.

7.1.3.2. 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...

7.1.4. Leadership within the Scientific Community

Y. Ponty is *animateur* of the *Macromolecular structure and interactions* axis of the CNRS GDR BIM (BioInformatique Moléculaire). With F. Cazals (ABS, Inria Sophia-Antipolis), he co-created in Oct. 2017 and currently heads the MASIM (Méthodes Algorithmiques pour les Structures et Interactions des Macromolécules) workgroup of BIM;

M. Régnier is a member of DIGITEO progam Committee and SDV working group in Saclay area.

7.1.5. Scientific Expertise

Y. Ponty reviewed grants for the OPUS program of the NCN agency (Poland), the Bioinformatics and Theoretical Biology programm of the DFG (Germany). He acted as an external reviewer and external assessor for an assistant professor position at the Faculty of Science of the University of South Denmark. He also refereed for a postdoc call by the French Charmmmat LabEx of Univ. Paris-Saclay.

7.1.6. Research Administration

M. Regnier is the current head of the Computer Science department (LIX) of Ecole Polytechnique.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

7.2.1.1. Initial training in engineering at Ecole Polytechnique.

At the undergraduate level, AMIBio is essentially involved in Computer Science courses at Ecole Polytechnique, mainly in programming languages and Big Data processing (high-performance computing and machine learning). Notably, we are involved in the *parcours d'Approfondissement en Bioinformatique* at École Polytechnique.

7.2.1.2. Graduate-level programs and courses.

Our project is also very much involved in the AMI2B (*Analyse, Modélisation et Ingénierie de l'Information Biologique et Médicale*, formerly named BIBS – *Bioinformatique et Biostatistique*) Master program at Université Paris-Sud/École Polytechnique. Most AMIBio permanent members teach recurrent courses in AMI2B, and M. Regnier is in charge of the program at the M1 and M2 levels for Ecole Polytechnique.

Beyond the *plateau de Saclay*, AMIBio members participate in the BIM master program at UPMC, and regularly deliver PhD-level lectures in Summer/Winter schools.

Bachelor (Licence & Ecole Ingénieur)

- P. Chassignet, INF*, 100h, L2/L3, Ecole Polytechnique, France
- Al. Héliou, INF*, 40h, L3, Ecole Polytechnique, France

Master

- P. Chassignet, INF*/Modal Bioinfo, 90h, M1/M2, Ecole Polytechnique, France
- Al. Héliou, INF*, 7h, M1 AMI2B, Univ. Paris-Saclay, France
- Am. Héliou, INF*, 44h, M1 AMI2B, Univ. Paris-Saclay, France
- Y. Ponty, Bioinfo ARN, 12h AMI2B, M2, Univ. Paris-Saclay, France
- Y. Ponty, Bioinfo ARN, 12h BIM, M2, UPMC, France
- M. Regnier, Algo/Combinatoire, 12h AMI2B, M2, Univ. Paris-Saclay, France
- J.-M. Steyaert, Algo/Combinatoire, 12h AMI2B, M2, Univ. Paris-Saclay, France
- J.-M. Steyaert, Bioinformatics INF/BIO 588, 20h Majeure BioInfo, M1, Ecole Polytechnique,France

Doctorat

- Y. Ponty, Design ARN, 3h BIM, PhD, Univ. Tehran, Iran

7.2.2. Supervision

PhD :

Wei Wang, *Practical structure-sequence alignment of pseudoknotted RNAs*, Univ. Paris-Saclay, December 2017, Y. Ponty, A. Denise

Alice Héliou, *Analyse des séquences génomiques : Identification des ARNs circulaires et calcul de l'information négative*, Univ. Paris-Saclay, July 2017, M. Regnier

Amélie Héliou, *Théorie des jeux et échantillonnage de conformations pour l'amarrage macromoléculaire multi-corps et multi-échelle*, Univ. Paris-Saclay, August 2017, J. Cohen

PhD in progress

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. Waldispuhl (U. McGill, Canada);

Jorgelindo Moreira da Veiga, *Caractérisation dynamique et optimisation des flux métaboliques* , Ecole Polytechnique, Encadrants: L. Schwartz (AP-HP)Sabine Peres (U. Paris-Sud)

Juraj Michalik, *Non-redundant sampling for the study of RNA kinetics*, Inria Saclay, Encadrants: Y. Ponty and H. Touzet (Cristal, Univ. Lille I);

Pauline Pommeret, *Étude de l'impact phénotypique de variants génétiques altérant la structure secondaire des ARNs chez le bovin : Méthodes algorithmiques et validations expérimentales*, INRA Jouy & Ecole Polytechnique, Encadrants: Y. Ponty and D. Rocha (INRA Jouy);

Ha Thi Ngoc Nguyen, *New computational strategies for analyzing the diversity of transcriptome sequence and structure, and their relationship to disease*, I2BC (Univ. Paris-Sud) & Ecole Polytechnique, Encadrants: Y. Ponty and D. Gautheret (Univ. Paris-Sud);

7.2.3. Juries

Y. Ponty participated in a hiring committee for an associate professor position in Discrete Mathematics at the University of Southern Denmark;

Y. Ponty acted as an external opponent for the PhD defence of X. Pan at the University of Copenhagen;

7.3. Popularization

May 2017 Participation to the CURIOSITas art & science festival organized by univ. Paris-Saclay on the CNRS campus (Gif-sur-Yvette, France);

March 2017 Outreach presentation by AMIBio on RNA folding and combinatorial design for a class of high school students (Montmorency, France);

BEAGLE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. General Chair, Scientific Chair

Carole Knibbe and Guillaume Beslon: respectively scientific chair and local chair of the 14th European Conference on Artificial Life (ECAL), Lyon, September 2017 (https://project.inria.fr/ecal2017/).

Eric Tannier: main organizer (Organizing and Scientific chair) of the SMBE Regional meeting on interdisciplinary approaches for molecular evolution in Lyon in November 2017

8.1.1.2. Member of the Organizing Committees

Hugues Berry: Co-organizer of the workshop “Dynamiques des molecules et assemblages moleculaires”, Montpellier, France (Dec 2017).

Guillaume Beslon:

- LyonSysBio conference, Lyon, November 2017
- AIEM2017 (Approches Interdisciplinaire de l’Evolution Moléculaire), Lyon, November 2017.
- ALPHY 2017 (Alignement et Phylogénie) workshop, Lyon, January 2017.

Carole Knibbe: member of the organizing committee of the Scientific Day on "Modelling living systems" of the Faculty of Sciences and Technologies of Université Lyon 1.

8.1.2. Scientific Events Selection

8.1.2.1. Member of the Conference Program Committees

Christophe Rigotti was a member of the program committee of the 33rd ACM Symposium On Applied Computing.

Jonathan Rouzaud-Cornabas was a member of the program comittee of ECAL 2017

Eric Tannier was a member of the program committee of RECOMB-Comparative Genomics 2017 and is a member of the program committee of ISMB 2018.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

Hugues Berry: Guest Editor for PLoS Computational Biology (2 articles edited in 2017)

Eric Tannier is an editor of "Peer Community in Evolutionary biology", a peer-reviewing system alternative to publications in journals

8.1.3.2. Reviewer - Reviewing Activities

Hugues Berry: Scientific reports, eLife, Frontiers Cellular Neuroscience, PLoS Computational Biology, PLoS One, Journal Theoretical Biology, Biophysical Journal

Guillaume Beslon: Journals Proceedings of Royal Society B, Entropy and Neural Computing and Applications.

Christophe Rigotti: IEEE Access

Jonathan Rouzaud-Cornabas: IEEE Transactions on Cloud Computing

Eric Tannier: Information Processing Letters, PeerJ, Plos One, Discrete Mathematics and Theoretical Computer Science, BMC Genomics

8.1.4. Invited Talks

Hugues Berry gave invited talks at:

EJCIM (Ecole des Jeunes Chercheurs et Chercheuses en Informatique Mathematique) 2017, Jan. 2017, Lyon

Models of Life, College de France, Paris, Jan. 2017

Cosyne Workshop on Astrocyte-neuron interactions, Salt Lake City, UT, USA, Feb. 2017

Imaging the cell, Rennes, France, June 2017

Dynamiques des molecules et assemblages moleculaires, Montpellier, France, Dec. 2017

You Carreer Day, I2BC, Saclay France, Dec. 2017

and invited seminars at

Institut de Mathematiques de Marseille, Jan 2017

Institut du Fer a Moulin, Paris, March 2017

Guillaume Beslon gave invited seminars at:

Séminaire de Modélisation du Vivant (SeMoVi), Lyon, May 2017

Institut de Biologie Physico-Chimique (IBPC), Paris, June 2017

Journées scientifiques Inria, Nice, June 2017

Carole Knibbe was an invited speaker at the Systems Biology Meeting of Sorbonne Université on December 1st, 2017.

Christophe Rigotti gave an invited seminar at the Centre spatial universitaire de Grenoble (CSUG):"Recherche d'évolutions par fouille de données multi-temporelles satellitaires et photographiques", September 2017.

Eric Tannier gave an invited talk at the conference "Tour de sciences" Lyon, 2017 and an invited seminar at Trinity College, Dublin, Feb. 2017.

8.1.5. Scientific Expertise

Hugues Berry was a reviewer for the call for proposal CARREER of the NSF, USA and for the Research Projects call of the FNRS, Belgium

Guillaume Beslon

Member of a Comité d'Evaluation Scientifique (CES) at the ANR

Member of the HCERES evaluation committee for the Unité Mixte Internationale UMMISCO.

Christophe Rigotti was an expert/reviewer for the challenge "Univers" organized by Imaginove, Cluster Montagne and Indura.

Eric Tannier was an evaluator (committee bioinformatics) for the Fonds de recherche du Quebec, 2107.

8.1.6. Research Administration

Hugues Berry:

Vice-Chair of Inria's Evaluation committee (2016-2018)

Vice-Chair of the Search Committee for "Inria Senior Research Scientists" (Jury d'admissibilité DR2 2017).

Member of the "Commission des thèses" of the Doctoral School "Info-Maths" (ED 512), Lyon.

Member of the Steering Commitee of GdR IMaBIO (Imagerie et Microscopie pour la BIOlogie)

Representative for Inria on the Administrative Board of the RNSC ("Réseau National des Systèmes Complexes")

Facilitator (with R. Guillemaud, CEA/Leti) of the "Groupe de Travail CEA/Leti-Inria on Numerical Health".

Guillaume Beslon is a member of the Commission Scientifique Sectorielle (CSS) 5 (Science des Données et des Modèles) at IRD

Carole Knibbe:

Member of the Laboratory Council, LIRIS, UMR 5205 CNRS (until August 2017)

Member of the Technological Grants Committee (CDT) of Inria Grenoble-Rhone Alpes

Member of the Doctoral Studies Committee of Inria Grenoble-Rhone Alpes.

Christophe Rigotti is an elected member of Insa Scientific board (Conseil scientifique)

Eric Tannier:

elected member of the administration council of Inria (2015-2018)

member of the scientific committee of the ethics platform of University of Lyon (2017-)

scientific referent for the conference committee of Inria (2014-)

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Four team members are faculty (Guillaume Beslon, Carole Knibbe, Christophe Rigotti and Jonathan Rouzaud-Cornabas). They teach 192h/year each in INSA-Lyon and University Claude Bernard Lyon 1 in the computer science departments and bioinformatics departments.

All our PhD students who wish it benefit from "teaching contracts". They teach 64h/year at INSA-Lyon, mainly in the undergraduate school and in the bioinformatics department.

Eric Tannier teaches approximately 60h/year in Master programs at INSA-Lyon and University Claude Bernard Lyon 1.

Licence:

C. Knibbe, Fundamentals of algorithmics and programming, 56 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

C. Knibbe, Fundamentals of databases, 27 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

C. Knibbe, Architecture of computer systems, 10 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

C. Knibbe, Software development, 24 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

J. Rouzaud-Cornabas, Object-Oriented Programming, 57h, L3, Computer Science Dept, INSA Lyon, France

Master :

A. Denizot, Enzymology, Cell biology, Neuroscience, 64h, M1 and M2, INSA Lyon, France

M. Fernandez, Biostatistiques, 20h, M1, Universite´ Jean Monnet, Saint-Etienne, France; Méthode en informatique appliqué à la biologie, 17h, M2, Universite´ Jean Monnet, Saint-Etienne, France

C. Knibbe, Careers in bioinformatics and modelling, 35 heqTD, M1, Bioinformatics and Modelling program of INSA-Lyon

J. Rouzaud-Cornabas, Human Machine Interface, 42h, M1, Computer Science Dept, INSA Lyon, France

J. Rouzaud-Cornabas, Systems, 14h, M1, Computer Science Dept, INSA Lyon, France

J. Rouzaud-Cornabas, Parallel Computing, 93h, M2, Computer Science Dept, INSA Lyon

J. Rouzaud-Cornabas, Computational Sciences, 10h, M2, Computer Science Dept, INSA Lyon

J. Rouzaud-Cornabas, Parallel Computing, 8h, M2, BioSciences Dept, INSA Lyon

E. Tannier, Computational Biology, 24h, M1, Insa Lyon and Université de Lyon, France

Doctorat : E. Tannier, BMIC, 2h Université de Lyon, France

E-learning

Eric Tannier produced a 14mn MOOC on Ethics in science, for the Doctoral school of University of Lyon, France.

Faculty functions

Since Sept 2017, Carole Knibbe is the Head of the Bioinformatics and Modeling master program of INSA-Lyon

8.2.2. Supervision

PhD :

Yoann Anselmetti, co-supervised by E. Tannier, Univ Montpellier, defense November 29, 2017

Wandrille Duchemin,co-supervised by E. Tannier, Univ Lyon 1, defense December 4, 2017

Damic Hasic, co-supervised by E. Tannier, Univ Sarajevo, defense Juy 13, 2017

Alvaro Mateos Gonzalez, Asymptotic analysis of partial differential equations arising in biological processes of anomalous diffusion, co-supervised by H. Berry, T. Lepoutre (Inria Dracula) and V. Calvez (Inria Numed), defense 22 September 2017

Charles Rocabert, Étude de l'évolution des micro-organismes bactériens par des approches de modélisation et de simulation informatique, co-supervised by G. Beslon and C. Knibbe, defense 17 November 2017

Sergio Peignier, Subspace Clustering on Static Datasets and Dynamic Data Streams Using Bio-Inspired Algorithms, co-supervised by C. Rigotti and G. Beslon, defense 27 July 2017

PhD in progress :

Audrey Denizot, Simulation of calcium signaling in fine astrocytic processes, started Sept 2016, supervised by H. Berry

Marie Fernandez, Extraction and analysis of the acoustic network of social birds: tools for population tracking, started Sept 2016, co-supervised by H. Berry, H. Soula (UPMC, Paris) and C. Vignal (UPMC, Paris)

Alexandre Foncelle, Modeling the signaling pathway implicated in STDP: the role of endocannabinoid and dopamine signaling, started Sept 2014, supervised by H. Berry

Vincent Liard, Towards a quantitative digital genetics platform, INSA-Lyon, started Oct 2016, co-supervision: G Beslon, J Rouzaud-Cornabas, C Ofria (Michigan State University, BEACON Center)

8.2.3. Juries

8.2.3.1. HDR juries

H. Berry: Dominique Martinez, Univ. de Lorraine, Nancy, March 2017 (reviewer)

C. Rigotti: François Rioult, Univ. Caen Normandie, Caen, December 2017 (examiner).

8.2.3.2. PhD juries

H. Berry :

Alexandre Mendes, Univ. P & M Curie, Paris, Sep 2017 (examiner)

llyas Djafer-Cherif, Univ. Paris-Saclay, Paris, July 2017 (reviewer)

Martin Potier, Univ. Paris-Est, Creteil, July 2017 (examiner)

G. Beslon :

Roman Goulard, Univ. Aix-Marseille, Marseille, November 2017 (reviewer)

Andrei Kucharavy, Univ. P & M Curie, Paris, December 2017 (examiner)

8.2.3.3. Search committees

H. Berry served in the following search pannels: assistant professor (INSA Lyon, France), full professor (UPMC, Paris, France), junior researcher (CR2 Inria, Rennes), senior researcher (DR2 Inria, Paris).

8.3. Popularization

The subspace clustering algorithms developed by the team in the context of the EvoEvo project have been included in a software package (EvoMove) enabling real-time monitoring and clustering of a dancer movements. In interaction with the “Desoblique” dance company (Lyon, France), we used this system to interact with the dancers by triggering sounds following the moves of he dancers. This system has been used in the context of the dance performance “Meute” in which three dancers were equipped with inertial measurement units connected to EvoMove (see 2). Meute has been played in public 8 times in the Auvergne-Rhône-Alpes region beween January and July 2017

Figure 2. The EvoMove system has been used in the public performance“Meute” (here in “La Rotonde”, INSA Lyon in February 2017). Dancers: Claire Lurin, Jean Boulvert, Maxence D’Hauthuille. Sound: Jonas Abernot. Lights: Laurent Turpin. The EvoMove inertial measurement units are tied to the wrists of the dancers.

G. Beslon, together with Dominique Schneider (UGA, France) published an article entitled “Darwin, bit à bit . . . ” in the blog “Binaire” on le-monde.fr (http://binaire.blog.lemonde.fr/2017/11/24/darwin-bit-a-bit/). This article describes the interdisciplinary view of evolution that the two authors are developing.

A. Denizot is member of association Demesures (demesures.jimdo.com). She organized and participation to scientific events: Geek Touch 2017, Pop Sciences 2017, Fete de la Science 2017 and interviewed researchers (https://www.youtube.com/watch?v=qoKAwRYI48Q).

E. Tannier gave a series of lectures (8h) on genetically modified organisms for Universite Populaire de Lyon, for a large audience and gave a talk for the "Tour de science" 2017, in Lyon, a popularization event, for a public of interdisciplinary students.

BIGS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

- BIGS team has organized a two-days workshop “Statistique pour les processus de Markov déterministes par morceaux” in Nancy, with about 40 participants, among which most members of the team. See http://pdmp2017.iecl.univ-lorraine.fr/

9.1.2. Scientific Events Selection

9.1.2.1. Chair of Conference Program Committees

- A. Gégout-Petit is chair of 2017 "Congrès Francophone International de l’Enseignement de la Statistique" (CFIES), Grenoble, September, 2017.

9.1.3. Journal

P. Vallois is in the editorial board of "Risk and Decision Analysis".

9.1.3.1. 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, Royal Society of Chemistry, Signal Processing: Image Communication, Mathematical Biosciences, LIDA, Annals of Applied Probability, Annals of Operations Research and Journal of Machine Learning Research, as well as conferences such as ICML, World IFAC Congress, FOSBE, ALCOSP...

9.1.4. Leadership within the Scientific Community

- Anne Gégout-Petit is member of the board of the European Regional Council of the Bernoulli society
- Céline Lacaux is responsible of the *Statistic team*, Laboratory of Mathematic of Avignon (since September 2016)

9.1.5. Scientific Expertise

- T. Bastogne: scientific expert in Biostatistics and Signal Processing in Nanomedicine for CYBER-nano (start-up).

9.1.6. Research Administration

- A. Gégout-Petit: elected member of the laboratory of mathematics "Institut Elie Cartan de Lorraine".
- Céline Lacaux is
  - member of the bord of the SMAI-MAS group,
  - elected member of the council of the Laboratory Mathematics of Avignon,
  - correspondant AMIES pour Avignon,
  - Member of the scientific committee of GDR 3477 Stochastic Geometry.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

9.2.2. Supervision

- PhD : Clémence Karmann, " Network inference for zero-inflated models", Grant : Inria-Cordis. Advisors: A. Gégout-Petit, A. Muller-Gueudin.
- PhD : Florine Gréciet, " Modèles markoviens déterministes par morceaux cachés pour la propagation de fissures", grant CIFRE SAFRAN AIRCRAFT ENGINES, Advisors : R. Azaïs, A. Gégout-Petit.
- PhD : Kévin Duarte, "Aide à la décision médicale et télémédecine dans le suivi de l'insuffisance cardiaque", Advisors : J.-M. Monnez and E. Albuisson.
- Post-doc: Florian Bouguet. Advisors: Romain Azaïs, Anne Gégout-Petit, Aurélie Muller-Gueudin.
- Post-doc: Benoît Henry (starting in Dec. 2016). Advisors: Romain Azaïs with Inria team Madynes.
- 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

BONSAI Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- JOBIM 2017, national conference in bioinformatics (J.-S. Varré for the organizing committee, H. Touzet for the program committee).
- SeqBio 2017, national workshop on stringology, combinatorics and bioinformatics (M. Salson).
- From RNA-Seq data to bioinformatics analysis using Nanopore sequencers 2017 (H. Touzet).

9.1.1.2. Member of the Organizing Committees

- JOBIM 2017, national conference on bioinformatics (A. Béliard, S. Janot, P. Marijon, L. Noé, P. Pericard, M. Pupin, T. Rocher, C. Saad, M. Salson).
- SeqBio 2017, national workshop on stringology, combinatorics and bioinformatics (R. Chikhi, S. Janot, L. Noé, H. Touzet).

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- WABI 2017 (M. Salson, H. Touzet).
- BCB 2017 (R. Chikhi).
- HiTSEQ 2017 (R. Chikhi).
- CSR 2017 (H. Touzet).
- JOBIM 2017 (S. Blanquart, R. Chikhi).

9.1.2.2. Reviewer

- IWOCA 2017 (M. Salson).
- WALCOM 2017 (M. Giraud, M. Salson),
- LAGOS 2017 (R. Chikhi).
- WG 2017 (R. Chikhi).

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

- Bioinformatics (M. Salson, R. Chikhi, L. Noé).
- Discrete Applied Mathematics (M. Salson).
- NAR (R. Chikhi).
- BMC Bioinformatics (R. Chikhi, L. Noé).
- PeerJ (L. Noé, M. Giraud).

9.1.4. Research Administration

- Member of the CUB for Inria Lille (S. Blanquart).
- Member of the CDT for Inria Lille (M. Pupin).
- Member of the CUMI for Inria Lille (M. Salson).
- Member of the national scientific committee of INS2I–CNRS (H. Touzet).

- Member of the scientific committee of MBIA – INRA (H. Touzet).
- Head of the national CNRS network GDR Bioinformatique moléculaire (http://www.gdr-bim.cnrs.fr, H. Touzet).
- Co-head of the Lille Bioinformatics platform, bilille (H. Touzet).
- Member of the CRIStAL Laboratory council (H. Touzet).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Teaching in computer science:

- 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: L. Noé, *Functional Programming*, 30h, L2 Computer science, Univ. Lille 1.
- License: J.-S. Varré, *Object oriented programming*, 36h, L2 Computer Science, Univ. Lille 1.
- License: J.-S. Varré, *Algorithms and data structures*, 50h, L2 Computer science, Univ. Lille 1.
- License: J.-S. Varré, *System*, 84h, L3 Computer science, Univ. Lille 1.
- Master: J.-S. Varré, M. Salson, *Software project*, 40h, M1 Computer science, Univ. Lille 1.
- License: P. Marijon *Databases*, 36h, L3 Computer science, Univ. Lille 1.
- License: 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.
- Licence: M. Pupin, *Programming (Python)*, 78h, L1 Sciences, Univ. Lille 1.
- Licence: M. Pupin, *occupational integration*, 30h, L3 computer science, Univ. Lille 1.
- Master: : M. Pupin, *Programming (JAVA)*, 24h, M1 "Mathématiques et finance", Univ. Lille 1.
- License: C. Saad, *Algorithmics and programming*, 28h, L3 Polytech'Lille, Univ. Lille 1.
- License: C. Saad, *Databases*, 36h, L3 Polytech'Lille, Univ. Lille 1.
- License: C. Saad, *Data structures*, 18h, L3 Polytech'Lille, Univ. Lille 1.
- License: C. Saad, *Introduction to programming (C)*, 34h, L3 Polytech'Lille, Univ. Lille 1.
- License: C. Saad, *Programming (C)*, 22h, L3 Polytech'Lille, Univ. Lille 1.
- License: M. Salson, *Programming (Python)*, 42h, L1 Sciences, Univ. Lille 1.
- License: M. Salson, *Coding and information theory*, 63h, L2 Computer science, Univ. Lille 1.

Teaching in bioinformatics:

- License: 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: S. Blanquart, *Methods in phylogenetics*, 4h, M2 Biodiversité Evolution Ecologie, Univ. Lille 1.
- Master: L. Noé, *Bioinformatics*, 40h, M1 Biotechnologies, Univ. Lille 1.
- Master: M. Pupin, *Bioinformatics*, 34h, M1 "Biologie-Santé", Univ. Lille 1.
- Master: M. Salson, *Algorithms for life sciences*, 20h, M2 Complex models, algorithms and data, Univ. Lille 1.

Teaching in skeptical thinking:

- License: M. Giraud, 35h, L3 Computer science, Univ. Lille 1.
- Master: M. Salson, *Skeptical thinking*, 27h, M2 Journalist and Scientist, ESJ, Univ. Lille 1.

Formation for academics:

- Bilille permanent training: S. Blanquart (*Phylogenetics*, 28h), M. Pupin (*Gene prediction and protein annotation*, 14h), J.S. Varré (*Gene prediction and protein annotation*, 14h), C. Saad (*Variants*, 13h), R. Chikhi (*De novo assembly* and *Metagenomics de novo assembly*, 8h), H. Touzet (*Metagenomics, 3h)*, L. Noé (*DNAmapping*, 3h), M. Salson (*RNA-seq analysis*, 1h).
- Workshop on Genomics (Czech Republic): R. Chikhi *De novo assembly*, 8h, young researchers.
- Roscoff summer school in Bioinformatics: R. Chikhi *De novo assembly*, 8h, engineers and researchers.
- Software training (Granada, Spain and Rennes, France): R. Chikhi *Using the GATB library*, 2x8h, engineers and researchers.

9.2.2. Teaching administration

- Head of the licence semester "Computer Science – S3 Harmonisation (S3H)", Univ. Lille 1 (L. Noé).
- Member of faculty 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 GIS department (Software Engineering and Statistics) of Polytech'Lille (S. Janot).
- Head of the computer science modules in the 1st year of Licence, Univ. Lille 1 (M. Pupin).

9.2.3. Supervision

- PhD: L. Siegwald, Solutions d'amélioration des études de métagénomique ciblée, 2017/03/23, H. Touzet, Y. Lemoine.
- PhD: P. Pericard, Algorithmes pour la reconstruction de séquences de marqueurs conservés dans des données de métagénomique, 2017/10/27, H. Touzet, S. Blanquart.
- PhD in progress: T. Rocher, Indexing VDJ recombinations in lymphocytes for leukemia follow-up, 2014/11/01, 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: Q. Bonenfant, Algorithmes pour l'analyse de séquençage ARN troisième génération, 2017/11/15, L. Noé, H. Touzet.
- PhD in progress: P. Marijon, Analyse de graphes d'assemblage issus du séquençage ADN troisième génération, 2016, R. Chikhi, J-S. Varré.

9.2.4. Juries

- H. Touzet was member of the PhD juries of Antoine Limasset (Université Rennes 1), Anna Kuosmanen (University of Helsinki), Jean-Pierre Glouzon (University of Sherbrooke), Guillaume Madeleine (Université Lille 1) and Jananan Pathmanathan (UPMC).
- R. Chikhi was member of the PhD juries of Kamil Salikhov (Université de Paris-Est) and Guillaume Holley (Bielefeld University).
- M. Salson was member of the PhD jury of Alice Héliou (Université Paris-Sud).
- H. Touzet was member of hiring committees (professors) at Université de Nantes and Université de Strasbourg.

9.3. Popularization

- *Recruiting girls to computer science* M. Pupin and T. Rocher are members of the collective *Informatique au féminin* from University of Lille, which was launched three years ago and whose goal is to organize computer science initiatives that reach teenage girls and female students. Among other actions, they were fully involved in the event *L codent, L créent* (she codes, she creates). This action aims to teach code to schoolgirls (13-15 years old), before they amass prejudices against computer science. 35 teenage girls were supervised by 9 female graduate computer science students, to create a proximity link between the young women. To emphasize the fact that coding is a creative and innovative pursuit, we chose to teach *Processing*, a programming language built for visual arts. After eight sessions of creative coding, a public exhibition was organized at the University with inspirational testimonies of women working in the field of computer science. This experiment has been presented at the conference PyParis2017 [30] and at the ACM conference womENcourage2017 [31].
- The team participates to dissemination actions for high school students and high school teachers on a regular basis: multiple presentations on bioinformatics and research in bioinformatics with our dedicated "genome puzzles", practical session at "Day for Programming and Algorithmic Teaching", presentations at "Salon de l'étudiant", visit of high school students in the team (M. Giraud, M. Salson, J.-S. Varré)
- *Explaining big data to a general audience*: H. Touzet was part of the editorial committee and author for the book *"Les big data à découvert"*(368 pages).

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).

Marie-Dominique Devignes organised a workshop on "Security issues in health data processing" for the Fédération Charles Hermite, Nancy.

Sabeur Aridhi co-chaired the workshop on "Large scale time-dependent graphs" (TD-LSG) as part of ECML-PKDD-2017.

9.1.1.2. Member of Organizing Committees

David Ritchie participated in the organisation of GGMM-2017 (Reims).

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

David Ritchie was a member of the programme committee for GGMM-2017, Reims.

Sabeur Aridhi was a member of the programme committee for TDLSG/ECML-PKDD, Skopje, Macedonia.

9.1.2.2. Reviewer

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

David Ritchie was a reviewer for IJCAI and JOBIM.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

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

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

9.1.3.2. Reviewer - Reviewing Activities

The members of the team have reviewed manuscripts for *Algorithms for Molecular Biology, Bioinformatics, BMC Bioinformatics, Computational Biology and Chemistry, Current Opinion in Structural Biology, Journal of Biomedical Semantics, Journal of Computational Chemistry, Journal of Chemical Information and Modeling,* and *Proteins: Structure, Function & Bioinformatics.*

9.1.4. Invited Talks

David Ritchie gave a presentation at the Unité de Mathématiques et Informatique Appliquées de Toulouse (MIAT).

9.1.5. Scientific Expertise

Marie-Dominique Devignes reviewed grant applications for the Institut Pasteur and the Institut de Recherche en Santé Publique (IRESP).

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

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

Marie-Dominique Devignes participated in a Recruitment Committee for a MdC at Univ Lille.

9.1.6. Research Administration

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

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

Isaure Chauvot de Beauchêne is an elected member of the scientific council of the AM2I (Automatique, Mathématiques, Informatiques et leurs Interactions) pole of the University of Lorraine.

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

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

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

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

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

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

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

Doctorat: Isaure Chauvot de Beauchêne, *Bioinformatics and Visualisation,* 10 hours, M1–PhD, ISCD (Institute for Computing and Data Sciences) Summer School, Roscoff.

9.2.2. Supervision

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

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

PhD in progress: Gabin Personeni, *Apport des ontologies de domaines pour l'extraction de connaissances à partir de données biomédicales,* 01/10/2014, Marie-Dominique Devignes, Adrien Coulet.

PhD in progress: Seyed Ziaeddin Alborzi, *Automatic discovery of hidden associations using vector similarity: application to biological annotation prediction,* 01/10/2014, David Ritchie, Marie-Dominique Devignes.

9.2.3. Juries

Bernard Maigret was a "rapporteur" for the PhD thesis of N. Madeleine, *Recherche d'inhibiteurs de l'interaction Lu–Laminine par des techniques de modélisation et de la simulation moléculaire,* Université de La Réunion, 18/09/2017 (PhD supervisor Dr F. Gardebien).

9.3. Popularization

The team presented its activities during the Inria Nancy – Grand Est centre's Open Day for the "Fête de la Science 2017" (14 Oct 2017).

DYLISS 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

- SWAT4HCLS (2017) Semantic Web and Tools for Health Care and Life Sciences (O. Dameron)
- BBCC (2017): Bioinformatica e Biologia Computazionale in Campania (O. Dameron)
- JOBIM (2017): French conference of Bioinformatics (A. Siegel)
- SIIM (2017) Symposium sur l'Ingénierie des Informations Médicales (O. Dameron)

10.1.1.2. Review

- ISMB/ECCB 2017.

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- O. Dameron is an associate editor of the Journal of Biomedical Semantics
- J. Bourdon in an academic editor of PLoS One

10.1.2.2. Reviewer - Reviewing Activities

- Briefings in Bioinformatics, (O. Dameron)
- Journal of Biomedical Semantics (O. Dameron)
- Journal on Data Semantics (O. Dameron)
- Molecular Cancer (J. Nicolas),
- Plos One (J. Nicolas)

10.1.3. Invited Talks

10.1.3.1. French seminars

Paris, Hopital Lariboisière (Seminar, 2017) – SANOFI (Gentilly, 3 Invited seminars, 2017) – Clermont-Ferrand (Insect team, 2017) – Nantes (Université of Nantes, 2017).

10.1.3.2. Workshops and meetings

Conference on Boolean networks (Marseille, 2017) – Bioss Meeting on artificial intelligence (Gif, 2017)

10.1.4. Leadership within the Scientific Community

- Member of the steering committee of the International Conference on Grammatical Inference.
- 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 than 170 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). It gathered twice in 2017: for a general meeting in Montpellier (Mar. 2017) and for a workshop focused on links between systems biology and artificial intelligence in Orsay (June 2017).

10.1.5. Scientific Expertise

10.1.5.1. International responsibilities

- Evaluation panel of the "Europe-USA Call Strengthening Transnational Research in Molecular Plant Sciences" launched by ERA-CAPS.

10.1.5.2. National responsibilities

- **Institutional boards for the recruitment and evaluation of researchers**. Inria National evaluation board (A. Siegel, nominated member). National Council of Universities, section 65 (O. Dameron, nominated member).
- **Evaluation committees of French laboratories or doctoral schools**. Bioinformatics groups of Institut Curie (Paris, presidency of the committee, A. Siegel) – Doctoral school of Nice University (N. Théret).
- Presidency of the expert panel for the call *Systems biology applied to Cancer* of the National Cancer Plan 2017 (A. Siegel).
- **Recruitment committees**. Inria Senior Researchers (national committee, A. Siegel) – Inria Junior Researchers (Nice, National Committee, A. Siegel)
- **Scientific Advisory boards** GDR BIM " Molecular Bioinformatics" (J. Nicolas).

10.1.5.3. National scientific boards

- Scientific Advisory Board of the French National Research Network GDR BIM *Molecular Bioinformatics* (J. Nicolas).
- Operational Legal and Ethical Risk Assessment Committee (COERLE) at Inria (J. Nicolas).
- Animation of the Bioss working group (A. Siegel).
- Board of directors of the French Society for biology of the extracellular matrix (N. Théret).

10.1.5.4. Prospective working groups

- "Big & Open Data" foresight working group of PROSPER network (F. Coste).
- "Prospectives in predictive toxicology" working group at INRA (A. Siegel)

10.1.5.5. Local responsibilities

- Scientific Advisory Board of Biogenouest (J. Bourdon, N. Théret)
- IRISA laboratory (computer science department of Univ. Rennes 1) council (A. Siegel)
- Responsability of the IRISA laboratory "Health-biology" cross-cutting axis (O. Dameron) [0]
- SCAS (Service Commun d'Action Sociale) of Univ. Rennes 1 (C. Belleannée)
- Scientific committee of Univ. Rennes 1 school of medicine (O. Dameron, A. Siegel).

[0] *http://www.irisa.fr/en/page/crosscutting-axis*

10.2. Teaching - Supervision - Juries

10.2.1. Teaching track responsibilities

- Coordination of the doctoral school "Life, Agronomy and Health" of University of Rennes 1 [N. Théret]
- Coordination of the master degree "Bioinformatics and genomics", Univ. Rennes1 [O. Dameron]
- Coordination of the sub-domain "From Data to Knowledge: Machine Learning, Modeling and Indexing Multimedia Contents and Symbolic Data", Master in Computer Science, University of Rennes 1, France [F. Coste].

10.2.2. Course responsibilities

- "Atelier bioinformatique", Licence 2 informatique, Univ. Rennes 1 [O. Dameron]
- "Bioinformatique pour la génomique", 2nd year school of medicine, Univ. Rennes 1 [O. Dameron]
- "Bases de mathématiques et probablité" and "Méthodes en informatique", Master1 in public health, Univ. Rennes 1 [O. Dameron]
- "Big data and Semantic Web", Master 2 in public health, Univ. Rennes 1 [O. Dameron]
- "Intégration: Remise à niveau en informatique", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "Programmation en Python", Master 1 in Public Health, Univ. Rennes 1 [O. Dameron]
- "Programmation impérative en Python", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "Système informatique GNU/Linux", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "Semantic Web and bio-ontologies", Master 2 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "e-Santé et réseaux hospitaliers", last year in engineering school ESIR, Univ. Rennes 1, [O. Dameron]
- "Equilibre Dynamique de la communication Cellulaire" Master 2 in Sciences cellulaire et Moléculaire du Vivant, Univ. Rennes 1 [N. Theret]

10.2.3. Teaching

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

Licence: C. Belleannée, Algorithmique et Programmation Fonctionnelle, 60, L1 informatique, Univ. Rennes1, France.

Licence: J. Coquet, Module Programmation Scientifique 1, 20h, L1 informatique, Rennes1, France.

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

Licence: O. Dameron, C2i niveau 2, 2.5h, 2nd year school of medicine, Univ. Rennes 1, France

Licence: O. Dameron, Bioinformatique pour la génomique, 5h, 2nd year school of medicine, Univ. Rennes 1, France

Licence: C. Frioux, Programmation scientifique Python, 12h, L1, Rennes1, France.

Licence: C. Frioux, LaTeX, 12h, L3 ENSAI, France.

Licence: C. Frioux, Outils bureautiques pour le statisticien , 6h, L3 ENSAI, France.

Licence: C. Frioux, Algorithmique et programmation Python, 6h, L3 ENSAI, France.

Licence: L. Bourneuf, Ingénieurerie Systèmes et Réseaux, 10h, L3 INFO, France.

Licence: L. Bourneuf, Algorithmique des graphes, 8h, L3 INFO, France.

Licence: L. Bourneuf, Algorithmique des graphes, 2h, L3 MIAGE, France.

Master: L. Bourneuf, Principes de Programmation et d'Algorithmique, 6h, M1 BIG, France.

Master: L. Bourneuf, Projet, 10h, M1 BIG, France.

Master: C. Belleannée, Programmation logique avec contraintes et algorithmes génétiques, 40h, M1 informatique, Univ. Rennes1, France.

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

Master: F. Coste, Apprentissage Automatique Supervisé, 10h, M2 Informatique, Univ. Rennes 1, France

Master: O. Dameron, Object-oriented programing, 20h, M1 bioinformatique et génomique, Univ. Rennes 1, France

Master: O. Dameron, Gestion de projet en informatique, 12h, M1 bioinformatique et génomique, Univ. Rennes 1, France

Master: O. Dameron, Ontologies biomédicales, 6h, Engineering school Institut Mines-Télécom Bretagne-Atlantique Brest, France

Master: O. Dameron, Internship jury, 25h, M1 bioinformatique et génomique, Univ. Rennes 1, France

Master: O. Dameron, Internship jury, 7.5h, M2 bioinformatique et génomique, Univ. Rennes 1, France

Master: O. Dameron, Intégration : remise à niveau en informatique, 14h, M1 bioinformatique, Univ. Rennes 1, France

Master: O. Dameron, Programmation impérative en Python, 39.5h, M1 bioinformatique, Univ. Rennes 1, France

Master: O. Dameron, Système informatique GNU/Linux, 12h, M1 bioinformatique, Univ. Rennes 1, France

Master: O. Dameron, Programmation en Python, 24h, M1 in Public Health, Univ. Rennes 1 [O. Dameron]

Master: O. Dameron, Semantic Web and bio-ontologies, 14h, M2 bioinformatique, Univ. Rennes 1, France

Master: O. Dameron, Bases de mathématiques et probabilités, 15h, M1 santé publique, Univ. Rennes 1, France

Master: A. Siegel, Integrative and Systems biology, 20h, M2, Univ. Rennes 1, France

Master: A. Siegel, Introduction to integrative biology, 2h, M2, Univ. Rennes 1, France

10.2.4. Supervision

PhD : Victorien Delannée, *Intégrer les échelles moléculaires et cellulaires dans l'inférence de réseaux métaboliques. Application aux xénobiotiques.*, started in Oct. 2014, defensed in Nov. 2017, supervised by A. Siegel and N. Théret [14].

PhD : Julie Laniau, *Structure de réseaux biologiques : rôle des noeuds internes vis-à-vis de la production de composés*, started in Oct. 2013, defended in Oct. 2017, supervised by A. Siegel and D. Eveillard. [15]

PhD : Jean Coquet, *Semantic-based reasoning for biological pathways analysis*, started in Oct. 2014, defended in Dec. 2017, supervised by O. Dameron and N. Théret [12]/

PhD in progress : Lucas Bourneuf, *Justifiable graph decomposition to assist biological network understanding*, started in Oct. 2016, supervised by J. Nicolas.

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.

PhD in progress : Yann Rivault, *Analyse de parcours de soins à partir de bases de données médico-administratives en utilisant des outils du Web Sémantique: identification de complications et de leurs déterminants suite à la pose chirurgicale de dispositif médical implantable en ambulatoire* , started in Oct. 2015, supervised by O. Dameron and N. Lemeur.

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

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

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

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

10.2.5. Juries

- *Member of Ph-D thesis juries*. J. Mercier, Univ. Evry/CEA [A. Siegel, reviewer]. C. Franay, INRA Toulouse [A. Siegel, reviewer]. W Bedhiafi, Univ. Pierre et Marie Curie Paris + UTM Tunis [O. Dameron]. V. Delannée, Univ. Rennes 1 [N. Theret, O. Dameron]. J. Coquet, Univ. Rennes 1 [O. Dameron, N. Theret]. P. Finet, Univ. Rennes 1 [O. Dameron]
- *Member of habilitation thesis juries*. E. Remy, Univ. Marseille [A. Siegel, president].
- *Member of medicine doctorate juries* G. Lebailly, Univ. Rennes 1 [O. Dameron].

10.2.6. Internships

- Internship, from Jun 2017 until Jul 2017. Supervised by J. Nicolas. Student: Alexis Baudin. Subject: Recherche d'attracteurs dans les réseaux booléens synchrones en ASP.
- Internship, from Jan until Jun 2017. Supervised by A. Siegel. Student: Mael Conan. Subject: Modélisation et caractérisation de la réponse au stress de la cyanobactérie marine Synechococcus sp. WH7803.
- Internship, from from Apr 2017 until Jul 2017. Supervised by Nathalie Théret and Olivier Dameron. Student: Kevin Courtet. Subject: Integration of genic regulatory interaction network by miRNAs from patients' macrophages with cystic fibrosis.
- Internship, from Apr 2017 until Jul 2017. Supervised by J. Got. Student: Nicolas Guillaudeux Subject: Vérifications du réseau métabolique entier de Tisochrysis lutea.
- Internship, from Apr 2017 until Jul 2017. Supervised by J. Nicolas and F. Coste. Student: AliHassan Kachalo Subject: Annotation automatique en familles des séquences d'une superfamille d'enzymes, les HAD (haloacides déhalogénases) par Analyse de Concepts Formels (FCA).
- Internship, from from Apr 2017 until Jul 2017. Supervised by C. Frioux and C. Trottier. Student: Claire Lippold. Subject: Exploration et caractérisation du microbiome associé à Ectocarpus subulatus str. BFT.
- Internship, from Jan 2017 until Jun 2017. Supervised by O. Dameron and A. Siegel. Student: Marine Louarn. Subject: Analysis and integration of heterogeneous large-scale genomics data.
- Internship, from Apr 2017 until Jul 2017. Supervised by . Théret and J. Nicolas. Student: Aurelie Nicolas. Subject: Modeling of interaction networks from extracellular matrix components using formal concept analyses.
- Internship, from Apr 2017 until Jul 2017. Supervised by C. Belleannée. Student: Dimitri Pedron. Subject: Annotation et prédiction de transcriptome: validation d'ORF alternatifs prédits. Application au gène CREM chez l'humain, la souris et le chien.
- Internship, from Feb 2017 until Jun 2017. Supervised by F. Coste. Student: Manon Ruffini, Subject: Better scoring schemes for the recognition of functional proteins by protomata

- Internship, from Feb 2017 until Jun 2017. Supervised by J. Nicolas. Student: MarieSalmon, Subject: Biclustering: quantitative formal concept analysis in Answer Set Programming
- Internship, from Jan 2017 until Jun 2017. Supervised by A. Siegel and O. Dameron. Student: Meline Wery Subject: Formalizing and computing signatures of phenotypes within a biological network
- Internship, from May 2017 until Jul 2017. Supervised by C. Belleannée. Student: Mohamed Zemmouri Subject: Analyse de texte en bioinformatique : Modélisation grammaticale d'un site ADN, et recherche du site, même dégénéré, sur l'intégralité du génome humain

10.3. Popularization

10.3.1. General audience paper

We have written a contribution to the collaborative book edited by CNRS on the main issues of data-mining. Our contribution was specifically related to modeling issues arising in ecology with the development of NGS technologies [32].

10.3.2. Science en Cour[t]s

(*http://sciences-en-courts.fr/*) Many of our on-going and former Ph-D students (A. Antoine-Lorquin, C. Bettembourg, J. Coquet, V. Delannée, G. Garet, S. Prigent) have been heavily involved in organization of a local Popularization Festival where Ph.D. students explain their thesis via short movies. The movies are presented to a professional jury composed of artists and scientists, and of high-school students. Previous years films can be viewed on the festival web-site [0] In this context, the following scientific film has been created by the team members in 2017 *Helene et les cartons*[0].

[0] *https://www.youtube.com/embed/3DRgLLITKUc*
[0] *https://www.youtube.com/embed/yheO8Y0nWu0*

ERABLE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

- Giuseppe Italiano is member of the Steering Committee Member of the Workshop on Algorithm Engineering and Experimentation (ALENEX), the International Conference on Algorithms and Complexity (CIAC), and the Workshop/Symposium on Experimental Algorithms (SEA).
- Alberto Marchetti-Spaccamela is a member of the Steering committee of *Workshop on Graph Theoretic Concepts in Computer Science (WG)*), and of *Workshop on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems (ATMOS)*.
- Marie-France Sagot is member of the Steering Committee of *European Conference on Computational Biology (ECCB)* and *International Symposium on Bioinformatics Research and Applications (ISBRA)*.

9.1.1.2. Member of the Organising Committees

- Alexander Schönhuth was main organiser of "Data Structures in Bioinformatics", Amsterdam, 21-22/02/2017, and publicity chair of RECOMB 2017.
- Fabrice Vavre was member of the Organisation Committee of the Colloquium Immuninv ("Immunité des invertébrés") in 2017.
- Cristina Vieira co-organised the Symposium "Evolutionary implications of transposable elements, epigenetics, and non-genetic inheritance" at the biennial ESEB (European Society for Evolutionary Biology) congress in 2017.

9.1.2. Scientific Events Selection

9.1.2.1. Chair of Conference Program Committees

- Leen Stougie was Chair of the Program Committee of *MAPSP* in 2017.

9.1.2.2. Member of the Conference Program Committees

- Pierluigi Crescenzi was a member of the Program Committee of *ICTCS* in 2017.
- Roberto Grossi was a member of the Program Committee of *ICALP* in 2017.
- Vincent Lacroix was a member of the Program Committee of *JOBIM* in 2017.
- Giuseppe Italiano was a member of the Program Committee of *SPIRE*, *FAW*, and *STACS* in 2017.
- Nadia Pisanti was a member of the program committee of *WALCOM*, *BIOINFORMATICS*, *CPM*, *ISBRA*, *CIBB*, *Hi BI BI*, emphWABI, and *ICCABS* in 2017.
- Marie-France Sagot was a member of the Program Committee of *ISMB/ECCB*, *PSC*, *RECOMB-CG*, and *WABI* in 2017.
- Alexander Schönhuth was a member of the Program Committee of *RECOMB*, *ISMB*, *ACM-BCB*, *GCB* (German bioinformatics conference), and *BioSB* (Dutch bioinformatics conference) in 2017.
- Leen Stougie was member of the Program Committee of *RECOMB* in 2017.

9.1.2.3. Reviewer

Besides the above, various other members of ERABLE have been reviewer for other international conferences, such as *SODA* etc.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- 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 pf *RAIRO – Theoretical Informatics and Applications*.
- Giuseppe Italiano is member of Editorial Board of *Algorithmica* and *Theoretical Computer Science*.
- Alberto Marchetti-Spaccamela is member of the Editorial Board of *Theoretical Computer Science*.
- Arnaud Mary is Editor-in-Chief of a special issue of *Discrete Applied Mathematics* dedicated to *WEPA* 2016.
- Nadia Pisanti is since 2012 member of Editorial Board of *International Journal of Computer Science and Application (IJCSA)* and since 2017 of *Network Modeling Analysis in Health Informatics and Bioinformatics*.
- Marie-France Sagot is member of the Editorial Board of *BMC Bioinformatics*, *Algorithms for Molecular Biology*, *Journal of Discrete Algorithms*, and *Lecture Notes in BioInformatics*.
- Leen Stougie is member of the Editorial Board of *Surveys in Operations Research and Management Science* since 2011, and of *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 - Reviewing Activities

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*. *Nature Communications*.

9.1.4. Invited Talks

Giuseppe Italiano gave talks at the 4th Workshop on Graph Theory, Algorithms and Applications, Erice, Italy, 5-13 May, 2017 on "2-Connectivity in Directed Graphs", and at the 10th International Conference on Algorithms and Complexity (CIAC 2017), Athens, Greece, May 24-26, 2017 (http://www.corelab.ntua.gr/ciac2017/) on "2-Edge- and 2-Vertex- Connectivity in Directed Graphs".

Vincent Lacroix gave talks at the MIAT INRA Seminar, Toulouse, Feb 2017 on "De novo identification of SNPs from RNA-seq data in non-model species", and at the Aviesan ITMO Santé 9th annual meeting (https://its.aviesan.fr/index.php?pagendx=1046), Lyon, Nov 2017 on "Complementarity of assembly-first and mapping-first approaches for alternative splicing annotation and differential analysis from RNA-seq data".

Alexander Schönhuth gave talks at the FCHealth Meeting, Helsinki (organiser: Veli Mäkinen) on "Disentangling the genetic diversity of pathogens at the strain level using overlap graphs", the Computational Genomics Summer Institute (http://computationalgenomics.bioinformatics.ucla.edu), University of California at Los Angeles on "Polyploid Genome Assembly", and the Bertinoro Computational Biology (BCB) 2017 (https://bertinoro2017.wordpress.com, organisers: Sohrab Shah, UBC Vancouver; Jens Lagergren, Stockholm), on "Discovering somatic variants in single cells".

Leen Stougie gave a talk at the Workshop on Stochastic Programming Honoring Maarten van der Vlerk, Groningen, The Netherlands, 10-11 August 2017, on "Stochastic and Robust Scheduling".

9.1.5. Leadership within the Scientific Community

Giuseppe Italiano is Member of the Council of EATCS, the European Association for Theoretical Computer Science.

Leen Stougie is Member of the general board ofthe Dutch Network on the Mathematics of Operations Research (Landelijk Netwerk Mathematische Besliskunde (LNMB)). He is also Chairman Program Committee Econometrics and OR, VU Amsterdam and Member of the Board of the research school ABRI-VU, Amsterdam.

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.

Fabrice Vavre is president 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 and co-director of studies of the "Bioinformatique et Modélisation (BIM)" track.

Giuseppe Italiano is member of the Advisory Board of MADALGO - Center for MAssive Data ALGOrithmics, Aarhus, Denmark.

Alberto Marchetti-Spaccamela is Director of the Department of Computer Engineering and Management Antonio Ruberti at Sapienza University since 2013.

Nadia Pisanti was since 2013 and until October 31st 2017 member of the Board of the Regional PhD School of Computer Science at the University of Pisa, Italy. Since November 1st 2017, she is member of the Board of the PhD School in Data Science (University of Pisa jointly with Scuola Normale Superiore Pisa, Scuola S. Anna Pisa, IMT Lucca).

Alexander Schönhuth is member of the Scientific Board of BioSB (the Dutch organisation for bioinformatics) since May 2017.

Leen Stougie is since April 2017 Leader of the Life Science Group at CWI.

Alain Viari is since 2012 Deputy Scientific Director at Inria responsible for the ICST for Life and Environmental Sciences. He thus represents Inria at several national instances related to Life Sciences and Health (Allenvi, Aviesan, Ibisa, etc.). He is member of a number of scientific advisory boards (IRT (Institut de Recherche Technologique) BioAster; Centre Léon Bérard). He also coordinates together with J.-F. Deleuze (CNRGH-Evry) the Research & Development part (CRefIX) of the "Plan France Médecine Génomique 2025".

Cristina Vieira is member of the "Conseil National des Universités" (CNU) 67 ("Biologie des Populations et Écologie"), and since 2017 member of the "Conseil de la Faculté des Sciences et Technologies (FST)" of the University Lyon 1.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

9.2.1.1. France

The members of ERABLE teach both at the Department of Biology of the University of Lyon (in particular within the BISM (BioInformatics, Statistics and Modelling) specialty, and at the department of Bioinformatics of the Insa (National Institute of Applied Sciences). Cristina Vieira is responsible for the Master Biodiversity, Ecology and Evolution (https://www.bee-lyon-univ.fr/). She teaches genetics 192 hours per year at the University and at the ENS-Lyon. Hubert Charles is responsible for the Master of Modelling and Bioinformatics (BIM) at the Insa of Lyon (http://biosciences.insa-lyon.fr/). He teaches 192 hours per year in statistics and biology. Vincent Lacroix is responsible for several courses of the newly created Master in Bioinformatics (https://www.bioinfo-lyon.fr/) (L3: Advanced Bioinformatics, M1: Methods for Data Analysis in Genomics,

M1: Methods for Data Analysis in Transcriptomics, M1: Bioinformatics Project, M2: Ethics). He teaches 192 hours per year in bioinformatics. Arnaud Mary is responsible for two courses of the Bioinformatics Curriculum at the University (L2: Introduction to Bioinformatics and Biostatistics, M1: Object Oriented Programming) and one at Insa (Discrete Mathematics). He has been teaching 150 hours per year for his three first years as Assistant and then as Associated Professor, and will now, as of September 2017, teach 192 hours per year. Blerina Sinaimeri taught 30 hours per year in graph algorithms for the M1 students of the Master in Bioinformatics, and approximately 12h per year (Discrete Mathematics) at Insa. In 2017, she also taught 24h per year at the Master in Computer Science of the ENS-Lyon.

The ERABLE team regularly welcomes M1 and M2 interns from the bioinformatics Master.

Vincent Lacroix was an instructor in NGS data analysis training for the CNRS Formation in the last 3 years since 2015, a course coordinated by Eric Rivals from the LIRMM, Montpellier.

Alain Viari was a lecturer at the 3rd International School on Breast Cancer organised at the Curie Institute in June 2017. Together with Vincent Lacroix, he participated to a transdisciplinary module for PhDs on Ethics organised by the University of Lyon.

All French members of the ERABLE team are affiliated to the doctoral school E2M2 (Ecology-Evolution-Microbiology-Modelling, http://e2m2.universite-lyon.fr/).

9.2.1.2. Italy & The Netherlands

Italian researchers teach between 90 and 140 hours per year, at both the undergraduate and at the Master levels. The teaching involves pure computer science courses (such as Programming foundations, Programming in C or in Java, Computing Models, Distributed Algorithms) and computational biology (such as Algorithms for Bioinformatics).

Dutch researchers teach between 40 and 270 hours per year, again at the undergraduate and Master levels, in pure computer science (*e.g.* Algorithm Engineering, Randomised Algorithms), applied mathematics (*e.g.* Operational Research, Advanced Linear Programming) and computational biology (*e.g.* Biological Network Analysis).

9.2.2. Supervision

The following PhDs were defended in ERABLE in 2017:

- Hélène Lopez-Maestre, University of Lyon 1, Feb 2017, supervisors: V. Lacroix, C. Vieira.
- Laura Urbini, University of Lyon 1, October 2017, supervisors: C. Matias, M.-F. Sagot, B. Sinaimeri.
- Martin van Ee, December 2017, supervisor: L. Stougie.

The following are the PhDs in progress:

- Audric Cologne, University of Lyon 1 (funded by Inserm and Inria, co-supervisors: Patrick Edery – Federation of Health Research of Lyon-Est, Vincent Lacroix)
- Mattia Gastaldello, Sapienza University of Rome and University of Lyon 1 (funded by "Vinci Program-Université Franco-Italienne", co-supervisors: Tiziana Calamoneri, Sapienza University of Rome; Marie-France Sagot)
- Leandro Ishi Soares de Lima, University of Lyon 1 (funded by the Brazilian "Science without Borders" program, co-supervisors: Giuseppe Italiano, Vincent Lacroix, Marie-France Sagot)
- Carol Moraga Quinteros, University of Lyon 1 (funded by Conicyt Chile, co-supervisors: Rodrigo Gutierrez – Catholic University of Chile, Marie-France Sagot)
- Henri Taneli Pusa, University of Lyon 1 (funded by H2020-MSCA-ETN-2014 project MicroWine, co-supervisors: Alberto Marchetti-Spaccamela, Arnaud Mary, Marie-France Sagot)
- Camille Sessegolo, University of Lyon 1 (funded by ANR Aster; co-supervisors: Vincent Lacroix, Arnaud Mary)
- Irene Ziska, University Lyon 1 (funded by Inria Cordi-S, co-supervisors: Susana Vinga – Instituto Superior Técnico at Lisbon; Marie-France Sagot)

Besides the PhD students indicated above, who are physically located within one of the premises of ERABLE, the project-team has PhD students in co-supervision who spend the majority or the whole of their time in the premises of other teams. These include: Scheila G. Mucha (funded by Brazil, co-supervisors: Arnaldo Zaha – Federal University of Rio Grande do Sul in Brazil, Marie-France Sagot), Rita Ramos (funded by Portuguese FCT, co-supervisors: Claudia Nunes dos Santos – ITQB Lisbon, Marie-France Sagot), André Veríssimo (funded by Portuguese FCT, co-supervisors: Susana Vinga – Instituto Superior Técnico in Lisbon, Marie-France Sagot). Furthermore, ERABLE had for 18 months a "sandwich" (meaning part-time) PhD student in the team, Alex di Genova, whose supervisor is Gonzalo Ruz from the University Adolfo Ibañez in Santiago, Chile (A. di Genova defended his PhD on November 14 2017 and has since joined ERABLE as a postdoc).

9.2.3. Juries

The following are the PhD or HDR juries to which members of ERABLE participated in 2017.

- Giuseppe Italiano: External Examiner of the PhD of Mathias baek Tejs Knudsen, DIKU, Copenhagen University, August 4, 2017.
- Nadia Pisanti: External Reviewer of the PhD of Mika Amit, University of Haifa, Israel, July 3rd 2017.

9.3. Popularisation

- Ricardo Andrade participated to the "Fête de la Science" at Inria.
- Vincent Lacroix co-organised with Nicolas Lechopier a conference on synthetic biology followed by a live radio session involving the speaker Catherine Bourgain, and the students from the Master in Bioinformatics http://sciencespourtous.univ-lyon1.fr/sciences-lemission-science-democratie-parole-aux-etudiants/.
- Blerina Sinaimeri participated to the Conference "Filles et mathématiques : Une équation lumineuse !" (see https://filles-et-math.sciencesconf.org/program) and to the "Fête de la Science" at Inria.
- Alain Viari as Deputy Scientific Director for Life Sciences at Inria regularly gives talks to external partners and general audiences to present the Life Sciences topics at Inria.

GENSCALE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

- RCAM 2017: Workshop “Recent Computational Advances in Metagenomics" [P. Peterlongo]

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- JOBIM 2017: French symposium of Bioinformatics [C. Lemaitre, P. Peterlongo]
- BIBM 2017: IEEE International Conference on Bioinformatics and Biomedicine [D. Lavenier]
- BIOKDD 2017: Workshop on Biological Knowledge Discovery and Data Mining [D. Lavenier]
- IWBBIO 2017: International Work-Conference on Bioinformatics and Biomedical Engineering [D. Lavenier]

10.1.2.2. Reviewer

- RECOMB 2017 [R. Andonov, C. Lemaitre, P. Peterlongo]
- ECCB 2017 [P. Peterlongo]

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

- Bioinformatics [D. Lavenier]
- BMC Bioinformtics [D. Lavenier, C. Marchet]
- Briefing in Bioinformatics [D. Lavenier]
- Plos One [C. Lemaitre]
- Transactions on Computational Biology and Bioinformatics [C. Lemaitre]
- Genomics [F. Legeai]

10.1.4. Invited Talks

- D. Lavenier, *Dealing with mass of genomic data. From optimized data structures to advanced memory architectures*, BIATA 2017, Dioinformatics: from algorithms to application, St, Petersburg, Russia, Aug. 2017
- D. Lavenier, *DNA Mapping using Processing-in-Memory Architecture*, Cristal, Univ. Lille, Oct 2017
- C. Lemaitre, *Looking for genomic variants in the De Bruijn Graph.*, Institute for Advanced Bio-sciences, University of Grenoble Alpes, Grenoble, France, Dec. 2017
- C. Marchet, *De novo Clustering of Gene Expressed Variants in Transcriptomic Long Reads Data Sets*, at From RNA-Seq data to bioinformatics analysis using Nanopore sequencers, Evry, Dec 2017.

10.1.5. Leadership within the Scientific Community

- P. Peterlongo. Animator of the metagenomic scientific axes of the GDR BIM (National Researc Group in Biology, Informatic and Mathematic)
- P. Peterlongo. Member of the SFBI board.

10.1.6. 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]

10.1.7. Research Administration

- Member of the CoNRS, section 06, [D. Lavenier]
- Member of the CoNRS, section 51, [D. Lavenier]
- Member of the steering committee of the INRA BIPAA Platform (BioInformatics Platform for Agro-ecosystems Arthropods) [D. Lavenier]
- Member of the steering committee of The GenOuest Platform (Bioinformatics Platform of BioGenOuest) [D. Lavenier]
- Representative of the environnemental axis of UMR IRISA [C. Lemaitre]
- AGOS first secretary [P. Peterlongo]
- Organisation of the weekly seminar "Symbiose" [P. Peterlongo]
- In charge of the bachelor's degree in the computer science department of University of Rennes 1 (90 students) [R. Andonov]
- Member of the Council of Administration of ISTIC [R. Andonov]
- Representative of non-permanent members in the Inria Rennes center commitee [S. Letort]

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : C. Lemaitre, Statistics for biology, 30h, L3, Univ. Rennes 1, France.

Licence : R. Andonov, S. Francois, Graph Algorithms, 80h, L3, Univ. Rennes 1, France.

Licence : L. Lecompte, Systems, 16h, L3, Univ. Rennes 1, France.

Licence : S. Francois, Programming, 22h, L3 Miage, Univ. Rennes 1, France.

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

Master : L. Lecompte, Python for ecologists, 21h, M1, Univ. Rennes 1, France.

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

Master : L. Lecompte, C. Lemaitre, P. Peterlongo, Algorithms on Sequences for Bioinformatics, 50h, M1, Univ. Rennes 1, France.

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

Master : C. Guyomar, Statistical learnings, 30h, M2, Univ. Rennes, France.

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

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

Training : P. Durand, G. Rizk, GATB Programming Day, 16h (April 26-27), Grenada, Spain.

Training : P. Durand, G. Rizk, GATB Programming Day, 8h (June 6), Montpellier, France.

Training : G. Rizk, GATB Programming Day, 8h (October 24), Rennes, France.

10.2.2. Supervision

PhD : G. Benoit, Large scale de novo comparative metagenomics, Univ Rennes, 29/11/2017, D. Lavenier and C. Lemaitre. [11]

PhD : A. Limasset, Nouvelles approches pour l'exploitation des données de séquençage haut débit, Univ Rennes, 12/07/2017, D. Lavenier and P. Peterlongo. [12]

PhD : P. Hoan Son, Novel Pattern Mining Techniques for Genome-wide Association Studies, 22/12/2017, D. Lavenier and A. Termier.

PhD in progress : C. Guyomar, Bioinformatic tools and applications for metagenomics of bacterial communities associated to insects, 01/10/2015, J.C. Simon, C. Mougel, C. Lemaitre and F. Legeai.

PhD in progress : C. Marchet, Nouvelles méthodologies pour l'assemblage de données de séquençage polymorphes, 01/10/2015, P. Peterlongo.

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

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

PhD in progress : W. Delage, Assemblage de novo local pour la détection de variations complexes pour le diagnostic des maladies rares, 01/10/2017, J. Thévenon and C. Lemaitre.

10.2.3. Juries

- *Member of Ph-D thesis juries*. Arnaud Meng, University Pierre et Marie Curie [C. Lemaitre], Damien Courtine, University of Brest [D. Lavenier].
- *Referee of Ph-D thesis*. Pierre Pericard, University of Lille [D. Lavenier], Louise-Amelie Schmitt, Bordeaux University [P. Peterlongo], Kamil Salikov, University Paris Est [P. Peterlongo]
- *Member of Ph-D thesis comitees*. L. Ishi Soares de Lima, University of Lyon [C. Lemaitre], Cervin Guyomar, University of Rennes [P. Peterlongo], Pierre Marijon, University of Lille [P. Peterlongo], Pierre Charrier, Oniris Nantes [P. Peterlongo], Victor Gaborit, Inserm Nantes [P. Peterlongo], Guillaume Gautreau, University Paris Saclay [P. Peterlongo].
- *President of a jury for the recuitment of a INRA bioinformatics engineer* [Fabrice Legeai].

10.3. Popularization

- Participation to operation "A la découverte de la recherche" in high schools [P. Peterlongo]
- Intervention for "Imagine For Margo" [P. Peterlongo]
- Bioinformatics introduction to secondary school pupils [F. Legeai]

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	Workshop on microbial growth control and biotechnological applications, La Grande Motte	Oct 2017
Hidde de Jong	CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	Mar 2017
Delphine Ropers	Séminaire de Modélisation du Vivant (SeMoVi), Lyon and Grenoble	2016

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 2017)	Associate editor

9.1.2.2. Member of conference program committees

IBIS member	Conference, workshop, program
Eugenio Cinquemani	ECC 2017
Hidde de Jong	ISMB/ECCB 2017, CMSB 2018, WML 2018
Delphine Ropers	JOBIM 2017

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	INRA	Member of scientific advisory committee 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	Microbiology and Food Chain Department, Inra	Member scientific council
Hidde de Jong	HCERES	Member of evaluation committee of TAGC laboratory (UMR U1090), Marseille

9.1.5. Recruitment committees

IBIS member	Organism	Recruitment
Hidde de Jong	INRA	Chargés de recherche
Johannes Geiselmann	INSA de Lyon	Full professor
Delphine Ropers	Inria	Chargés de recherche CR1 (jury d'admissibilité)
Delphine Ropers	Inria Sophia-Antipolis	Chargés de recherche (jury d'admissibilité)
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	Workshop on "Modélisation stochastique et analyse statistique de l'expression génétique", Laboratoire de Mathématiques et Applications (LMA) de l'Université de Poitiers	Jan 2017
Modeling of stochastic gene expression	Tutorial at CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	Mar 2017
Toward automatic control of synthetic microbial communities	Journées Scientifiques Inria 2017, Sophia Antipolis – Méditerranée	Jun 2017

Hidde de Jong

Title	Event and location	Date
Analysis and control of bacterial regulatory networks	Seminar Systems Biology Institute, ETH Zürich, Switzerland	Feb 2017
Qualitative modeling and simulation of bacterial regulatory networks	Course at Instituto de Tecnologia Química e Biológica, Oeiras, Portugal	Feb 2017
Natural and synthetic control of resource allocation in bacteria	Seminar at Instituto de Tecnologia Química e Biológica, Oeiras, Portugal	Feb 2017
Integrated models of the cell: metabolism, gene expression, signalling	Tutorial at CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	Mar 2017
Presentation IBIS and IPL COSY	Réunion de suivi du Programme Transversal Microbiote, Inserm, Paris	Jun 2017
Natural and synthetic control of resource allocation in bacteria	Keynote talk at 3rd BeNeLuxFra Student Symposium, Lille	Jul 2017
Natural and synthetic control of resource allocation in bacteria	International Workshop on Control Engineering and Synthetic Biology, London	Jul 2017
Resource allocation in microorganisms: Some control-theoretical problems	Journée McTAO, Institut mathématique de Bourgogne, Dijon	Dec 2017
A dynamic analysis of carbon catabolite repression and diauxic growth in bacteria	6th network retreat of BEeSy, Saint Hugues de Biviers	Dec 2017

Johannes Geiselmann

Title	Event and location	Date
Growth rate control in Escherichia coli	Seminars in Molecular Biology, University of British Columbia, Vancouver, Canada	Jun 2017
Changing resource allocation and growth rate by a genetic control of transcription and DNA replication	Workshop growth rate control in bacteria, BioSynSys conference, Montpellier, France	Oct 2017
Engineering resource allocation and growth rate in Escherichia coli	International symposium on Systems, Synthetic and Chemical Biology, Kolkata, India	Dec 2017

Stephan Lacour

Title	Event and location	Date
NGS sequencing techniques in biology	Seminar Mechanobiology, UGA Phitem, Grenoble	Jan 2017
Direct versus indirect gene regulation by the stress response SigmaS factor	Seminar Institut de Biologie Structurale, Grenoble	Feb 2017
Modulation of curli production in Escherichia coli by non-coding RNA	Réseau National Biofilm (RNB), Clermont-Ferrand	Dec 2017

Delphine Ropers

Title	Event and location	Date

9.1.7. Research administration

IBIS member	Committee	Role
Eugenio Cinquemani	Inria Grenoble - Rhône-Alpes	Member Comité des Emplois Scientifiques (CES)
Eugenio Cinquemani	Inria Grenoble - Rhône-Alpes	Member Comité des Utilisateurs des Moyens Informatiques (CUMI)
Eugenio Cinquemani	Inria	Member Comité Administrative Paritaire (CAP)
Hidde de Jong	Inria Grenoble - Rhône-Alpes	Member scientific council
Hidde de Jong	Inria	Member working group on International Relations of Conseil d'Orientation Scientifique et Technique (COST)
Delphine Ropers	Inria	Member of Commission d'évaluation d'Inria
Delphine Ropers	Inria	Member of Groupe de travail plan stratégique
Delphine Ropers	Inria Grenoble - Rhône-Alpes	Référente chercheurs
Delphine Ropers	Inria Grenoble - Rhône-Alpes	Member of Comité des études doctorales (CED)

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: Stochastic modelling of gene regulatory networks, M2, BIM, INSA de Lyon (6 h)

Master: Statistics for systems biology, M1, Master Approches Interdisciplinaires du Vivant, CRI/Université Paris Descartes (24 h, also in charge of 24 h of practicals)

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, M2, ENS Paris (6 h)

Master: Integrated models of the cell: metabolism, gene expression, signalling, M2, Institut de Technologie et d'Innovation, Paris Sciences Lettres (PSL) (6 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 (9 h)

Master: Modeling and simulation of genetic regulatory networks, M2, INSA de Toulouse (4 h)

9.2.2. Supervision

PhD defended: **Stefano Casagranda**, Analysis and control of models of gene regulatory networks. Supervisors: Jean-Luc Gouzé (BIOCORE) and Delphine Ropers

PhD defended: **Nils Giordano**, Microbial growth control in shifting environments: Theoretical and experimental study of resource allocation in Escherichia coli. Supervisors: Hidde de Jong and Johannes Geiselmann

PhD defended: **Bernard Chelli Ponce de Leon**, Quantitative study of the effects of low DnaA concentrations in Escherichia coli, using the uhp pathway as an inducible expression system. Supervisors: Irina Mihalcescu (Université Grenoble Alpes) and Johannes Geiselmann

PhD in progress: **Thibault Etienne**, Analyse intégrative de la coordination entre stabilité des ARNm et physiologie cellulaire chez *Escherichia coli*. Supervisors: Delphine Ropers and Muriel Cocaign-Bousquet (INRA Toulouse)

PhD in progress: **Joël Espel**, RNA engineering: Design of the dynamical folding of RNA and of RNA switches. Supervisors: Alexandre Dawid (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
Eugenio Cinquemani	Invité	Stefano Casagranda	Université Nice Sophia Antipolis	Jun 2017
Hidde de Jong	Président	Bernard Chelli Ponce de Leon	Université de Grenoble	Mar 2017
Hidde de Jong	Directeur de thèse	Nils Giordano	Université de Grenoble	Mar 2017
Hidde de Jong	Rapporteur	Mathias Weyder	Université de Toulouse	Mar 2017
Johannes Geiselmann	Rapporteur	Stanislas Thiriet-Rupert	Université du Mans	Jan 2017
Johannes Geiselmann	Président	Defne Dalkara	Université de Grenoble	Jan 2017
Johannes Geiselmann	Directeur de thèse	Nils Giordano	Université de Grenoble	Mar 2017
Johannes Geiselmann	Directeur de thèse	Bernard Chelli Ponce de Leon	Université de Grenoble	Mar 2017
Johannes Geiselmann	Rapporteur	Lionel Uhl	Université de Marseille	Apr 2017
Johannes Geiselmann	Rapporteur	Zoran Marinkovic	Université Paris Diderot	Nov 2017
Stephan Lacour	Examinateur	Benjamin Diel	Université de Lyon	Sep 2017
Stephan Lacour	Examinateur	Sophie Bouillet	Université Aix-Marseille	Dec 2017
Delphine Ropers	Directrice de thèse	Stefano Casagranda	Université Nice Sophia Antipolis	Jun 2017
Delphine Ropers	Examinateur	Guillaume Madelaine	Université de Lille	Mar 2017

Habilitation (HDR) committees

IBIS member	Role	PhD student	University	Date
Hidde de Jong	Rapporteur	Elisabeth Rémy	Université Aix-Marseille	Avr 2017

PhD advisory committees

IBIS member	PhD student	University
Eugenio Cinquemani	Luis Pereira	Université Nice Sophia Antipolis
Stephan Lacour	Alice Berry	Université de Grenoble
Stephan Lacour	Simon Léonard	Université Claude Bernard de Lyon

9.2.4. Teaching adminstration

Yves Markowicz is director of the BSc department at Université Grenoble Alpes.

Michel Page is coordinator of the master Systèmes d'information et d'organisation at the Institut d'Adminstration des Entreprises (IAE), Université Grenoble Alpes.

Eugenio Cinquemani organizes a module on statistics in systems biology at CRI/Université Paris Descartes.

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.

LIFEWARE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

François Fages is co-organizer of the CSBC Workshop on Computational Systems Biology for Cancer, Institut des Systèmes Complexes, Paris, France, 24-26 jan. 2018.

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- François Fages was member of the PC of
  - CMSB'17 The 15th conference on Computational Methods for Systems Biology, September 27th to 29th 2017, Darmstadt, Germany.
  - FroCos'17 The 11th International Symposium on Frontiers of Combining Systems, 25-29 September 2017, Brasilia, Brazil.

9.1.2.2. Reviewer

- François Fages reviewed one article for the 15th Int. Computer Science Symposium in Russia CSR 2017.

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

In addition to their Editorial Board and Program Committee duties,

- Grégory Batt reviewed one article for *Nature Scientific Reports*.
- François Fages reviewed articles for *Bioinformatics, ACM Transactions on Modeling and Computer Simulation, Fundamenta Informaticae, Computers and Industrial Engineering*
- Sylvain Soliman reviewed articles for *Briefings in Bioinformatics*, *PNAS*, *Transactions on Computational Biology and Bioinformatics*

9.1.4. Invited Talks

- Virgile Andréani gave a poster presentation at the Spring school on Computational Systems Biology (CompSysBio 2017), Aussois, March 19-25 2017
- Gregory Batt gave invited talks at
  - Computational biology seminar of Curie Institute, "Predicting long-term effects of repeated apoptosis-inducing drug treatments: coupling signal transduction pathways with stochastic protein turnover models", Paris, Jan 19 2017.
  - 6th Annual Consortium Meeting of Revive LabEx, "Multi-scale modeling of TRAIL-induced apoptosis: from protein level fluctuations to drug resistance in multicellular spheroids", Montvillargenne, Jan 24 2017.
  - ENS/ESPCI joint Biophysics seminar, "Balancing a genetic toggle switch by real-time control or periodic stimulations", Paris, Feb 10 2017.
  - BioNetVisA 2017 workshop "From biological network reconstruction to data visualization and analysis in molecular biology and medicine", "A multi-scale model for investigating TRAIL resistance in multi-cellular tumor spheroids", Basel, Sept 12 2017.
  - Workshop on Control of Cellular and Molecular Systems, "Balancing a genetic toggle switch by real-time control or periodic stimulations", Mathematical Biosciences Institute, Ohio State University.
  - Second Symposium du Réseau de Biologie des Systèmes de Sorbonne Université, "Balancing a genetic toggle switch by real-time control or periodic stimulations", Paris, Dec 1 2017.
- François Fages gave invited talks at
  - National Taiwan University, Dept. Electrical Engineering, "Strong Turing Completeness of Continuous Chemical Reaction Networks and Compilation of Mixed Analog-Digital Programs", Tapei, Taiwan, 9 Nov 2017.
  - Centre de Recherche Interdisciplinaire, CRI Paris, "Living with Algorithms and Algorithms of the Living", Paris, 29 June 2017.
  - GT BIOSS-preGDR IA, keynote talk "In Quest of the Software of the Living: Successes and Difficulties of the Program Verification Paradigm in Cell Biology", Gif sur Yvette, 22 June 2017.
  - Dynamic Days Europe, "Quantitative Modelling of the Circadian Clock and Cell Cycle Coupling: Prediction of RevErb- alpha Up-Regulation during Mitosis in Mouse Embryonic Fibroblasts – Temporal Logic Constraints and Parameter Search in BIOCHAM", Szeged, Hungary, 7 June 2017.
  - "Turing Completeness of Biochemical Reactions over a finite set of molecules under the Differential Semantics and Compilation of Mixed Analog-Digital Programs", French Ambassy in Berlin, Germnany, 1 June 2017.
  - GT BIOSS "Turing Completeness of Biochemical Reactions under the Continuous Semantics and Compilation of Mixed Digital-Analog Programs", Montpellier, 13 March 2017.
  - Lab Sys2diag "Biochemical Compiler and Mixed Analog-Digital Algorithms in the Cell", Montpellier, 9 March 2017.
- Jean-Baptiste Lugagne gave invited talks at
  - Khammash lab seminar, "Balancing a genetic toggle switch by real-time feedback control and periodic forcing", ETHZ, Zurich, March 2017
  - Seminar of SynthSys Centre for Synthetic and Systems Biology, "Balancing a genetic toggle switch by real-time feedback control and periodic forcing", University of Edinburgh, June 08 2017

  - International Workshop on Control Engineering and Synthetic Biology, 'Balancing a genetic toggle switch by real-time feedback control and periodic forcing" (poster presentation), Royal Academy of Engineering, London, July 17 2017
  - Seminar of Theory of Living Matter Group, "Balancing a genetic toggle switch by real-time feedback control and periodic forcing", University of Cambridge, July 19 2017
- Jakob Ruess gave invited talks at
  - Working days of GT BIOSS "Control of bio-digital systems in single cells", March 13 2017
  - Conference of GdR Biologie Synthétique et Systémique (BioSynSys) "Control of bio-digital systems in single cells", La Grande Motte, Oct 10 2017

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
  - co-animator of the French working group on Symbolic Systems Biology GT BIOSS
  - the scientific committee of the Spring school on Computational Systems Biology (CompSysBio 2017)
- François Fages is a member of
  - the Steering Committee of the International Conference on Computational Methods for Systems Biology since 2008,
  - the Scientific Council of the *Doctorate School "Frontières Du Vivant"* at *Center for Research and Interdisciplanirity*, Universities Paris Descartes and Paris Diderot, since 2010,
  - The Scientific Commmittee of the Summer School Ecole Thématique Modélisation Formelle des Réseaux de Régulation Biologique since 2010.

9.1.6. Scientific Expertise

- Gregory Batt
  - has been in charge of the definition of the 16th challenge of the 2018-2022 Inria strategic plan on predictive systems biology
  - has been a member of the INRA selection committee for hiring permanent junior researchers (CR2)
  - has evaluated the PhD thesis of Lorena Postiglioni and Giansimone Perrino (Diego di Bernardo, Tigem, Italy; Thesis evaluation report)
  - has been a member of thesis advisory committee meetings for Arnaud Bonnaffoux (Olivier Gandrillon ENS Lyon/Cosmo Company), Raphael Goujet (Ariel Lindner, CRI, Paris), Adele Kerjouan (Olivier Destaing, IAB, Grenoble), and Mathilde Koch (Jean-Loup Faulon, INRA, Jouy en Josas)
- François Fages
  - is a member of the jury for the *Prix de thèse Gilles Kahn* of the *Société Informatique de France*, since 2015,
  - reviewed one Research Fellowship application for the Royal Commission for the Exhibition of 1851

9.1.7. Research Administration

- François Fages is member of the “Bureau du Comité des Projets” of Inria Saclay-IdF.
- Sylvain Soliman is member of the “Commission Scientifique” of Inria Saclay-IdF

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Grégory Batt (coordinator and teacher: 48h) and Jakob Ruess (24h), *Computational Biology*, M1, Master Approches Interdisciplinaires du Vivant (AIV).

Master/PhD: Grégory Batt (co-coordinator 80h, teacher 8h) and Jakob Ruess (8h), *Modeling and engineering of biological systems*, M2/PhD, Institut de Technologie et d’Innovation of Paris Sciences et Lettres (PSL-ITI), Paris.

Master/PhD: Gregory Batt (Scientific committee and teacher 6h), Spring school on Computational Systems Biology (CompSysBio 2017), Aussois, March 19-25 2017

Master: François Fages (coordinator module 48h, teaching 12h), C2-19 *Computational Methods for Systemic and Synthetic Biology*, Master Parisien de Recherche en Informatique (MPRI), Paris.

Master: Chiara Fracassi (20h), *Experimental Methods in Biophysics*, M1, Master Approches Interdisciplinaires du Vivant (AIV).

Master: Sylvain Soliman, C2-35-1 *Constraint Programming*, coordinator and teaching 24h, M2, Master Parisien de Recherche en Informatique (MPRI), Paris.

Master: Denis Thieffry (coordinator, 6h) and Gregory Batt (6h), *Dynamical Modelling of Cellular Regulatory Networks*, M2, Interdisciplinary Master in Life Science at the Ecole Normale Supérieure, Paris.

E-learning

Online BIOCHAM tutorial notebook by F. Fages and S. Soliman, presented at CMSB 2017, Darmstadt, Germany.

9.2.2. Supervision

Grégory Batt is currently supervising the Ph.D. theses of

- Virgile Andreani (ED STIC, ENS)
- Sebastian Sosa Carrillo (ED FdV, Inria)
- Chetan Aditya (ED FdV, Inria)

9.2.3. Juries

- Ph.D.: Stefano Casagranda (Inria Sophia Antipolis), *G. Batt*, June 30 2017.
- HDR: Russ Harmer, Ecole Normale Supérieure de Lyon, *F. Fages, reviewer*, May 22 2017.
- Ph.D.: Guillaume Madelaine, University of Lille, *F. Fages, reviewer*, Feb. 28 2017.
- Ph.D.: Danhua Peng, University of Rostock, Germany, *F. Fages, reviewer*, Feb. 3 2017.
- Ph.D.: Ferdinanda Camporesi, University PSL, ENS Paris, *F. Fages*, Jan 23 2017.

9.3. Popularization

We participated in seminars for general audiences.

- G. Batt, *“La cybergénétique: piloter des cellules par ordinateur”*, 50 ans d’Inria au Siège, Rocquencourt, Nov 16 2017.
- F. Fages, *“Living with algorithms and algorithms of the living”*, Workshop Shaping Major Transitions in the Digital World. Interdisciplinary Research Center, CRI, Paris, 28-30 June 2017.
- J. Ruess, *“Automating scientific discovery in single cells”*, Unithé ou café, Inria Saclay - Ile de France, Apr 21 2017

Our publications also raised the attention of specialized and non-specialized media. One can mention

- “Piloter le comportement de cellules biologiques par ordinateur, c’est possible” in Science et Avenir
- “Forscher verbinden und kontrollieren Bakterien mit einem Computer”, in Wiener Zeitung
- “Forscher steuern Bakterien durch Verbindung mit Computer” in der Standard
- “Forscher verbinden und kontrollieren Bakterien mit einem Computer ” and “Virtuelle Realität für Bakterien” in Austria Presse Agentur (APA)
- “Ils parviennent à contrôler des cellules biologiques par ordinateur” in SciencePost
- “Computerized biology, or how to control a population of cells with a computer” and “Virtual reality for bacteria” in Phys.org
- “Computerized biology, or how to control a population of cells with a computer” in EurekAlert.org
- “Scientists Learn to Control Bacteria by Connecting Them to Computers” in Scicasts.com
- “Virtuelle Realität für Bakterien” in Innovations-report.de
- “Virtuelle Realität für Bakterien” in Informationsdienst Wissenschaft

MORPHEME 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

Laure Blanc-Féraud was a Associated Editor for the Workshop NCMIP 2017 New Computational method in Inverse Problems and the Conference IEEE ISBI 2018.

Eric Debreuve was a member of the Program Committee of ACIVS 2017 (Advanced Concepts for Intelligent Vision Systems).

8.1.1.2. Reviewer

Laure Blanc-Féraud was a reviewer for the conferences ISBI, GRETSI, NCMIP.

Eric Debreuve was a reviewer for the conferences IEEE International Symposium on Biomedical Imaging (ISBI) and IEEE International Conference on Image Processing (ICIP).

Xavier Descombes was reviewer for the conferences ISBI, ICIP, ICASSP, and GRETSI.

Grégoire Malandain was reviewer for the conferences EMBC, ISBI, MICCAI, and GRETSI.

8.1.2. Journal

8.1.2.1. Member of the Editorial Boards

Laure Blanc-Féraud was Associated Editor for the journals SIAM Imaging Sciences and the Revue Traitement du Signal.

Xavier Descombes was Associated Editor for the journal Digital Signal Processing.

8.1.2.2. Reviewer - Reviewing Activities

Laure Blanc-Féraud was a reviewer for the journals ...

Eric Debreuve was a reviewer for the journals ...

Xavier Descombes was reviewer for the journals IEEE Signal Processing and IEEE TMI.

Grégoire Malandain was reviewer for the journals BMC Medical Imaging and International Journal of Computer Assisted Radiology and Surgery.

8.1.3. Invited Talks

Florence Besse was invited to DENA 2017 (Workshop on Expanding Networks Dynamics : Modeling, Analysis and Simulation of multi-scale spatial exploration under constraints), Nov 2017, Nice and to the Canceropole PACA annual meeting, June 2017, Saint-Raphaël.

Laure Blanc-Féraud was invited to the Workshop on Sparsity in Applied Mathematics and Statistics, Brussels Belgium, 1-2 June 2017.

8.1.4. Leadership within the Scientific Community

Florence Besse is a member of the scientific council of the IDEX JEDI Academy 2, and a member of the scientific council of the LabeX Signalife program.

Laure Blanc-Féraud is the directrice of the GdR 720 ISIS du CNRS: standard scientific animation (see website gdrisis.fr) and organization of the general meeting in november 2017 (100 participants over 3 days). She was also chair of the scientific council of Academy 1 of Idex UCA JEDI.

Xavier Descombes is member of the Scientific Committee of the competitivness 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 member of the Scientific Committee of the MIA department of INRA.

8.1.5. Scientific Expertise

Laure Blanc-Féraud was expert for the Italian Ministery of Research (MUIR) and for the FNRS (Belgium).

Eric Debreuve was an expert for a CIFRE PhD proposal.

Xavier Descombes is an expert for the DRRT (Paca, Ile de France, Bretagne) and for the ANR.

8.1.6. Research Administration

Laure Blanc-Féraud was member of the Academic Council of COMUE UCA and member of the scientific council of ITAV (Toulouse) and GdR MIV (Microscopie Fonctionnelle du Vivant).

Xavier Descombes is member of the "comité des projets" and the "comité de centre" of Inria CRI-SAM.

Eric Debreuve is a member of the Comité Permanent des Ressources Humaines (CPRH), UNS, section 61.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

IUT: Agustina Razetti, principes des transmissions radio, 12h Eq. TD, IUT Nice Côte d'Azur, Université de Nice Sophia Antipolis, France.

IUT: Agustina Razetti, initiation Matlab, 6h Eq. TD, IUT Nice Côte d'Azur, Université de Nice Sophia Antipolis, France.

Licence: Arne Bechensteen, Outils pour la physique , 36h, L1, Polytech Nice Sophia , France.

Licence: Arne Bechensteen, Programmation impérative PeiP1 , 29.5h, L1, Polytech Nice Sophia, France.

Master: Gaël Michelin, Traitement Numérique des Images, 10h Eq. TD, Niveau M2, EPU, Université de Nice Sophia Antipolis, France.

Master: Laure Blanc-Féraud, management of the module Traitements numériques des images (24h), teaching 5h CM.

Master: Florence Besse, genetic tools for the study of neuronal networks, 4h, Université Côte d'Azur, France.

Master: Florence Besse, RNA localization and neuronal morphology, 4h, Université Côte d'Azur, France.

Licence: Caroline Medioni, Imagerie tissulaire, 15H, L3, Université Nice Côte d'Azur, France

Master: Caroline Medioni, Master "Sciences de la vie" jury , juin 2017

Master/Engineer: Eric Debreuve, Data Mining, 27.5h EqTD, Master 2/Engineer 5th year, UNS.

Master: Xavier Descombes, Traitement d'images, Analyse de données, Techniques avancées de traitement d'images, 10h Eq. TD, Niveau M2, ISAE, France.

Master: Xavier Descombes, Traitement d'images, master VIM, 12h Eq. TD, Niveau M2, Université Côte d'Azur, France.

Master: Xavier Descombes, Bio-imagerie, master IRIV, 6h Eq. TD, Niveau M2, Université de Strasbourg, France

Master: Xavier Descombes, Analyse d'images, master GBM, 9h Eq. TD, Niveau M2, Université Côte d'Azur, France.

8.2.2. Supervision

PhD: Lola Baustista, Reconstruction de phase pour la microscopie à Contraste Interférentiel Différentiel, Université Côte d'Azur, 30 june 2017.

PhD in progress: Agustina Razetti, Modelling and characterizing axon growth from in vivo data, 1st november 2014, Xavier Descombes (advisor), Florence Besse, Caroline Medioni (co-supervisors).

PhD in progress: Emmanuelle Poulain, Fluoroscopy/CTA dynamic registration, 1st february 2016, Grégoire Malandain.

PhD in progress: Arne Bechensteen, TIRF-MA and super-resolution by sparse estimation method, 2 October 2017, Laure Blanc-Féraud, Gilles Aubert, Sébastien Schaub.

PhD in progress: Anca-Ioana Grapa, Characterization of the organization of the Extracellular Matrix (ECM) by Image Processing , 19 September 2016, Laure Blanc-Féraud, Xavier Descombes.

8.2.3. Internships

Arne Henrik Bechensteen: INSA Toulouse, Towards a continuous relaxation of the ℓ_0 constrained problem. Supervisors: L. Blanc-Féraud, G. Aubert.

Kévin Giulietti: M2 SVS, Université Nice Sophia Antipolis, Détection et caractérisation de réseaux mitochondriaux à partir d'images de microscopie. Supervisor: X. Descombes.

Nadège Guiglielmoni: M2 AMIB, université Paris Sud, Reconstruction 3D d'axones uniques et multiples et analyse quantitative des branches sur des données temporelles dans le cerveau de la drosophile. Supervisors: C. Medioni, G. Malandain.

Christelle Requena: M2 SVS, Université Nice Sophia Antipolis, Détections d'extensions membranaires impliquées dans les communications cellaulaires à partir d'images de microscopie in vivo. Supervisor: X. Descombes.

Sarah Laroui: M2 SVS-BIM, UNS, Automatic recognition of fungi phenotype by extraction and classification of morphometric parameters. Supervisors: E. Debreuve, X. Descombes.

8.2.4. Juries

Laure Blanc-Féraud participated to the PhD thesis committees of Lola Bautista (MORPHEME) as supervisor and of Simon Labouesse (Institut fresnel) as reviewer, and to the HDR jury of Aurelia Fraisse (L2S, Gif sur Yvette) as reviewer and of El-Hadi Djermoune (CRAN, Nancy).

Florence Besse participated to the PhD thesis committee of A. Samacoits (Pierre et Marie Curie univ.).

Xavier Descombes participated as reviewer to the PhD thesis committee of Vincent Briane (Rennes univ.) and Zhilin Li (CMLA Cachan).

Grégoire Malandain participated as reviewer to the PhD thesis committee of Hoai-Nam Nguyen (Rennes univ.).

8.3. Popularization

Anca Grapa, Kévin Giulietti and Gaël Michelin participated as exhibitors to the "Fête de la science 2017" manifestation in Juan-les-Pins (palais des congrès). The objective was to initiate non-scientic audience to the research issues in Morpheme team, and more generally to numerical science.

Laure Blanc-Féraud gave a talk for the PhD students association of the doctoral school STIC of Université Côte d'Azur "Voir l'intérieur d'une cellule vivante : lunettes numériques au secours du microscope" , mai 2017.

PLEIADE Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. General Chair, Scientific Chair

Alain Franc organized on September 25-29, 2017 an ANF (Action Nationale de Formation) of CNRS on "Data analysis for massive data". There were about 20 participants, from Astronomy to Bioinformatics, over Fluid Mechanics.

8.1.2. Journal

8.1.2.1. Member of Editorial Boards

Alain Franc is member of the editorial board of BMC Evolutionary Biology.

Pascal Durrens is a member of the editorial board of the journal ISRN Computational Biology.

8.2. Teaching - Supervision - Juries

8.2.1. Juries

David Sherman was a thesis reviewer for Julie Laniau (University of Nantes) and member of her defense jury, October 23, 2017. The title of the dissertation was "Structure de re´seaux biologiques : roˆle des nœuds internes *vis-a`-vis* de la production de compose´s" and concerned the methodological analysis of metabolite essentiality in metabolic modeling, applied to algae.

Alain Franc was a thesis reviewer for Cyril Noël (University of Pau and the Pays d'Adour) and member of his defense jury, 2017. The title of the dissertation was "Réseaux microbiens de dégradation des hydrocarbures aux interfaces oxie/anoxie des sédiments marins côtiers" and concerned metabarcoding, metagenomics and functional metagenomics of some Bactera and Archea.

Alain Franc was president of the jury for PhD defense of Pierre Blanchard (University of Bordeaux and Inria project-team HiePACS) on February 16, 2017. The title of the dissertation was "Fast hierarchical algorithms for the low-rank approximation of matrices with applications to materials physics, geostatistics and data analysis"

8.3. Popularization

David Sherman of PLEIADE coached two teams in Thymio R2T2 Challenges [0], organized by the Mobsya association and the EPFL in Spring and in Summer 2017. An R2T2 challenge brings together 16 teams (for the Mars mission, 4 teams for the Lunar mission) of children who must cooperate to remotely program Thymio robots. The Lunar mission in July was a public demonstration during the Scratch 2017 conference in Bordeaux.

David Sherman contributes open-source software development to the Aseba platform for educational robotics [0], deployed in Thymio II robots used by children as well as in the simulator used by Class'Code [0] to train teachers.

[0] Remote Rescue Thymio II https://www.thymio.org/en:thymio-r2t2
[0] http://aseba.io/
[0] https://pixees.fr/classcode-la-formation-associee-a-pixees/

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 is head of the organizing committee of the "Quantitative BioImaging" (QBI'2019) conference (Rennes, January 2019).

- Patrick Bouthemy was co-organizer of the BioImage Computing (BIC) workshop in conjunction with ICCV'2017 (Venice, Italy).

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- Charles Kervrann: senior PC (Program Committee) of "BioImage Informatics 2017" conference, member of the scientific committee of the "Imaging the Cell 2017" conference (Rennes), member of the scientific committee of RFIAP'2018 (Marne-la-Vallée), Associated Editor for the ISBI'2018 conference, member of the scientific committee of the JIONC workshop (GdR Ondes, since 2014).

- Patrick Bouthemy: Associate Editor for the ISBI'2017 conference, member of the program committee of the IPTA'2017 conference.

10.1.2.2. Reviewer

- Charles Kervrann: reviewer for ICIP'2017, ICASSP'2017, ISBI'2017, and SSVM'2017, PBIC'2017.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Charles Kervrann is Associate Editor of the IEEE Signal Processing Letters journal.

- Patrick Bouthemy is co-editor in chief of the open access journal Frontiers in ICT, specialty Computer Image Analysis.

10.1.3.2. Reviewer - Reviewing Activities

- Charles Kervrann: BMC Bioinformatics, Int. J. Computer Vision, SIAM J. on Imaging Sciences, Machine Vision and Applications.

10.1.4. Invited Talks

- Charles Kervrann: Invited talk at II SLAS "HCS – High Contents Screening" conference (Madrid, Spain), "Connecting The Dots – Intelligent Trackers" workshop (LAL-Orsay), and GdR ImaBio (with V. Briane, University of Montpellier; with E. Moebel, Inria Rennes); Invited seminars at IDIAP (Martigny, Switzerland).

- Patrick Bouthemy: Invited speaker at 5ème colloque de la Société Française des Microscopies (Bordeaux).

- Frédéric Lavancier: Invited talks at GdR ImaBio-FBI "BioImage Informatics" (Rennes).

10.1.5. Leadership within the Scientific Community

- Charles Kervrann is member of the IEEE BISP "Biomedical Image and Signal Processing" (https://signalprocessingsociety.org/get-involved/bio-imaging-and-signal-processing) committee (expert committee for ISBI, ICASSP and ICIP conferences). He is member of the executive board of the GdR MIV/ImaBio (2588 - Microscopie Fonctionnelle du Vivant) CNRS. He is member of the scientific committee of the Interdisciplinary MiFoBio School CNRS (http://gdr-miv.fr/mifobio2018/).

- Patrick Bouthemy is member of the board of AFRIF (Association Française pour la Reconnaissance et l'Interprétation des Formes).

10.1.6. Scientific Expertise

- Charles Kervrann was expert for the international project evaluation in the framework of Luxembourg NRF (National Research Fund – RESCOM program). He was expert for the national project evaluation in the framework of DIM ELICIT Institut Pasteur - Région Ile-de-France in 2017. He was member of the selection committee for a Professor position at the University of Bordeaux (Section CNU 26, Mathematics) in 2017.

- Patrick Bouthemy was member of the evaluation committee of the ANR-DGA MALIN Challenge, member of the HCERES visiting committee of the DI-ENS (Département d'Informatique - Ecole Nationale supérieure Paris) (November 2017). He is member of the Research Committee of IMT Atlantique. He was member of the committee for professor promotion at IMT Atlantique in 2017.

10.1.7. Research Administration

- Charles Kervrann is member of the executive board of the project committee of the Inria Rennes - Bretagne Atlantique centre since 2010. He is Co-head of the "BioImage Informatics" node (ANR France-BioImaging project, National Infrastructure en Biologie et Santé) since 2011.

- Patrick Bouthemy has been head of Excellence Lab (Labex) CominLabs (http://www.cominlabs.ueb.eu) since April 2014. He is deputy member of the board of directors and member of the selection and validation committee of the Images & Réseaux competitivity cluster (http://images-et-reseaux.com/). He is deputy member of the board of directors of IRT (Technological Research Institute) b<>com (https://b-com.com/). He is the Inria representative in the steering committee of the DGA-Inria collaboration.

- Frédéric Lavancier is an elected member of CNU section 26.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Charles Kervrann:

- Engineer Degree: Genomics and Informatics, 4.5 hours, Ecole Nationale Supérieure des Mines de Paris.

- Master: From Bioimage Processing to BioImage Informatics, 5 hours, coordinator of the module (30 hours), Master 2 Research IRIV, Telecom-Physique Strasbourg and University of Strasbourg.

- Master: 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, Emmanuel Moebel), 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, 3 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.

- Master: Time Series, 36 hours, Master 2 Mathematics & Engineering, option Statistics, University of Nantes.

10.2.2. Supervision

- Arnaud Poinas, inference for inhomogeneous determinantal point processes, started in September 2016, supervised by Bernard Delyon and Frédéric Lavancier.

- Vincent Briane, statistical tests for particle trajectory analysis: application to intracellular imaging, started in October 2014, supervised by Charles Kervrann and Myriam Vimond (ENSAI-CREST).

- 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.

- Emmanuel Moebel, new strategies for the nonambiguous identification and enumeration of macromolecules in cryo-electron tomograms, started in November 2015, supervised by Charles Kervrann.

- Juan Manuel Perez Rua, hierarchical motion-based video analysis with applications to video post-production, started in January 2015, supervised by Patrick Bouthemy in collaboration with Tomas Crivelli and Patrick Pérez (Technicolor).

- Ancageorgiana Caranfil, data assimilation methods for cell division mechanisms and molecule trafficking analysis, started in December 2016, supervised by Charles Kervrann and Yann Le Cunff.

- Sandeep Manandhar, optical flow methods for 3D fluorescence imaging, started in October 2016, supervised by Patrick Bouthemy and Charles Kervrann.

- Yunjiao Lu, intracellular dynamics and super-resolution imaging: analysis of bacteria wall at the molecular scale, started in October 2017, supervised by Charles Kervrann and Rut Carballido-Lopez.

- Antoine Salomon, statistical aggregation for image analysis in fluorescence microscopy and super-resolution, started in November 2017, supervised by Charles Kervrann.

- Léo Maczyta, motion saliency in video sequences, started in October 2017, supervised by Patrick Bouthemy and Olivier Lemeur.

10.2.3. Juries

Referee of PhD thesis: F. Zhou (University of Oxford, supervised by J. Rittscher) [P. Bouthemy], R. Giraud (University of Bordeaux, supervised by N. Papadakis) [P. Bouthemy], C. Jiang (University of Bourgogne, supervised by C. Demonceaux) [P. Bouthemy], A. Samacoïts (Institut Pasteur - UPMC, supervised by C. Zimmer) [C. Kervrann].

President of PhD thesis jury: F. Deslandes (INRA, supervised by B. Laroche), I. Ahmet (University of Rennes 1, supervised by T. Furon).

TAPDANCE Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events Selection

7.1.1.1. Reviewer

Both Damien Woods and Pierre-Étienne Meunier blind-reviewed papers for a number of computer science theory conferences (and do not wish to disclose further information related to blind peer review).

7.1.2. Journal

7.1.2.1. Guest Editor for Journal Special Issue

Damien Woods was guest editor (along with Yannick Rondelez, CNRS & ESPCI) of a special issue of the journal *Natural Computing* dedicated to the conference DNA22 (2016). The special issue will appear in 2018.

7.1.2.2. Reviewer - Reviewing Activities

Both Damien Woods and Pierre-Étienne Meunier reviewed papers for a variety of scientific journals (and do not wish to disclose further information related to blind peer review).

7.1.3. Invited Talks

- Woods. Centre for Research and Interdisciplinarity (CRI), Masterclass, Paris, France, 2017.
- Woods. Paris Sciences et Lettres (PSL institute), group on Origins and Conditions of Appearance of Life, Observatoire de Paris, France. 2017.
- Meunier, RustFest 2017 in Kiev, Ukraine, April 2017.

7.1.4. Contributed Talks (with no associated publication)

- Woods (speaker). FNANO 2017: 14th Annual Conference on Foundations on Nanoscience: Self-Assembled Architectures and Devices. Snowbird, UT. [Woods, Doty, Myhrvold, Hui, Zhou, Yin and Winfree. *Iterated circuit computation by DNA self-assembly in a field-programmable gate array architecture*]
- Woods. DNA23: The 23rd International Conference on DNA Computing and Molecular Programming, 2017. UT Ausin, Texas [Woods, Doty, Myhrvold, Hui, Zhou, Yin and Winfree. *Iterated circuit computation by DNA self-assembly in a field-programmable gate array architecture*]
- Meunier (speaker). DNA 23: The 23rd International Conference on DNA Computing and Molecular Programming. UT Austin Texas, USA. [Meunier, Woods. *The non-cooperative tile assembly model is not intrinsically universal or capable of bounded Turing machine simulation*]

7.1.5. Conference Programme Committees

- Woods. CiE 2017. Computability in Europe. Turku, Finland.
- Woods. DNA23: The 23rd International Conference on DNA Computing and Molecular Programming, 2017. UT Ausin, Texas
- Woods. UCNC 2017. Unconventional Computation and Natural Computation. Fayetteville, AR.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Woods taught a 1-week course on molecular computing to Masters students at ENS Lyon (with N. Schabanel, Y. Rondelez, C. Moskalenko, L. Bellon). Course title: ER02: Molecular programming: Theory & Wet Lab Nano-Scale Computation. https://www.irif.fr/~nschaban/2017-ER02/

VIRTUAL PLANTS Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Journal

8.1.1.1. Member of the Editorial Boards

- C. Godin is a member of the Editorial Board of Frontiers in Plant Sciences.
- Since February 2017, Yann Guédon is an Associate Editor of Frontiers in Plant Science, section Technical Advances in Plant Science.
- Since March 2017, Christophe Pradal is Associate Editor of BMC Plant Methods.

8.1.1.2. Reviewer - Reviewing Activities

- C. Godin has been reviewing for several journals in plant sciences and modelling: PNAS, PLoS Computational Biology, Annals of Botany, Frontiers in Plant Science.
- Y. Guédon has been reviewing for several journals: Agricultural and Forest Meteorology, Annals of Botany, Frontiers in Plant Science and Statistics and Computing.
- F. Boudon has also been reviewing for several journals: International Journal of Computer Games Technology, Computer and GRaphics, Frontiers in Plant Science, Plant Methods, PLoS One, Presence, Annals of Botany, Biology Open, Developmental Dynamics.
- O. Ali has been reviewing papers submitted in Scientific Report and Development.
- C. Pradal has been reviewing papers submitted in SoftwareX and Frontiers in Plant Science.

8.1.2. Invited Talks

- C. Godin has been invited to give a talk at the Mathematics for Developmental Biology meeting, held at the BIRS Center for Mathematics in Banff, Canada.
- C. Pradal has been invited to give talks about Multiscale Plant Hydraulics in the kickoff meeting of the ANR-DFG Project FSPM Apple, about Modularity in FSPM in the national meeting of the INRA MFPC network, and about Reproducibility of computational experiments in high-throughtput phenotyping in the GDR MADICS at Paris-Saclay.

8.1.3. Leadership within the Scientific Community

8.1.3.1. Christophe Godin:

- is member of the Board of the Functional Structural Plant Models series of conferences.
- is co-coordinator with Patrick Lemaire of the 4th Research Axis on Imaging in Biology and Modeling of the Institute for Computational Biology (IBC) of Montpellier.

8.1.3.2. Yann Guédon:

- is a member of the committee board of the CIRAD/INRA/Montpellier SupAgro AGAP research unit and the scientific leadear of the Models and Methods for Plant Phenotyping (M2P2) team.
- is member of the ERCIM working group on Computational and Methodological Statistics.

8.1.3.3. Christophe Pradal:

- is a member of the INRA expert scientific commissions (CSS Ecophysiologie, ge ´ne ´tique et biologie inte ´grative des plantes) that assesses INRA individual researcher activities.
- is a member of the HCERES expert scientific commissions that assesses national research organisations.

8.1.3.4. ChristianFournier:

- is a member of the INRA engineer evaluation commission (CEIMe ´thodes Pour la Recherche : Biologie ve ´ge ´tale / Domaine Informatique, bio-informatique, statis- tiques et calcul scientifique) that assesses INRA individual engineer activities.

8.1.4. Scientific Expertise

- C. Godin is a member of the International Scientific Advisory Committee of the new Plant Phenotyping and Imaging Research Centre (P2IRC), Saskatchewan, Canada.
- C. Godin is a member of the Review and Mentoring committee of James Lock's group in Sainsbury Lab, Cambridge, UK.

8.1.5. Research Administration

- C. Godin is a member of the project committee board at Sophia-antipolis Mediterranne ´e Reacher Center.
- C. Godin is 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 (IBC) in Montpellier.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master : C. Godin, Computer & Discrete Geometry & Graphics, 9h, (M1), université de Montpellier, Fr

Master : C. Godin, Introduction to Plant Modeling, 25h, (M2), université de Montpellier, Fr

Master : C. Godin, Mathematical Modelling of Phyllotaxis, 4h, (M2), université de Montpellier, Fr

Master : Y. Guédon , Stochastic processes, 16h, (M2) université de Montpellier, Fr

Master : F. Boudon, Computer Graphics, 18h, (M2) université de Montpellier, Fr

Master : C. Pradal, Curves & Surfaces, 4.5h, (M2) université de Montpellier, Fr

Master : P. Fernique, Stochastic processes, 16h, (M2) université de Montpellier, Fr

Doctorat : C. Godin, Animal & Vegetal Morphogenesis, 35h, ENS Paris, Fr

Doctorat : C. Godin, Modelling Plant Development, 6h, E ´cole de Physique des Houches, Fr

8.2.2. Supervision

PhD in progress : Anne Schneider, *"Modeling branching in Roses"*, Angers University, Jessica Bertheloo, C. Godin, F. Boudon.

PhD in progress : Hadrien Oliveri, *"Mechanical modeling of organ growth"*, Montpellier University, C. Godin, J traas and O. Ali.

PhD in progress : Jean-Louis Dinh, *"Coupling flux and growth models in plant development"*, Nottingham University, C. Hodgman, C. Godin.

PhD in progress : Jean-Philippe Bernard, *"Meshless methods for organ development"*, Montpellier University, C. Godin, B. Gilles.

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, Yann Guédon.

8.2.3. Juries

C. Godin was president of the CR-concours at Inria for the Sophia-Antipolis Me ´diterrane ´e center.

C. Godin was president of a Professor concours at ENS de Lyon.

C. Godin was the President of the Jury of Elise Laruelle's defence (AgroParitech).

8.3. Popularization

- C. Godin gave an invited 2 hours seminar to 4 classes of high-school students for the Math week (March) at the Lyce ´e International de Valbonne, France.
- C. Godin gave a couple of 2h classes at Lyce ´e Pompidou (Montpellier).
- C. Godin participated to the writing of a collective book reviewing the recent discoveries in Biology and dedicated to a wide audience including politicians and medias.
- O. Ali is a member of the Sam & You newsletter (the newsletter of the SAM Inria research center) writing committee.
- H. Oliveri took part in the Class'Code Initiative, a Mooc produced by Inria and OpenClassRoom provinding supports and guidelines for people wanting to teach computer science to young childrens.

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 6th international workshop on the Mathematical Foundations of Computational Anatomy (MFCA) in Quebec City on September 14.

10.1.1.2. Member of the Organizing Committees

Fabrizio De Vico Fallani is member of the scientific board for the ICM conferences

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

O. Colliot was a member of the program committee of the Workshop on Patch-based Techniques in Medical Imaging (Patch-MI) held in conjunction with the MICCAI conference.

O. Colliot was a member of the program committee of SPIE Medical Imaging conference.

F. De Vico Fallani was member of the program committee of the Satellite on Brain networks, International Conference on Network Science (NetSci), Indianapolis, US, 2017

F. De Vico Fallani was member of the program committee of 5th International Workshop on Complex Networks and their Applications, Lyon, France, 2017

S. Epelbaum was a member of the French medical board on the management of Early phase Alzheimer's Disease, Issy les moulineaux, France, 2017

10.1.2.2. Reviewer

O. Colliot acted as a reviewer for the annual meeting of the Organization for Human Brain Mapping (OHBM).

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).

S. Durrleman is associate editor of IEEE Transactions on Medical Imaging (TMI)

10.1.3.2. Reviewer - Reviewing Activities

O. Colliot acted as a reviewer for NeuroImage, NeuroImage: Clinical, IEEE Trans Medical Imaging, Medical Image Analysis and Neurobiology of Aging.

S. Epelbaum acted as a reviewer for Alzheimer's & Dementia and the Journal of Alzheimer's disease.

A. Bertrand acted as a reviewer for European Radiology, Journal of Magnetic Resonance Imaging, Journal of Neuroradiology.

F. De Vico Fallani acted as a reviewer for Cerebral Cortex, Brain Topography, IEEE TBME/TNRSE, Neuroimage, Sci Rep, Brain Connectivity, PLOS ONE

10.1.4. Invited Talks

A. Bertrand gave an invited lecture at the French-Quebecois Colloquium of the National Academy of Medicine "Towards news preventive and therapeutic strategies for neurodegenerative diseases: the role of imaging" in Québec City, Québec, september 2017.

F. De Vico Fallani gave an invited lecture at the international workshop on complex networks in Lipari, Italy, september 2017.

F. De Vico Fallani gave an invited lecture at the Neuroscience School of Advanced Studies in Siena, Italy, April 2017.

O. Colliot gave an invited lecture at the ICM/Supelec Workshop 2017.

S. Durrleman gave an invited lecture at the BIOVISION congress in Lyon.

S. Durrleman gave an invited lecture at the conference “Topological and Geometrical Science of Information” at Centre International de Rencontre Mathématiques, Luminy

S. Durrleman gave an invited lecture for the “diplôme inter-universitaire: diagnostic et prise en charge de la Maladie d’Alzheimer et apparentée”, Lille

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 (module Reseaux complexes), 4.5 hours (eqTD), Université Pierre et Marie Curie

Master: Olivier Colliot, Master in Computer Science, 4.5 hours (eqTD), Université Pierre et Marie Curie

Master: Stéphane Epelbaum, Master in Neuroscience, 4 hours (eqTD), Université Pierre et Marie Curie

Master: S. Durrleman, Master 2 “Mathematics, Vision and Learning”, 31,5 jours (eqTD), ENS Paris-Saclay

Engineering school: Olivier Colliot, 3 hours (eqTD), Mines ParisTech

Medical school: Didier Dormont is the Director of the University Diploma (DIU) “Diagnostic and Therapeutic Neuroradiology", Université Pierre et Marie Curie

Medical school: Didier Dormont, 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: Anne Bertrand gives lectures in Neuroimaging of degenerative diseases and normal aging for residents in Radiology and Neurology, for Radiology technicians, for License students in Orthophony, and in various "University Diploma" medical programs (Neurogeriatrics, Neuroradiology, Alzheimer’s Disease and related disorders, Neurovascular Imaging, Emergency-Stroke, Neuroresuscitation), for a total of 50 hours a year.

Medical school: Stéphane Epelbaum gives lectures in Neurology on the topic of degenerative diseases for medical students of the UPMC (10 hours/year) and is regional supervisor of the national Inter University Diploma on Alzheimer’s disease and Related disorders for Paris since 2015.

10.2.2. Supervision

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

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

PhD in progress : 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”, Université Pierre et Marie Curie, started in 2015, advisors: Fabrizio De Vico Fallani and Mario Chavez

PhD Cifre in progress : Fanny Grosselin, “Fouille des données EEG et suivi longitudinal grande échelle pour le diagnostic et la prédiction du niveau de stress chez l’homme”, EDITE Université Pierre et Marie Curie, started in 2016, advisors: Fabrizio De Vico Fallani and Mario Chavez,

PhD in progress : Junhao Wen, “Cortical morphometry for discovering new biomarkers of neurodegenerative diseases”, Université Pierre et Marie Curie, Started in 2015, advisors: Olivier Colliot, Anne Bertrand 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 aphasias”, Université Pierre et Marie Curie, Started in 2015, advisors: Marc Teichmann, Olivier Colliot and Marie-Odile Habert

PhD in progress: Pascal Lu, “Machine learning from multimodal genetic and neuroimaging data for personalized medicine”, Université Pierre et Marie Curie, Started 2016, advisor: O. Colliot

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

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

PhD in progress: Manon Ansart, “Automatic recommendation systems built on the statistical exploitation of longitudinal medical data sets”, started 2016, advisors: D. Dormont and S. Durrleman

PhD in progress: Maxime Louis, “Learning spatiotemporal trajectories of iconic-geometric data sets”, started 2016, advisors: S. Durrleman

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

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

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

10.2.3. Juries

Olivier Colliot participated, as referee, to the PhD committee of Elaheh Moradi (TU Finland) (supervisor: J. Tohka).

Olivier Colliot participated, as examiner, to the HdR committee of Roberto Toro (Institut Pasteur).

Anne Bertrand participated, as examiner, to the PhD committee of Clémence Dudeffant (Université Paris Sud), 2017 (supervisor: Marc Dhenain).

S. Durrleman participated, as examiner, to the PhD committees of Jean Dumoncel (Université Paul Sabatier, Toulouse) and Pierre Roussillon (Université Paris Descartes).

10.3. Popularization

With the precious help of the communication department of the ICM, ARAMIS prepared and presented games on brain data analysis at the "Fête de la Science" 2017.

Fabrizio De Vico Fallani was invited speaker at the Neuroplanete conference held in Nice 2017. In that occasion, a live BCI experiment has been presented to the public. This event has been reported by France 3.

Fabrizio De Vico Fallani was invited speaker at the Palais Decouverte in Paris for the theme "Vers le meilleur des mondes" 2017.

Olivier Colliot was invited speaker at the Palais Decouverte in Paris for the theme "Vers le meilleur des mondes" 2017.

Stanley Durrleman and Stéphane Epelbaum were invited speakers at the "Open Brain Bar: Artificial intelligence and Alzheimer's disease" event orginized by the ICM in Paris 2017.

Olivier Colliot was invited speaker for the "Olympiades académiques de mathématiques", Paris, 2017.

S. Durrleman gave a presentation for the 50th anniversary of Inria featuring 50 ERC laureates

S. Durrleman gave two interviews for the magazine Sciences et Avenir (1 video interview, one article)

S. Durrleman and S. Epelbaum took part in the program "Priorité Santé" of the radio Radio France International

S. Durrleman gave a video interview for FrenchWeb.fr

S. Durrleman gave an talk at the event S3 Odéon (www.s3odeon.fr)

ARAMIS was featured in a video of the Agence France Presse (AFP)

ASCLEPIOS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

- X. Pennec was co-chair of the MICCAI 2017 workshop on Mathematical Foundations of Computational Anatomy MFCA 2017 which was held in Quebec, Canada on September 14, 2017 and co-organiser of the Conference on Topological and Geometrical Structure of Information, held at CIRM Luminy (FR) on Aug.28 - Sept. 1 2017.
- M. Sermesant was a co-chair of the MICCAI 2017 Workshop Statistical Atlases and Computational Models of the Heart (STACOM 2017), which was held in Quebec City, Octobre 10, 2017.
- H. Delingette was a member of the organizing committee of the two scientific days at Inria Sophia Antipolis (July 6th and Dec 4th) presenting the activities of the UCA academy on "Networks, Information and Digital Society".

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- X. Pennec was a member of the paper selection committe of the Conference Information processing in Medical Images (IPMI 2017) held at Boone, NC, USA, June 25-30 2017; area chair of the International Symposium on Biomedical Imaging ISBI 2017; member of the scientific committee of the 3rd conference on Geometric Science of Information GSI2017, Novembre 7-9 2017, Paris (France).
- H. Delingette was program committee member of the conference on the MICCAI 2017 workshop on Simulation and Synthesis of Medical Imaging (SASHIMI'17).

9.1.2.2. Reviewer

- M. Lorenzi was a reviewer for the conferences Neural Information Processing Systems (NIPS 2017), Medical Image Computing and Computer Aided Intervention (MICCAI 2017), International Conference on Learning Representations (ICLR 2018), IEEE International Symposium of Biomedical Imaging (ISBI 2017-18), Information Processing in Medical Imaging (IPMI 2017).
- X. Pennec was a reviewer for the ICCV International Workshop on Manifold Learning: from Euclid to Riemann (MANIFLEARN2017) and the 3rd CVPR International Workshop on DIFFerential Geometry in Computer Vision and Machine Learning (DIFF-CVML 2017).
- H. Delingette was a reviewer for the International Symposium on Biomedical Imaging (ISBI'17), the international conference Functional Imaging and Modeling of the Heart (FIMH 2017),the international conference on computer-aided interventions (IPCAI'17), the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2017), the International Conference on Computer Vision and Pattern Recognition (CVPR 2017).
- M. Sermesant was a reviewer for the MICCAI 2017 and FIMH 2017 conferences.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- N. Ayache is the co-founder and the Co-Editor in Chief with J. Duncan (Professor at Yale) of Medical Image Analysis journal. This scientific journal was created in 1996 and is published by Elsevier.

- N. Ayache is 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).
- 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).
- M. Lorenzi is a member of the editorial board of the journal Scientific Reports (Nature Publishing Group); he is also member of the Board of Statisticians of the Journal of Alzheimer's Disease (IOS Press).

9.1.3.2. Reviewer - Reviewing Activities

- M. Lorenzi was a reviewer for the following journals: Neurobiology of Aging, Alzheimer's and Dementia, Journal of Alzheimer's Disease, Medical Image Analysis, IEEE Transactions on Medical Imaging, NeuroImage, International Journal of Computer Vision, Journal of Mathematical Image and Vision, IEEE Transactions on Biomedical Engineering, Human Brain Mapping, Scientific Reports, Neural Computation.
- X. Pennec was a reviewer for the following journals: Proceedings on the London Mathematical Society (PLMS), Journal of mathematical imaging and vision (JMIV), Journal of Machine Learning Research (JMLR), NeuroImage (NIMG), Foundations of Computational Mathematics (FoCM), International Journal of Computer Vision (IJCV), SIAM journal on Imaging Sciences (SIIMS), Medical Image Analysis (MedIA).
- H. Delingette was a reviewer for the following journals: Medical Image Analysis (Elsevier), IEEE Transactions in Medical Imaging, IEEE Transactions in Biomedical Engineering, Biomedical Engineering, Computers in Biology and Medicine.
- 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

- **M. Lorenzi** was invited as lecturer at the Mathematical Models In Biomedical Imaging Summer School, organized by the University of Granada, Spain, on July 2017.
- **X. Pennec** was a keynote speaker of the 3rd Int. W on Differential geometry in Comp. Vis. and Machine Learning (DIFF-CVML), Hawaii, USA, 21 July 2017 and at the Computational Brain Connectivity Mapping Winter School Workshop CoBCoM, November 20-24 2017, Juan-les-Pins, France. He was also invited to the MIT CSAIL Seminar series, Cambridge, MA, September 8 2017 and an Imaging Genetics Center Seminar at USC, Marina del Rey, Los Angeles, CA, USA, 19 July 2017.
- **H. Delingette** was a keynote speaker at the Euromech conference in Lille, an invited speaker at the GDR Mamovi in Lyon, at the Computer Vision Seminar at UPF in Barcelona.
- **M. Sermesant** was a keynote speaker at the FIMH conference in Toronto, and an invited speaker at the VT/VF Symposium in Berlin, and the TRM Forum in Lugano.
- **N. Ayache** gave the following plenary invited talks in 2017:
  - From Cardiac Images to Digital Hearts ; Inria 50th anniversary, Paris
  - From Medical Images to Digital Patients, Inria 50th anniversary, Sophia,
  - Important MICCAI contributions of the past 20 years, MICCAI, Québec,
  - Le patient numérique, Académie Nationale de Chirurgie, Paris,
  - Images, informatique et médecine : Institut Mondor de recherche biomédicale, Créteil.

9.1.5. Leadership within the Scientific Community

- **H. Delingette** is a member of the MICCAI Society Board of Directors.
- **Nicholas Ayache** is a member of the French Academy of Sciences in the section of Mechanics and Informatics. He was elected a free member of the French Academy of Surgery on 6 Dec. 2017. He became an officer of the order of the "Palmes Académiques" on 14 Jul. 2017.

9.1.6. Scientific Expertise

- **Xavier Pennec** was an evaluator for the European Research Concil (ERC) and the French Agence Nationale pour la Recherche (ANR).
- **M. Lorenzi** was reviewer of the granting agencies ANR (Agence Nationale de la Recherche, France) and EPSRC (Engineering and Physical Sciences Research Council, UK).
- **H. Delingette** was an evaluator for the European Research Concil, for the Research Council of KU Leuven.
- M. Sermesant was an evaluator for the Aquitaine region, the Dutch adn the Swiss research councils.
- **Nicholas Ayache** is a member of the scientific council of the Ile de France region since 2016.

9.1.7. Research Administration

- **Xavier Pennec** is co-director and at the board of the Ecole doctorale STIC of Université Côte d'Azur. He is a member of the Doctoral follow-up Committee (CSD) at Inria Sophia Antipolis, of the the "Comité de la Recherche Biomédicale en Santé Publique (CRBSP)" of the Nice hospitals and in charge of the relationships of Inria-Sophia with the Nice University Hospital (CHU).
- **Marco Lorenzi** is is a member of the local steering committee of the technological platforms (Comités Scientifiques de Pilotage des Plateformes) in charge of Cluster, Grid, Cloud, and HPC technologies.
- **Hervé 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. He is the coordinator of the Academy of excellence on "Networks, Information and Digital Society" at the Université Côte d'Azur.

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: X. Pennec and H. Delingette, Advanced Medical Imaging, 21h course (28.5 ETD), Master 2 MVA and École Centrale de Paris, France.

Master: X. Pennec and H. Delingette, 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.

Master: X. Pennec is co-responsible of the Master CBB - Computational Biology and Biomedicine, Univ. Nice-Sophia Antipolis.

9.2.2. Theses Defended

- 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. Defended on July 3rd, 2017

- 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. Defended on 11th December 2017
- 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. Defended on December 19th, 2017
- 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. Defended on July the 4th, 2017
- 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. Allassonière. Defended on November 20th, 2017

9.2.3. PhD in progress

- 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 and co-supervised by M. Lorenzi and X. Pennec.
- Pawel Mlynarski, Tumor segmentation based on Random Forests and Convolutional Neural Networks trained on partially annotaded data, Nice Sophia Antipolis University. Started in December 2015. Co-directed by N. Ayache and H. Delingette.
- Qiao Zheng, Deep learning for cardiac image analysis, Nice Sophia Antipolis University. Started in January 2016. Co-directed by N. Ayache and H. Delingette.
- Shuman Jia, Population-based Model of Atrial Fibrillation: from Shape Statistics to Group-wise Physiology, Nice Sophia Antipolis University. Started in 2016. Co-directed by M. Sermesant and X. Pennec.
- Wen Wei, Learning Brain Alterations in Multiple Sclerosis from Multimodal Neuroimaging Data, Nice Sophia Antipolis University. Started in 2016. Co-directed by N.Ayache and O.Colliot.
- Julian Krebs, Robust image registration based on machine learning, Nice Sophia Antipolis University. Started in 2016. Co-directed by H. Delingette and N. Ayache.
- Luigi Antelmi, Statistical learning on large databases of heterogeneous imaging, cognitive and behavioural data, Nice Sophia Antipolis University. Started in 2017. Co-directed by P. Robert and N. Ayache and supervised by M. Lorenzi.
- Clément Abi-Nader, Statistical Learning of Heterogeneous Data in Large-Scale Clinical Databases, Nice Sophia Antipolis University. Started in 2017. Co-directed by P. Robert and N. Ayache and supervised by M. Lorenzi.
- Jaume Banús Cobo, Heart & Brain: discovering the link between cardiovascular pathologies and neurodegeneration through biophysical and statistical models of cardiac and brain images., Nice Sophia Antipolis University. Started in 2017. Directed by M. Sermesant and co-supervised by Marco Lorenzi.
- Tania-Marina Bacoyannis, Cardiac Imaging and Machine Learning for Electrostructural Tomography, Nice Sophia Antipolis University. Started in 2017. Co-directed by M. Sermesant and H. Cochet.
- Pamela Moceri, From normal right ventricle to pathology: shape and function analysis with different loading conditions using imaging and modelling. Started in 2015. Directed by M. Sermesant.

9.2.4. Juries

- Xavier Pennec was supervisor or co-supervisor of the PhD theses of Loïc Devilliers (Univ. of Nice Sophia Antipolis), Marc-Michel Rohé (Univ. of Nice Sophia Antipolis) and Roch Molléro (Univ. of Nice Sophia Antipolis). He was also reviewer and member of the jury of the HDR of Joan Alexis Glaunes (Université Paris Descartes), reviewer and member of the jury of the PhDs of Remi Agier (INSA Lyon) and Alice Le Bruiguant (Univ. Bordeaux) and member of the PhD jury of Jean-Baptiste Schiratti (Ecole Polytechnique).
- Marco Lorenzi was jury member for the PhD probation exam (in April 2017) of Kurt Kutajar and Remi Domingues, students of the EURECOM research institute, France.
- Hervé Delingette was co-supervisor of the PhD thesis of T. Demarcy (Univ. of Nice Sophia Antipolis). He was a reviewer in the PhD thesis committee of C. Paulus (Univ. of Strasbourg), of Mikael Agn (Danish Technical University, Lingby, Danemark), of N. Mangado (Univ. Pompeu Fabra, Barcelone), of M. Hafri (Univ. Orléans). He was a member of the PhD thesis committee of Sophie Giffard-Roisin (Univ. of Nice Sophia Antipolis), and Roch Philippe Mollero (Univ. of Nice Sophia Antipolis).
- Maxime Sermesant was a reviewer and a member of the PhD jury of Corentin Dallet, Bordeaux University (Nov 23) and of the HDR jury of Ed Vigmond, Bordeaux University (Jan 13).

9.3. Popularization

M. Lorenzi gave a general audience lecture during the “Semaine du Cerveau” at the CHU of Nice (March 2017).

Nina Miolane participated to the following popularization events:

- Speaker at Unesco France’s Ceremony for 70th Anniversary.
- Speaker at the Women Forum Global Meeting 2016. How to bring more women in the sci-tech workforce?
- Speaker at the L’Oreal-Unesco Prizes Ceremony 2016.
- Journal regional de France 3 Azur (Oct. 31 2016)
- Invited on "Le Club de la Tete au Carre". France Inter (National Radio), Oct. 14 2016.

ATHENA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

R. Deriche and S. Deslauriers-Gauthier organized the CoBCoM Winter School Workshop in Juan Les Pins from November 20 to 24, 2017. Organized within the framework of the ERC CoBCoM and targeted at graduate students, early career and senior researchers interested in structural and functional brain connectivities via multi imaging modalities including diffusion MRI, functional MRI, MEG, and EEG, this Winter School Workshop offered several tutorials and advanced lectures from more than 20 leading researchers and experts on Computational Brain Connectivity Mapping. In addition, it included 3 sessions dedicated to 27 posters presentations from participants.

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- T. Papadopoulo is member of the Program Commitee of GRETSI 2017.
- D. Wassermann serves as part of the Conference Program of MICCAI 2017; IPMI 2017; and ISMRM 2017.

10.1.2.2. Reviewer

- M. Clerc serves several international institutions in reviewing applications : ERC, FET-Open, ANR-NSF.
- M. Clerc serves several international conferences (Graz International BCI Conference, BaCI, IEEE EMBC Neural Eneering).
- R. Deriche serves several international institutions in reviewing applications : ERC Grants, Swiss National Science Foundation, the Netherlands Organisation for Scientific Research (NWO)...
- R. Deriche serves several international conferences (ISBI, MICCAI, ISMRM, ...) and international workshops (CD-MRI Miccai, MFCA Miccai...).
- T. Papadopoulo serves several international conferences as a reviewer (GRETSI, ICIP, ISBI).
- D. Wassermann serves several international conferences as a reviewer (MICCAI, ISMRM, HBM, CDMRI, etc)
- D. Wassermann serves several international institutions in reviewing applications: ANR, the Netherlands Organisation for Scientific Research (NWO), ERC FET program, Argentina MINCyT.

10.1.3. Journal

10.1.3.1. Member of 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 the Journal of Neural Engineering, and of the ISTE-Wiley book series.

10.1.3.2. Reviewer - Reviewing Activities

- M. Clerc serves several international journals (Brain Topography, Trends in Biotechnology, Journal of Neural Engineering, Biomedical Engineering OnLine).
- 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, ...).
- T. Papadopoulo serves several international journals (NeuroImage, Frontiers Neuroscience, IEEE PAMI, Pattern Recognition, ...).
- D. Wassermann serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Human Brain Mapping, Medical Image Analysis Journal, ...).

10.1.4. Invited Talks

- M. Clerc gave several invited talks: MiniCours axe MTC-NSC in Sophia Antipolis, Journées des Jeunes Chercheurs en Interfaces Cerveau Ordinateurs in Bordeaux, CoBCoM in Antibes.
- R. Deriche gave an invited talk at Huawei Vision Forum, Le Phébus.
- T. Papadopoulo gave an invited talk at CoBCoM in Antibes.
- D. Wassermann gave several invited talks at international institutions including Stanford Medical School, USA; National University of the South, Argentina; Brain and Spine Institute, and NeuroSpin, France

10.1.5. Leadership within the Scientific Community

- M. Clerc is in charge of the BCI-LIFT Inria Project Lab. She is also a founding member and vice-president of the CORTICO association (Collectif pour la Recherche Transdisciplinaire sur les Interfaces Cerveau Ordinateur), the French association for BCI.
- R. Deriche is the P.I. of the ERC AdG CoBCoM.
- D. Wassermann is the P.I. of the ERC StG NeuroLang, ANR-NSF NeuroRef, and the Associated Team LargeBrainNets

10.1.6. Scientific Expertise

- M. Clerc is a member of the Inria Evaluation Committee since 2015.
- M. Clerc is a member of the Scientific Committee of Académie 4 of Université Côte d'Azur.
- M. Clerc is a member of the Steering Committee of the Magneto-Encephalography Platform of La Timone, Marseille.
- R. Deriche is a member of the Scientific Committee of Académie 2 of Université Côte d'Azur.
- R. Deriche serves several international institutions in reviewing applications : ERC Grants, Swiss National Science Foundation, the Netherlands Organisation for Scientific Research (NWO).
- D. Wassermann serves several international institutions in reviewing applications: ANR, the Netherlands Organisation for Scientific Research (NWO), ERC FET, Argentine MINCyT

10.1.7. Research Administration

- M. Clerc is Déléguée Scientifique Adjointe (vice-head of Science) of the Sophia Antipolis Inria Research Center since 2014.
- M. Clerc is member of the Commission Scientifique Interne (CoSI) of Inria since 2014.
- M. Clerc was vice-president of the hiring committee for CR2 at Inria Sophia Antipolis in 2017.
- M. Clerc was a member of the CR1 hiring committee at Inria in 2017.
- R. Deriche is member of the Academic Council of UCA (Université Côte d'Azur)
- R. Deriche is member of the Scientific Council of Académy 2 *Complex Systems*, Université Côte d'Azur and member of the Scientific Council of Olea Medical Company (http://www.olea-medical.com/

- T. Papadopoulo represents Inria at the Administration Council of the CIU Santé.
- T. Papadopoulo is member of the Software Development Committee at Inria.
- T. Papadopoulo is the head of the DTK platform committee of the Sophia Antipolis Inria Research Center since 2016.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

BS : M. Clerc made a presentation to medical school students enrolled in “Ecole de l’Inserm”, in Sèvres.

Master: M. Clerc taught a course on “Brain Machine Interfaces” at Sciences Po, Paris, in a Master program on “Disruptive Technologies and Public Policies”.

Master: R. Deriche, Variational approaches and Geometrical Flows for Computational Brain Imaging, 36 ETD, M2 "Computational Biology and Biomedicine", Université Côte d’Azur. France.

Master: R. Deriche, Advanced Image Processing Techniques, 12 ETD, M1 International CBB & Ubinet, Université Côte d’Azur, France.

Master: T. Papadopoulo, *3D Computer Vision*, 12 ETD, M1 International Ubinet, Université Côte d’Azur. France.

Master: T. Papadopoulo, *Inverse Problems in Brain Functional Imaging*, 36 ETD, M2 "Computational Biology and Biomedicine", Université Côte d’Azur. France.

Master: T. Papadopoulo, *Inverse problems for brain functional imaging*, 24 ETD, M2, Mathématiques, Vision et Apprentissage, ENS Cachan, France.

Master: D. Wassermann, *Fundamentals of Computer Science*, 36 ETD, M2 "Computational Biology and Biomedicine", Université Côte d’Azur. France.

Master: D. Wassermann, *Machine Learning in Neuroimaging*, 36 ETD, National University of the South, Argentina.

10.2.2. Supervision

PhD defended [13]: Rutger Fick, “Microstructure Recovery via dMRI”, Université Côte d’Azur. Supervisor: Rachid Deriche.

PhD defended [12]: Kai Dang, “Modeling and characterizing electrical conductivity for cochlear implantation”, started Dec. 2013, Université Université Côte d’Azur. Supervisor: Maureen Clerc.

PhD defended [15]: Marco Pizzolato, “Diffusion & Perfusion MRI: From bench to bedside” started Dec. 2013, Université Côte d’Azur. Supervisor: Rachid Deriche.

PhD defended [11]: Brahim Belaoucha, “Using diffusion MR information to reconstruct networks of brain activations from MEG and EEG measurements”, Université Côte d’Azur, started Oct. 2013. Supervisor: Théodore Papadopoulo.

PhD defended [14]: Christos Papageorgakis, “Patient-specific conductivity models: characterization of the skull bones”, Université Côte d’Azur. Supervisor: Juliette Leblond, Co-supervisor: Maureen Clerc

PhD defended: Lorraine Perronnet, “Combining EEG and FMRI for Neurofeedback”, Université Rennes 1. Supervisors: Christian Barillot and Anatole Lécuyer, Co-supervisor: Maureen Clerc.

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: Abib Alimi, “Diffusion & PLI” started Nov, 1st, 2016, Université Côte d’Azur. Supervisor: Rachid Deriche.

PhD in progress: Isa Costantini, “Brain Connectomics” started Oct. 1st, 2016, Université Côte d’Azur.. Supervisor: Rachid Deriche.

PhD in progress: Kostiantyn Maksymenko, “Inverse problem in EEG/MEG/SSEG: towards a better consideration of anatomo-functional constraints”, Université Côte d’Azur,, started Oct. 2016. Supervisors: Théodore Papadopoulo and Maureen Clerc.

PhD in progress: Guillermo Gallardo Diez, “Connectivity-Based Brain Parcellation”, started Nov. 2015, Université Côte d’Azur. Supervisors: D. Wassermann and R. Deriche

PhD in progress: Antonia Machlouzarides-Shalit, “Semantic Representations of Brain Anatomy”, started Jun. 2017, Université Paris Sud. Supervisor: D. Wassermann

PhD in progress: Nathalie Gayraud, “Structured Dictionary Learning”, Université Côte d’Azur, started November 2015. Supervisor: Maureen Clerc.

PhD in progress: Federica Turi, “User-adapted Brain Computer Interaction”, Université Côte d’Azur, started October 2016. Supervisor: Maureen Clerc.

Master: Paul Görlach, “Rotational Invariants of Ternary Quartics”, Supervised by E. Hubert and T. Papadopoulo.

Master: Gaston Zanitti, “An ADMM Algorithm for Regularised Random Effect Representations of Anatomo-Functional Connectivity", Supervised by D. Wassermann.

10.2.3. Juries

- R. Deriche chaired the HDR jury of P. Montesinos at LIRMM, UMR 5506 CNRS - Université Montpellier, June 9, 2017.
- R. Deriche chaired the PhD jury of B. Belaoucha at Université Côte d’Azur, May 29, 2017.
- R. Deriche participated as a reviewer in the PhD jury of T.C.J. Dela Haije at TU/e Eindhoven University of Technology, May 16, 2017.
- R. Deriche participated as a reviewer in the PhD Jury of R. Hedouin at Université de Rennes 1, June 12, 2017.
- R. Deriche participated in the PhD jury of C. Lian at Université de Technologie de Compiègne., Jan. 27, 2017.
- R. Deriche participated in the PhD jury of R. Fick at Université Côte d’Azur, March 10, 2017.
- R. Deriche participated in the PhD jury of M. Pizzolato at Université Côte d’Azur, Mars 31, 2017.
- M. Clerc chaired the PhD jury of Thomas Demarcy at Université Côte d’Azur in June 2017.
- M. Clerc participated as a reviewer in the PhD jury of Sara Sommariva at University of Genova, Italy, in February 2017.
- M. Clerc participated as a reviewer in the PhD jury of Emmanuelle Kristensen at Université Grenoble Alpes, in June 2017.
- M. Clerc participated as a reviewer in the PhD jury of Etienne Combrisson at Université de Lyon, in December 2017.
- M. Clerc participated in the PhD jury of Sara Rebagliati at University of Genova, Italy, in February 2017.
- M. Clerc participated in the PhD jury of L. Perronnet, at Rennes 1 University in September 2017.
- M. Clerc participated in the PhD jury of K. Dang, at Université Côte d’Azur in June 2017.
- M. Clerc participated in the PhD jury of C. Papageorgakis at Université Côte d’Azur in December 2017.
- M. Clerc participated in a BIM Masters 1 jury at Université Côte d’Azur.

- T. Papadopoulo participated in the PhD jury of B. Belaoucha at Université Côte d'Azur, May 29, 2017.
- T. Papadopoulo participated in a BIM Masters 1 jury at Université Côte d'Azur.
- D. Wassermann participated in the PhD jury of V. D. Nguyen, Paris Sud University, February 24, 2017

10.3. Popularization

- The P300 speller enjoyed a large publicity: on French TV *Le Magazine de la Santé* of France 5 in January 2017. It was featured in a newspaper article in La dépêche du midi in February 2017.
- M. Clerc gave interviews for Le Temps (Switzerland), Science et Vie Magazine on the topic of Brain-Computer Interfaces.

BIOVISION Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

Workshop UCAGATE: Pour une Plateforme d'Intelligence Territoriale de la Recherche @UCA, organized by Pierre Kornprobst and Mylène Leitzelman (Mnemotix), on May 16 at Inria Sophia Antipolis - Méditerranée (Amphi Kahn).

10.1.1.2. Member of the Conference Program Committees

- Le MOnde des Mathématiques Industrielles (MOMI 2017). Dora Karvouniari, Biovision participated to the organizing committee. This is a two-day workshop on applied and industrial mathematics that took place on the 27th and 28th of February, 2017. It was supported by Inria and financed by the Société des Mathématiques Appliquées (SMAI), the Agence pour les Mathématiques en Interaction avec l'Entreprise et la Société (AMIES), and by the Maison de la Modélisation, de la Simulation et des Interactions of Université Côte d'Azur (MSI – UCA). In total, 13 invited speakers and 62 participants (researchers, PhDs, and engineers) attended MOMI 2017.
- Pierre Kornprobst was a Technical Program Committee (TPC) member for the 25th European Signal Processing Conference (EUSIPCO 2017).

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

Pierre Kornprobst is associate editor for the Computer Vision and Image Understanding Journal (CVIU).

10.1.3. Invited Talks

- Bruno Cessac, "Handling spatio-temporal correlations in neuronal systems", in: LACONEU 2017 - Computational Neuroscience Summer School, Valparaiso, Chile, January 2017
- Bruno Cessac, Multi scale dynamics in retinal waves, in: Brain Dynamics on Multiple Scales - Paradigms, their Relations, and Integrated Approaches, Dresde, Germany, June 2017.
- Bruno Cessac, "Gibbs distribution: from neural network dynamics to spike train statistics estimation", in: Advanced theoretical approaches to collective network phenomena: Bernstein Conference Satellite Workshop, Goettingen, Germany, September 2017.
- Bruno Cessac, "Statistical analysis of retinal responses", in: Random Structures on the Brain, Leiden, Netherlands, December 2017.
- Bruno Cessac, "Multi scale dynamics in retinal waves", in: Winter School on Deterministic and Stochastic Models in Neuroscience, Toulouse, France, December 2017.
- Bruno Cessac, "Multi scale dynamics in retinal waves", in: 2nd Systems Biology meeting at Sorbonne University, Paris, France, December 2017.
- Josselin Gautier, "Mesure de la vision et application au diagnostique et dispositifs de Réalité Mixte pour les malvoyants", école Centrale Supélec de Rennes, November 2017.
- Dora Karvouniari, "Dynamics in retinal waves", Institut de la Vision (Paris, France), February 2017.
- Dora Karvouniari, "Dynamics in retinal waves", Institute of Neuroscience (ION, Newcastle, UK), July 2017.

10.1.4. Research Administration

- The PhD Seminars of Inria Sophia Antipolis - Méditerranée are organized and held by PhD candidates every two weeks and aim to share knowledge, and to promote collaborations, all in a friendly and interactive way. Dora Karvouniari, Selma Souihel and Evgenia Kartsaki as past and current members of the organizing committee have been involved in the scheduling, communication and diffusion. These tasks include calls for presentations, calendar planning and promotion of each seminar. Finally, they are also involved in the organization of the MOMI 2017 conference.
- Pierre Kornprobst is an elected member of the Academic Board of UCA (since Nov. 2015). The role of this council is to proceed with the appointment of selection committees and the recruitment of public servants. Also, it validates the global training offer of Nice area, is involved in the global policy of doctoral training, and awards research funding. The council meets one a month and each member also participate to the evaluation of research proposals submitted to UCA ^{JEDI} calls.
- Pierre Kornprobst leads the working group UCA ^{GATE} (since May 2016). UCA commissioned an internal task force called UCA ^{GATE} to set-up an innovative tool that will extract and exploit the richness of skills present in UCA. This tool should (i) foster the emergence of new synergies inside UCA, (ii) enable external visitors and industrial partners to find in UCA expertise they need, (iii) provide analytics to UCA to be used in reporting periods. His role is to animate this working group and guide the development of the software done by the company Mnemotix according to users needs (first prototype in January 2017).
- Pierre Kornprobst is a member of the Comité de Suivi Doctoral (since March 2017).
- Pierre Kornprobst has been appointed by Inria Direction representative of the administration in the advisory committee of Inria contractual doctoral candidates[0] (on July 2016, for two years).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence :

- Dora Karvouniari, "Transmissions numériques", 1ere année de l'IUT, Département Réseaux et Télécommunications, 64h/year, 50 students.
- Selma Souihel "Advanced network administration and security: architecture of a company network, services installation and configuration, users management, system and network security, cryptography, virtual private networks and secured protocols, and supervision tools", 1ere année de l'IUT, Département Réseaux et Télécommunications, 64h/year, 50 students.
- Bruno Cessac and Dora Karvouniari: "A mathematical approach to retinal waves", January 2017, LACONEU Summer school [34].

10.2.2. Supervision

- PhD in progress: Theodora Karvouniari, "Retinal waves in the retina: theory and experiments". Started in October 2014. Defense scheduled in March 2018. Supervisor, B. Cessac.
- PhD in progress: Selma Souihel, "Generic and specific computational principles for the visual anticipation of motion trajectories". Started in November 2016. Supervisor B. Cessac
- PhD in progress: Evgenia Kartsaki. "How Specific Classes of Retinal Cells Contribute to Vision: a Computational Model", Started in October 2017. Supervisor B. Cessac codirection with E. Sernagor, ION.

10.2.3. Juries

- Bruno Cessac was reviewer of the thesis of Gregor Chliamovitch, University of Geneva, January 2017

[0] Représentant de l'administration suppléant au sein de la Commission consultative des doctorants contractuels d'Inria

- Bruno Cessac was reviewer of the thesis of Christophe Gardella, University Pierre et Marie Curie, Paris, September 2017
- Pierre Kornprobst chaired the PhD jury of Effrosyni Doutsi, Université Côte d'Azur, March 2017.

10.3. Popularization

- Dora Karvouniari participated in "Maths C2+" at Inria week 19-23 June 2017. Maths C2+ hosts schoolboys and schoolgirls in a research environment. The goal is to allow young people to imagine the scientific future.
- Selma Souihel participated to the "fête de la science" as part of the scientific animation commission "MASTIC". She was in charge of vulgarizing her PhD research subject in order to make it intelligible by a public of young scholars, and their parents. She also took part in a pedagogical robot training "Poppy Ergo", aimed at introducing robotics and sequential programming to students in primary school.

CAMIN Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

David Guiraud was member of the organizing committee of IEEE NER 2017 Shangai

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

Christine Azevedo was member of the JNRR (french journeys of research in robotics) program committee.

David Andreu was member of the European Congress on Embedded Real Time Software and Systems (ERTS2) program committee

Daniel Simon was member of the ICINCO (Int. Conf. on Informatics in Control, Automation and Robotics) program committee

David Guiraud was Associate editor of Theme 6 at IEEE EMBC

9.1.2.2. Reviewer

David Andreu was reviewer for ERTS2 2018.

Daniel Simon was reviewer for the ICINCO, IFAC and ECC conferences.

Christine Azevedo was reviewer for several journals and conferences this year.

David Guiraud was reviewer for IEEE EMBC and IEEE NER

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Christine Azevedo was guest editor for EJTM journal and Artificial Organs (2 special issues).

David Guiraud is associate editor for MBEC and JNE

9.1.3.2. Reviewer - Reviewing Activities

Daniel Simon was reviewer for Real-Time Systems.

David Guiraus was reviewer for JNE J. of Neuroscience Methods, MBEC and EJTM

9.1.4. Invited Talks

Christine Azevedo was invited to give a lecture in January 5th at Institut de la Moelle in Paris in the context of a meeting of the consortium ANR ECOTECH dedicated to Parkinson Posture.

Christine Azevedo and David Guiraud were invited to give 2 lectures in March on hand function rehabilitation during the symposium organized at CHUV hospital in Lausanne "Rehabilitation de la main : de l'amputation à la lésion centrale. Peut-on rêver à de nouvelles solutions technologiques ?".

Christine Azevedo was invited to give a lecture on FES during the workshop organized by BIONESS company at the SOFMER congress.

David Guiraud was invited for a plenary talk in Nagoya, Japan for the International Funciotnal Reconstruction of the Hand Symposium (28-29 of April)

9.1.5. Leadership within the Scientific Community

David Guiraud was member of « Gourpe de Travail Neurostimulation alliance Aviesan »

9.1.6. Scientific Expertise

David Guiraud was expert for the ERC Advanced Grant
David Guiraud was expert for ANR

9.1.7. Research Administration

Christine Azevedo was in charge of one working group to write a scientific challenge on handicap for Inria Strategic Plan.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : François Bonnetblanc, Movement Physiology and Electrophysiology, 6h ETD, Movement Physiology and Electrophysiology, 6h ETD, L3 DU Functional Electrical Stimulation, University of Montpellier, France

Master : D. Andreu, Software engineering, real time OS, discrete event systems, control architectures, networks, neuro-prosthesis, 200 h, master and engineers degrees, Polytech Montpellier, France;

Master : D. Simon, Basics in feedback control, 6.5 h, M2 STIC, University of Montpellier, France;

Master : François Bonnetblanc, Motor Control applied to Neuroprosthesis, 6h ETD, M2 STAPS, University of Montpellier, France

Master : François Bonnetblanc, Neurophysiology of movement et Neuroprosthesis, 6h ETD, M2 Mechanics and Interactions, Polytech, University of Montpellier, France

Master : K. Godary-Dejean, real time OS, embedded and industrial networks, formal validation, dependability, 200h, master and engineers degrees, Polytech Montpellier, France;

Master : D. Guiraud, muscle modeling and FES basics, , SMH master2,

9.2.2. Supervision

PhD defended on november 7, 2017:Marion Vincent, Measuring the electrophysiological effect of direct electrical stimulation during awake brain surgery, 01/12/2013, François Bonnetblanc, David Guiraud and Hugues Duffau

PhD defended on november 17, 2017: Mélissa Dali, Modèles de génération et de propagation de potentiel d'action neuronale en condition de stimulation sélective multipolaire, since october 2014, David Guiraud and Olivier Rossel.

PhD in progress : Antony Boyer, Neuroplasticity and recovery in remote (sub)cortical structures following wide-awake surgery of infiltrative low-grade gliomas: investigation of fMRI and EEG signals, 01/09/2016, François Bonnetblanc and Sofiane Ramdani.

PhD in progress : Maxence Blond, Commande et modélisation d'un véhicule sous-marin, 18/01/2016, Daniel Simon, Vincent Creuze (LIRMM) and Ahmed Chemori (LIRMM).

PhD in progress : Ibrahim Merzoug, Validation formelle pour les systèmes embarqués critiques, Since Oct. 2014, K. Godary-Dejean and D. Andreu.

PhD in progress : Benoît Sijobert, Stimulation électro-fonctionnelle pour l'assistance aux mouvements des membres inférieurs dans les situations de déficiences sensori-motrices, Since Dec. 2015, Christine Azevedo Coste and D. Andreu.

PhD in progress: Victor Vagne, "Couplage de la Spectroscopie en proche infrarouge et de la stimulation Transcrânienne (NIRS-tDCS) à courant continu dans l'Evaluation diagnostique de l'ischémie cérébrale lors d'un AVC", Oct. 2016, M. Hayashibe, D. Guiraud, Vincent Costalat (CHU Montpellier) and Emmanuelle Le Bars (CHU Montpellier)

PhD in progress: XinYue Lu, Respiratory detection and monitoring Since March 2017, C. Azevedo Coste, T Similowski (Groupe Hospitalier Pitié-Salpêtrière), S Renaux (NEUORESP)

9.2.3. Juries

Christine Azevedo participated in M Merad (UPMC, Paris) PhD thesis defense, December 1, 2017, as Reporter. The PhD was entitled "Investigations on upper limb prosthesis control with an active elbow."

Christine Azevedo participated in A Kubicki (Université de Bourgogne / UFR Staps, Dijon), HDR thesis defense, July 7th, 2017, as Reporter. The HDR was entitled "Comprendre la fragilisation du contrôle moteur prédictif pour optimiser la rééducation gériatrique."

Karen Godary-Dejean participated in M. Senoussi (IRIT, Université de Toulouse) PhD thesis defense, July 12, 2017, as examiner. The PhD was entitled "Etude et prototypage d'une nouvelle méthode d'accès aléatoire multi-canal multi-saut pour les réseaux locaux sans fils".

Karen Godary-Dejean participated in P. Delarboulas (ETIS, Université de Cergy Pontoise) PhD thesis defense, December 20, 2017, as examiner. The PhD was entitled "Navigation bio-inspirée pour un robot mobile autonome dans de grands environnements intérieurs".

Christine Azevedo participated in F Feuvrier Université de Montpellier, Faculté de Médecine Montpellier-Nîmes) Medicine thesis defense, December 20, 2017. The thesis was entitled " Evaluation des qualités métrologiques d 'une centrale inertielle par rapport à un système optique de capture du mouvement chez des patients avec foot-drop post AVC ."

David Guiraud was president of the PhD defense of Melissa Sourioux, Université de Bordeaux, 15/12/2017 « Etudes des mécanismes de coordination des activités rythmiques locomotrices et sympathiques au sein d'un réseau spinal activé par l'acethylcholine chez le rat nouveau-né »

David Guiraud was reviewer of the HDR of Nicolas Lonjon, 18/12/2017 " La pathologie vertébro-médullaire : Innovation en chirurgie rachidienne pour améliorer la qualité de vie des patients Mécanismes physiopathologiques des lésions médullaires et stratégie de réparation "

David Guiraud was examiner of the PhD defense Vincent Carriou 4/10/2017 "Multiscale, multi-physic modeling of the skeletal muscle during isometric contraction »

David Guiraud was examiner of the PhD defense Kai Dang 13/06/2017 "Electrical conduction models for cochlear implant stimulation"

David Andreu participated in V. Monthé PhD thesis defense (Lab-STIC, Brest University), December 1, 2017, as Reporter. The PhD was entitled « Développement des systèmes logiciels par transformation de modèles : Application aux systèmes robotiques ».

9.3. Popularization

CAMIN participed into Fête de la Science at LIRMM with 2 demos (cycling, EMG robotics hand control).

David Andreu presented the job of researcher in secondary school Collège Vincent Badie (Montarnaud)

Christine Azevedo organized Initiation sessions to informatics using Thymio robot at Collège Léon Cordas (Montpellier) in 3 classes (one 5e and two 6e). 3 sessions of 1h30 per class were organized followed by a half day visit at LIRMM robotics hall. One day session was also organized with École primaire Valfalis (Montbazin) in CE2 level.

GALEN Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

E. Chouzenoux (co-organizer). Organization of the special session "Interactions entre méthodes d'optimisation et algorithmes de simulation stochastique" in the conference GRETSI 2017, Juan-les-Pins, 5-8 sep. 2017.

E. Chouzenoux and J.C. Pesquet. Organization of the special session "Advanced optimization methods for solving inverse problems at a large scale" in the International Biomedical and Astronomical Signal Processing Frontiers workshop (BASP 2017), Villars-sur-Ollon, Suisse, 29 jan.- 3 feb. 2017.

E. Belilovsky. Co-Organizer of Learning with Limited Labeled Data Workshop, in conjunction with Conference on Neural Information Processing Systems (NIPS).

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

E. Chouzenoux. Member of the technical committee "Signal Processing Theory and Methods" of the IEEE Signal Processing Society.

F. Malliaros. Member of the program committee at: International Conference on World Wide Web (WWW), Conference on Artificial Intelligence (AAAI), International Joint Conference on Artificial Intelligence (IJCAI).

10.1.2.2. 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), Medical Image Computing and Computer Assisted Intervention (MICCAI), Neural Information Processing Systems (NIPS) and International Conference on Learning Representations (ICLR), IEEE International Conference and Acoustics Speech and Signal Processing (ICASSP), IEEE International Conference on Image Processing (ICIP), IEEE Statistical Signal Processing workshop (SSP), European Signal Processing Conference (EUSIPCO).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Zacharaki, Evangelia I.: Medical Physics (guest editor), International Journal of Radiology, Dataset Papers in Science (Radiology), International Journal of Biostatistics & Computational Biology

10.1.3.2. Reviewer - Reviewing Activities

E. I. Zacharaki: IEEE Trans. on Medical Imaging (T-MI), Medical Image Analysis (MedIA), Trans. on Biomedical Engineering, Neuroimage, Artificial Intelligence in Medicine, Expert Systems with Applications, Bioinformatics, European Radiology

M. Vakalopoulou: International Journal of Computer Assisted Radiology and Surgery (IJCARS), IEEE Trans. on Geoscience and Remote Sensing (TGRS), Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS), ISPRS Journal of Photogrammetry and Remote Sensing, Computer Methods and Programs in Biomedicine (CMPB), Pattern Recognition Letters

E. Chouzenoux: IEEE Trans. on Image Processing, IEEE Trans. Signal Processing, SIAM Journal on Imaging Science, Journal of Optimization Theory and Applications, Journal of Global Optimization.

J.-C. Pesquet: IEEE Trans. on Signal Processing, IEEE Trans. on Image Processing, IEEE Trans. on Information Theory (IEEE-TI), Signal Processing, SIAM Journal on Optimization, SIAM Journal on Imaging Sciences, Journal of Mathematical Imaging and Vision, Journal of Optimization Theory and Applications.

F. Malliaros: Data Mining and Knowledge Discovery (DAMI), ACM Transactions on Knowledge Discovery from Data (TKDD).

10.1.4. Invited Talks

J.-C. Pesquet:
Villars sur Oulon (International Biomedical and Astronomical Signal Processing Frontiers workshop, Feb. 2017)
Taras Shevchenko National University of Kiev (Feb. 2017)
Politecnico di Milano (Apr. 2017)
Gdansk University (Mar. 2017)
Juans-les-Pins (Colloque GRETSI, Sep. 2017)
Polytechnic University of Warsaw (Oct. 2017)
Université Libre de Bruxelles (Nov. 2017)

E. Chouzenoux:
Invited seminar, LCS, Saclay, 8 décembre 2017.
Invited seminar, IFPEN, Rueil Malmaison, 6 décembre 2017.
Invited seminar, S3, CentraleSupélec, 24 novembre 2017.
Invited seminar, IIIT Delhi, 8 novembre 2017.
Journées annuelles 2017 des GdR MOA et MIA, Talence, 18 octobre 2017.
Journées Franco-Chiliennes d'Optimisation, Toulouse, 6 juillet 2017
Ecole d'été "Structured Regularization for High-Dimensional Data Analysis", IHP, 21 juin 2017.
Invited seminar, Université de Modène, 3 avril 2017.
Journée GDR ISIS, Inversion et problèmes multi-*, IAP, Paris, 20 mars 2017.

10.1.5. Leadership within the Scientific Community

J.-C. Pesquet is senior member of the Institut Universitaire de France and a Fellow of IEEE.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master : Corbineau, Marie-Caroline and Pesquet, Jean-Christophe. Advanced course on Optimization, 33h, M1, CentraleSupélec, FR

Master : Chouzenoux Emilie and Pesquet, Jean-Christophe. Foundations of Distributed and Large Scale Computing, 26h, M.Sc. in Data Sciences and Business Analytics, CentraleSupélec and ESSEC Business School, FR

Master: Zacharaki, Evangelia I. Foundations in Machine Learning, 36, M2 DataScience, CentraleSupélec , FR

Master: Malliaros, Fragkiskos. Machine Learning, 30h, M.Sc. in Data Sciences and Business Analytics, CentraleSupélec and ESSEC Business School, FR

Master: Kannan, Hariprasad and Sahasrabudhe, Mihir: Programming and Languages, 24h, M.Sc. in Data Science and Business Analytics, CentraleSupélec and ESSEC Business School, FR

10.2.2. Supervision

PhD in progress : Mihir Sahasrabudhe, Understanding Correlations in High-Dimensional Spaces and their Applications in Medical Imaging and Computer Vision, 2015-2019, Nikos Paragios

PhD in progress : Siddhartha Chandra, Deep Structured Prediction for Dense Labeling Tasks in Computer Vision, 2014-2018, Iasonas Kokkinos

PhD in progress : Marie-Caroline Corbineau, Fast online optimization algorithms for machine learning and medical imaging, 2016-2019, supervised by Emilie Chouzenoux and J.-C. Pesquet

PhD in progress : Loubna El Gueddari, Parallel proximal algorithms for compressed sensing MRI reconstruction - Applications to ultra-high magnetic field imaging, 2016-2019, supervised by J.-C. Pesquet and Ph. Ciuciu (Inria PARIETAL)

PhD in progress: Arthur Marmin, Rational models optimized exactly for chemical processes improvement, supervised by Marc Castella (Telecom Paristech) and J.-C. Pesquet

PhD in progress: Maïssa Sghaier, clinical Task-Based Reconstruction in tomosynthesis, supervised by E. Chouzenoux, J.-C. Pesquet and G. Palma (GE Healthcare)

PhD in progress : Evgenios Kornaropoulos, Diffusion Coefficient: a novel computer aided biomarker, 2013-2017, N. Paragios

PhD in progress: Guillaume Chassagnon, Development of new quantitative imaging biomarkers for obstructive and interstitial lung diseases, 2016-2019, N. Paragios

PhD in progress: Roger Sun,Deep learning and computer vision approaches on medical imaging and genomic data to improve the prediction of anticancer therapies' efficacy, 2017-2020, N. Paragios

PhD in progress: Théo Estienne, Improving anticancer therapies efficacy through Machine Learning on Medical Imaging & Genomic Data, 2017-2020, N. Paragios

PhD in progress: Abdulkadir Celikkanat, Representation learning methods on graphs, 2017-2020, N. Paragios and F. Malliaros

10.2.3. Juries

The faculty members of the team (N. Paragios, J.-C. Pesquet, E. Chouzenoux and F. Malliaros) participated to numerous PhD Thesis Committees, HDR Committees and served as Grant Reviewers.
Emilie Chouzenoux, Mihir Sahasrabudhe, Jean-Christophe Pesquet, Marie-Caroline Corbineau and Nikos Paragios were part of the jury committee for several end-of-course internship presentations in CentraleSupélec.

MATHNEURO Team

6. Dissemination

6.1. Promoting Scientific Activities

6.1.1. Scientific Events Organisation

6.1.1.1. Member of the Organizing Committees

Olivier Faugeras and Romain Veltz were on the Advisory Board of the 3rd International Conference on Mathematical Neuroscience, held in Boulder Colorado (USA), May 30 - June 2, 2017.

Mathieu Desroches organised a special session on "Dynamical Systems and Dysfunctions: modeling and neuronal dynamics' interpretation in both healthy and pathological brain states" at the C@UCA workhop (Fréjus, France), June 6-8, 2017.

Mathieu Desroches co-organised together with Daniele Avitabile (University of Nottingham, UK) and Vivien Kirk (University of Auckland, New Zealand) a two-part mini-symposium on "Recent Advances in Slow-Fast Dynamics" at the SIAM Conference on Applications of Dynamical Systems (Snowbird, Utah, USA), May 21-25, 2017.

Romain Veltz co-organised with Stéphane Barland (ILNL, Sophia Antipolis) the workshop Computational Neuroscience and Optical Dynamics held at the Institut Nonlinéaire de Nice (INLN, Sophia Antipolis), May 18-19, 2017.

6.1.2. Scientific Events Selection

6.1.2.1. Member of the Conference Program Committees

Pascal Chossat and Martin Krupa were on the Program Committee of the 3rd International Conference on Mathematical Neuroscience, held in Boulder Colorado (USA) May 30 - June 2 2017.

6.1.3. Journal

6.1.3.1. Member of the Editorial Boards

Olivier Faugeras is the co-editor in chief of the open access Journal of Mathematical Neuroscience.

6.1.3.2. Reviewer - Reviewing Activities

Fabien Campillo acts as a reviewer for Journal of Mathematical Biology, for the conference TAMTAM 2017 *Tendances dans les Applications Mathématiques en Tunisie, Algérie et Maroc*.

Mathieu Desroches acts as a reviewer for Physica D, SIAM Journal on Applied Dynamical Systems (SIADS), PLoS Computational Biology, Dynamical Systems: An International Journal, IEEE Transactions on Cognitive and Developmental Systems, Discrete and Continuous Dynamical Systems Series B.

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).

Martin 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).

Martin Krupa has edited together with Pietro-Luciano Buono (University of Ontario, Canada) and Ian Stewart (University of Warwick, UK) a special issue of the Journal *Dynamical Systems: An International Journal* titled "Equivariance and Beyond: M. Golubitsky's 70th Birthday".

Romain Veltz acts as a reviewer for Neural Computation, Elife, SIADS, Journal of the Royal Society Interface.

6.1.4. Invited Talks

Pascal Chossat, “Latching dynamics in neural networks with synaptic depression”, C@UCA workshop, Fréjus (France), June 2017.

Pascal Chossat, “Pourquoi le léopard est-il tacheté et le tigre rayé”, Café des Sciences d’Avignon, Avignon (France), December 2017.

Pascal Chossat, “Heteroclinic chains as a model of sequential activation of concepts in neural networks”, workshop Nice Nonlinearities, Nice (France), December 2017.

Mathieu Desroches, “Canards and spike-adding phenomena in neural bursters”, University of Liverpool (UK), March 2017.

Mathieu Desroches, “Canards and spike-adding in neural bursters”, University of The Balearic Islands (Palma, Spain), March 2017.

Mathieu Desroches, “Three-timescale dynamics: canards and spike-adding”, SIAM Conference on Applications of Dynamical Systems, Snowbird (Utah, USA), May 2017.

Mathieu Desroches, “Slow-fast transitions to seizure states in the Wendling-Chauvel neural mass model”, C@UCA workshop, Fréjus (France), June 2017.

Olivier Faugeras, “Describing the thermodynamic limit of networks of interacting neurons”, workshop *PDE and Probability Methods for Interactions*, Inria Sophia Antipolis, April 2017.

Olivier Faugeras, “Multiscale representations in mathematical neuroscience: deterministic and stochastic approaches”, C@UCA workshop, Fréjus (France), June 2017. [keynote lecture]

Olivier Faugeras, “Coping with correlations in the analysis of the thermodynamic limit of neuronal networks", HBP workshop *Theoretical Neuroscience in the Human Brain Project* and at the workshop *New advances in theoretical tools for the study of large scale neural systems* at the CNS Conference, Antwerp, the Netherlands, July 2017.

Olivier Faugeras, “On a certain McKean-Vlasov equation that arises in Neuroscience", workshop on *Singular McKean-Vlasov equations*, Inria Sophia Antipolis, September 2017.

Elif Köksal Ersöz, “Synchronization of weakly coupled canard oscillators”, mini-symposium on “Recent Advances in Slow-Fast Dynamics” at the SIAM Conference on Applications of Dynamical Systems (Snowbird, Utah, USA), May 21-25, 2017.

Elif Köksal Ersöz, “Canard mediated (de)synchronization in coupled phantom bursters”, C@UCA workshop, Fréjus (France), June 2017.

Martin Krupa, “Modeling cortical spreading depression induced by the hyperactivity of interneurons”, C@UCA workshop, Fréjus (France), June 2017. [joint talk with Massimo Mantegazza (IPMC, Sophia Antipolis)]

Romain Veltz, “Invariant manifolds in Mathematical Neurosciences”, winter school *Deterministic and Stochastic Models in Neurosciences*, Toulouse (France), December 2017.

Romain Veltz, “On a toy network of neurons interacting through nonlinear dendritic compartments”, workshop *Random Structures on the Brain*, Lorentz Center, Leiden (the Netherlands), December 2017.

Romain Veltz, “Oscillatory dynamics in a stochastic spiking neural network", workshop *Brain Dynamics and Statistics*, Banff (Canada), March 2017.

Romain Veltz, “Hopf bifurcation in the mean field of a stochastic spiking neural networks”, European Institute in Theoretical Neuroscience, Paris (France), April 2017.

Romain Veltz, “Study of a mean field model stemming from a neural network", Gdr NonLocal, Toulouse (France), April 2017.

6.1.5. Scientific Expertise

Pascal Chossat was on the Advisory Board of the Complex Systems Academy of the UCA^{JEDI} Idex.

Fabien Campillo reviewed a grant proposal for the Swiss National Science Foundation. He is also member of the *Comité NICE* of the Projects Committee of Inria Sophia Antipolis - Méditerranée.

Mathieu Desroches reviewed grant proposals for the Agence Nationale de la Recherche (ANR).

Olivier Faugeras regularly reviews proposals to the European Research Council (ERC) in Mathematics, Computer Science and NeuroScience and he is a member of the ERC Panel 1 (Mathematics). He also reviewed a proposal in Mathematics for the Netherlands Organisation for Scientific Research (NWO).

6.2. Teaching - Supervision - Juries

6.2.1. Teaching

Chalk-learning

Master 2 MVA/UPMC: Romain Veltz, Mathematical Methods for Neurosciences, 20 hours, Paris, France.

Master 1 BIM/UPMC: Mathieu Desroches, Modèles Mathématiques et Computationnels en Neuroscience, 30 hours, Paris, France.

In-service education, Supagro & Inra: Fabien Campillo (in collaboration with Céline Casenave from Inra), Modélisation et contrôle de systèmes dynamiques en agronomie, 20 hours, Montpellier, France.

6.2.2. Supervision

PhD in progress: Axel Dolcemascolo, “All optical neuromimetic devices”, started in January 2016, co-supervised by Romain Veltz and Stéphane Barland (INLN).

PhD in progress: Pascal Helson, “Study of plasticity laws with stochastic processes”, started in September 2016, co-supervised by Romain Veltz and Etienne Tanré (Inria TOSCA).

PhD in progress: Quentin Cormier, “Biological spiking neural networks", started in September 2017, co-managed (“co-encadré”) by Romain Veltz and Etienne Tanré (Inria TOSCA).

MIMESIS Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

David Cazier contributed to the organization of the Annual workshop of the *Animation & Simulation* group of the GDR IGRV of the CNRS in Strasbourg.

10.1.1.2. Reviewing Activities

Stephane Cotin provided reviews for: *Int. Conf. on Information Processing in Computer-Assisted Interventions, Workshop on Virtual Reality Interaction and Physical Simulation*

Igor Peterlik provided reviews for: *Int. Conf. of Medical Image Computing and Computer Assisted Intervention Society*

Antoine Petit provided reviews for: *International Conference on Robotics and Automation*

10.1.2. Journal

10.1.2.1. Reviewing Activities

Stephane Cotin provided reviews for: *International Journal of Computer Assisted Radiology and Surgery*

David Cazier provided reviews for: *Computer-Aided Design, Visual Computer, Computer & Graphics, Int. Journal on Virtual Reality*

Igor Peterlik provided reviews for: *Computer and Graphics*

Antoine Petit provided reviews for: *International Journal Of Robotics Research, Robotics and Automation Letters*

Christoph Paulus provided reviews for: *MDPI Journal Symmetry*

Lionel Untereiner provided reviews for: *Special Issue on Parallel and Distributed Algorithms of Concurrency and Computation*

10.1.3. Invited Talks

Keynote lecture by S. Cotin at 10th Medical Korea conference (Seoul, South Korea)

Invited lecture by S. Cotin FMTS conference (Strasbourg, France)

Invited lecture by S. Cotin B.E.S.T. symposium (Strasbourg, France)

Invited talk by S. Cotin at Fraunhofer MEVIS lab (Bremen, Germany)

Invited lecture by S. Cotin at European Computer-Assisted Liver Surgery Society (Mainz, Germany)

Invited lecture by S. Cotin at 127th annual meeting of the French Ophthalmology Association (Paris, France)

Invited lecture by S. Cotin at the French Academy of Surgery (Paris, France)

10.1.4. Scientific Expertise

Igor Peterlik has been providing a scientific expertise at Masaryk University, Czech Republic as a consultant and co-investigator of a project unded by Grant Agency of the Czech Republic: Development of Reliable Methods for Automated Quantitative Characterization of Cell Motility in Fluorescence Microscopy.

10.1.5. Research Administration

David Cazier is a member and local coordinator for a CITEPH project Paleo GTM: *A Paleo Geological and Topological Modeler*. Subject and expected contributions: multiresolution meshing and visualization for handling of massive geological data.

The project started in Sep 2017 (duration 2 years) and involves following partners:

- GEOSIRIS SAS (StartUp)
- Laboratoire ICUBE, UMR 7357 (Université de Strasbourg)
- Laboratoire XLIM, UMR 7352 (Université de Poitiers)
- Laboratoire LSIS, UMR 7296 (Université d'Aix-Marseille)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

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

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

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

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

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

Licence: David Cazier, Web technologies and programming, 96h, L3, University of Strasbourg

10.2.2. Supervision

PhD: Christoph Paulus, *Modeling and real-time simulation of topological changes in soft tissue*, University of Strasbourg, 03/04/2017 [11]

PhD: Fanny Morin, *Non linear simulation for intra-operative guidance for neurosurgery*, Université Grenoble Alpes, 05/10/2017

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

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

PhD in progress: Yinoussa Adagolodjo, *Coupling between robotics and medical simulation for automated procedures*, 01/02/2015, supervised by Hadrien Courtecuisse

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

PhD in progress: Lukáš Ručka, *Validation and verification of soft tissue models*, 01/09/2016, co-supervised by Igor Peterlik, supervised by Prof. Ludek Matyska at Masaryk University, Czech Republic

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

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

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

10.2.3. Juries

Stéphane Cotin was a member of jury of HDR of Christian Herlin (MD): *Imagerie et simulation pour la chirurgie plastique et reconstructrice*. Université de Montpellier. Nov 2017

10.3. Popularization

Demonstration at *50 Years Inria* on Nov 10 in Paris, attended by Mr. Mounir Mahjoubi, secrétaire d'état auprès du premier ministre, chargé du numérique.

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: co-chair for the organization of the 7th Symposium on the Biology of Decision Making, Bordeaux, France (http://sbdm2017.isir.upmc.fr/).

10.1.1.2. Member of the Organizing Committees

F. Alexandre: organization of the Latin-American Summer School on Computational Neuroscience (Laconeu, 9-27 january 2017, Valparaiso, Chile).

X. Hinaut: organisation of the 2nd Workshop on Machine Learning Methods for High-Level Cognitive Capabilities in Robotics (ML-HLCR), IROS, 28 September 2017, Vancouver, Canada.

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

Nicolas Rougier: Scipy 2017, EuroScipy 2017, WSOM 2017

10.1.2.2. Reviewer

- F. Alexandre: NER'17; ICDL-EPIROB 2017;
- Nicolas Rougier: Frontiers in Computational Neuroscience, Complexity, JOSS, ReScience;
- X. Hinaut: CogSci'17, ICDL-EPIROB 2017, ESANN 2018;

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, Academic editor for PeerJ, review editor for Frontiers in Neurorobotics.

10.1.3.2. Reviewer - Reviewing Activities

- F. Alexandre: Frontiers in Neuroscience; PLoS ONE; Cognitive Computation; Nature Scientific Reports; eLife;
- André Garenne: Journal of Integrative Neuroscience
- Xavier Hinaut: Neural Networks, Frontiers in Neurorobotics, IEEE Transactions on Cognitive and Developmental Systems (TCDS), Applied Sciences;

10.1.4. Invited Talks

F. Alexandre:

- Workshop on Comptational Neuroscience: New trends and challenges for 2030; January 18, Valparaiso, Chile.
- 2017 meeting of the GDR Neurociences of memory NeuroMem, May, 16.
- Seminar "Modeling Cognitive Processes" of the laboratory LEAD, Dijon (Nov. 24).
- Annual meeting of the AMAF medical association ("Modeling Cognitive Functions and Artificial Intelligence", Nov. 25, Creteil).

Nicolas Rougier:

- Lex Robotica, Paris, France
- 7th Symposium on the Biology of Decision Making, Bordeaux, France.
- Open Science, Bordeaux, France
- Scientific Python, La Rochelle, France
- Reproduction is not replication, Reading, UK

X. Hinaut:

- Workshop "The role of the basal ganglia in the interaction between language and other cognitive functions", DEC, ENS Ulm, October 12-13, Paris, France.

10.1.5. Leadership within the Scientific Community

X. Hinaut:

- President of the association MindLaBDX: “open citizen lab” in Cognitive Sciences and Artificial Intelligence in Bordeaux.
- Organization of “Hack’1 Cerveau !”: the first CogSci and AI hackathon in Bordeaux, at 127° (the fablab of Cap Sciences), 8-10 December 2017. Cf https://mindlabdx.github.io/hack1cerveau and also https://lascienceenpassant.wordpress.com/2017/12/11/hackaton-hack1-cerveau and http://penseeartificielle.fr/hack1-cerveau-2017-cerveau-cap-science.
- member of the Administration Committee of Fresco association (French Federation of students in Cognitive Science)

Nicolas Rougier: Editor in chief for ReScience

10.1.6. Scientific Expertise

F. Alexandre is the french expert for Mathematics and Computer Science of the PHC (Hubert Curien Program) Utique for scientific cooperation between France and Tunisia. In 2017, he participated to the CHIST ERA Evaluation Panel, May 18-19 and acted as an expert for the ANR.

10.1.7. Research Administration

- F. Alexandre is member of the Inria Evaluation Committee; Deputy Scientific Delegate and 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 of the http://classcode.fr project and in charge, for Inria, of the creation of a Master SmartEdTech at UCA within the scope of his mission for the Inria Sophia Antipolis - Méditérannée direction.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

F. Alexandre: teaching at the Laconeu summer school 9-27 january 2017, Valparaiso, Chile. Teaching Ethics for Inria PhD students (Sept. 25 and Oct. 6).

André Garenne (in collaboration with Xavier Nogues) created a new teaching unit for bachelor students in biology at the final stage of their graduation. This unit will be half dedicated to the learning of programming basics using Python and its scientific libraries and half dedicated to the learning of statistical data analysis methods relying mainly on machine learning approaches and the R language.

Nicolas Rougier organized a python scientific course (24h) for the doctoral students in mathematics and computer science.

Thierry Viéville is since 2009 in charge of formations of high-school teachers in popular computer science and teached computational neuroscience in the Master of Cognitive Science and Ergonomics.

In addition, many courses are given in french 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.

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 50% of his time involved in popularization actions, mainly computer science large audience education, and has been promoted Officer of the Order of Academic Palms for the collective contribution of the Inria Science Outreach mission.
- F. Alexandre organized a conference about artificial intelligence with high-school children (Sept. 28, Lormont)
- I. Chraibi Kaadoud participated to the regional challenge: “My PhD in 180 seconds”
- X. Hinaut organized the 1st hackathon of Bordeaux in Cognitive Sciences and Artificial Intelligence, 8-10 December, Cap Sciences, Bordeaux. (https://mindlabdx.github.io/hack1cerveau/); Organization of a workshop on cellular automaton at Le Node, Bordeaux; Meeting groups of high-school students for their projects on Artificial Intelligence topics.
- The team participated to “La semaine du cerveau” on the Bordeaux Neurocampus (March 13-17) (http://www.bordeaux-neurocampus.fr/fr/manifestations-scientifiques/seminaires-2017/semaine-cerveau-2017.html); to the “fête de la science” on the Bordeaux Neurocampus (http://circuit-scientifique-bordelais.cnrs.fr/modules/show/261, Oct. 7-9); to the Declics program for high-schools (http://www.cerclefser.org/fr/declics/, Dec. 12)

NEUROSYS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

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

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

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

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

- Member of the organization committee of the launch day of the French society of brain-computer interfaces, January 24th 2017, Paris (L. Bougrain) http://openvibe.inria.fr/the-2nd-international-openvibe-workshop-2016-contents/
- Member of the organization committee of the iPAC seminar (Image, Perception, Action et Cognition) (L. Buhry)
- Member of the organization committee of the scientific days of the research network in neuroscience of the university of Lorraine, June 9th & November 9th 2017, Nancy (L. Bougrain)

9.1.2. Journal

9.1.2.1. Reviewer - Reviewing Activities

PeerJ (S. Rimbert)

9.1.3. Research Administration

Juries for the recruitment of assistant professors: job MCF4289 IUT university of Cergy Pontoise (2017), L.Buhry

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Engineering school: L. Bougrain, *Interfaces cerveau-ordinateur*, 4.5h, 3rd year, Supelec, France

Polytechnical university of Kiev: L. Bougrain, *Brain-Computer Interfaces*, 10h, master, Ukraine

Engineering School: F. Giovannini, *Artificial Intelligence*, 32h, 3rd year, Telecom Nancy, France

UFR Math/Info: S. Rimbert, *Brain-Computer Interface*, 17h, Master 2, UFR Math/Info, France

UFR Math/Info: S. Rimbert, *Introduction to Neurosciences*, 15h, 1st year, UFR Math/Info, France

UFR Math/Info: A. Aussel, *Computational Neurosciences*, 20h, Master 2, UFR Math/Info, France

Engineering school: A. Aussel, *Python Programming*, 40h, 1st year, Mines Nancy, France

9.2.2. Supervision

PhD: Francesco Giovannini, Mathematical modelling of neural oscillations in hippocampal memory networks during waking and under general anaesthesia, university of Lorraine, September 19th 2017, Laure Buhry and Axel Hutt [1]

PhD: Cecilia Lindig-León, Multilabel classification of EEG-based combined motor imageries implemented for the 3D control of a robotic arm, January 10th 2017, A. Hutt and L. Bougrain [2]

PhD in progress: Amélie Aussel, Extraction of electrophysiological markers and mathematical modelling of the epileptic hippocampus, October 1st 2016, Laure Buhry and Radu Ranta (CRAN)

PhD in progress: Sébastien Rimbert, Study of the dynamic of cerebral motor patterns during general anesthesia, January 1st 2016, Axel Hutt and Laurent Bougrain

9.2.3. Juries

Ph.D. thesis juries: Loïc Botrel, Brain-computer interfaces (BCIs) based on sensorimotor rhythms Evaluating practical interventions to improve their performance and reduce BCI inefficiency, university of Würzburg, September 27th 2017, L. Bougrain (member)

Ph.D. thesis juries: Marie-Caroline Schaeffer, Traitement du signal ECoG pour Interface Cerveau Machine à grand nombre de degrés de liberté pour application clinique, university Grenoble-Alpes, June 6th 2017, L. Bougrain (member)

9.3. Popularization

Talk during the National Brain Awareness Week: Brain-Robot interactions, Mar. 14th, 2017, middle school Ernest Bichat, Lunéville (L. Bougrain)

Expert for the MGEN (a French mutual benefit insurance company)'s day about "réparer les vivants", Mar. 15th, 2017, Maisons-Alfort (L. Bougrain)

Scientific education on Information Technologgy with Marie Duflot-Kremer in the Marcel Leroy elementary school (20-22 students per class: CM2, CE2 / CM1, CE1 / CE2), 3h (three times 1h), May 30th 2017 (Tamara Tošić)

Exhibit of the Grasp-IT system to improve motor activity at the Interactions Homme-Machine conference 2017, August 2017, Poitier (Sébastien Rimbert)

Exhibit of the Grasp-IT system to improve motor activity at Inria-Industry Meeting on data and their applications, October 18th 2017, Paris (L. Bougrain & Sébastien Rimbert)

PARIETAL 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

10.1.1.1.1. Gaël Varoquaux

MICCAI, NIPS, IPMI, ICML, CCN

10.1.1.1.2. Bertrand Thirion

NIPS, IPMI, OHBM, PRNI

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Gaël Varoquaux, Editor, Neuroimage
- Alexandre Gramfort, Editor, Frontiers in Brain Imaging Methods, Journal of Machine Learning Research (JMLR)
- Bertrand Thirion, Editor, Frontiers in Brain Imaging Methods

10.1.2.2. Reviewer - Reviewing Activities

10.1.2.2.1. Gaël Varoquaux

Nature Methods, JMLR, PLOS Comp Bio, NeuroImage, IEEE TBME, Annals of Applied Statistics, Biological Psychiatry, MedIA

10.1.2.2.2. Alexandre Gramfort

JMLR, PLOS Comp Bio, NeuroImage, IEEE TBME, IEEE TMI, IEEE TSP, MedIA, Brain Topography, NIPS, ICML, ICLR.

10.1.2.2.3. Philippe Ciuciu

PLOS One, NeuroImage, HBM, IEEE TMI, IEEE TSP, IEEE SP letters, MedIA, J of Neuroscience, JCBFM, ISBI, ICASSP, EUSIPCO.

10.1.2.2.4. Denis Engemann

PLOS Biology, PLOS Computational Biology, Nature Scientific Reports, Neuroimage, Neuroimage Clinical, Human Brain Mapping, Journal of Machine Learning Research, Brain Topography, Brain Connectivity, Journal of Alzheimer's Disease, PLOS ONE, Frontiers in Neuroscience, Psychiatry and Clinical Neurosciences, Sensors

10.1.2.2.5. Bertrand Thirion

Nature communications, Neuroimage, Medical Image Analysis, IEEE TMI, PNAS, PLOS Comp Bio.

10.1.3. Invited Talks

- Gaël Varoquaux, Keynote, BDEC Workshop 2017, Wuxi, China
- Gaël Varoquaux, Keynote, scipy 2017, Austin TX
- Gaël Varoquaux, Keynote, Swiss Python summit 2017, Zurich, Switzerland
- Gaël Varoquaux, Keynote, NIPS learning with limited labels workshop, Long Beach, CA
- Philippe Ciuciu, Seminar in the neuroscience Department, NYU, School of Medicine, May 2017, NYC.
- Philippe Ciuciu, Laufer Center Seminar Series, May 2017, Stony Brook Univ, NY.
- Philippe Ciuciu, Dedale workshop on Dictionary learning on manifolds, Sep. 2017, Nice, France
- Philippe Ciuciu, Colloquium at Perform centre, Dec 2017, Montreal, Canada
- Philippe Ciuciu, Seminar at Ecole Polytechnique Montreal, Dec 2017, Montreal, Canada
- Alexandre Gramfort, 2017 EU-US Frontiers of Engineering Symposium, UC Davis, CA
- Alexandre Gramfort, Computational Challenges in Image Processing, Turing Institute, Cambridge Univ., UK
- Alexandre Gramfort, Machine learning for functional brain imaging Symposium and Workshop, Karolinska Institute, Sweden
- Denis A. Engemann, Lessons learned from high-dimensional statistics and M/EEG: From automated preprocessing to detection of consciousness, University of Naples, Italy, March 2017
- Denis A. Engemann, Learning from Oscillations – New Vistas for Translational Neuroimaging, MIT, Cambridge MA, April 2017
- Denis A. Engemann, Building better biomarkers using M/EEG and statistical learning, Eespo University, Finland, June 2017
- Bertrand Thirion, ARSEP, February 2017, Paris
- Bertrand Thirion, AI for Medical Imaging symposium, June 2017, Paris
- Bertrand Thirion, Causality and big data workshop, October 2017, Saclay
- Bertrand Thirion, Machine learning workshop, Telcom Paris Sud, October 2017, Evry
- Bertrand Thirion, Icube seminary, Strasburg, July 2017
- Bertrand Thirion, Laboratoire de Mathématiques d'Orsay, December 2017

10.1.4. Scientific Expertise

- Philippe Ciuciu, Member of the "ANR evualuation committee (CES 45) in Mathématique, informatique, automatique, traitement du signal"
- Philippe Ciuciu, Member of the IEEE BISP committe for the international symposium in biomedical imaging
- Philippe Ciuciu, Member of the Biomedical Imaging & Signal Analytics special area team (SAT) in Eurasip
- Bertrand Thirion, Member of the prospective group of ITMO Neurosciences

10.1.5. Research Administration

- Gaël Varoquaux, Member of the Inria Saclay CDT, "Comission de développement téchnologique"
- Gaël Varoquaux, Member of the Inria Saclay CSD, "Comission de suivi doctoral"
- Gaël Varoquaux, Member of the Inria Saclay cluster committee
- Alexandre Gramfort, Member of the "comité de pilotage" DataIA
- Alexandre Gramfort, Member of the "comité de pilotage" DIM RFSI
- Philippe Ciuciu, Member of the "Inria Saclay scientific committee"

- Philippe Ciuciu, Member of the CEA/DRF Impulsion evaluation committee
- Philippe Ciuciu, Member of the "jury du prix de thèse de la société EEA et du GDR ISIS"
- Bertrand Thirion, Deputy scientific director of Inria Saclay research center
- Bertrand Thirion, Leader of the Datasense research axis of the Digicosme Labex
- Bertrand Thirion, Member of the steering committee of the Dataia Convergence Institute
- Bertrand Thirion, Member of the steering committee of the Computer Science Deprtment of paris Saclay University.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

10.2.1.1. Gaël Varoquaux

Master : Machine learning with scikit-learn, 2 heures équivalent TD, M1, ENSAE, France

Master : Brain functional connectivity, 8 heures équivalent TD, M2, Télécom Paris Tech, France

Doctorat : Machine learning for brain imaging with nilearn, 16 heures équivalent TD, Université de Montréal, Canada

Doctorat : Ecole d'hiver, Computational Brain Connectivity Mapping, Juan-Les-Pins, 1h30

Doctorat : Ecole d'hiver, Computational Brain Connectivity Mapping, 1h30, Juan-Les-Pins

Doctorat : Machine learning for brain imaging, 1h00, IPAM, UCLA, Los Angeles, USA

Doctorat : Scipy: numerical algorithms in Python, 1h30, Euroscipy 2017, Erlangen, Germany

Doctorat : Estimation of brain functional connectomes, 30mn, OHBM 2017, Vancouver, Canada

Doctorat : Software engineering for reproducible science, Open science summer school 2017, EPFL, Lausanne, Switzerland

10.2.1.2. Philippe Ciuciu

Master 2 : "Functional MRI: From data acquisition to analysis", 3h,Univ. Paris V René Descartes & Télécom-Paristech, Master of Biomedical Engineering

Master 2 : "FMRI data analysis", 3h, Univ. Paris-Saclay, Master of medical Physics

10.2.1.3. Alexandre Gramfort

Master 2 : "Functional Brain Imaging with EEG and MEG", 6h, Univ. Paris V René Descartes & Télécom-Paristech, Master of Biomedical Engineering

Master 2 : "Optimization for Data Science", 20h, Univ. Paris-Saclay, Master of Mathematics / Data Science

Master 2 : "Data Camp", 18h, Univ. Paris-Saclay, Master of Mathematics / Data Science

Ecole d'hiver, Computational Brain Connectivity Mapping, Juan-Les-Pins, 1h30

Scikit-learn tutorial, Scipy Conf., Austin, USA, 6h

MNE tutorial, Univ. Libre de Bruxelles, Belgique, 6h

10.2.1.4. Denis A. Engemann

MNE-Python workshop, University of Bari, June 2017, 14h

10.2.1.5. Bertrand Thirion

Master : Functional Neuroimaging and brain-computer interfaces, 12h, MVA, ENS Paris-Saclay, France

Doctorat : OHBM course 2017, Pattern Recognition for brain Imaging, Vancouver, Canada

Master: Resting-State Functional Magnetic Resonance Imaging, 3h, Paris V, France.

10.2.2. Supervision

PhD in progress : Patricio Cerda, Statistical methods for analysis across datasets, started 01/09/2016, supervisors: Balazs Kegl (CNRS, LAL), Gaël Varoquaux

PhD in progress : Jérome Dockès, Mining text and brain activity to learning the semantics of cognitive science, started 01/09/2016, supervisors: Fabian Suchanek (Télécom Paristech), Gaël Varoquaux

PhD in progress : Arthur Mensch, Learning representations of fMRI, started 01/09/2015, supervisors: Bertrand Thirion, Gaël Varoquaux, Julien Mairal (Inria Grenoble)

PhD: Elvis Dohmatob, Amélioration de connectivité fonctionnelle par utilisation de modèles déformables dans l'estimation de décompositions spatiales des images de cerveau, defended sept 2017, supervisors Bertrand Thirion, Gaël Varoquaux

10.2.2.1. Philippe Ciuciu

PhD in progress: Carole Lazarus (3rd year, Director)

PhD in progress: Loubna El Gueddari (2nd year, Director)

PhD in progress: Hamza Cherkaoui (1st year, Director)

PhD in progress: Sylvain Lannuzel (1st year, co-director)

10.2.2.2. Alexandre Gramfort

PhD defended: Albert Thomas

PhD defended: Romain Laby

PhD in progress: Yousra Bekhti

PhD in progress: Mainak Jas

PhD in progress: Tom Dupré La Tour

PhD in progress: Stanislas Chambon

PhD in progress: Pierre Ablin

PhD in progress: Mathurin Massias

PhD in progress: Hicham Janati

10.2.2.3. Denis A. Engemann

PhD in progress: Mainak Jas (co-supervision on 1 main project)

PhD in progress: Sami aboud (co-supervision on 1 main project)

PhD in progress: Kamalakar Reddy (co-supervision)

10.2.2.4. Bertrand Thirion

PhD defended: Elvis Dohmatob (co-supervision with G.Varoquaux)

PhD in progress: Arthur Mensch (co-supervision with G. Varoquaux and J. Mairal)

PhD in progress: Jérome Dockès (co-supervision with G. Varoquaux and F. Suchanek)

PhD in progress: Kamalakar Reddy (co-supervision with G.Varoquaux and D. Engemann)

PhD in progress: Jérome-Alexis Chevalier (co-supervision with J.Salmon)

10.2.3. Juries

10.2.3.1. Philippe Ciuciu

12/15: Reviewer of Lucie Thiebaut-Lonjaret PhD Thesis, Univ. Aix-Marseille, France.

04/23: Reviewer of Yosra Marnissi PhD Thesis, Univ. Paris-Est, France.

10.2.3.2. Gaël Varoquaux

external reviewer, PhD defence of Christian Dansereau, Université de Montréal.

10.2.3.3. Alexandre Gramfort

12/19: Examiner of Thomas Moreau, Univ. Paris Saclay / ENS Paris-Saclay

12/13: Reviewer of Etienne Combrisson PhD Thesis, Univ. Lyon 1, France.

11/10: Reviewer of Lankinen Kaisu PhD Thesis, Univ. Aalto, Finland.

04/26: Reviewer of Seyed Mostafa Kia PhD Thesis, Trento FBK Univ., Italy.

10.2.3.4. Bertrand Thirion

18/01: Reviewer of Jonathan Vacher PhD thesis, Univ. Paris VI

3O/05: Examiner of Brahim Bougacha PhD thesis, University Nice

10.3. Popularization

10.3.1. Gaël Varoquaux

Présentation "Démocratisation de l'IA", Station F, (Dec 2017).

Présentation sur les logiciels libres de machine learning aux journées annuelles du groupe de travail sur les logiciels libres (Oct 2017)

Présentation sur scikit-learn au "Paris ML meetup" (Dec 2017)

Présentation sur scikit-learn au "Paris Pydata meetup" (Mars 2017)

10.3.2. Alexandre Gramfort

Présentation sur "L'intelligence artificielle au service de la société" à l'UNESCO dans le cadre des journées des ingénieurs et scientifiques de France (IESF) (Oct 2017). [0].

Présentation sur l'Intelligence Artificielle au conseil d'administration de l'Institut National du Cancer (INCA) (Nov 2017).

[0] http://home.iesf.fr/752_p_49913/l-intelligence-artificielle.html

VISAGES Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

- Christian Barillot is member of the Board of Directors of IPMI conference series (Information Processing in Medical Imaging)
- Gilles Edan did organized the 25th anniversary workshop of the "Société Française de Neurologie" in Rennes on Nov. 30th

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- Christian Barillot was area chair of SPIE-MI and ISBI 2017
- Emmanuel Caruyer was Program Committee member of the CDMRI MICCAI workshop.

10.1.2.2. Reviewer

- ISBI (Emmanuel Caruyer, Olivier Commowick), ISMRM (Élise Bannier), MICCAI (Emmanuel Caruyer, Olivier Commowick, Christian Barillot), IPMI (Olivier Commowick, Christian Barillot).

10.1.3. Journal

10.1.3.1. Member of the editorial boards

- Christian Barillot is member of Editorial Boards of Medical Image Analysis, Current Medical Imaging Reviews, ISRN Signal Processing
- Christian Barillot is Editor-in-Chief of Frontiers in ICT: Computer Image Analysis.

10.1.3.2. Reviewing Activities

- Am J Neuroradiol (Élise Bannier), Comput Biol Med (Christian Barillot), Comput Meth Prog Bio (Christian Barillot), Front Neurosc (Pierre Maurel), Hum Brain Mapp (Emmanuel Caruyer), JMRI (Isabelle Corouge), IEEE TMI (Pierre Maurel, Olivier Commowick), Med Image Anal (Olivier Commowick), Med Phys (Christian Barillot) Neuroimage (Christian Barillot, Isabelle Corouge, Emmanuel Caruyer, Olivier Commowick), Pattern Recog Lett (Christian Barillot).

10.1.4. Leadership within the Scientific Community

- Gilles Edan was elected Fellow of the European Academy of Neurologie. Member of the EAN teaching committee in 2015
- Christian Barillot is member of the Scientific Council of the INS2I [0] Institute of CNRS since 2011 and is Chairman of the Board since 2015
- Christian Barillot is member of the C3N committee (CNRS)
- Christian Barillot is member of the scientific board of “GIS France Grilles”
- Christian Barillot is member of the scientific board of the Neuroscience and psychiatry institute of AVIESAN

[0] http://csins2i.irisa.fr

10.1.5. Scientific Expertise

- Christian Barillot provided an expertise for the Royal Netherlands Academy of Arts and Sciences (KNAW)
- Christian Barillot provided expertise for the Austrian Science Fund (FWF), the NSERC / CRSNG Canada, the Wellcome Trust (UK)
- Christian Barillot provided an expertise for the KU Leuven, the University of British Columbia, Vancouver, Canada
- Christian Barillot provided expertise for the Idex Université Grenoble Alpes
- Emmanuel Caruyer provided expertise for the Inria Associate Team program.

10.1.6. Invited Talks

- Emmanuel Caruyer gave an invited lecture, "Validating tractography pipelines: the help of simulated phantoms" during the 2017 School on Brain Connectomics, Oct. 9th-13th at the University of Verona, Italy.
- Emmanuel Caruyer gave an invited lecture, "Validating tractography pipelines with the help of simulated phantoms" during the Computational Brain Connectivity Mapping winter school workshop, Nov. 20th-24th in Juan-les-Pins, France.
- Yao Chi and Isabelle Corouge - "Infrastructures pour le traitement et la gestion de données d'imagerie biologique et médicale ", Gen2bio National congress, Nantes, March 2017

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Emmanuel Caruyer, Introduction to algorithms (33h), L3 SIF, ENS Rennes, France
- Antoine Legouhy, Introduction to statistical modeling and R language (18h), L2 Biology, Univ. Rennes, France
- Antoine Legouhy, Introduction to numerical analysis and Python language (40h), L1 Biology, Univ. Rennes, France
- Corentin Vallée, Introduction to Machine learning (12h), M1 Fundamental and Applied Microbiology, Univ. Rennes, France
- Corentin Vallée, Machine learning (24h), M1 Molecular and Cellular biology, Univ. Rennes, France
- Corentin Vallée, Machine learning (24h), M1 Bioinformatics, Univ. Rennes, France
- Christian Barillot, Élise Bannier, Emmanuel Caruyer, Olivier Commowick, Isabelle Corouge, Jean-Yves Gauvrit, Master SIBM, University of Angers-Brest-Rennes (26h)
- Christian Barillot is responsible for one semester
- Jean-Yves Gauvrit is the coordinator for the Master
- École Supérieure d'Ingénieur de Rennes (ESIR): Pierre Maurel, General image processing (60h), Algorithmics and complexity (60h), Medical imaging (60h)
- ENS Rennes: Pierre Maurel, Introduction to image processing (24h)
- ISTIC – Université of Rennes 1: Emmanuel Caruyer, Software Engineering (12h)

10.2.2. Supervision

- PhD in progress: Sudhanya Chatterjee, "Image-based Tissue Compartment Characterization of Neural Circuits with in-vivo MRI", Inria, from Nov 2015, Christian Barillot, Olivier Commowick, Jean-Christophe Ferré, Simon Warfield.

- PhD in progress: Cédric Meurée, “Quantitative Analysis Of Arterial Spin Labeling MRI For Robust Parametric Information Of Perfusion Maps”, Inria / Siemens, from Mar 2014, Christian Barillot, Pierre Maurel.
- PhD in progress : Antoine Legouhy, "Longitudinal brain altas creation, application to development sudies", CNRS, from Nov 2016, Christian Barillot, François Rousseau, Olivier Commowick.
- PhD in progress : Corentin Vallée, "Joint estimation of neuronal activation, resting-state and basal metabolism from Arterial Spin Labeling", Univ. Rennes, from Nov 2016, Christian Barillot, Isabelle Corouge, Pierre Maurel.
- PhD in progress: 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 in progress: Pierre-Yves Jonin, “Relationships between context-free and context-rich memory: cognitive and neural subtrates”, Inria/Inserm/CNRS from Oct 2014, Christian Barillot (co-supervisor)
- PhD in progress: Maia Proisy, “Perfusion in neonates and in pediatric diseases”, Univ. Rennes 1/CHRU Rennes, from Oct 2014, Jean-Christophe Ferré (supervisor)
- PhD in progress: Anne Kerbrat, “Quantitative MR imaging in MS for Brain and Spine”, Univ. Rennes 1/CHRU Rennes, from Oct 2014, Gilles Edan (supervisor)
- PhD in progress: Stephanie Leplaideur, “As part of an fMRI substudy of a national research study on balance disorder rehabilitation”, Univ. Rennes 1/CHRU Rennes, from Oct 2017, Isabelle Bonan (supervisor)

10.2.3. Juries

- Olivier Commowick, PhD committee : Renaud Hedouin, Inria, Rennes; June 12th, 2017.
- Christian Barillot, PhD committee: Renaud Hedouin, Inria, Rennes; June 12th, 2017.
- Christian Barillot, PhD committee: Lorraine Perronnet, Inria, Rennes; September 7th, 2017;
- Christian Barillot, PhD committee: Chunfeng LIAN, Rouen, January 27, 2017
- Christian Barillot, PhD review: Mehdi Hadj-Hamou, Nice Sophia Antipolis, January 17, 2017
- Christian Barillot, PhD review: Marco Pizzolato, Nice Sophia Antipolis, March 31, 2017
- Christian Barillot, HDR review: Julien Lefevre, Marseille, March 30, 2017
- Christian Barillot, PhD review: Riccardo Pascuzzo, Mathematics Dept., Politechnico di Milano, Italy, Dec. 2017

10.3. Popularization

10.3.1. My thesis in 180 seconds

- Lorraine Perronnet and Cédric Meurée participated in the 2017 edition of the French edition of the Three Minutes Thesis competition" :
  - Lorraine Perronnet : "Combinaison de l’ElectroEncéphaloGraphie et de l’Imagerie par Résonance Magnétique fonctionnelle pour la réducation du cerveau par Neurofeedback"
  - Cédric Meurée : "Amélioration de la résolution d’images d’IRM de perfusion"

10.3.2. La semaine du cerveau (The Brain Week), from 13/03/2017 to 19/03/2017, Rennes

- Antoine Legouhy et Corentin Vallée : "PhD students processing MRI acquisition"
- Christophe Paya : "Discover brain anatomy with 3D models"
- Isabelle Corouge : "Neurinfo: An MRI dedicated to research"
- Pierre Maurel : "Let’s play to the brain quizz in 3D immersion (using oculus rift)"

- Emmanuel Caruyer : "Medinria: Computer science serving cerebral imaging"

10.3.3. Journées Française de Radiologie 2017, 13-16 Octobre, Paris

- Stand FLI-IAM (Michael Kain, Yao Chi, Aneta Morawin, Mathieu Simon, Ines Fahkfahk, Arnaud Touboulic, Christian Barillot)
- Journée du Réseau d'Entraide en IRM Multicentrique (REMI) co-organisée par Elise Bannier

10.3.4. 50 ans Inria, Paris

- Stand "MedInria" (Olivier Commowick, Pierre Maurel), Nov 7-8, 2017

10.3.5. Journée du Président de la Société Française de Neurologie, Rennes, 7 Décembre 2017

- Organised by Gilles Edan

AIRSEA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

E. Blayo and M. Nodet were in the organizing committee of a one-day meeting: Teaching mathematical and numerical methods to students in geosciences (Paris, December 21, 2017).

E. Blayo, E. Cosme and A. Vidard organize a one-week school “Introduction to data assimilation” for doctoral students.

F. Lemarié was the convener of the session « Recent developments in numerical atmospheric, oceanic and sea-ice models: towards global cloud and eddy resolving simulations on exascale supercomputers » during the 2017 European Geosciences Union General Assembly in Vienna (http://meetingorganizer.copernicus.org/EGU2017/session/23945).

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- C. Prieur is associate editor of the journal Computational and Applied Mathematics

10.1.2.2. Reviewer - Reviewing Activities

F. Lemarié: reviewer for Ocean Modeling, Geoscientific Model Development

10.1.3. Invited Talks

C. Prieur was invited to give a tutorial for the opening workshop of the SAMSI program on QMC. https://www.samsi.info/programs-and-activities/year-long-research-programs/2017-18-program-quasi-monte-carlo-high-dimensional-sampling-methods-applied-mathematics-qmc/

L. Debreu gave an invited talk in the session "Emerging methods for scalable atmosphere and ocean modelling", SCICADE 2017, University of Bath, September 2017

L. Debreu gave an invited talk at the conference "An overview on free surface flows", Paris, November 2017.

L. Debreu gave an invited talk at the conference "Numwave", Montpellier, December 2017.

F. Lemarié has been invited for a talk at the 3rd international workshop on « Energy transfers in Atmosphere and Ocean » in Hamburg (Germany) [17]

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).

L. Debreu is a member of the steering committee of the CROCO ocean model https://www.croco-ocean.org

10.1.5. Scientific Expertise

F. Lemarié is a member of the CROCO (https://www.croco-ocean.org/) scientific committee in charge of the « numerical methods » topic.

10.1.6. Research Administration

E. Blayo is a deputy director of the Jean Kuntzmann Lab.

C. Prieur is a member of the Scientific Council of the Mathematical Society of France (SMF).

C. Prieur is a member of the Committee of Statistical Mathematics Group of the French Statistical Society (SFdS).

E. Arnaud has been a member of the executive committee of IXXI (complex system institute) until July 2017 http://www.ixxi.fr

E. Arnaud is in charge of the MAD (Modèles et algorithmes déterministes) department of Laboratoire Jean Kuntzmann

L. Debreu is a member of the scientific evaluation committee of the French Research Institute for Development (IRD).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

License: E. Arnaud, Mathématiques pour l'ingénieur, 50h, L1, University Grenoble Alpes, France.

License: E. Arnaud, Algorithmique, 18h, L2, University Grenoble Alpes, France.

License: V. Trappler, Méthodes statistiques pour la biologie, 18h, L2, University Grenoble Alpes, France.

Licence: E. Blayo, Analyse approfondie, 80h, L1, Univ. Grenoble Alpes.

Licence: M. Nodet, Outils mathematiques pour l'ingenieur, 80h, Univ. Grenoble Alpes

Master: E. Arnaud, Tutorat d'apprentis MIAGE, 28h, M2, University Grenoble Alpes, France.

Master: E. Arnaud, Data assimilation and inverse problem, 38h, M2, University Grenoble Alpes, France.

Master: E. Blayo, PDEs and numerical methods, 43h, M1, Univ. Grenoble Alpes and Ensimag engineer school.

Master: M. Nodet, Partial differential equations, 20h, Univ. Grenoble Alpes

Master: M. Nodet, Inverse methods, 30h, Univ. Grenoble Alpes

Doctorat: E. Blayo and A. Vidard, Introduction to data assimilation, 20h, Univ. Grenoble Alpes

Doctorat: F.-X. Le Dimet, Data Assimilation for Geophysical Fluids, 16h, Harbin Institute of Technology, Summer School in Pure and Applied Mathematics.

Doctorat: L. Debreu co-organized a one week doctoral training session on numerical modelling of atmospheric and oceanic flows (with F. Hourdin (LMD, Paris), G. Roullet (UBO, Brest) and T. Dubos (Ecole Polytechnique, Paris)).)

E-learning

E-learning, SPOC: E. Arnaud, M. Nodet, E. Blayo, A. Vidard 10 weeks, moodle platform http://tinyurl.com/uga-mat207, University Grenoble Alpes, L1, 150 students

Pedagogical resources : all documents for problem-based learning including videos http://tinyurl.com/youtube-mat207

10.2.2. Supervision

Intern: Victor Trappler, Robust Estimation of bottom friction ; Parameter control in presence of uncertainties, M2, DTU Aqua, National Institute of Aquatic Resources, Technical University of Denmark, 6 months, E. Arnaud, L. Debreu and A. Vidard.

Intern: Adrien Hirvoas, Sensitivity of a floating offshore wind turbine to uncertain parameters and identification of observable variables for data assimilation, M2, University Grenoble Alpes, IFPEN, 6 months, E. Arnaud, C. Prieur, A. Vidard, F. Caleyron.

PhD in progress: Rémi Pellerej, Étude et développement d'algorithmes d'assimilation de données variationnelle adaptés aux modèles couplés océan-atmosphère, October 2014, A. Vidard, F. Lemarié.

PhD in progress: Long Li, Assimilation d'image pour le suivi de polluants, September 2017, A. Vidard, J.-W. Ma (Harbin University, China).

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 and F. Lemarié.

PhD in progress: Sophie Thery, Numerical study of coupling algorithms and boundary layer parameterizations in climate models. October 2017, E. Blayo and F. Lemarié.

PhD in progress: Victor Trappler, Parameter control in presence of uncertainties, October 2017, E. Arnaud, L. Debreu and A. Vidard.

PhD in progress: Reda El Amri, Analyse d'incertitudes et de robustesse pour les modèles à entrées et sorties fonctionnelles, April 2016, Clémentine Prieur, Céline Helbert (Centrale Lyon), funded by IFPEN, in the OQUAIDO chair program.

PhD in progress: Maria Belén Heredia, a generic Bayesian approach for the calibration of advanced snow avalanche models with application to real-time risk assessment conditional to snow conditions, October 2017, Nicolas Eckert (IRSTEA Grenoble), Clémentine Prieur, funded by the OSUG@2020 Labex.

PhD: Patricia Tencaliec, Approches stochastiques pour la gestion des risques environnementaux extrêmes, October 2013 - February 2017, Clémentine Prieur, Anne-Catherine Favre (LTHE).

PhD : Thomas Capelle, Calibration of LUTI models, UGA, April 2017, P. Sturm (EPI STEEP), A.Vidard, [36].

10.2.3. Juries

E. Blayo:

- October 13, 2017: PhD thesis of Olivier Passalacqua, Univ. Grenoble Alpes (president);
- November 9, 2017: HDR thesis of Matthieu Plu, University of Toulouse (referee);
- December 14, 2017: PhD thesis of Marina Duran Moro, Univ. Grenoble Alpes (president).

C. Prieur:

- 18 décembre 2017: PhD thesis of Eliott Tixier, UPMC (referee);
- June 28, 2017: PhD thesis of Claire Delplancke, Univ. of Toulouse (referee);
- June 13, 2017: PhD thesis of Angie Pineda, Univ. of Caracas, Venezuela (president);
- March 1, 2017: PhD thesis of Nabil El Moçayd, Univ. of Toulouse (referee);
- February 1, 2017: PhD thesis of Patricia Tencaliec, Univ. Grenoble Alpes (directrice);
- February 16, 2017: HDR thesis of N. Eckert, Univ. Grenoble Alpes (referee).

F.-X. Le Dimet: PhD thesis of Hind Oubanas, Univ. of Toulouse (referee);

E. Arnaud: juries of M2 thesis and M2 Miage apprentices.

10.3. Popularization

M. Nodet and J. Erhel won the first prize of the second Imaginary Mathematics for Planet Earth competition with their web module entitled "Simulating the melting of ice caps" [26].

E. Blayo gave several outreach talks, in particular for middle school and high school students, and for more general audiences.

Ch. Kazantsev and E. Blayo are strongly involved in the creation of “La Grange des maths", a science center that will be located in Varces (south of Grenoble), which will offer a huge variety of mathematical hands-on exhibits. See http://www.la-grange-des-maths.fr/.

Ch. Kazantsev leads two IREM groups. One of them works in frames of the center “La Grange des maths" and prepares "The Mathematical box", a set of 23 games and mathematical activities designed to allow children to study mathematics in an original and autonomous way. Since October, these box are available to rent by secondary schools. Another group organizes "The Sunday Math Club" that teaches mathematics in a researchers way by proposing interesting mathematical problems to children from 10 to 17 years old.

M. Nodet and E. Arnaud co-organises a year-round weekly math club in two secondary schools, part of the national network "Math en Jeans", where pupils research open mathematical problems.

M. Nodet takes part in training modelling in mathematics to secondary school maths teachers through the regional "Maison pour la Science"

M. Nodet is in charge of an IREM group about building interdisciplinary projects for secondary school classes. Part of their work has been accepted for publication in the IREM national journal [28].

M. Nodet is a member of "Les Emulateurs", a group of Grenoble University professors meeting once a month around the subjects of innovative pedagogy and its applications to universities.

M. Nodet co-autored, with other Univ. Grenoble Alpes teachers, a paper at the Pedagogy conference QPES [27] and offered a 3h practical work session during this conference about "Peer assessment in education".

ANGE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organising Committees

Y. Penel and J. Sainte-Marie organised (with E. Fernández-Nieto) the workshop "An overview on free-surface flows" that took place at Inria on November 13th-14th and that gathered 35 researchers (from France, US, Italy, Spain).

B. Di Martino, J. Sainte-Marie and A. Mangeney organised the 5th EGRIN summer school that took place at Cargèse from May, 29th to June, 2nd and that gathered 40 researchers.

E. Audusse was a member of the organising committee of the 8th edition of the conference "Finite-Volume for Complex Applications" (June, 12th to 16th, Lille).

M. Parisot organises the monthly ANGE seminar. The program for 2017 comprises: H. Martin (Jan), J. Sainte-Marie (Feb), V. Desveaux (Mar), V. Mallet (Apr), B. Al Taki (Sep), C. Cancès (Oct), R. Ventura (Nov), V. Duchêne (Dec).

J. Salomon co-organises the LJLL-Inria meetings (twice a month). L. Boittin co-organises the Junior Seminar at Inria–Paris.

E. Audusse, C. Guichard and Y. Penel organised the welcome session for newly recruited researchers in mathematics on behalf of national research institutions (CNRS, Inria, SFdS, SMAI, SMF) on January, 23rd.

We finally mention that M. Parisot and J. Salomon will organise a workshop entitled "Scientific computing and optimisation processes for renewable energies" at Inria on January 2018.

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

Member	Journal
E. Audusse	M2AN, Water
C. Guichard	Springer Proc. Math., CRAS Mathematiques, Journal of Scientific Computing, Computers and Mathematics with Applications, Journal of Computational Physics, Numerical Methods for Partial Differential Equations
V. Mallet	JAMES, Atmospheric Environment
A. Mangeney	JGR, GRL, GJI
M. Parisot	ESAIM:ProcS, Springer Proc. Math., M2AN
Y. Penel	Springer Proc. Math., Journal of Computational Physics
J. Sainte-Marie	M2AN, Applied Mathematical Modelling, IJNMF, ANR, Journal of Scientific Computing
J. Salomon	CRAS, SIAM SISC, JMPA

10.1.3. Invited Talks

Conference	Location	Month	Members involved
Earth Sciences	Durham (UK)	January	A. Mangeney
DD24	Svalbard (Norway)	February	J. Salomon
Workshop on reduced order methods for wind and marine current power	Nice	February	J. Salomon
Entreprises pour l'environnement	Paris	March	V. Mallet
Clifford lectures	New-Orleans (USA)	April	J. Sainte-Marie
EGRIN (5th summer school)	Cargèse	June	E. Audusse, L. Boittin, A. Mangeney, M. Parisot, Y. Penel
SMAI 2017	Ronce-les-Bains	June	F. Wahl
Forecasting and risk management for renewable energy	Paris	June	V. Mallet
EGU Meeting "Environmental Seismology"	Ohlstadt (Germany)	June	A. Mangeney
InterNoise	Hong-Kong	August	V. Mallet
SIAM GS 2017	Erlangen (Germany)	September	E. Audusse, L. Boittin, F. Wahl
ENUMATH	Voss (Norway)	September	J. Salomon
Euromech colloquium 588	Toulouse	October	L. Boittin
Workshop EDP-Normandie	Caen	October	F. Wahl
Workshop on numerical schemes for low Mach number flows	Toulouse	November	Y. Penel
UMEMA	Torino (Italy)	November	V. Mallet
Numerical Methods for Shallow Water Equations and Related Models	Shenzhen (China)	November	J. Sainte-Marie
NumWave	Montpellier	December	E. Audusse, M. Parisot

Seminars	Date	Member
Clermont-Ferrand (Blaise Pascal)	January	B. Di Martino
Bordeaux (MathOcean)	February	E. Audusse, M. Parisot
Marne-la-Vallée (ENPC)	February	V. Mallet
Orléans (BRGM)	April	A. Mangeney
Tokyo (Earthquake Research Institute)	October	A. Mangeney
Saclay (CEA-LSCE)	October	V. Mallet

10.1.4. Leadership within the Scientific Community

Organisation	People	Duty
AMIES	E. Godlewski	Member of board
ANR	V. Mallet	Expert
CEREMADE lab council	J. Salomon	Member
CFEM	E. Godlewski	Director
EGRIN	E. Audusse	Correspondent (Paris 13)
	B. Di Martino	Correspondent (Corse)
	N. Goutal	Correspondent (EDF)
	C. Guichard	Correspondent (UPMC)
	B. Haspot	Correspondent (CEREMADE)
	A. Mangeney	Member of board
	M. Parisot	Correspondent (ANGE)
	J. Sainte-Marie	Scientific head
HCERES	A. Mangeney	Expert
LJLL	E. Godlewski	Deputy director
SMAI	Y. Penel	Member of board

A. Mangeney was a member of the hiring panel for a full professor position at Univ. Grenoble Alpes.

We also mention that V. Mallet and M. Parisot are members of the Inria committee of doctoral monitoring and that J. Salomon is in the committee for the next location of the centre Inria Paris (rue Barrault).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

PhD degree - J. Salomon, Variational inequalities, 6 hours (lectures), Mines ParisTech

Master's degree (M2) - E. Godlewski and J. Sainte-Marie, Hyperbolic models for complex flows and energy applications, 25 hours (lectures), Univ. Pierre et Marie Curie Paris 6

Master's degree (M2) - C. Guichard, Numerical methods for nonstationary PDEs, 6 hours (programming classes), Univ. Pierre et Marie Curie Paris 6

Master's degree (M2) - A. Mangeney and J. Sainte-Marie, Numerical methods in geosciences, 60 hours (lectures and programming classes), Univ. Paris Diderot Paris 7, IPGP

Master's degree (M2) - B. Di Martino, Mathematical modelling, 21 hours (lectures, example and programming classes), Univ. Corse

Master's degree (M2) - J. Salomon, Numerical methods for PDEs, 45 hours (lectures), Univ. Paris Dauphine

Master's degree (M2)- Y. Penel, Deterministic models in life sciences, 30h (lectures, example and programming classes), Univ. Paris Descartes

Master's degree (M2) - V. Mallet, Modelling of air quality, 4.5h (lectures), ENPC

Master's degree (M2) - V. Mallet, Simulation of atmospheric dispersion, 3h (programming classes), ENPC

Master's degree (M2) - V. Mallet, Data assimilation in geophysics, 7h (programming classes), ENPC

Engineering school (2nd year) - E. Audusse, ODEs: analysis and numerical simulation, 30 hours (lectures and example classes), Univ. Paris 13

Engineering school (2nd year) - E. Audusse, Finite difference method for PDEs, 21 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, Modelling of gravity flows, 80 hours (lectures), Univ. Paris Diderot Paris 7, IPGP

Master's degree (M1) - B. Di Martino, Finite element methods, 18 hours (lectures and example classes), Univ. Corse

Master's degree (M1) - B. Di Martino, Risk modelling, 33 hours (lectures and example classes), Univ. Corse

Master's degree (M1) - J. Salomon, Numerical methods for PDEs, 85 hours (lectures and example classes), Univ. Paris Dauphine

Engineering school (1st year) - E. Audusse, Introduction to scientifi computing, 30 hours (lectures and example classes), Univ. Paris 13

Bachelor's degree (L3) - L. Boittin and C. Guichard, Numerical methods for ODEs, 101.5 hours (example and programming classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L3) - C. Guichard, Python, 21 hours (programming classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L3) - B. Di Martino, Linear numerical analysis, 54 hours (lectures and example classes), Univ. Corse

Bachelor's degree (L2) - B. Di Martino, Analysis, 54 hours (lectures and example classes), Univ. Corse

Bachelor's degree (L2) - Y. Penel and F. Wahl, Integration in 2 and 3 dimensions, 31 hours (lectures and example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L2) - C. Guichard, Some numerical approximations, 17 hours (lectures and programming classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1-L2) - B. Al Taki, Analysis and algebra, 12 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1-L2) - Y. Penel, Linear algebra, ODEs, elementary probabilities, 20 hours (example classes), Univ. Pierre et Marie Curie Paris 6 (Roscoff)

Bachelor's degree (L1) - B. Di Martino, Mathematics, 18 hours (lectures and example classes), Univ. Corse

Bachelor's degree (L1) - F. Wahl, Sequences and integrals, linear algrebra, 54 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1) - L. Boittin, Calculus, 38 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1) - L. Boittin, Linear algebra, 18 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Some members are responsible of educational pathways:

E. Audusse is the deputy director of the "Applied Mathematics and Scientific Computing" program of the SupGalilee engineering school.

E. Godlewski is the head of the "Mathematics for Industry" M.Sc. program of Univ. Pierre et Marie Curie Paris 6.

C. Guichard is the associated head of the "Mathematics and Programming" B. program of Univ. Pierre et Marie Curie Paris 6.

10.2.2. Supervision

PostDoc in progress -Bilal Al Taki, *Well-posedness multilayers Saint-Venant equation*, Inria, supervised by J. Sainte-Marie, B. Haspot and B. Di Martino, from 2017

PostDoc in progress - Guillaume Chérel, *Data assimilation for urban pollution*, Inria, supervised by V. Mallet, from 2016

PostDoc in progress - Virginie Durand, *Analysis of rockfalls and generated seismic signals at La Réunion*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney, from 2014

PostDoc in progress - Jannelle Hamond, *Uncertainty quantification applied to air quality simulation at urban scale*, Inria, supervised by V. Mallet, from 2017

PostDoc in progress - El Hadji Kone, *Numerical modelling of two-phase flows*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with G. Narbona-Reina and E. Fernández-Nieto), from 2014

PostDoc in progress - Pierre-Olivier Lamarre, *Optimisation of the hydrodynamic regime in a raceway and lagrangian trajectories of algae*, Inria, supervised by J. Sainte-Marie (in collaboration with O. Bernard, BIOCORE), from 2016

PostDoc in progress - Sylvain Viroulet, *Numerical modelling of granular flows and generated forces on the topography*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney, from 2016

PhD - 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), defended on Dec. 17

PhD - Jean Thorey, *Prévision d'ensemble par agrégation séquentielle appliquée à la prévision de production d'énergie photovoltaïque*, Inria grant, supervised by V. Mallet (in collaboration with I. Herlin), defended on Sept. 17

PhD in progress - Frédéric Allaire, *Quantification du risque incendie par méta-modélisation de la propagation de feux de forêt*, Inria grant, supervised by V. Mallet and J. Sainte-Marie, from 2017

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 - Léa Boittin, *Modelling, analysis and efficient numerical resolution for erosion processes*, Univ. Pierre et Marie Curie Paris 6 (Inria grant), supervised by E. Audusse, M. Parisot and J. Sainte-Marie, from Jan. 16

PhD in progress - Pauline Bonnet, *Vers un catalogue des vêlages d'icebergs en région polaire par une approche couplée sismologie et modélisation mécanique*, Institut de Physique du Globe (Univ. Paris 7) & ENSAM-ParisTech, supervised by A. Mangeney (in collaboration with O. Castelnau and V. Yastrebof), from 2017

PhD in progress - Ruiwei Chen, *Uncertainty quantification in the simulation of traffic emissions*, ENPC, supervised by V. Mallet (in collaboration with V. Aguiléra, K. Sartelet), from 2014

PhD in progress - Virgile Dubos, *Numerical methods for the elliptic/parabolic parts of non-hydrostatic fluid models*, Univ. Pierre et Marie Curie Paris 6, supervised by C. Guichard, Y. Penel and J. Sainte-Marie, from 2017

PhD in progress - Nadia Jbili, *Contrôle optimal pour la résonance magnétique nucléaire*, Univ. Paris Dauphine, supervised by J. Salomon, from 2017

PhD in progress - Julian Kühnert, *Simulation of high frequency seismic waves*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney, from 2016

PhD in progress - Antoine Lesieur, *Estimation d'état et modélisation inverse appliquées à la pollution sonore en milieu urbain*, Inria grant, supervised by V. Mallet and J. Sainte-Marie, from 2017

PhD in progress - Hugo Martin, *Simulation of the coupling between seismic waves and granular flows*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with Y. Maday), from 2016

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 - Nourelhouda Omrane, *Mathematical analysis and control of free-surface flows in variable domains*, Univ. Corse, supervised by B. Di Martino, from 2016

PhD in progress - Marc Peruzzetto, *Hazard assessment related to gravitational flows: from modelling to risk analysis*, Institut de Physique du Globe (Univ. Paris 7) & BRGM, supervised by A. Mangeney (in collaboration with G. Grandjean), from 2017

PhD in progress - Pierrick Quémar, *3D numerical simulations of environmental hydrolics: application to Telemac*, Univ. Paris 13, supervised by E. Audusse and N. Goutal (in collaboration with A. Decoene, O. Lafitte, A. Leroy and C. Tuân Phan), from 2016

PhD in progress - Sebastian Reyes-Riffo, *Mathematical methods for recovering marine energies*, Univ. Paris Dauphine, supervised by J. Salomon, from 2016

PhD in progress - Raphaël Ventura, *Estimation de la pollution sonore en milieu urbain par assimilation d'observations mobiles*, Inria grant, supervised by V. Mallet (in collaboration with I. Herlin), from 2014

PhD in progress - Fabien Wahl, *Modelling and analysis of interactions between free surface flows and floating objects*, Univ. Pierre et Marie Curie Paris 6, supervised by C. Guichard, E. Godlewski, M. Parisot and J. Sainte-Marie, from 2015

M2 internship - M Hamed Bouchiba, *Obtention du modèle Saint-Venant et stabilité des solutions faibles d'un système Navier-Stokes compressible*, Univ. Pierre et Marie Curie Paris 6, supervised by B. Di Martino and B. Haspot, Summer 2017

M2 internship - Anthony Guimpier, *Analyse d'instabilités gravitaires sur Mars*, IPGP, supervised by A. Mangeney (in collaboration with S. Conway, N. Mangold), Summer 2017

M2 internship - Ani Miraçi, *Formulation et étude numérique de la partie elliptique d'un problème couplé issu de la géophysique*, Univ. Pierre et Marie Curie Paris 6, supervised by C. Guichard, Y. Penel and J. Sainte-Marie, Summer 2017

M2 internship - Pablo Poulain, *Granular flows simulation and application to volcanic flank collapse*, IPGP, supervised by A. Mangeney (in collaboration with A. Le Friand, G. Boudon), Summer 2017

M2 internship - Laurie Supperamaniyen, *Dynamique éruptive du Piton de La Fournaise à partir d'enregistrements sismiques continus sur quelques éruptions*, IPGP, supervised by A. Mangeney (in collaboration with S. Vergniolle), Summer 2017

L3 internship - Jeanne Trinquier, *Tsunamath : module pédagogique présentant les travaux de modélisation et de simulation des tsunamis*, supervised by E. Audusse and J. Sainte-Marie, Summer 2017

10.2.3. Juries

Jan., PhD - J. Sainte-Marie: Amélie Simon (E. Centrale Lyon, *Modélisation des phénomènes de films liquides dans les turbines à vapeur*)

Feb., PhD - Y. Penel: Arthur Talpaert (École Polytechnique, *Simulation numérique directe de bulles sur maillage adaptatif avec algorithmes distribués*)

Mar., PhD - J. Sainte-Marie (referee): Nabil El Mocayd (Cerfacs – Univ. Toulouse, *La décomposition en polynôme du chaos pour l'amélioration de l'assimilation de données ensembliste en hydraulique fluviale*)

Mar., PhD - A. Mangeney (referee): Perrine Freydier (Univ. Grenoble Alpes – IRSTEA, *Dynamique interne au front d'écoulements à surface libre. Application aux laves torrentielles*)

May, PhD - J. Salomon: Francesc Fàbregas Flavià (École Centrale Nantes, *A Numerical Tool for the Frequency Domain Simulation of Large Clusters of Wave Energy Converters*)

May, PhD - V. Mallet: Chi Vuong NGuyen (École CEntrale Lyon, *Assimilation de données et couplage d'échelles pour la simulation de la dispersion atmosphérique en milieu urbain*)

Sept., PhD - V. Mallet: Jean Thorey (Univ. Pierre et Marie Curie, *Prévision d'ensemble par agrégation séquentielle appliquée à la prévision de production d'énergie photovoltaïque*)

Nov., PhD - J. Sainte-Marie (president): Charles Demay (Univ. Grenoble Alpes, *Modélisation et simulation des écoulements transitoires diphasiques eau-air dans les circuits hydrauliques*)

Nov., PhD - A. Mangeney (president): Thao Trinh (Univ. Rennes 1, *Mécanisme d'érosion et de déposition de l'écoulement granulaire sur un fond meuble*)

Dec., PhD - A. Mangeney (president): Julien Brondex (Univ. Grenoble Alpes – IGA, *Influence de l'endommagement et du frottement basal sur la dynamique de la ligne d'échouage*)

Dec., PhD - A. Mangeney: Alexis Bougouin (Institut National Polytechnique de Toulouse, *Étude expérimentale de l'effondrement d'une colonne fluide-grains*)

Dec., PhD - C. Guichard: Riad Sanchez (IFPEN – Univ. Paris-Saclay, *Techniques de bases réduites pour les écoulements diphasiques en milieux poreux*)

Dec., PhD - J. Sainte-Marie (referee): Athmane Bakhta (Univ. Paris-Est, *Modèles mathématiques et simulation numérique de dispositifs photovoltaïques*)

Dec., PhD - B. Di Martino: Réjane Fieschi (Univ. Corse, *Résolution d'équations d'ondes en dimension quelconque*)

Dec., PhD - E. Audusse and Y. Penel: Do Minh Hieu (Univ. Paris 13, *Analyse mathématique de schémas volume finis pour la simulation des écoulements quasi-géostrophiques à bas nombre de Froude*)

10.3. Popularisation

April - V. Mallet participated to the workshop Smart Cities organised by *Le Monde* in Lyon

May - L. Boittin and R. Ventura ran a stand on the occasion of the "salon de la culture et des jeux mathématiques" on behalf of AMIES

June - V. Mallet and R. Ventura helped the organising committee of the "noise walk" in Helsinki (as well as the November edition)

June-July - J. Trinquier's internship was dedicated to the development of an educational tool based on Tsunamath which incorporates modelling and simulation (supervision by E. Audusse and J. Sainte-Marie)

October - E. Audusse got involved in a TPE for students in 1re S

November - R. Ventura provided an association in Paris with noise reports

November - Y. Penel ran a stand during the ONISEP exhibition

December - L. Boittin, Y. Penel and F. Wahl helped the organisation at the "Math. Employment" show

CASTOR Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Conference Program Committees

Jacques Blum is member of the scientific commmittee of PICOF 18 (Inverse Problem, Control and Shape Optimization) which will take place in Beirut in 2018.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- C. Boulbe is layout editor of the free journal SMAI-Journal of Computational Mathematics.
- J. Blum is member of
  - the editorial board of the Journal of Scientific Computing (JSC),
  - the scientific committee of the collection "Mathématiques et Statistiques" of the ISTE publications,
  - editor in chief of the ISTE Open Science journal: "Mathématiques appliquées et stochastiques".

9.1.2.2. Reviewer - Reviewing Activities

- Hervé Guillard have been reviewer fo the Journal of Computational physics, Computers and Fluids and Internationa l Journal for Numerical methods in Fluids.
- R. Pasquetti has been reviewer for several journals, including the journal of Computational Physics and Computers and Fluids.

9.1.3. Invited Talks

- Hervé Guillard, “Fast waves and incompressible models”, School of Aerospace, Mechanical and Mechatronic Engine ering The University of Sydney, NSW 2006
- Hervé Guillard, “Fast waves and incompressible models”, Plasma Theory and Modelling, Centre for Plasmas and Fluids, Research School of Physics and Engineering, Australian National University, Canberra ACT 0200, AUS TRALIA
- Hervé Guillard, Workshop "Schémas numériques pour les écoulements à faible nombre de Mach", November 20-22 2017
- R. Pasquetti, Spectral element schemes for the Korteweg-de Vries and Saint-Venant equations, Rencontres Mathématiques - Mécanique du CFM 2017, Lille, August 28 - September 1, 2017

9.1.4. Leadership within the Scientific Community

- J. Blum is:
  - a member of the scientific committee of Academy 1 of UCA-IDEX JEDI: «Networks, Information and Digital society»,
  - member of the "bureau" and the director committee of the Fédération FR-FCM (Fédération de Recherche Fusion par Confinement Magnétique - ITER).
- H. Guillard is coordinator of the topic "Turbulence and transport of edge plasma" within the Fédération FR-FCM

- C. Boulbe is task coordinator of the ACT2: Free boundary equilibrium and Control within the Eurofusion WPCD workpackage.
- Responsabilities of Boniface Nkonga
  - Treasure of ECCOMAS, member of the Managing Board : 2017-2021. ECCOMAS : European Community on Computational Methods in Applied Sciences.
  - Scientific committee of EoCoe : 2016-2020.
  - Manager of the ITER contract IO/17/CT/4300001505 : 2017-2019.
  - Manager of the ITER contract IO/15/PR/11410/MCI: 2015-2017.
  - Manager of the Enabling research contract CfP-WP15-ENR-01/IPP-05 : 2014-2018
- Didier Auroux is president of the "Computer Science, Algorithms and Mathematics" committee of GENCI (HPC and numerical simulations)

9.2. Teaching - Supervision - Juries

9.2.1. 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, M2, Polytech Nice Sophia, Université de Nice Sophia Antipolis, France

Ecole d'ingenieur: D. Auroux, Projet, 35h, L3, Polytech Nice Sophia Antipolis, France

Master: J. Blum, Optimisation, 36h, M1, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur: C. Boulbe, Analyse Numérique, 71.5h, L3, Polytech Nice Sophia Antipolis, France

Ecole d'ingenieur: C. Boulbe, Méthodes numériques - EDP, 66h, M1, Polytech Nice Sophia Antipolis, France

Ecole d'ingenieur: C. Boulbe, Projet, 35h, L3, Polytech Nice Sophia Antipolis, France

Licence: S. Minjeaud, module Eléments de calcul différentiel, 18 h, L3, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, module Méthodes numériques en EDP, 36 h, M1, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, module Analyse et simulations numériques pour les EDP, 20 h, M2, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, module Simulations numériques des problèmes d'évolution, 20 h, M2, 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, Eléments finis mixtes, 24h, M2, Polytech Nice Sophia, France

Licence: A. Sangam, Analyse, 40h, 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, Analyse Numérique, 68h, L3, Université de Nice Sophia Antipolis, France

Master: A. Sangam, Introduction to Finite Elements, 25h, M1, Université Nice Sophia Antipolis, France

9.2.2. Supervision

PhD : Estibals, Elise,MHD modeling and numerical simulation with finite volume-type methods. Application to fusion plasma, Université Côte d'Azur, 2017 May 2nd, PhD Supervisors : Hervé Guillard, Afeintou Sangam. [6]

PhD in progress : X. Song, "Model based control oriented scenario construction in Tokamak", since October 2016, Blaise Faugeras, Holger Heumann.

PhD in progress : J. Llobell, "Schémas numériques sur grilles décalées pour la dynamique des gaz", since October 2015, T. Goudon, S. Minjeaud.

9.2.3. Juries

Boniface Nkonga

- Phd Reports and Jury: E. Itam, Univ de Montpellier, H. Gidey, Univ. of Pretoria (Sud Africa).
- Jury HDR, Jacek Narski, Univ. de Toulouse, 2017.

COFFEE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

We do not keep track of such activities.

9.1.1.2. Member of the Organizing Committees

- Co-organisation of the conference FVCA8 june 2017 in Lille

9.1.2. Scientific Events Selection

9.1.2.1. Chair of Conference Program Committees

We do not keep track of such activities.

9.1.2.2. Member of the Conference Program Committees

We do not keep track of such activities.

9.1.2.3. Reviewer

We do not keep track of such activities.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

T. Goudon if founding editor and co-Editor in chief of SMAI-J. Computational Mathematics

9.1.3.2. Reviewer - Reviewing Activities

We do not keep track of such activities.

9.1.4. Invited Talks

We do not keep track of such activities.

9.1.5. Leadership within the Scientific Community

We do not keep track of such activities.

9.1.6. Scientific Expertise

Thierry Goudon is member of the scientific board of CIRM and of FSMP.

9.1.7. Research Administration

Roland Masson is the head of the team PDE and Numerical Analysis of the laboratory J.A. Dieudonné.

Roland Masson is a member of the scientific committee of CERFACS.

Roland Masson is scientific advisor at the scientific direction of Total.

Thierry Goudon is member of the Evaluation Committee of Inria.

Thierry Goudon is Scientific Officer at the French Ministry of Education and Research.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Members of the team are faculties of University Nice Sophia Antipolis and they teach in all degrees of the University.

Florent Berthelin, Master 2 Agrégation, Université Nice Sophia Antipolis.

Florent Berthelin, Chair of the Master 2 Agrégation, Université Nice Sophia Antipolis.

Thierry Goudon is President of the national competition to hire teachers (agregation de mathematiques).

Stella Krell, Linear Algebra, Master 1 enseignement, ESPE Nice, 23h.

Stella Krell, Didactics of mathematics, Master 1 EEF, Université Nice Sophia Antipolis, 43h.

Stella Krell, Theses and placement supervision, Master 2 EEF, Université Nice Sophia Antipolis, 12h.

Stella Krell, Preparation to mathematics agrégation interne, Université Nice Sophia Antipolis, 18h.

Stella Krell, Intervention, Master 2 enseignement, Université Nice Sophia Antipolis, 3h.

Laurent Monasse, Introduction to analysis and dynamical systems, Ecole des Ponts ParisTech, 20h.

Thierry Goudon is President of the jury of agregation.

9.2.2. Supervision

PhD: Julian Hennicker, Hybrid dimensional modeling of multi-phase Darcy flows in fractured porous media, Univ Nice - Sophia Antipolis, 10 July 2017, Roland Masson and Konstantin Brenner

PhD: Thi Huong Le, On some periodic solutions of discrete vibro-impact systems with a unilateral contact condition, Univ Nice - Sophia Antipolis, 16 June 2017, Stéphane Junca

PhD in progress: Kevin Atsou, Mathematical modeling of tumor growth, analysis and simulation, 01 October 2017, Thierry Goudon

PhD in progress: Laurence Beaude, Discretization of high energy geothermal systems in faulted porous media, 01 October 2015, Roland Masson, Konstantin Brenner, Simon Lopez and Farid Smai

PhD in progress: Billel Guelmame, Conservation laws in mechanics, 01 October 2017, Stéphane Junca

PhD in progress: Giulia Lissonni, DDFV methods and domain decomposition: applications in fluid mechanics, 01 September 2016, Stella Krell and Thierry Goudon.

PhD in progress: Julie Llobell, Numerical schemes on staggered grids for conservation laws, 01 September 2015, Thierry Goudon and Sebastian Minjeaud

PhD in progress: Leo Vivion, Dynamical model of a Lorentz gas : kinetic approach, analysis and asymptotic issues, 01 September 2017, Thierry Goudon

PhD in progress: Frédéric Marazzato, Modeling of fracture and fragmentation using a Discrete Element method, 01 October 2016, Alexandre Ern, Karam Sab and Laurent Monasse.

9.2.3. Juries

- Laurent Monasse, Examiner, PhD defense Julien Ridoux, Université Paris 6, 4 October 2017.
- Thierry Goudon, Pdt HDR defese F. Laurent-Nègre, “Méthodes de moments pour la description de sprays et d’aérosols : modélisations et simulations num’eriques”, ECParis, Mars 2017.
- Thierry Goudon, referee PhD defense T. Blanc, “Étude mathématique des problèmes paraboliques fortement anisotropes”, Marseille, Déc. 2017.

FLUMINANCE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

- J. Erhel organizes with J-R. de Dreuzy and T. Le Borgne the international conference CWMR (Saint-Malo, France, June 2018).
- E. Mémin organizes the national colloquium on data assimilation (Rennes, september 2018).

10.1.1.2. Member of the Organizing Committees

Jocelyne Erhel

- organizes with J-R. de Dreuzy and T. Le Borgne (OSUR) the international conference CWMR (Saint-Malo, France, June 2018).
- organizes with T. Faney and A. Michel (IFPEN) a workshop on reactive transport (Paris, France, February 2018).

Etienne Mémin

- "Data Science & Environment", workshop + summer school, 3-7 July 2017, Brest, France

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

Jocelyne Erhel

- international advisory committee of the parallel CFD conferences (Glasgow, UK, May 2017).
- program committee of the international conference PARENG 2017 (Pecs, Hungary, May 2017).
- program committee of the workshop Visualization in Environmental Sciences 2017 (co-event of EuroVis)

Cedric Herzet

- Co-organisateur & co-chair of the special session: « Compressed sensing et inversion » of the Gretsi 2017

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Jocelyne Erhel

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

Etienne Mémin

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

10.1.3.2. Reviewer - Reviewing Activities

Jocelyne Erhel: Reviewer for the journals ADWR, ARIMA, JCAM, MATCOM
Dominique Heitz: Reviewer for Exp. in Fluids, SIGGRAPH, ICPMS, Im. Vis. Comp.
Cédric Herzet: Reviewer for IEEE Tr. on Signal Processing, IEEE Tr. on Information Theory, Gresti 2017, ICASSP 2017

Etienne Mémin: Reviewer for Tellus-A, Journ. of Fluid Mech., Im. Vis. Comp., Exp. in Fluids, Nonlinear Proc. in Geophysics., Journ. of Comp. Phys.

10.1.4. Invited Talks

Dominique Heitz

- 2nd Workshop on Data Assimilation & CFD Processing for PIV and Lagrangian Particle Tracking, Delft, Nederland, 13-14, December, 2017.
- Journée Technique 41- Association Française de Vélomimétrie Laser, Meudon, France, May 11, 2017.

Cédric Herzet

- Séminaire, LIMSI Model Reduction from Partial Observations Jan. 2017
- Séminaire, IMT Atlantique, nov. 2017
- Séminaire, UMR Lab-sticc, Brest, avril 2017

Roger Lewandowski

- Colloquium Univ. Pisa, May 2017.

Etienne Mémin

- AFVL, Meudon, Stratégies d'assimilation de données pour la reconstruction d'écoulements, France, March 2017
- Imperial College, Math. for Planet Earth Centre for doctoral training, Stochastic representation of fluid flow dynamics, November 2017.
- Imperial College, London (UK), Math. for Planet Earth Centre for doctoral training, Stochastic representation of fluid flow dynamics, Nov. 2017.
- Center for Earth System Research and Sustainability, Hamburg (Ger.), Stochastic representation of fluid flow dynamics, Dec. 2017.
- Université de Grenoble, Comodo workshop, Stochastic representation of fluid flow dynamics, Dec. 2017.

10.1.5. Leadership within the Scientific Community

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

10.1.6. Scientific Expertise

- J. Erhel is a member of the scientific council of IFPEN, since April 2016.
- C. Herzet was reviewer for ANR.

10.1.7. Research Administration

Jocelyne Erhel

- correspondent of Maison de la Simulation for Inria Rennes.
- correspondent of AMIES for Inria Rennes, from September 2015.
- member of the Inria national committee for secondment, 2016.
- coordination of the working group for a team creation at Inria Rennes.
- member of the Inria local committee for health and safety (référent chercheur) from January 2016.
- member of the Inria administrative commission (CAP) for researchers, from January 2016.

Dominique Heitz

- Responsible of the Irstea ACTA Team
- Member of Pôle Cristal scientific council
- Member of Irstea OPAALE research unit Executive Committee
- Member of Irstea center of Rennes Executive Committee

Roger Lewandowski

- Elected president of the SMAI-GAMNI thematic group on Advances of Engineering Numerical Methods
- Correspondant SMAI

Etienne Mémin

- Responsible of the "Commission Développement Technologique" Inria Rennes
- Member of the "Commission Personnel" Inria-IRISA Rennes

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: Jocelyne Erhel, Optimisation, 24h, niveau L3, ENSAI Rennes

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

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

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

Master : Cédric Herzet, « Smart Sensing », 24h, master international « Smart Sensing and Big Data », ENSAI

Master : Cédric Herzet, Représentations parcimonieuses et compressed sensing, niveau M2, niveau M2, INSA, 10h

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

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.

10.2.2. Supervision

PhD in progress: Pierre-Marie Gibert, University of Lyon, October 2015, co-advisors D. Tromeur-Dervout and Jocelyne Erhel.

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

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 : Musaab Khalid Osman Mohammed, Motion analysis techniques for flood images, started february 2015, Lionel Penard (Irstea/Lyon) and Etienne Mémin

PhD in progress : Pranav Chandamouli, Turbulent complex flows reconstruction via data assimilation in large eddy models, started october 2015, Dominique Heitz, Etienne Mémin.

PhD in progress : Romain Schuster, Large-scale fluid motion estimation, started october 2016, Dominique Heitz, Etienne Mémin.

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

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

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

10.2.3. Juries

Johan Carlier

- Kevin Chatelain, PhD, Polytech'Orléans, (examinateur)

Jocelyne Erhel

- Martin Bachet, PhD, Univ. PSL Mines ParisTech (rapporteur)
- Daniel Jara Heredia, PhD, Univ. Rennes (présidente)
- Antoine Plet, PhD, ENS Lyon (présidente)
- Tangi Migot, PhD, INSA Rennes (examinatrice)

Dominique Heitz

- Robin Yegavian, PhD Ecole Polytechnique (Rapporteur)

Cédric Herzet

- Jean-François Determe PhD université catholique de Louvain, Belgique(Examinateur)

Roger Lewandowski

- Charles Pelletier, PhD Univ. Grenoble Alpes(Rapporteur)

Etienne Mémin

- Olivier Barrois, PhD Univ. Grenoble Alpes(Rapporteur)
- Jean-Matthieu Haussaire, PhD Univ. Paris-Est (Examinateur),

10.3. Popularization

Jocelyne Erhel

- présidente du jury du rallye de mathématiques du CNED, 2017 and 2018.
- First prize of the second Mathematics of Planet Earth international competition. Module "Simulating the melting of ice caps", authors M. Nodet and J. Erhel.

Dominique Heitz

- Interview dans L'Usine Nouvelle, No 3479, pp. 30-31, 2016

LEMON Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. Member of the Organizing Committees

Carole DELENNE was member of the local organisation committee of the "Powders and Grains" congress that hold in Montpellier (Corum) in July 2017

Gwladys TOULEMONDE is chair of the organizing committee of the international conference METMA IX (June 2018, Montpellier).

8.1.2. Journal

8.1.2.1. Member of the Editorial Boards

Antoine ROUSSEAU is member of DCDS-S editorial board

8.1.2.2. Reviewer - Reviewing Activities

Carole DELENNE is reviewer Journal of Hydraulic Research, Water (2 manuscripts/year)

Vincent GUINOT is reviewer for Journal of Hydrology, Advances in Water Resources, Mathematical Problems in Engineering (3 manuscripts/year)

Antoine ROUSSEAU is reviewer for Journal of Hydrology (2 manuscripts/year)

8.1.3. Invited Talks

Antoine ROUSSEAU gave an invited talk to the Sino-French Conference on Computational and Applied Mathematics

8.1.4. Leadership within the Scientific Community

Antoine ROUSSEAU is the scientific coordinator of the the research line *advanced modeling for marine energy* at MERIC (Santiago, Chile).

8.1.5. Scientific Expertise

Antoine ROUSSEAU is member of the scientific board of Fondation Blaise Pascal

Carole DELENNE was reviewer for the STIC-AmSud Program

Gwladys TOULEMONDE is appointed by the Occitanie region to the scientific board in charge of innovation projects in the field of intelligent systems and digital data chain

8.1.6. Research Administration

Vincent GUINOT is head of the ETH team at HSM (10 staff members),

Vincent GUINOT is member of the HSM steering board,

Antoine ROUSSEAU is head of the LEMON team at Inria CRI-SAM (5 staff members),

Antoine ROUSSEAU is member of the Inria CRI-SAM steering board (*Comité des Projets*)

Gwladys TOULEMONDE is elected to the MIPS Scientific Department (Mathematics, Computer Science, Physics and Systems), a component of the University of Montpellier

Gwladys TOULEMONDE is elected to IMAG laboratory board

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

License : C. Delenne, Méthodes mathématiques pour l'ingénieur, 10.5H CM, 22.5hTD, L3, Polytech Montpellier

License : C. Delenne, Hydraulique à surface libre, 15h CM, 15hTD, L3 (apprentissage), Polytech Montpellier

License : C. Delenne, Hydraulique, 28hTD, L1, IUT Génie Civil, Nîmes

License : C. Delenne, Algorithme et programmation 3h CM, 21hTD 15h projet, Polytech Montpellier, Université de Montpellier.

License : C. Delenne, Projets Eau et Génie Civil, 24hTP, Polytech Montpellier (apprentissage), Université de Montpellier.

License : V. Guinot, Mécanique des fluides, 72h ETD, L3, Polytech Montpellier, Université de Montpellier.

License : V. Guinot, Hydraulique à surface libre, 60h ETD, L3, Polytech Montpellier, Université de Montpellier.

License : F. Marche, Biomaths, 72h TD., L1, Université Montpellier

License : G. Toulemonde, Harmonisation Maths, 18h TD, L3, Polytech Montpellier, Université de Montpellier.

License : G. Toulemonde, Tutorat Maths, 5h TD, L3, Polytech Montpellier, Université de Montpellier.

License : G. Toulemonde, Modélisation et statistique, 18h CM, L3, Polytech Montpellier, Université de Montpellier.

License : G. Toulemonde, Modélisation statistique et analyse de données, 30h CM-TD, M1, Polytech Montpellier, Université de Montpellier.

Master : G. Toulemonde, Econométrie, 12h CM, 16h TD, M2, Polytech Montpellier, Université de Montpellier.

Master : G. Toulemonde, Econométrie avancée, 3h CM, 3h TD, M2, Faculté de Sciences Economiques, Université de Montpellier.

Master : C. Delenne, Hydraulique, 30hTP, M1, Polytech Montpellier, Université de Montpellier.

Master : C. Delenne, Spécialité hydraulique, 18h TD, Polytech Montpellier, Université de Montpellier.

Master : C. Delenne, Tutorat de stages et projets, apprentis, 100hETD, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Méthodes Mathématiques pour l'Ingénieur, 18h ETD, M1, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Hydraulique des Réseaux, 30h ETD, M1, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Mécanique des Fluides, Master SPAE, 36h ETD, M1, UMontpellier

Master : V. Guinot, Transitoires hydrauliques, 54 h ETD, M1, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, tutorat de stages ingénieur, 15h ETD, M1, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Modélisation hydraulique à surface libre 2D, 6h ETD, M2, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Projet Industriel de Fin d'Etudes (PIFE), 30h ETD, M2, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Tutorat de Stage de fin d'études ingénieur, 18h ETD, M2, Polytech Montpellier, Université de Montpellier.

Master : F. Marche, Analyse numérique des EDP, 24H CM, 12H TD, 15H TP., M1, Université Montpellier

Master : F. Marche, Calcul scientifique avancé, 26H CM, M2R, Université Montpellier

8.2.2. Supervision

Gwladys TOULEMONDE is responsible of the students recruitment in the IG department Polytech Montpellier.

Gwladys TOULEMONDE co-supervises a PhD thesis in an established collaboration with Sanofi and is ponctually implicated in other industrial collaborations (BALEA, Twin Solutions)

Gwladys TOULEMONDE advises a post-doctoral fellow since october 2017 on spatio-temporal extreme processes to assess flood hazards (NUMEV funding)

8.2.3. Juries

Antoine ROUSSEAU was appointed external member of a recruitment campaign at IRSTEA (research engineer)

Antoine ROUSSEAU was appointed internal member of a recruitment campaign at Inria (HR jurist)

Antoine ROUSSEAU was appointed internal member of a recruitment campaign at Inria (CR2 at Inria CRI-SAM)

Carole DELENNE was appointed internal member of a recruitment campaign for a lecturer at University of Montpellier (LMGC/IUT Nîmes).

8.3. Popularization

Antoine ROUSSEAU gave several conferences for highschool students and their teachers, on the topics of mathematical modeling for environmental sciences:

Fête de la Science, Oct. 2017, Genopolys Montpellier (2 days)

Maths au lycée, Apr. 2017, Lycée de Castelnaudary (1 day)

Antoine ROUSSEAU is member of the national Inria network for scientific outreach *Médiation scientifique*

Antoine ROUSSEAU is member of the editorial board of Interstices

Antoine ROUSSEAU is member of the scientific board of Fondaton Blaise Pascal

Antoine ROUSSEAU co-authored the Calendrier Mathématique 2017

MAGIQUE-3D Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- Hélène Barucq, Julien Diaz and Sébastien Tordeux organized the conference in honor of Abderrahmane Bendali in Pau, December 12th-14th, 2017, https://project.inria.fr/bendali/
- Julien Diaz co-organized the conference in honor of Patrick Joly in Saclay, August 28th-30th 2017, in Saclay https://wavesjoly60.inria.fr/

9.1.1.2. Member of the Conference Program Committees

- Hélène Barucq and Julien Diaz were members of the scientific committee of Waves 2017 https://cceevents.umn.edu/waves-2017

9.1.2. Journal

9.1.2.1. Reviewer - Reviewing Activities

Members of Magique 3D have been reviewers for the following journals:

- Applied Numerical Mathematics
- Mathematics and Computers in Simulation
- International Journal for Numerical Methods in Engineering
- Geophysical Journal International
- IMA Journal of Numerical Analysis
- SIAM Journal on Scientific Computing
- Computers and Mathematics with Applications
- Journal of Mathematical Analysis and Applications
- Journal of Computational Physics
- Journal of the Acoustical Society of America

9.1.3. Scientific Expertise

- Julien Diaz was expert for the evaluation of Millennium Science Initiative project for the government of Chile.

9.1.4. Research Administration

- Hélène Barucq has been the chairwoman of the local jury of Inria competitive selection for Young Graduate Scientists (CR2) in Bordeaux. She has been part of a working group dealing with the new strategic plan of Inria. In January 2017, she has been appointed chairwoman of the committee created by the regional council of Nouvelle Aquitaine. She is in charge of the scientific evaluation of research projects in Mathematics, Informatics, Electronics, Optics. She is the scientific head of the project DIP since its creation in 2009.
- Juliette Chabassier is member of the Inria BSO Young Researcher Committee and of the Inria BSO Center Committee. She is member of the Workgroup for sustainable development at Inria Bordeaux Sud-Ouest.

- Julien Diaz is elected member of the Inria Technical Committee and of the Inria Administrative ans Scientific Boards. He is appointed member of the CDT (Commission de Développement Technologique)
- Mamadou N'Diaye is member of the Center Committee of Inria Bordeaux Sud-Ouest.
- 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

Master : Julien Diaz, Transformées, 24h Eq. TD, M1, EISTIA, France

Licence : Justine Labat, Algèbre 1, 19,5h Eq. TD, L1, UPPA, France

Licence : Justine Labat, Algèbre linéaire, 19,5h Eq. TD, L1, UPPA, France

Licence : Justine Labat, Introduction aux Probabilités, 19,5h Eq. TD, L2, UPPA, France

Licence : Victor Péron, Analyse 2, 39 Eq. TD, L1, UPPA, France

Licence : Victor Péron, Mathématiques appliquées, 15 Eq. TD, L1, UPPA, France

Licence : Victor Péron, Courbes et calcul intégral, 19.5 Eq. TD, L2, UPPA, France

Licence : Victor Péron, Analyse numérique des systèmes lin., 48.75 Eq. TD, L3, UPPA, France

Master : Victor Péron et Sébastien Tordeux, Analyse num. des EDP 1: différences finies, 75 eq. TD, Master1, UPPA, FRANCE

Master : Victor Péron et Sébastien Tordeux, Introduction aux phénomènes de propagation d'ondes, 38 eq. TD, Master 2, UPPA, FRANCE

Master : Victor Péron et Sébastien Tordeux, Méthodes asymptotiques, 35 eq. TD, Master 2, UPPA, FRANCE

9.2.2. Supervision

HDR : Victor Péron, Asymptotic models for acoustic, elastic and electromagnetic media. Corner and edge asymptotics for elliiptic systems, Université de Pau et des Pays de l'Adour, December 6th, 2017 [12].

PhD : Vincent Darrigrand, Etude d'erreur pour des problèmes d'Helmholtz approchés par des techniques de Petrov-Galerkin , September 1st 2017, Hélène Barucq and David Pardo.

PhD : Florian Faucher, Méthodes d'inversion sismique dans le domaine fréquentiel , November 29th 2017, Hélène Barucq.

PhD : Mamadou N'Diaye, Analyse et développement de schémas temporels hybrides pour les équations hyperboliques du premier ordre, December 8th 2017, Hélène Barucq and Marc Duruflé.

PhD in progress : Aurélien Citrain, Déformation 3D de maillages en imagerie sismique, Méthodes d'inversion sismique dans le domaine fréquentiel , October 2016, Hélène Barucq and Christian Gout.

PhD in progress : Izar Azpiroz Iragorri, Approximation des problèmes d'Helmholtz couplés sur maillages virtuels , October 2014, Hélène Barucq, Julien Diaz and Rabia Djellouli (CSUN).

PhD in progress : Justine Labat, Diffraction of an electromagnetic wave by small obstacles, Université de Pau et des Pays de l'Adour, October 2016, Victor Péron and Sébastien Tordeux

PhD in progress : Hamza Alaoui Hafidi, Imagerie ultrasonore tridimensionnelle dans les milieux hétérogènes complexes, October 2015, Encadrement : Marc Deschamps, Michel Castaings, Eric Ducasse, Samuel Rodriguez (I2M), Hélène Barucq, Marc Duruflé, Juliette Chabassier (Magique 3D).

PhD in progress : Pierre Jacquet, ,October 2015, Hélène Barucq and Julien Diaz.

PhD in progress : Chengyi Shen, Approches expérimentale et numérique de la propagation d'ondes sismiques dans les roches carbonatées, October 2016, Julien Diaz and Daniel Brito (LFC).

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 : Alexandre Gras, Hybrid resonance for sensing applications, IOGS, October 2017, Encadrement : Philippe Lalanne(IOGS), Marc Duruflé, Hélène Barucq (Magique 3D)

Master 1 internship : Kevin Lagnoux, Détermination des paramètres physiques et de forme d'un objet dans un milieu élasto-acoustique, Université Toulouse III, Sept. 2017.

Master 1 internship : Fatima Ezzahra, Formulation de modèles de dissipation dans les milieux poreux en géophysique, École des Mines de Saint-Étienne, Sept. 2017.

9.2.3. Juries

- Hélène Barucq : Laure Pesudo (Université Paris Saclay) "Une méthode hybride couplant la méthode des équations intégrales et la méthode des rayons en vue d'applications au contrôle non destructif ultrasonore", PhD thesis, October 8th 2017
- Hélène Barucq : Victor Péron (Université de Pau et des Pays de l'Adour) "Analyse asymptotique et calcul scientifique pour des applications en physique", HDR, December 6th 2017
- Hélène Barucq (reviewer): Sébastien Pernet (Université Paul Sabatier, Toulouse) "Quelques méthodes performantes pour la simulation des phénomènes de propagation et de diffraction d'ondes", HDR, December 11th 2017
- Hélène Barucq (reviewer): Marius Albrand (Université Paul Sabatier, Toulouse) "Etude d'une solution d'évaluation des constantes diélectriques du béton d'ouvrages à risque par une approche problème inverse en électromagnétisme", PhD thesis, December 18th 2017
- Julien Diaz (reviewer): Mohamed Lakhal (Université Paris Saclay) "Méthodes d'inversion pour la reconstruction de mines enfouies à partir de mesures d'antennes radar.", PhD thesis, June 22nd 2017
- Julien Diaz : Vincent Darrigrand (University of Basque Country/Université de Pau et des Pays de l'Adour) "Goal-oriented adaptivity using unconventional error representations", PhD thesis, September 1st 2017
- Julien Diaz : Octavio Castillo Reyes (UPC Universitat Politecnica de Catalunya) "Edge-Elements Formulation of 3D CSEM in Geophysics: A Parallel Approach.", PhD thesis, October 23th 2017
- Julien Diaz : Mamadou N'Diaye (Université de Pau et des Pays de l'Adour) "Étude et développement de méthodes numériques d'ordre élevé pour la résolution des équations différentielles ordinaires (EDO), applications à la résolution des équations d'ondes acoustiques et électromagnétiques.", PhD thesis, December 8th 2017
- Juliette Chabassier : Jin Jack Tan (Université Paris Saclay) "Piano acoustics: string's double polarisation and piano source identification", PhD thesis, November 15th 2017.

9.3. Popularization

- Juliette Chabassier shared her experience as a scientist in the collège de Lussac in March 2017.
- Juliette Chabassier participated in scientific "speed datings" during the "Filles et Maths" day in April 2017.
- Juliette Chabassier shared her experience as a scientist during "Printemps de la Mixité" in May 2017.
- Juliette Chabassier presented a talk around mathematics in music in Pau in April 2017.
- Juliette Chabassier co-organized a series of three conferences around the theme of women in informatics in 2017.
- Juliette Chabassier gave a talk about mathematics in music in Bordeaux during the "découvreuses anonymes" exposition in November 2017.
- Juliette Chabassier presented a workshop around mathematics in music in November 2017.
- Juliette Chabassier gave a pitch of science during the national event "50 ans Inria" in November 2017.

SERENA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

Alexandre Ern, Iain Smears, and Martin Vohralík have organized a 2-day workshop on **A posteriori error estimates, adaptivity, and advanced applications**, in the framework of the ERC GATIPOR project. 40 participants from the whole world.

Soleiman Yousef and Martin Vohralík have organized a 1-day workshop Journée contrat cadre IFP Energies Nouvelles/Inria.

10.1.1.2. Member of the Organizing Committees

Géraldine Pichot and Michel Kern are members of the local organizing committee of the Computational Methods in Water Resources 2018 conference.

Martin Vohralík was a member of the organizing committee of the *Finite Volumes for Complex Applications* conference.

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

Alexandre Ern and Martin Vohralík were members of the scientific committee of the ENUMATH 2017 conference.

Martin Vohralík was a member of the scientific committee of the *Finite Volumes for Complex Applications* conference.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

François Clément is a member of the editorial board of Matapli from September 2017.

Alexandre Ern is a member of the editorial boards of SIAM Journal on Scientific Computing, ESAIM Mathematical Modelling and Numerical Analysis, IMA Journal of Numerical Analysis, Computational Methods in Applied Mathematics, and Journal de l'Ecole polytechnique, Mathématiques.

M. Vohralík is a member of the editorial boards of SIAM Journal on Numerical Analysis and of Acta Polytechnica.

10.1.3.2. Reviewer - Reviewing Activities

Thomas Boiveau was a reviewer for the Journal of Scientific Computing and the journal Geometrically Unfitted Finite Element Method and Applications (Proceedings of the UCL Workshop 2016).

Matteo Cicuttin was a reviewer for the journal Journal of Computational and Applied Mathematics.

Alexandre Ern served as reviewer for tens of papers in different journals.

Frédéric Marazzato was a reviewer for the journal Modelling and Simulation in Materials Science and Engineering.

Laurent Monasse was a reviewer for the Journal of Computational Physics, the European Journal of Mechanics B Fluids, and the International Journal for Numerical Methods in Engineering.

Michel Kern was a reviewer for Computers and Geosciences, Advances in Computational Mathematics, ESAIM: proceeedings, ARIMA, and Applicable Analysis.

Martin Vohralík served as reviewer for tens of papers in different journals.

10.1.4. Invited Talks

Alexandre Ern, plenary speaker, SIAM Conference on Mathematical and Computational Issues in the Geosciences 2017, Erlangen, Germany.

Alexandre Ern, invited speaker, POEMS 2017, Milano, Italy.

Alexandre Ern, invited speaker, Inauguration workshop of the French-German-Italian LIA COPDESC on Applied Analysis.

Michel Kern, plenary speaker, 6th Workshop on Parallel-in-Time methods, Locarno, Switzerland.

Martin Vohralík, plenary speaker, TamTam 2017, Hammamet, Tunisia, May 2017.

Martin Vohralík, plenary speaker, International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources, Oujda, Morocco, May 2017.

Martin Vohralík, plenary speaker, Czech workshop on complex systems, Prague, Czech Republic, September 2017.

10.1.5. Leadership within the Scientific Community

M. Kern is a reviewer for the German Supercomputing Center JARA program.

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.

M. Vohralík is a member of the steering committees of Géosciences franciliennes and Summer schools CEA–EDF–Inria.

10.1.6. Research Administration

F. Clément is a member of the *Comité local d'hygiène, de sécurité et des conditions de travail* of the Inria Research Center of Paris.

F. Clément is the *AMIES facilitator* of the Inria Research Center of Paris.

M. Kern is Deputy Director of Maison de la Simulation, a joint project between CEA, CNRS, Inria, Université de Paris 11, and Université de Versailles, focused on applications of high end computing.

M. Kern is a member of the *Comité de site* of the Inria center of Paris.

G. Pichot is a member of the *Comité local d'hygiène, de sécurité et des conditions de travail* of the Inria center of Paris.

G. Pichot is member of the Conseil de département MAM of Polytech Lyon.

G. Pichot is member of the Commission de developpement technologique (CDT) of the Inria center of Paris.

G. Pichot is a member of the CES commission of the Inria center of Paris.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Amina Benaceur, Eléments d'arithmétique, 19h15, L2, University Pierre et Marie Curie, France.

Licence : Thomas Boiveau, Equations aux dérivées partielles et éléments finis 15h, L3, Ecole des ponts ParisTech, France

Licence : Alexandre Ern, Optimal Control, 20h, L3, Ecole Polytechnique, France.

Licence : Alexandre Ern, Partial differential equations, 10h, L3, Ecole nationale des ponts et chaussées, France.

Licence : Frédéric Marazzato, Analyse et Calcul Scientifique, 15h, L3, Ecole Nationale des Ponts et Chaussées, France.

Master : Alexandre Ern, Discontinuous Galerkin methods, 20h, M2, University Pierre et Marie Curie, France.

Master : Alexandre Ern is the leader of the Master Mathématiques et applications of ENPC.

Master : Frédéric Marazzato, Remise à niveau en Mécanique des Milieux Continus, 9h, M2, Ecole Nationale des Ponts et Chaussées, France.

Master : Frédéric Marazzato, Reliability of Materials and Structures, 15h, M1, Ecole Nationale des Ponts et Chaussées, France.

Master : Frédéric Marazzato, Projet de Département Génie Mécanique et Matériaux, 20h, M1, Ecole Nationale des Ponts et Chaussées, France.

Master: Michel Kern, Inverse Problems, 26h, M1, Mines-ParisTech, France

Master: Michel Kern, Advanced Numerical Analysis, 30h, M2, Institut Galilée, Université Paris 13, France

Master: Michel Kern, Subsurface flows, 30 h (with E. Mouche), M2, Université Paris Saclay, France

Martin Vohralík, CIMPA Summer School on Multiscale Computational Methods and Error Control, Kanpur, India, July 2017, 10h.

10.2.2. Supervision

PhD: Sarah Ali Hassan, A posteriori error estimates and stopping criteria for solvers using the domain decomposition method and with local time stepping, University Pierre and Marie Curie, 26 June 2017, Martin Vohralík, Caroline Japhet, and Michel Kern.

PhD: Yannick Masson, Tchebyshev nets and application to Grid Shells, University Paris-Est, 09 June 2017, Alexandre Ern and Olivier Baverel.

PhD: Rita Riedlbeck, Adaptive algorithms for poromechanics and poroplasticity, University of Montpellier, 27 November 2017, Daniele di Pietro and Alexandre Ern.

PhD in progress: Amina Benaceur, Model reduction in thermo-mechanics, 01 January 2016, Alexandre Ern.

PhD in progress: Karol Cascavita, Discontinuous skeletal methods for yield fluids, 01 October 2015, Alexandre Ern and Xavier Chateau.

PhD in progress: Jad Dabaghi, Adaptive modeling via complementarity of phase appearance and disappearance in fractured and porous media, 01 November 2015, Martin Vohralík Vincent Martin.

PhD in progress: Patrik Daniel, Adaptive multilevel solvers with a posteriori error control for porous media flows, 01 October 2015, Martin Vohralík and Alexandre Ern.

PhD in progress: Frédéric Marazzato, Fracture and fragmentation simulated by the discrete element method, 01 October 2016, Alexandre Ern.

PhD in progress: Riccardo Milani, Compatible Discrete Operator schemes for Navier–Stokes equations, 01 October 2017, Alexandre Ern.

PhD in progress: Ani Miraci, Robust a posteriori error control and adaptivity with inexact solvers, 01 October 2017, Martin Vohralík and Alexandre Ern.

PhD in progress: Nicolas Pignet, Hybrid High-Order methods for nonlinear mechanics, 01 November 2016, Alexandre Ern.

10.2.3. Juries

Alexandre Ern, Examiner, HDR C. Le Potier, University Paris Est, 15 November 2017.

Laurent Monasse, Examiner, PhD J. Ridoux, University Pierre and Marie Curie, 4 October 2017.

Martin Vohralík, President of the committee, PhD R. Riedelbeck, University of Montpellier, 27 November 2017.

Martin Vohralík, Examiner, HDR P. Gosselet, ENS Cachan, 10 February 2017.

10.3. Popularization

F. Clément was the coordinator of the Maths-Enterprises booth for AMIES and Labex mathématiques Hadamard at the *18e Salon Culture & Jeux Mathématiques*, held in Paris, 27–30 May, 2017.

F. Clément coordinated an article for AMIES in Interstices ([42]).

Major publications by the team in recent years: [1], [2], [3], [4], [5], [6], [7], [8], [9], [10].

STEEP Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- Denis Dupré, Pierre-Yves Longaretti and Emmanuel Prados are the Scientific Chair of the series of conferences entitled "Understanding and Acting"; see section 9.3.1 .

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- P. Sturm was member of the program committee of the 2017 Inria Science Days

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

- P. Sturm: Journal of Sensors

9.1.4. Scientific Expertise

- P. Sturm: Expert for the European Eureka/Eurostars program and for the regional ARC6 program.
- Since 2015 Emmanuel Prados is member of 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. This group is still active and always advises French political actors in climate negotiations.

9.1.5. Research Administration

- P. Sturm is, since 2015, Deputy Scientific Director of Inria, in charge of the domain Perception–Cognition–Interaction
- E. Prados and P. Sturm organized the Inria – FING partnership. The FING (Fondation Internet Nouvelle Génération) is a think tank working on socio-economic changes inspired by technology and its uses. In 2017, they organized three workshops in the framework of the project "Transition^2" [http://www.transitions2.net/].
- E. Prados was in charge of the working group "Digital tools for the progress of society" for the Strategic Plan of Inria, 2017. His work resulted in the writing of the Scientific Challenges entitled "Digital world, society, and complexity".
- Denis Dupré, Pierre-Yves Longaretti and Emmanuel Prados are the coordinator of the working group "Democracy and digital technology". Created in 2017, this working group is a permanent one that gathers various reseachers and actors located at the Grenoble pole. This group leads a global reflection on the digital world and the democratic issues. It aims to bring out lines of action of research in the medium term.
  https://project.inria.fr/democratieetnumerique/

9.2. Teaching - Supervision - Juries

9.2.1. Supervision

PhD : Thomas Capelle, *Development of optimization methods for land-use and transportation models*, University Grenoble Alpes, February 15rd, 2017, Peter Sturm (supervisor) and Athur Vidard (co-supervisor).

PhD in progress : Michela Bevione, *Socio-ecological transition, wealth creation and territorial metabolism: the case of Maurienne Valley*, October 2016, Pierre-Yves Longaretti (co-supervisor) and Nicolas Buclet (supervisor). Phd thesis in collaboration with the PACTE Laboratory. This interdisciplinary research on territorial ecology aims at bridging the gap between quantitative modeling and socio-economic and qualitative approaches to better understand the interactions between human society and the environment.

PhD in progress : Luciano Gervasoni, *Modeling the dynamics of urban sprawl*, October 2015, Peter Sturm (supervisor) and Serge Fenet (co-supervisor).

9.2.2. Juries

- P. Sturm was member of the PhD committees of René Emmanuel Datondji (Universitée Rouen, president), Andrey V. Kudryavtsev (Universitée Franche-Comté reviewer), Abdelkader Bellarbi (Université'Evry Val d'Essonne, reviewer), and Yohan Salaün (Université de Paris-Est, reviewer).
- E. Prados was member of the PhD thesis jury (as examiner) of Rémy Lasseur ; University of Grenoble Alpes - UGA (July 10th, 2017). Title : "Multi-scale mapping of ecosystem services: characterizing spatial associations and insights from remote sensing"

9.3. Popularization

9.3.1. Conferences "Understanding and Acting" :

Saving Civilization is not a spectator sport
Lester Brown

Following a dynamics of exponential growth in a finite world, humanity today faces a number of unprecedented and tightly interlinked challenges. With a growing number of environmental limits being largely and irreversibly exceeded (GHG concentrations in the atmosphere, biodiversity loss, soil erosion, freshwater shortages...), social, economic, geopolitical, humanitarian (etc.) consequences are becoming more urgent than ever to address, while the threat of an uncontrolled global collapse is now more than a prospect. It is urgent to initiate deep, structural, socioeconomic changes on virtually all aspects of our increasingly global societies (economics, industrial and agricultural production, consumption, education, all requiring major new local and global policies).

In view of these facts, the STEEP research team has initiated in 2016 a series of conferences-debates entitled "Understanding & Acting" ("Comprendre et agir") that examines these issues in order to help researchers and citizens to increase their awareness of the various issues at stake in order to initiate relevant individual and collective actions. From now on, the scientific community at large must realize that its duty also lies in helping citizens to better understand these issues. If the fraction of people in society whose privilege is to be paid to think about society's problems do not seize this opportunity in the critical times we face, who will? Researchers must become more involved in the search of socioeconomic alternatives and help citizens to implement them. The interactions between researchers and citizens must also to be reinvented.

The presentations of this series of conferences typically last between 30 to 45 minutes; they are followed by a 45 minute public debate with the audience. The presentations are captured on video and then made directly accessible on the YouTube Channel "Comprendre et Agir". At the end of 2017 the YouTube channel reached almost 45,000 views with a rate of integral viewings re¬maining at above 25%.

Examples of conferences given in 2016-2017:

- "Why and how to recognize money as a common good?" by Jean-Michel Servet, Graduate institute of international and development studies (IHEID) at Genève.
- "What alternative to the crisis of representation?" by Loic Blondiaux, University of Paris I Panthéon-Sorbonne.
- "Reinventing agriculture and food in the 21st century?" by Gilles Billen, CNRS.
- "Can the commons movement re-activate democracy? by Christian Laval, University of Paris Ouest Nanterre La Défense.
- "Limiting climate change: Why do we not do it?" by Denis Dupré, University of Grenoble Alpes.
- "Understanding society collapses. What future for ours? " by Emmanuel Prados, Inria.
- "Environment, economy, collapse: squaring the circle?" by Pierre-Yves Longaretti, CNRS.

Link to the web page of the series [program, abstracts, dates, complements etc.]:
https://team.inria.fr/steep/les-conferences-debats-comprendre-et-agir/
Link to the YouTube channel :
https://www.youtube.com/channel/UCJbcXCcOA63M8VMysAbmt_A

9.3.2. Other popularization activities :

- Emmanuel Prados gave a conference entitled "Understanding society collapses. What future for ours?" at the series of conferences "Understanding and Acting" (Grenoble, France, 9th of February, 2017). The video of the conference has been posted on the video-sharing website, YouTube. The conferences received around 30 000 YouTube views in 10 months.
https://www.youtube.com/watch?v=1dgjIeR5DBY
- Pierre-Yves Longaretti gave a conference entitled "Environment, economy, collapse: squaring the circle?" at the series of conferences "Understanding and Acting" (Grenoble, France, 3rd of March, 2017). The video of the conference available on YouTube. The conferences received around 1700 views in 9 months.
https://www.youtube.com/watch?v=0T8SP5jb3aI
- Emmanuel Prados participated in the round table "How to manage territories with the help of numerical models" held for the celebrated days for the 50th birthday of Inria (Paris, France, November 7th, 2017).
- Denis Dupré gave a conference entitled "Can ethical finance prevent from our civilization collapse ?" at the department of banking and finance of the University of Zurich (Zurich, Switzerland, the 29th of September 2017). The video of the conference available on YouTube. https://www.youtube.com/watch?v=JhFiks0RbMU
- Denis Dupré gave a conference entitled "How finance can help to manage vital goods in the coming collapse?" at the "Change Finance Forum" organized by Financewatch (Brussels, Belgium, 5th december 2017). The video of the conference available on YouTube. https://www.youtube.com/watch?v=3RyJTn0a-ZA
- Denis Dupré gave an interview at France Info, December 11, 2017. France Info is the radio network operated by the French public service radio broadcaster Radio France which provides continuous live news and information. Interview available online :
https://team.inria.fr/steep/denis-dupre-dec-11-2017/

TONUS Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

Philippe Helluy is member of the French candidature committee for the organization of the International Congress of Mathematics in 2022 in Paris and Strasbourg https://www.icm2022-paris.com/.

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

Philippe Helluy is in the editorial board of

International Journal of Finite Volume

Computational and Applied Mathematics

10.1.2.2. Reviewer - Reviewing Activities

Emmanuel Franck was a reviewer for

Communication in computation physics

Computer Methods in Applied Mechanics and Engineering

Journal of Computational Physics

Philippe Helluy has done reviews for

Numerical Methods for Partial Differential Equations

Journal of Computational Physics

Computers and Fluids

M2AN

Esaim Proceedings and reviews

Sever Hirstoaga was a reviewer for

Journal of Computational and Applied Mathematics (2 papers)

Journal of Approximation Theory

SIAM Journal on Optimization

Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal

MathSciNet/Mathematical Reviews

Michel Mehrenberger participates in reviewing for

SIAM Journal on Scientific Computing

Mathematical Methods in the Applied Sciences

Evolution Equations and Control Theory

Journal of Computational Physics

International Conference on Physics, Mathematics and Statistics 2018

Applied Mathematics and Computation

Computer Physics Communications

Laurent Navoret was a reviewer for

Kinetic and Related Models

10.1.3. Invited Talks

Emmanuel Franck was invited at

Enumath conference, Bergen, September 2017.

the Workshop JOREK, Prague, March 2017.

the IPL Fratres Meeting, Rennes, November 2017.

Philippe Helluy was invited at

NUMKIN 2017, Garching November 2017

Fast high order DG methods for future architectures Heidelberg July 2017

Workshop - "Modeling and Numerical Methods for Hot Plasmas III": 12-13 octobre 2017 Bordeaux

Sever Hirstoaga was invited at

the “Séminaire d’analyse numérique”, at IRMAR, Rennes, February 2nd, 2017.

Michel Mehrenberger

gave a talk entitled «About recurrence time for a semi-Lagrangian discontinuous Galerkin Vlasov solver» at Collisionless Boltzmann (Vlasov) Equation and Modeling of Self-Gravitating Systems and Plasmas, CIRM (Marseille), 30 october-3 november 2017.

was invited at the seminar «Analyse Numérique et Calcul Scientifique» of Besançon “Méthodes numériques pour la physique des plasmas”, February 16, 2017.

Larent Navoret was invited at

the Seminar of the Interdisciplinary Center for Scientific Computing, Heidelberg, Germany

10.1.4. Scientific Expertise

Philippe Helluy is in the evaluation committee of the “réseau calcul” of CNRS.

10.1.5. Research Administration

Philippe Helluy

has been elected as the Director of the IRMA mathematics institute (official start in september 2018).

Sever Hirstoaga

was member of the hiring committee for an associate professor position at the ENS Mécanique et des Microtechniques, Besançon.

Michel Mehrenberger

is in the IREM ("Institut de recherche sur l’enseignement des mathématiques") team "Modélisation" for the year 2017-2018, Université de Strasbourg.

is in the committee of the Ecole Doctorale ED269, EDMSII, Université de Strasbourg.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

M1: Philippe Helluy, algorithmes pour les graphes 30 HETD

M2: Philippe Helluy, Contrôle optimal 30 HETD

M2: Philippe Helluy, EDP hyperboliques 30 HETD

L2: Philippe Helluy, Calcul scientifique 64 HETD

Ecole d'ingénieurs: Philippe Helluy, recherche opérationnelle 40 HETD, analyse numérique 40 HETD

Licence: Michel Mehrenberger, Calcul scientifique, 65 h eq. TD, L3, Université de Strasbourg, France.

Licence: Michel Mehrenberger, Optimisation Non-Linéaire, 54h eq. TD, Cours et TD, L3 Maths-Eco, Université de Strasbourg, France

Master: Michel Mehrenberger, Calcul scientifique, 32.5h eq. TD, Cours et TP, M1 CSMI, Université de Strasbourg, France.

Master: Michel Mehrenberger, PIP: certification python, 13h eq. TD, TP, M1 Mathématiques, Université de Strasbourg, France.

Master: Michel Mehrenberger, Calcul scientifique, 22 h eq. TD, TP, M2 Agrégation, Université de Strasbourg, France.

Licence : Laurent Navoret, Nonlinear optimization (18h eq. TD), L3 Maths-Eco, Université de Strasbourg, France.

Master 1: Laurent Navoret, Python (32,5h eq. TD), Université de Strasbourg, France.

Master 2 (Agrégation) : Laurent Navoret, scientific computing (60h eq. TD), Université de Strasbourg, France.

Master 2 (Cell physics) : Laurent Navoret, Basics in maths (24h eq. TD), Université de Strasbourg, France.

Master 2 (Agrégation) : Laurent Navoret, Head of the master, Université de Strasbourg, France.

10.2.2. Supervision

Philippe Helluy has been Habilitation "garant" of Olivier Hurisse (EDF) and Marcela Szopos (IRMA), at université de Strasbourg.

PhD in progress: Lucie Quibel (CIFRE support): in collaboration with EDF Chatou, from October 2017, Advisor: Philippe Helluy.

PhD in progress: Marie Houillon: "Modeling of thin wires in electromagnetic software", Advisors: Philippe Helluy and Laurent Navoret, from October 2017, Labex Irmia support.

PhD in progress: Bruno Weber(CIFRE support): "Optimization of DG software on GPU in the AxesSim company". Advisor: Philippe Helluy.

PhD in progress: Maxime Schmitt: "Optimization of scientific software with arbirary mesh refinement", Advisors: Philippe Helluy and Cédric Bastoul (CAMUS team). Labex Irmia support.

PhD in progress: Ksander Ejjaaouani, "Conception of a programmation model, application to gyrokinetic simulations", from October 2016, Advisors: Michel Mehrenberger, Julien Bigot, Olivier Aumage.

PhD in progress: Nicolas Bouzat, "Conception of a programmation model, application to gyrokinetic simulations", from October 2015, Advisors: Michel Mehrenberger, Jean Roman, Guillaume Latu.

PhD in progress: Pierre Gerhard, "Résolution des modèles cinétiques. Application à l'acoustique du bâtiment", from October 2015, Advisors: Philippe Helluy, Laurent Navoret.

Conrad Hillairet: interrupted thesis at the request of the student.

10.2.3. Juries

Philippe Helluy was member of the following juries

jury of the PhD committee of Tohir Akramov, in astrophysics, université de Strasbourg, 28 September 2017.

jury of the PhD committee of Thomas Altazin, in scientific computing, université de Toulon, 7 September 2017.

jury of the PhD committee of Laura Mendoza, in plasma physics, Max Planck Institut for Plasma Physics, Garching.

jury of the PhD committee of Florence Drui, in multiphase models, Ecole Centrale Paris, 7 July 2017.

Michel Mehrenberger was member of the jury of the PhD committee of Mohammad Akil (Université de Limoges), 6 October 2017.

BIOCORE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

O. Bernard is the Chair of the next CAB conference (CAB 2019 in Brazil).

10.1.1.2. Member of the Organizing Committees

J.-L. Gouzé is a member of the scientific committee of several summer schools.

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

O. Bernard is in the technical committee of the Computer Applied to Biotechnology (CAB) conferences, of the FOSBE conference (Foundations of Systems Biology in Engineering) and of the Algae Europe conference.

M. Chaves is a member of the program committee of JOBIM 2018 (Marseille).

J.-L. Gouzé is a member of the program committee for the conference POSTA (Italy, China).

10.1.2.2. Reviewer

All BIOCORE members have been reviewers for the major 2017 conferences in our field: CDC, ECC, IFAC World Congress,...

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

V. Baldazzi has been editor of the volume 1182 of Acta Horticulturae on the 'Proceedings of the V International Symposium on Models for Plant Growth, Environment Control and Farming Management in Protected Cultivation (Hortimodel2016)'.

M. Chaves is an Associated Editor of SIAM Journal on Applied Dynamical Systems (SIADS), since January 2015

10.1.3.2. Reviewer - Reviewing Activities

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,...

10.1.4. Invited Talks

O. Bernard was invited to give a conference on microalgae at Ecole Centrale de Paris ("Biotechnological challenge") 'Use of microorganisms for biofuel production" (January, 16th, 2017).

O. Bernard was invited to do a presentation at the AlgaEurope conference 2017 (December, 5th - 7th, Berlin, D) "'Potential of evolution engineering for enhancing productivity of microalgae"'.

O. Bernard was invited for an oral presentation at the 1st IWA Conference on Algal Technologies for Wastewater Treatment and Resource Recovery conference 2017 (Delft, 16th - 17th, Delft, NL) "The role played by predators in a high rate algal pond for wastewater treatment".

M. Chaves was an invited speaker at the Workshop on Molecular Logic, Universidade de Aveiro, Portugal (June 2017).

S. Touzeau was invited to give a talk at the MADEV 17 “Mathématiques Appliquées à des questions de DEVeloppement” International Conference, organised by the French “Académie des Sciences” and the Moroccan “Académie Hassan II des Sciences et Techniques”, Rabat, Morocco (October 2017).

10.1.5. Scientific Expertise

O. Bernard is a member of the scientific committee of the companies Inalve and BioEnTech.

J.-L. Gouzé was in several evaluation committees or juries: FWO, NWO, FNRS...

10.1.6. Research Administration

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.

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. She is also member of the CLHSCT (local committee for the safety of working conditions)

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 in the scientific committee of Académie 4 of UCA-Jedi. He is a member of the board of the SFBT (French Speaking Society for Theoretical Biology).

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. Since 2015, F. Grognard is a member of the MBIA CSS (Specialised Scientific Commission), in charge of the research scientists evaluation at INRA. He is a member of the steering committee of Academy 3, Space, Environment, Risk & Resilience of UCA-JEDI.

L. Mailleret is the head of the M2P2 team (Models and Methods for Plant Protection) of ISA. He’s in the scientific council of Institut Sophia Agrobiotech.

S. Touzeau is a member of the steering committee of the metaprogramme SMaCH *Sustainable Management of Crop Health*, INRA (since 2016).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: F. Grognard (45.5h ETD) and L. Mailleret (26h ETD), “Equations différentielles ordinaires et systèmes dynamiques”, L3, 1st year Engineering in Modeling and Applied Mathematics, Polytech’Nice, Université of Nice Sophia Antipolis, France.

Licence: N. Bajeux (192h ETD) is ATER at IUT Nice Côte d’Azur of Université of Nice Sophia Antipolis, France. ing in Modeling and Applied Mathematics, Polytech’Nice, Université of Nice Sophia Antipolis, France.

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 CentraleSupelec, France.

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) “Modeling biological networks by ordinary differential equations”, 4th year students, Génie Biologie, Polytech’Nice, University of Nice - Sophia Antipolis.

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: S. Touzeau, “Analyse de données”, 36.75 ETD, M1 (2nd engineering year in Génie Biologie), Polytech’Nice – Université Nice Sophia Antipolis, France.

O. Bernard together with M. Morales supervised a project involving 6 students of Ecole Nationale Supérieure des Mines de Paris (last year of engineering school, 1 week ("Combining photovoltaic panels and microalgae"). O. Bernard supervised a project involving 6 students from the Ecole Centrale de Paris (first year of engineering school), 4 months, to design a system for detecting contamination in microalgae cultures.

10.2.2. Supervision

PhD : D. Demory, "Impact of temperature on phytoplankton-virus interactions ", January, 17th, 2017, UPMC. Supervisors: A. Sciandra, S. Rabouille and O. Bernard.

PhD : S. Casagranda. “Modeling, analysis and reduction of biological systems”,June 30, Université Côte d’Azur. Supervisors: J.-L. Gouzé and D. Ropers (Inria IBIS).

PhD : N. Bajeux. “Modélisation de stratégies d’introduction de populations, effets Allee et stochasticité”, July 7, Université Côte d’Azur. Supervisors: O. Bernard, F. Grognard, and L. Mailleret.

PhD in progress : S. Almeida. “Theoretical design of synthetic biological oscillators and their coupling”, since October 2014, Université Côte d’Azur. Supervisors: M. Chaves and F. Delaunay (Univ. Nice, iBV).

PhD in progress : M. Caïa, "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 Sophia Antipolis. Supervisors: E. Vercken (UMR ISA), L. Mailleret and L. Roques (UR BioSP).

PhD in progress : C. Lopez-Zazueta. “Use of Perturbation Theory to optimize metabolic production of biofuels by microalgae.”, since January 2016, Université Côte d’Azur, supervisors O. Bernard and J.-L. Gouzé.

PhD in progress : C. Martinez von Dossow . "Modélisation et optimisation de consortia microalgues-bactéries", since February 2016, UPMC. Supervisors: O. Bernard, F. Mairet and A. Sciandra.

PhD in progress : L. Chambon. “Control of models of genetic regulatory networks”. since October 2016, Université Côte d’Azur. Supervisor J.-L. Gouzé.

PhD in progress : L. Gomes Pereira. “Experimental and computational approaches to understanding the molecular origins of drug response heterogeneity, underlying resistance to cancer therapies”, since October 2016, Université Côte d’Azur. Supervisors: M. Chaves and J. Roux (IRCAN, Nice).

PhD in progress: S. Nilusmas, “Gestion durable des nématodes à galles en cultures maraîchères : modélisation et optimisation du déploiement des résistances et des pratiques agronomiques”, Université Côte d’Azur, since December 2016. Supervisors: S. Touzeau, C. Caporalino (ISA), V. Calcagno (ISA) and L. Mailleret.

PhD in progress: M. Gachelin, “Selection pressure to improve lipid productivity of microalgae”, since March 2017, UPMC. Supervisors: O. Bernard and A. Sciandra.

PhD in progress : E. Firippi. “Mathematical analysis, control design and coupling for models of biological oscillators”, since October 2017, Université Côte d’Azur. Supervisors: M. Chaves.

PhD in progress: I. Tankam Chedjou, “Modeling, analysis and control of plantain plant-parasitic nematodes”, University of Yaoundé 1, since December 2015. Supervisors: J.-J. Tewa, F. Grognard, L. Mailleret, S. Touzeau.

PhD in progress: Y. Fotso Fotso, “Modeling, analysis and control of coffee berry borers”, University of Dschang, since January 2017. Supervisors: S. Bowong, B. Tsanou, F. Grognard, L. Mailleret, S. Touzeau.

Master theses and engineering internships supervision

Engineer: Bruno Assis Pessi, "Modélisation de la croissance de microalgues en raceways sous serre ", Ecole CentraleSupelec.

Engineer: Selma Benzekri. “Recherche de matériaux biomimétiques des acarodomatia pour la lutte biologique basée sur les phytoseïdes”, 2nd year Agroparistech, supervisors L. Mailleret, C. Bresch, P. Parolin and M. Ferrero.

Engineer: Olivier Fauré. “Augmentative Biological Control - optimizing natural enemies deployment”, 2nd year engineering Polytech’Nice, Université Côte d’Azur, supervisors L. Mailleret and F. Grognard.

Engineer: Julien Guégan. “Évolution des traits d’histoires de vie de champignons phytopathogènes”, 2nd year engineering Polytech’Nice, Université Côte d’Azur, supervisors F. Grognard and L. Mailleret.

M2: Laurent Dragoni, “Personnalisation de modèles numériques de médicaments”, Université Côte d’Azur, supervisors J.-L. Gouzé and F. Dayan (Exactcure).

M2: Eleni Firippi. “Analysis and Control of models of genetic regulatory networks”, Université Côte d’Azur, supervisor M. Chaves.

M1: Meng Zhang, "Study of the interactions between microalgae and cyanobacteria", UPMC.

IUT: Elie Varengot. “Recherche de matériaux biomimétiques des acarodomatia pour la lutte biologique basée sur les phytoseïdes”, IUT Aix Marseille Université, supervisors L. Mailleret, C. Bresch, P. Parolin and M. Ferrero.

10.2.3. Juries

O. Bernard was in the jury, while F. Grognard and L. Mailleret were invited members in the jury of the PhD of Nicolas Bajeux, "Modélisation de stratégies d’introduction de populations, effets Allee et stochasticité", Université Côte d’Azur, July 7.

O. Bernard was reviewer for the PhD thesis of L. Haustenne " Mathematical modeling of the genetic regulatory network controlling comptetence for natural transformation in Steptococcus thermophilus", Université Louvain-La-Neuve (Belgium). (24 march 2017)

O. Bernard was reviewer for the PhD thesis M. Budinich " Modélisation des réseaux métaboliques en interaction avec l’Environnement ", Nantes Université. (28 april 2017)

O. Bernard was reviewer for the PhD thesis of R. Schaap "UV radiation as a new tool to control microalgal bio-product yield and quality". Massey University (20 Oct. 2017).

O. Bernard was reviewer and J.-L. Gouzé was in the jury of the PhD thesis of N. Giordano “Microbial growth control in changing environments: theoretical and experimental study of resource allocation in *Escherichia coli*”, Grenoble University. (23 march 2017)

J.-L. Gouzé was in the jury and S. Touzeau was an invited member in the jury of the PhD of Stefano Casagranda, “Modeling, analysis and reduction of biological systems”, Université Côte d’Azur, June 30.

O. Bernard was reviewer for the HDR of S. Tebbani "Contribution à l’étude des systèmes non linéaires incertains : application à la commande de systèmes biotechnologiques ", University of Paris-Sud, November 7th, 2016.

M. Chaves was reviewer for the HDR of Elisabeth Remy “Modélisation logique pour l’analyse des réseaux de régulation biologiques”, Univ. Aix-Marseille, April 24, 2017.

10.3. Popularization

The activities related to microalgae have generated many articles in national newspapers (Le Monde, Nice Matin, ,...), and broadcasts on national TV (France 3).

O. Bernard gave a popularization conference “Will we drive with fuels brought algae in 2030?” in the framework of the “science for all” cycle of conferences organized by the city of Biot. 30th of March, 2017.

P. Bernhard has been involved in popularization of applied mathematics with two highschool conferences: Lycée Alexandre Dumas, Cavaillon and Centre International de Valbonne, Valbonne-Sophia Antipolis, on January 10 and 11 respectively.

M. Chaves gave a “180s” presentation “A mathematical tool for determining the dynamics of biological modules interconnection”, at Journées Scientifiques Inria, Sophia Antipolis (June 2017).

M. Chaves gave a presentation on circadian clocks at Café-in, for all Inria personnel, at Inria Sophia Antipolis (October 2017).

CARMEN Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

Y. Coudière co-organised the Workshop on Mathematical Methods in Cardiac Electrophysiology, November 4–6, 2017, at the University of Ottawa in Canada. Approximately 30 scientists from the US, Canada, and several European countries participated in this workshop.

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

Y. Coudière was a program committee member for the Functional Imaging and Modeling of the Heart (FIMH) meeting 2017 in Toronto, Canada.

M. Potse is a track chair for the International Congress of Cardiology 2018 in Chiba, Japan.

9.1.2.2. Reviewer

Y. Coudière and M. Potse reviewed abstracts for the Computing in Cardiology meeting in Rennes, September 2017.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

M. Potse: associate editor of Frontiers in Cardiac Electrophysiology.

9.1.3.2. Reviewer - Reviewing Activities

L. Weynans: Computers and Fluids, Multiscale Modeling and Simulation

M. Potse: Heart Rhythm, IEEE Transactions on Biomedical Engineering, Medical & Biological Engineering & Computing, Journal of Electrocardiology.

Y. Coudière: Journal of computational and applied mathematics, PLOS ONE, SMAI Journal of Computational Mathematics

N. Zemzemi: Inverse Problems, Europace, Inverse Problems in Science and Engineering, Mathematical Modelling of Natural phenomena.

9.1.4. Invited Talks

N. Zemzemi: Problèmes directs et inverses en electrophysiologie cardiaque. Séminaire du Laboratoire de mathématiques à Université de Technologie de Compiègne. November 14th 2017.

P.-E. Bécue: A Three-Dimensional Computational Model of Action Potential Propagation Through a Network of Individual Cells. *Workshop on Mathematical Methods in Cardiac Electrophysiology*. University of Ottawa, Ottawa, Canada, November 2017. http://www.fields.utoronto.ca/activities/17-18/electrophysiology

A. Davidovic: Modified bidomain model addressing structural heterogeneities. Application to the rat heart ventricles using HR MRI. *Workshop on Mathematical Methods in Cardiac Electrophysiology*. University of Ottawa, Ottawa, Canada, November 2017.

A. Gérard: Data assimilation applied to electroanatomical mapping in a bilayer atrial model. *Workshop on Mathematical Methods in Cardiac Electrophysiology*. University of Ottawa, Ottawa, Canada, November 2017.

M. Potse: Chaos, order, and numerical errors in a large-scale atrial fibrillation model. *Workshop on Mathematical Methods in Cardiac Electrophysiology*. University of Ottawa, Ottawa, Canada, November 2017.

M. Potse: Patient-specific modeling to understand cardiac disease. *BCAM Workshop Quantitative Biomedicine for Health and Disease*. Basque Center for Applied Mathematics, Bilbao, Spain, 21 February 2017.

Y. Coudière: Modélisation d'hétérogénéités de la structure myocardique. GRD Mamovi. Lyon, 27 September 2017.

Y. Coudière: High-order finite volume scheme for cardiac electrophysiology, invited talk for the workshop *Schémas volumes finis*, Nice, 30-31 March 2017, http://math.unice.fr/~krell/Colloque/index.php

9.1.5. Leadership within the Scientific Community

M. Potse is council member of the International Society of Electrocardiology.

9.1.6. Research Administration

L. Weynans: member of the "Conseil du département Sciences et Technologies" of Bordeaux University.

Y. Coudière:

- Scientific responsibility of the IMB (CNRS UMR 5251) team "Calcul Scientifique et Modélisation," ~ 60 persons.
- Responsible for the scientific communication (*Chargé de mission à l'animation scientifique*) of the IMB.
- N. Zemzemi: Administration of the Inria associated team Epicard.

M. Leguèbe: co-organization of team "Calcul Scientifique et Modélisation" seminar.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Y. Coudière, Groupe de Travail Applicatif, 33h,L2, Université de Bordeaux, France

Master : Y. Coudière, Méthodes d'éléments finis pour la mécanique des fluides incompressibles, 33h, M2, Université de Bordeaux, France.

Licence : Y. Coudière, Projet multidisciplinaire Matmeca, 33h, L2, Université de Bordeaux, France.

Licence : M. Bendahmane, Mathématiques générales, 36h, L1, Université de Bordeaux, France

Licence : M. Bendahmane, Algèbre Linéaire, 46h, L2, Université de Bordeaux, France

Licence : M. Bendahmane, Fonctions de plusieurs variables et optimisation, 33h, L2, Université de Bordeaux, France

Licence : M. Bendahmane, Analyse appliquée, 33h, L1, Université de Bordeaux, France

Licence : M. Bendahmane, Séries et intégrales multiples, 33h, L1, Université de Bordeaux, France

Master : M. Bendahmane, Analyse appliquée, 33h, M2, Université de Bordeaux, France

Licence : L. Weynans, Fortran MMk, 20h, L1, Université de Bordeaux, France

Master : L. Weynans, Fortran MMk, 28h, M1, Université de Bordeaux, France

Licence : L. Weynans, Introduction Analyse Numérique, 24h, L3, Université de Bordeaux, France

Licence : L. Weynans, Cours Programmation avancée pour le calcul scientifique, 24h, L3, Université de Bordeaux, France

Licence : L. Weynans, TP Programmation avancée pour le calcul scientifique, 34h, L3, Université de Bordeaux, France

Licence : L. Weynans, encadrement de projets 1ère année Matmeca, 25h, L1, Université de Bordeaux, France

Y. Coudière is responsible for the program "Ingénierie mathématique" in the Mathematics Bachelor, and responsible for the program "Modélisation Numérique et Calcul Haute Performance" in the Master program Applied Mathematics and Statistics, at the Université de Bordeaux.

9.2.2. Supervision

PhD : A. Davidović, "Multiscale Mathematical Modeling of Structural Heterogeneities in Cardiac Electrophysiology," Université de Bordeaux, 9 December 2016, supervised by Y. Coudière.

PhD: C. Douanla Lontsi, "Schémas d'ordre élevé pour des simulations réalistes en électrophysiologie cardiaque," started 1 November 2014, supervised by Y. Coudière.

PhD in progress: P. E. Bécue, "Modélisation et simulation numérique de l'électrophysiologie cardiaque à l'échelle microscopique," started 1 October 2014, supervised by F. Caro, M. Potse, and Y. Coudière.

PhD in progress: A. Gérard, "Modèles numériques personnalisés de la fibrillation auriculaire," started 1 September 2015, supervised by Y. Coudière.

PhD in progress: B. Lambert, "Modélisation et simulation numérique de suspensions de particules dans un fluide," started 1 October 2015, supervised by M. Bergmann and L. Weynans.

PhD : N. Fikal, "Quantification d'incertitudes en électrocardiographie par la méthode éléments finis stochastique," Université de Mohamed V au Maroc, 21 July 2017, supervised by R. Aboulaich and N. Zemzemi.

PhD : W. Mbarki, "Modélisation et analyse d'un problème d'interaction en biomathématiques : couplage en électrophysiologie cardiaque," Université de Tunis El Manar, 28 July 2017, supervised by S. Aouadi and N. Zemzemi.

PhD in progress : Y. Abidi, "Etude théorique et numérique de problème d'identification de paramètres en électrophysiologie cardiaque". Université de Tunis El Manar, started in October 2015, supervised by M. Bellassoued and M. Mahjoub in Tunis and N. Zemzemi in Bordeaux.

9.2.3. Juries

L. Weynans: PhD comittee of Isabelle Lagrange (Onera, Toulouse), "comité de sélection" at Pau University

Y. Coudière: reviewer for the HDR Thesis of C. Le Potier (Construction et développement de nouveaux schémas pour des problèmes elliptiques et paraboliques), defended 15 november 2017.

Y. Coudière: reviewer for the HDR Thesis of E. Vigmond, defended January 10, 2017.

Y. Coudière: jury member for the PhD defense of Rémi Tesson, Université Marseille-Provence, defended December 12th, 2017.

9.3. Popularization

L. Weynans:

- Responsible for the communication (*Chargé de communication*) of the IMB
- Organization of the day "Filles et Maths, une équation lumineuse"
- Several presentations for high-school students about scientific computing

DRACULA Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. Member of the Organizing Committees

- Session of GDR “Mathématiques de la Modélisation du Vivant (Mamovi)”, Lyon (France), 27 - 29 Septembre 2017 (https://gdr-mamovi-2017.sciencesconf.org/). Organizer: Thomas Lepoutre.
- Conference “LyonSysBio/Meet the Industry” (Lyon Systems Biology), Lyon (France), 15-17 November 2017 (https://mti2017.sciencesconf.org/). Co-organizers: Fabien Crauste and Olivier Gandrillon.
- Journée Scientique "Modelisation du Vivant" de la Faculté des Sciences et Technologies de l’Universite Lyon 1, Lyon (France), 22 June 2017 (https://jsf2017.sciencesconf.org/). Co-organizers: Fabien Crauste.
- Semaine Etudes Mathématiques Entreprises (SEME) 2017, Lyon (France), 30 January - 3 February 2017 (https://semelyon2017.sciencesconf.org/). Co-organizers: Fabien Crauste and Céline Vial.
- Workshop “Population effects on languages (PopLang)”, Lyon (France), 20 November 2017 (https://poplang.sciencesconf.org/). Co-organizers: Laurent Pujo-Menjouet and Léon Tine.

8.1.2. Journal

8.1.2.1. Member of the Editorial Boards

- Mostafa Adimy: Journal of Nonlinear Systems and Applications; Chinese Journal of Mathematics.
- Olivier Gandrillon: BMC research Notes.
- Laurent Pujo-Menjouet: Journal of Theoretical Biology; Mathematical Modeling of Natural Phenomena.

8.1.2.2. Reviewer - Reviewing Activities

- Thomas Lepoutre: Nonlinear Analysis; Computational and Applied Mathematics; M2AN; Journal of Biological Dynamics.
- Samuel Bernard: Journal of Theoretical Biology.
- Fabien Crauste: Journal of Biological Systems; Journal of Theoretical Biology; Mathematical Methods in Applied Sciences; Plos One; Royal Society Open Science.
- Olivier Gandrillon: Plos Computational Biology; Progress in Biophysics and Molecular Biology; Journal of the Royal Society Interface; Journal of theoretical biology; Genes and npj Systems Biology and Applications.
- Mostafa Adimy: Journal of European Mathematical Society; Mathematical Methods in the Applied Sciences; Mathematical Modeling of Natural Phenomena.
- Léon Tine: Mathematical Modelling and Numerical Analysis.

8.1.3. Invited Talks

- Thomas Lepoutre: International conference on “PDMPs, theory and applications”, Seillac (France), May 29-June 2 2017; Workshop “Cross diffusion and kinetic equations for biology”, Vienna (Austria), 10-12 May 2017.
- Samuel Bernard: “Journée Scientifique de la faculté des Sciences et technologies de l’UCBL”, Lyon (France), 22 june 2017.

- Fabien Crauste: GDR Mamovi “Mathématiques de la Modélisation du Vivant”, Lyon (France), 27 - 29 Septembre 2017.
- Olivier Gandrillon: Workshop “Modelling, Noise and Development”, Bath (UK), 18-19 Mai 2017.
- Chloé Audebert: GDR Mamovi “Mathématiques de la Modélisation du Vivant”, Lyon (France), 27 - 29 Septembre 2017.
- Laurent Pujo-Menjouet: “ARC6 day”, Grenoble (France), 4 July 2017; “BIOMIM EXPO 2017”, Senlis (France), 29 - 30 June; “5ème édition des Congrès PSYRENE (PSYchologie, REcherche, NEurosciences)”, Lyon (France), 7 July 2017; “ECAL2017 (European Conference on Artificial Life)”, Lyon (France), 4-8 September; Workshop “Protein Aggregation: Biophysics and Mathematics”, Vienna (Austria), 6-8 June 2017.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Licence:
  - Thomas Lepoutre, Groupe de lecture, L3, ENS, Lyon.
  - Samuel Bernard, Linear and matrix algebra,30h ETD, INSA, Lyon.
  - Samuel Bernard, ODEs for neuroscience,10h ETD, INSA Lyon.
  - Laurent Pujo-Menjouet, Fondamentaux des mathématiques, 138h ETD, L1, UCBL, Lyon.
  - Laurent Pujo-Menjouet, Bio-mathématiques et modélisation, 10.5h ETD, L3, UCBL, Lyon.
  - Laurent Pujo-Menjouet, Introduction à l’analyse numérique, 60h ETD, L2, UCBL, Lyon.
  - Léon Tine, Fondamentaux des mathématiques, 80h ETD, L1, UCBL, Lyon.
  - Léon Tine, Techniques mathématiques de base, 70h ETD, L1, UCBL, Lyon.
  - Léon Tine, Maths pour enseignement, 10h ETD, 10h ETD, L3, UCBL, Lyon.
- Master:
  - Thomas Lepoutre, Agrégation, 30h ETD, M2, UCBL, Lyon.
  - Samuel Bernard, Cell population dynamics, 15h ETD, UCBL, Lyon.
  - Fabien Crauste, Population Dynamics, 9h ETD, M2, UCBL, Lyon.
  - Laurent Pujo-Menjouet, Systèmes Dynamiques, 72h ETD, M1, UCBL, Lyon.
  - Laurent Pujo-Menjouet, Network Algorithms for Molecular Biology, 7.5h ETD, Master 2 IXXI, ENS, Lyon.
  - Léon Tine, Épidémiologie, 30h ETD, M2, UCBL, Lyon.

8.2.2. Supervision

- PhD in progress: Simon Girel, “Multiscale modeling of the immune response”, Université Lyon, since September 2015, supervisor: Fabien Crauste.
- PhD in progress: Aurélien Canet, “Contribution à l’étude de la quantification de la réponse d’une tumeur solide après un traitement par radiothérapie”, Université Lyon, since January 2016, supervisors: Larry Bodgi, Nicolas Foray and Laurent Pujo-Menjouet.
- PhD in progress: Loïs Boullu, “Modélisation de la mégacaryopoïèse et applications aux maladies liées â la production des plaquettes”, Université Lyon 1, October 2014, supervisors: Laurent Pujo-Menjouet and Jacques Bélair (co-tutelle avec l’Université de Montréal).
- PhD: Loïc Barbarroux, “Contributions to the multiscale modeling of the CD8 immune response : design, analysis, simulation and calibration of mathematical models”, Université de Lyon 1, July 2017, supervisors: Mostafa Adimy and Phillipe Michel.

- PhD: Apollos Besse, “Mathematical Modeling of Chronic Myelogenous Leukemia”, Université de Lyon, July 2017, supervisors: Samuel Bernard and Thomas Lepoutre.
- PhD in progress: Ulysse Herbach, “Modèles graphiques probabilistes pour l’inférence de réseaux de gènes”, Université Lyon 1, since October 2015, supervisors: 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, since November 2015, supervisors: Olivier Gandrillon (CIFRE with the COSMO company).
- PhD in progress: Ronan Duchesne, “Vers un modèle multi-échelle de la différentiation cellulaire : Application à la différentiation érythrocytaire”, École normale supérieure de Lyon and Université Lyon 1, since September 2016, supervisors: Olivier Gandrillon and Fabien Crauste.
- PhD: Anass Bouchnita, “Mathematical modeling of blood coagulation and thrombus formation under flow in normal and pathological conditions”, Université Claude Bernard Lyon, Ecole Mohammadia d’Ingénieurs and Université Mohammed V de Rabat (Maroc), December 2017, supervisor: Vitaly Volpert.
- PhD: Tatiana Galochkina, “Mathematical modeling of blood inflammation processes and the problem of blood purification”, Université Claude Bernard Lyon and Moscow State University, Novmber 2017, supervisor: Vitaly Volpert.
- HDR: Samuel Bernard, “Structured differential equations and multiscale approaches for human cell population dynamics”, Université Claude Bernard Lyon, June 2017.
- HDR: Thomas Leoutre, “Contributions en dynamique de populations”, Université Claude Bernard Lyon, April 2017.

8.2.3. Juries

- Thomas Lepoutre was reviewer and member of the PhD of Athmane Bakhta (Université Paris Est), “Modèles mathématiques et simulation numérique de dispositifs photovoltaïques”.
- Samuel Bernard was member of Charles Rocabert PhD defense committee (INSA Lyon), “Etude de l’évolution des micro-organismes bactériens par des approches de modélisation et de simulation numériques”.
- Samuel Bernard was member of Apollos Besse PhD defense committee (INSA Lyon), “Modélisation Mathématique de la Leucémie Myéloïde Chronique".
- Olivier Gandrillon was president of the jury for the PhD of Alice Moussy (École Pratique des Hautes Études, Paris), “Caractérisation des premières étapes de différenciation des cellules hématopoïétiques à l’échelle de la cellule unique” and for the PhD of Coraline Petit (ENS Lyon), “Évolution et Développement d’un organe sériel : la molaire. Transcriptomique comparée des bourgeons de molaires chez les rongeurs”.
- Laurent Pujo-Menjouet was a jury member of the Habilitation thesis of Samuel Bernard (Université Claude Bernard Lyon 1), “Structured differential equations and multiscale approaches for human cell population dynamics”. He was also a jury member of the PhD of Tatiana Galochkina (université de Lyon et Université d’état de Moscou), “Structure spatiale des lipopolysaccharides et son rôle dans la coagulation sanguine”.
- Mostafa Adimy was member of Loïc Barbarroux PhD defense commitee (École Centrale de Lyon), “Contributions to the multiscale modeling of the CD8 immune response : design, analysis, simulation and calibration of mathematical models” and Walid Djema PhD defense commitee (Université Paris-Sud), “Understanding Cell Dynamics in Cancer from Control and Mathematical Biology Standpoints Particular Insights into the Modeling and Analysis Aspects in Hematopoietic Systems and Leukemia”.

8.3. Popularization

- Thomas Lepoutre is coorganizer of the scientific exhibition Mathalyon.
- Samuel Bernard: Conference “L’âge de nos cellules par tests nucle´aires", Université Ouverte Lycée Charles Foucault, Lyon, January 23, 2017.
- Olivier Gandrillon participated in the Declics 2017 activities (Lycée Jean Perrin and Lycée Juliette Récamier).
- Laurent Pujo-Menjouet: Conferences “Les langues en danger: les maths sur le bout de la langue”, Lycée Jean Puy, Roanne, March, 16, 2017; “Epidémies, quand les maths viennent en aide” , St Bonnet le château, April, 10, 2017; “Mathématiques et relations amoureuses: les jeux de l’amour sans le hasard, St Bonnet le château, April, 10, 2017; “Espèces en danger: quand les maths viennent à la rescousse”, Université ouverte, Lyon, January, 5, 2017; Animation of a stand on the “Salon des jeux mathématiques, Paris, May 27 to 30, 2017.

M3DISIM Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

M. Genet, Session chair on Biomechanics at CSMA2017

M. Genet, Session chair on Software and Algorithms at FEniCS-2017

10.1.1.2. Member of the Organizing Committees

D. Chapelle, Member of the Paris-Saclay Biomechanical Seminar organizing committee

M. Genet, Member of the CSMA-2017 organizing committee

P. Le Tallec, Vice-president of the CSMA2017 (bi-annual national conference on computational structural mechanics) organizing committee

P. Moireau, Member of the organizing committee of the Inria-Saclay teams (Poems-M3disim-Defi) scientific computing seminar

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

D. Chapelle, Member of the Conference Program Committee of FIMH 2017

M. Genet, Member of the Conference Program Committee of CSMA-2017

P. Le Tallec, Member of the Conference Program Committee of CSMA-2017

10.1.2.2. Reviewer

D. Chapelle, reviewer for FIMH 2017

M. Genet, reviewer for CSMA-2017

P. Le Tallec, reviewer for CSMA-2017

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

D. Chapelle, Member of the editorial board of journal *Computers & Structures*

D. Chapelle, Member of the editorial board of journal *ESAIM: M2AN*

10.1.3.2. Reviewer - Reviewing Activities

J.-M. Allain, reviewer for “Journal of the Mechanical Behavior of Biomedical Materials” and “Soft Matter journal”

R. Chabiniok, reviewer for “Journal of Computer Methods and Programs in Biomedicine”, “Computers and Structures” and “Journal of Cardiovascular Translational Research”

D. Chapelle, reviewer for “Biomechanics and Modeling in Mechanobiology”, “Computer Methods in Applied Mechanics and Engineering”, “Computers & Structures”

M. Genet, reviewer for “Acta Biomaterialia”

S. Imperiale, reviewer for “Journal of Computers and mathematics with application”, “Journal of Numerical Methods for Partial Differential Equations” “Journal of Methods and Algorithms for Scientific Computing section”, “Journal of Geophysics” and “Journal of Computational Physics”

P. Moireau, reviewer for “ANR” and “Bulletin of Mathematical Biology”

10.1.4. Invited Talks

D. Chapelle, invited seminars at Centrale-Supelec (Jan. 19th) and WIAS Berlin (Sept. 18th)

P. Moireau, "A discrete-time optimal filtering approach for nonlinear systems as a stable discretization of the Mortensen observer" , Workshop on Optimal Control of Dynamical Systems

10.1.5. Leadership within the Scientific Community

J.-M. Allain, Member of Society of Experimental Mechanics and of Biophysical Society

J.-M. Allain, Member of the Academic Council of Université Paris-Saclay, France

D. Chapelle, Head of Science of Inria Saclay-Ile-de-France, and member of the Inria Evaluation Committee

D. Chapelle, Member of the board of directors of the VPH Institute, and of the Avicenna Alliance

D. Chapelle, Member of the steering committee of the BioMedical Engineering Institute coordinated by Ecole Polytechnique

A. Le Gall, Chair of youth committee of SFAR (French Society of Anesthesia and Reanimation)

P. Le Tallec, Director of the LMS (Solid Mechanics Laboratory) Ecole Polytechnique

P. Le Tallec, President of the Mechanics department at University Paris Saclay

P. Moireau, Member of the steering committee of Department of Mathematics of Université Paris Saclay and Jacques Hadamard Foundation

10.1.6. Scientific Expertise

R. Chabiniok, Honorary medical consultant at Saint-Thomas hospital (King's College London)

S. Imperiale, Consultant for CEA (The French Alternative Energies and Atomic Energy Commission)

P. Le Tallec, Consultant for CEA

P. Le Tallec, Consultant for Michelin

P. Moireau, Reviewer for ANR

10.1.7. Research Administration

J.-M. Allain, Responsibility of the teaching experimental center (mechanics), at École Polytechnique

J.-M. Allain, Scientific Advisory Board, chair BioMecAM at ENSAM

J.-M. Allain, Responsible of the "Mechanics and Material for the bio" at the Fédération Francilienne de Mécanique

D. Chapelle, Head of Science of Inria Saclay-Ile-de-France, and member of the Inria Evaluation Committee

P. Le Tallec, Director of the LMS (Solid Mechanics Laboratory) Ecole Polytechnique

P. Le Tallec, in charge of 3rd year program in Mechanics and Energy at Ecole Polytechnique

P. Le Tallec, in charge of the André Citroën Chair

P. Le Tallec, in charge of the Mechanics department at University Paris Saclay

P. Le Tallec, President of the academic senate of the Ecole Polytechnique

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Bachelor: J.-M. Allain, "Introduction projects to physics", 15h, (L1), École Polytechnique, France

Bachelor: F. Caforio,“PEIP1 S2 M2 – Mathematical analysis in two and three dimensions, linear algebra in Rn”, 22h, (L1), Polytech Paris-Sud, France

Bachelor: F. Caforio,“Math 255 – Differential calculus for physics (mathematical analysis in two and three dimensions)”, 42h, (L2), Université Paris-Sud, France

Bachelor: M. Genet, “MEC435 – Modélisation et Simulation en Mécanique Industrielle”, 32h, (L3), École Polytechnique, France

Bachelor: M. Genet,“MEC430 – Mécanique des Milieux Continus I”, 32h, (L3), École Polytechnique, France

Bachelor: M. Genet, “MEC431 – Mécanique des Milieux Continus II”, 32h, (L3), École Polytechnique, France

Bachelor: S. Imperiale, “MA102 – Analyse pour les EDP”, 24h, (L3), ENSTA ParisTech, France

Bachelor: S. Imperiale, “MA104 – Analyse complexe”, 12h, (L3), ENSTA ParisTech, France

Bachelor: F. Kimmig, “Mathematical methods for physics”, 32h, (L1) level, École Polytechnique, France

Bachelor: F. Kimmig, “Introduction projects to physics”, 6h, (L1), École Polytechnique, France

Bachelor: F. Kimmig, “Modeling and simulation in industrial mechanics”, 32h, (L3), École Polytechnique, France

Bachelor: P. Le Tallec, “MEC 431 – Mécanique des Milieux Continus 2”, (L3), École Polytechnique, France

Bachelor: P. Le Tallec, “Continuum mechanics”, 32h, (L3), Shanghai ParisTech, China

Bachelor: P. Moireau, “MAP 411 – Approximation numérique et optimisation”, 32 h, (L3), Ecole Polytechnique, France

Master: P. Moireau, “MA103 – Introduction aux EDP et à la méthode des différences finies”, 14h, (L3), ENSTA ParisTech, France

Bachelor: F. Wijanto, “Modeling and simulation in industrial mechanics” 32 h, (L3), École Polytechnique, France

Master: J.-M. Allain, “conputational fluid dynamics”, 36h, (M1), Ecole Polytechnique, France

Master: J.-M. Allain, “Cellular Motility”, 32h, (M2), Ecole Polytechnique, France

Master: D. Chapelle: “Biomechanical Modeling of Active Tissues”, 33h, (M2), Université Paris-Saclay, France

Master: S. Imperiale, “MA2610 Calcul Scientifique – Mécanique des solides”, 6h, (M1), Central/Supelec, France

Master: S. Imperiale, “Simnum – Programmation C++”, 18h, (M1), ENSTA ParisTech, France

Master: P. Le Tallec, “M4S – Numerical methods in non linear mechanics”,27h, (M2), École Polytechnique, France

Master: P. Le Tallec, “Nuclear Energy on Continuum Mechanics”,15h, (M2), INSTN, France

Master: P. Moireau, “MAP-Ann1 – La méthode des éléments finis”, 21h, (M1), ENSTA ParisTech, France

Master: P. Moireau, “Biomechanical Modeling of Active Tissues”, 12h, (M2), Université Paris-Saclay, France

Master: P. Moireau, “Méthodes et problèmes inverses en dynamique des populations”, 24h, (M2), UPMC, France

10.2.2. Supervision

PhD: Aurora Armiento, “Inverse problems and data assimilation methods applied to protein depolymerisation”, supervisors: M. Doumic and P. Moireau, Paris-Descartes University, defended Jan. 13th

PhD in progress: Ustim Khristenko, “Méthodes mathématiques et numériques pour la modélisation et le calcul des états établis cycliques en mécanique non-linéaire”, started Oct. 2014, supervised: P. Le Tallec

PhD in progress: Florent Wijanto, “Modélisation multi-échelle des fibres de collagènes”, started: Sept. 2015, supervisors: J.-M. Allain and M. Caruel

PhD in progress: Federica Caforio, “Modélisation mathématique et numérique de la propagation d’ondes élastique dans le coeur”, started: Nov. 2015, supervisors: D. Chapelle and S. Imperiale

PhD in progress: François Kimmig, “Multi-scale modeling of muscle contraction – From stochastic dynamics of molecular motors to continuum mechanics, in interaction with experimental assays”, started: Sept. 2016, supervisors: M. Caruel and D. Chapelle

PhD in progress: Arthur Le Gall, “Application of biomechanical heart modeling in hemodynamic monitoring of increased risk patients during anesthesia using clinical data”, started Nov. 2016, supervisors: D. Chapelle, E. Gayat (UP7 Paris Diderot) and R. Chabiniok

PhD in progress: Ezgi Berberoglu, “Image-guided Computational Cardiac Mechanics”, started: Jan. 2016 supervisors: Martin Genet and Sebastian Kozerke (ETH, Zurich, Switzerland)

PhD in progress: Cécile Patte, “Modélisation poro-mécanique multi-échelle du poumon, de la respiration au remodelage chronique associé à la fibrose pulmonaire”, started: Nov. 2017, supervisors: M. Genet and D. Chapelle

PhD in progress: Marija Gusseva, “Cardiac Biomechanical Modeling of Chronic Right Ventricular Loading”, started Dec. 2017, supervised: R. Chabiniok, D. Chapelle, T. Hussain (UTSW Medical Center Dallas)

10.2.3. Juries

D. Chapelle, Habilitation Jury of Marcela Szopos, Strasbourg University, President, Dec. 1st

P. Moireau, PhD Jury of Aurora Armiento, Paris-Descartes University, PhD Advisor, Jan. 13th

P. Moireau, PhD Jury of Chloé Audebert, Paris-6 University, Reviewer, Febr. 24th

P. Moireau, PhD Jury of Pauline Bernard, Paris-6 University, President, Nov. 20th

P. Moireau, PhD Jury of Roch Mollero, University of Nice-Sophia Antipolis, Dec. 19th

10.3. Popularization

J.-M. Allain, Jeudi de la Recherche de l’X: popularisation talk on research with medical application. June 2017

J.-M. Allain, 3 articles in popularisation journals (quotidien du médecin, le concours médical, biotech.info) by journalists

D. Chapelle, interview for “Usine Nouvelle”, Dec. 12th

A. Laurin, Inria Saclay inauguration demo and associated news article in “Le Parisien”, Jan. 2017

P. Moireau, Créteil district “Olympiades de Mathématiques” award ceremony, May 2017

R. Chabiniok, Review paper promoting Cardiovascular MRI particularly of congenital heart diseases for Czech and Slovak physicians [17]

A. Laurin, P. Moireau, D. Chapelle, demo at 50 ans de l’Inria, Nov. 7th and 8th

MAMBA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

Editorial activities, scientific boards, research administration

P.-A. Bliman is member of the Scientific committee of the ANR program “Environnement, pathogènes et maladies émergentes ou ré-émergentes - One health".

J. Clairambault is member of the expert group of ITMO Cancer, representative of Inria (since 2008) and member of the bureau of the interdisciplinary doctoral programme “Interfaces pour le Vivant” (IPV) at Sorbonne Université.

M. Doumic is member of the expert group of ITMO BMSV, representative of Inria (since 2014).

D. Drasdo is head of a research team, until June 2017 co-localised at Interdisciplinary Center for Bioinformatics, Univ. Leipzig, and since July 2017 co-localised at Leibniz Institute for Work-environment IfADo, Dortmund. He is member of the boards of TheScientificWorldJOURNAL and Royal Society open science (UK), J. Theor. Biol. and member of CaSyM expert committee for EU Horizon 2020.

B. Perthame is Chief Editor of Acta ApplicandæMathematicæ(Springer-Nature) (since october 2017), Editor of De Gruyter Series in Mathematics and Life Sciences and of Frontiers in Mathematical Sciences (Birkhaüser), and member of the scientific board for the ECMTB Conference 2018.

9.2. Teaching - Supervision - PhD and HDR defence committees

9.2.1. Teaching

We indicate here only the courses given by scientific staff members who do not have a teaching position. Benoît Perthame gives courses at UPMC.

Luis Ameida is in charge of the Major MathBio of the speciality “Mathematics of modelling”, M2 level, UPMC.

- *Luis Almeida, 2017*

  Tissue growth (with Delphine Salort, IBPS). UPMC M2 course, Paris **20 h**

- *Pierre-Alexandre Bliman, 2017*

  Analysis, Graduate cycle, School of Applied Mathematics, Fundação Getulio Vargas, Rio de Janeiro, Brazil **60 h**

  and Calculus III, Graduate cycle, School of Applied Mathematics, Fundação Getulio Vargas, Rio de Janeiro, Brazil **30 h**

  and Control theory, Graduate cycle, School of Industrial Management, Université Mohamed 6 Polytechnique, Ben Guerir, Morocco **6 h**

- *Jean Clairambault, 2017*

  International course on stem cells, UPMC, September 2017 **2 h**

  and Spring school on systems biology, Instituto Gulbenkian de Ciência, Lisbon, May 2017 **6 h**

- *Marie Doumic, 2017*

  Direct and inverse problems in population dynamics (with P. Moireau, Inria M3DISIM). UPMC M2 course, Paris **24 h / yr**

- *Dirk Drasdo, 2017*

Agent-based models of tissue organisation, UPMC M2 course, Paris **24 h / yr**

University of Rome: Tutorial, 2h: TiSim: A modelling tool for multicellular simulations

9.2.2. Supervision

9.2.2.1. PhD defences in 2017

- Aurora Armiento, “Inverse problems and data assimilation methods applied on protein polymerisation”, UPMC, begun September 2013, supervision by M. Doumic and Ph. Moireau (Inria Saclay, M3DISIM team), PhD defence January 2017, UPMC
- Giulia Fabrini “Numerical methods for optimal control problems with biological applications”, supervision by L. Almeida and P. Bagnerini (University of Genova, Italy), PhD defence April 2017, Univ. Genova
- Walid Djema, “Understanding Cell Dynamics in Cancer from Control and Mathematical Biology Standpoints: Particular Insights into the Modelling and Analysis Aspects in Hematopoietic Systems and Leukemia”, supervision by C. Bonnet (DISCO, Saclay), J. Clairambault, and F. Mazenc (DISCO, Saclay), PhD defence November 2017, L2S, Gif/Yvette

9.2.2.2. Ongoing PhD theses

- PhD in progress: Noémie Boissier (since November 2013, PhD defence in February 2018), supervision by D. Drasdo and I. Vignon-Clementel
- PhD in progress: Julia Delacour (since September 2017), supervision by Marie Doumic and Christian Schmeiser (WPI, Vienna)
- PhD in progress: Adrian Friebel, “Software of image processing and analysis of liver tissue at histological scales”, supervision by D. Drasdo and S. Hoehme
- PhD in progress: Ghassen Haddad, “Optimisation of cancer treatments”, UPMC in co-tutela with ENIT Tunis, begun October 2015, supervision by J. Clairambault and S. Ben Miled (Tunis)
- PhD in progress: Hugo Martin, “New structured population models for bacterial growth", begun October 2016, supervision by M. Doumic in co-tutela with Pierre Gabriel (Versailles)
- PhD in progress: Mathieu Mézache, begun October 2016, “Oscillatory dynamics in protein aggregation", supervision by M. Doumic in co-tutela with Human Rezaei (INRA)
- PhD in progress: Johannes Neitsch, “Growth and regeneration modelling based on an agent-based model with deformable cells”, (since June 2011), supervision by D. Drasdo and P. Van Liedekerke
- PhD in progress: Pastor Pérez-Estigarribia, Universidad Nacional de Asunción, Paraguay, supervision by C. Schaerer and P.-A. Bliman
- PhD in progress: Camille Pouchol, “Modelling interactions between tumour cells and adipocytes in breast cancer”, UPMC, begun September 2015, supervision by J. Clairambault, M. Sabbah, and E. Trélat
- PhD in progress: Antonin Prunet, UPMC, begun October 2014, supervision by L. Almeida and M. Sabbah
- PhD in progress: Andrada Quillas Maran, “Modelling early leukaemogenesis”, UPMC, begun March 2014, supervision by J. Clairambault, F. Delhommeau and B. Perthame
- PhD in progress: Martin Strugarek, “Structured population dynamics for transmissible diseases”, UPMC, begun October 2015, supervision by N. Vauchelet and B. Perthame
- PhD in progress: Cécile Taing, UPMC, begun October 2014, supervision by A. Lorz and B. Perthame

9.2.3. PhD and HDR defence committees

- Luis Almeida: Giulia Fabrini, “Numerical methods for optimal control problems with biological applications”, PhD defence April 26, 2017, Genova (Italy)

- Jean Clairambault: Cécile Carrère, “Prise en compte de l’hétérogénéité tumorale dans l’optimisation d’une chimiothérapie : contrôle optimal, analyse théorique et numérique”, PhD defence October 6, 2017, Marseille
- Jean Clairambault: Sébastien Benzekry (HDR), “Contributions in Mathematical Oncology: When Theory Meets Reality”, HDR defence November 13, 2017, Bordeaux
- Jean Clairambault: Walid Djema, “Understanding Cell Dynamics in Cancer from Control and Mathematical Biology Standpoints: Particular Insights into the Modelling and Analysis Aspects in Hematopoietic Systems and Leukemia”, PhD defence November 21, 2017, Gif/Yvette
- Marie Doumic: Aurora Armiento, “Inverse problems and data assimilation methods applied on protein polymerisation”, UPMC, PhD defence January 13, 2017, UPMC
- Marie Doumic: Apollos Besse, “Modélisation mathématique de la leucémie myéloïde chronique", PhD defence July 6, University Lyon 1
- Marie Doumic: Aline Marguet, “Processus de branchement pour des populations structurées et estimateurs pour la division cellulaire”, PhD defence November 27, 2017, Ecole Polytechnique
- Benoît Perthame: Giulia Fabrini, “Numerical methods for optimal control problems with biological applications”, PhD defence April 26, 2017, Genova (Italy)

MONC 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

- Sébastien Benzekry: Membre du comité scientifique des *Mathematical Biology Modeling days of Besançon*, MB^2 (http://mb2.univ-fcomte.fr/index.html).
- Clair Poignard: Inria at Silicon Valley BIS'2017 at Berkeley. Session on level-set methods, parallel computing and uncertainty quantifications. (Chairs: C. Poignard F. Gibou).
- Clair Poignard: Organisation of the Theoretical Physics Day at the University of Bordeaux.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- Sébastien Benzekry: Invited editor of a special issue of the journal Complexity : "Mathematical Oncology: Unveiling Biological Complexity Using Mathematical Methods"
- Clair Poignard: Member of the editorial committee of DCDS-S.

9.1.2.2. Reviewer - Reviewing Activities

- Sébastien Benzekry: Bull Math Biol, Computational and Applied Mathematics.
- Clair Poignard: Radiology, Bioelectrochemistry, Math. Medi Biol, J. Sci Comp., M2AN, JMPA, ESAIM Proc.
- Olivier Saut : PLOS One, Nature Comm, Medical Image Analysis.

9.1.3. Invited Talks

- Sébastien Benzekry: December 2017, Seminar at the Rappaport Faculty of Medicine of the Technion Israel Institute of Technology (invitation by Yuval Shaked). Contributions in Mathematical Oncology: When Theory Meets Reality. Haifa, Israel. http://www.rappaport.org.il/Rappaport/Templates/ShowPage.asp?DBID=&TMID=10000&FID=78
- Sébastien Benzekry: December 2017, Mathematical methods and modeling of biophysical phenomena. Mathematical modeling and prediction of metastasis. Rio de Janeiro, Brazil. https://impa.br/eventos-do-impa/eventos-2017/mathematical-methods-and-modeling-of-biophysical-phenomena/
- Sébastien Benzekry: September 2017, Première session du GDR MAMOVI. Mathematical Modeling and Prediction of Clinical Brain Metastases in Non-Small Cell Lung Cancer. Lyon, France http://gdr-mamovi.math.cnrs.fr/spip/spip.php?article12
- Sébastien Benzekry: June 2017, XXV Congreso de ecuaciones diferenciales y aplicaciones / XV congreso de matematica aplicada, Optimization of the timing of sequential administration of bevacizumab plus cytotoxics in non-small cell lung cancer by a mathematical model. Cartagena, Spain. http://www.cedya2017.org/
- Sébastien Benzekry: May 2017, Laboratoire d'Analyse Topologie et Probabilites, Institut de Mathematiques de Marseille. Mathematical Oncology: Theory Meets Reality. Marseille, France.
- Clair Poignard: Conference in honor of the 60th Birthday of Y. Maday. Electroporation modeling, from cell to tissue.
- Olibier Galinato: Sept. 2017, Journées Françaises de Radiologie, Numerical Workflow for Clinical IRE Ablation, Paris, France.

9.1.4. Scientific Expertise

- Sébastien Benzekry: Reviewer for the Foundation for Polish Science (TEAM programme), European funds Smart Growth
- Clair Poignard: Member of the evaluation committee of the call of the Plan Cancer «Physique pour le Cancer »
- Olivier Saut: O. Saut is an expert for the French Ministry of Research (for various programs including PHC and EGIDE programs).
- Olivier Saut: reviewer for IDEX Université Grenoble Alpes projects.

9.1.5. Research Administration

- Clair Poignard: Member of the Inria evaluation committee.
- Clair Poignard: PI of the Plan Cancer projects NUMEP (2016–2019), and DYNAMO (2015–2018).
- Olivier Saut: member of the steering committee of Labex TRAIL (Translational Imaging) http://trail.labex.u-bordeaux.fr.
- Olivier Saut: member of the steering committee of ITMO consortium HTE (on tumor heterogeneity) and coordinator of work package Model and Data.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: S. Benzekry, Analyse numérique, 24h ETD, L3, Bordeaux INP, France

Licence : A. Collin, TD EDO, 48h, niveau L3, INP Bordeaux, France.

Master : A. Collin, TP C++, 96h, niveau M1, INP Bordeaux, France.

Master : A. Collin, Cours de maillage, 36h, niveau M2, INP Bordeaux, France.

Master : A. Collin, Encadrement de projets, 30h, niveaux M1, M2, INP Bordeaux, France.

Licence : C. Poignard, Undergraduate teaching in Numerical and Applied Mathematics (L3, M1) 80heqTD: IPB, ENSAM.

9.2.2. Supervision

- HdR: S. Benzekry, *Contributions in Mathematical Oncology: When Theory Meets Reality*, Université de Bordeaux, 13 Novembre 2017.
- PhD: Manon Deville, *Mathematical Modeling of enhanced drug delivery by mean of Electroporation or Enzymatic treatment*, University of Bordeaux (cotutelle with R. Natalini, Univerity of Rome Tor Vergata), 22 Novembre 2017, Clair Poignard.
- PhD: Agathe Peretti, *Quantification de l'hétérogénéité tumorale à partir de l'imagerie médicale. Application à la classification de tumeurs rénales*, Université de Bordeaux, 20 décembre 2017, Thierry Colin, Olivier Saut.
- PhD in progress: C. Nicolò, *Mathematical modeling of systemic aspects of cancer and cancer therapy*, 12/2016, S. Benzekry and O. Saut.
- PhD in progress: T. Kritter, *Primary tumors modeling with a view to the gliomas and adenocarcinomas study*, Sep 2015, C. Poignard and O. Saut
- PhD in progress: S. Corridore, *Mathematical Model for Electroporation*, A. Collin, C. Poignard.
- PhD in progress: C. Perier, 2016-2019, B. Denis de Senneville and O. Saut, *Combining texture analysis and modeling for evaluation therapies and clinical outcome*.
- PhD in progress: A. Crombé, 2017-2020, O. Saut, *Beyond radiomics for soft-tissue sarcoma*.

- PhD in progress: C. Vaghi, *Improving intra-tumor drug distribution of anti-cancer nanoparticles by data-informed mathematical modeling* (beginning November 1rst 2017), S. Benzekry, R. Fanciullino and C. Poignard.

9.2.3. Juries

- Sébastien Benzekry: Committee member of the PhD thesis of K. El Alaoui Lasmaili, Université de Lorraine (mention Sciences de la Vie et de la Santé), 4 Avril 2017.
- Clair Poignard: reviewer of the PhD thesis of A. Barlukova (Université Aix-Marseille),
- Clair Poignard: reviewer of the PhD thesis of K. Van Nguyen (Ecole Polytechnique X)
- Clair Poignard: Committee member of the PhD thesis of T. Wintz: Super-resolution in wave imaging. (ENS Paris)
- Clair Poignard: Committee member of the PhD thesis of Z. Wenlong: Forward and Inverse Problems Under Uncertainty (ENS Paris).
- Olivier Saut: reviewer of the PhD thesis of Guila Fabrini. (Paris VI - Univ. Genova, Italy).
- Olivier Saut: reviewer of the PhD thesis of Clément Chesseboeuf. (Univ. Poitiers).

9.3. Popularization

- Sébastien Benzekry: Interview pour le journal « Sciences et Avenir ».
- A. Collin : Printemps de la mixité (une présentation sur le calcul scientifique devant 2 classes de première), Institut Mathématiques de Bordeaux, 04/04/17, https://www.u-bordeaux.fr/Actualites/De-l-universite/Le-Printemps-de-la-mixite.
- A. Collin: Filles & Maths (table ronde avec des lycéennes autour des études mathématiques et des applications des mathématiques), Université de Bordeaux, 05/06/2017, https://math-interactions.u-bordeaux.fr/Centres-de-ressources/IREM/Actions/Journee-Filles-et-Maths.
- A. Collin: Fête de la Science, Inria Bordeaux, 10/10/2017.
- A. Collin: Nuit des chercheurs, Cap Sciences, Bordeaux.
- A. Collin: Cinéma Sciences (discussion avec le public sur les mathématiques après la projection du film "Les figures de l'ombre"), Cinéma de Mérignac 18/05/2017.
- O. Saut: Les Entretiens de l'Excellence 2017 http://www.lesentretiens.org/.
- O. Saut: Table ronde "Comment l'innovation transforme les métiers de la santé", Journées Nationales de l'Innovation en Santé, 27-29 janvier 2017, cité des Sciences et de l'Industrie / webradio Cnrs.

MYCENAE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

- Reprosciences 2017, April 10-12, Tours, co-organized by Frédérique Clément, Yves Combarnous, Florian Guillou, Joëlle Cohen-Tannoudji and François Vialard.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Jonathan Touboul participates in the editorial boards of *Plos One* and *Frontiers in neuronal circuits*

9.1.2.2. Reviewer - Reviewing Activities

Journal of Ovarian research, Journal of Mathematical Biology, SIAM Journal on Applied Dynamical Systems

9.1.3. Invited Talks

Frédérique Clément gave a talk dedicated to "'Multiscale modeling in reproductive and developmental biology : A middle-out, cell dynamics-based approach" during the Journées Scientifiques Inria, June, 14-16, Sophia-Antipolis.

Our study on the analysis and calibration of a linear model for structured cell populations with unidirectional motion was the matter of an invited presentation, given by Romain Yvinec, at the annual meeting of GDR MaMovi , September 27-29, Villeurbanne (https://gdr-mamovi-2017.sciencesconf.org).

9.1.4. Scientific Expertise

Frédérique Clément belongs to the expert board of the BCDE (Cell Biology, Development and Evolution) ITMO (Multi OrganizationThematic Institute) of the French National Alliance for Life and Health Sciences Aviesan.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Frédérique Robin gave lectures in the framework of the UFR de Mathématiques de Jussieu (L2 and L3 level)

UE P2.2M003 Vector analysis (L3) 85h

UE E.2M261 Integer and integral series with parameters (L2), 20h

UE 3M100 Initiation to Python language (L3), 15h

9.2.2. Supervision

PhD in progress : Richard Bailleul. Modeling of the developmental mechanisms underlying the formation of color and appendage patterns in birds, since September 2015. Université Pierre & Marie Curie (ED515), supervisors: Benoît Perthame, Marie Manceau and Jonathan Touboul (funded by the ERC starting grant of Marie Manceau)

PhD in progress: 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

PhD in progress: Frédérique Robin. Multiscale modeling of the morphodynamics in ovarian follicles, since October 2016, Université Pierre & Marie Curie (ED386), supervisors: Frédérique Clément and Romain Yvinec (INRA)

Master degree: Matthieu Perez. Simulations de modèles déterministes et stochastiques de la neurogenèse corticale. INSA Rouen, supervisors: Frédérique Clément and Marie Postel

9.3. Popularization

Frédérique Robin participated in a regional committee in the framework of the “Tournoi français des jeunes mathématiciennes et mathématiciens” (TFJM).

Book chapter in the new edition of the Encyclopedia of Endocrine Diseases
D. Monniaux, V. Cadoret, F. Clément, R. Dalbies-Tran, S. Elis, S. Fabre, V. Maillard, P. Monget, and S. Uzbekova
Editors Ilpo Huhtaniemi and Luciano Martini, Section Editor Sophie Christin-Maitre
Folliculogenesis (2017) p1-26.

NUMED Project-Team (section vide)

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

- Céline Grandmont
  - Co-organizer of Inria-LJLL meeting in scientific computing
  - Co-organizer of the conference in the honor of Y. Maday for his 60th birthday, may 2017, Roscoff
  - Co-organizer of the conference "Analysis and control of fluid-structure interaction systems", october 2017, IMB, Bordeaux University
- Irene Vignon Clementel
  - Organized a minisymposium at the ICCB conference, September 2017, Compiègne
  - Organized a minisymposium with A. Marsden (Stanford U.) at the 5th International Conference on Computational & Mathematical Biomedical Engineering, April 2017, Pittsburg, USA.

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

- Laurent Boudin
  - Coordinator of the 6th "Forum Emploi Maths 2017" organizing committee, with Bertrand Michel (École Centrale Nantes), December 2017, Paris, France

10.1.2.2. Member of the Conference Program Committees

- Jean-Frédéric Gerbeau
  - 5th International conference on Computational & Mathematical Biomedical Engineering (CMBE 2017), Pittsburgh, USA.
  - ENUMATH 2017 conference. Voss, Norway.
  - 9th International Conference on Functional Imaging and Modeling of the Heart (FIMH 2017). Toronto, Canada.
- Céline Grandmont
  - Member of the scientific committee of the "EDP Normandie 2017" conference
- Irene Vignon Clementel
  - Programme committee member, Computational and Mathematical Biomedical Engineering Conference, Pittsburgh 2017
  - Conference steering committee, International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, 2015-present

10.1.2.3. Reviewer

- Jean-Frédéric Gerbeau
  - Member of the Scientific Program Committee of the Millennium Science Initiative, a program of the Ministry of Economy of Chile.
- Irene Vignon Clementel

  - Reviewer for the Netherlands Organisation for Scientific Research (NWO)

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Jean-Frédéric Gerbeau
  - Member of the editorial board of the SIAM Journal of Scientific Computing (SISC).
  - Series editor of "SEMA SIMAI Series", Springer.
  - Member of the editorial board of Journal Advances in Computational Mathematics (ACOM), Springer
  - Member of the editorial board of International Journal for Numerical Methods in Biomedical Engineering (IJNMBE), Wiley.
  - Member of the editorial board of Communications in Applied and Industrial Mathematics, SIMAI/De Gruyter.
  - Member of the editorial board of Journal for Modeling in Ophthalmology, Kugler.
- Marc Thiriet
  - Member of the editorial board of Digital Medicine

10.1.4. Leadership within the Scientific Community

- Jean-Frédéric Gerbeau
  - Elected member of the Board of Directors of SMAI (French Society for Industrial and Applied Mathematics), in charge of the SMAI publications (M2AN, COCV, *etc.*)

10.1.5. Research Administration

- Muriel Boulakia
  - Supervisor of the teaching of mathematics at the engineer school Polytech Paris-UPMC
- Miguel Ángel Fernández Varela
  - Deputy Head of Science, Inria Paris (from Sept. 2017)
  - Member of the Inria Evaluation Committee (from Sept. 2017)
  - Co-president of the Scientific Positions Commission, Inria Paris
- Jean-Frédéric Gerbeau
  - Head of science, Inria Paris (until Sept. 2017)
  - Member of the Inria Evaluation Committee (until Sept. 2017)
  - 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 Inria Evaluation Committee
  - Member of the Inria Parity Committee
- Irene Vignon-Clementel
  - Committee member for PhD students at Inria "Commission consultative des doctorants", since July 2016.
  - Mediator between PhD students and their supervisors for Inria Paris

10.1.6. Conferences

- Matteo Aletti

  - Minisymposium talk, International conference on Finite elements in flow problems (FEF), Rome (Italy), 2017
- Chloé Audebert
  - Invited speaker, GDR Mamovi, Sep 27-29, Lyon, France.
  - Minisymposium talk, International Conference on Computational Bioengineering, Sep 6-8, Compiègne, France.
  - Talk, Colloquium 595 Biomechanics and computer assisted surgery meets medical reality, Aug 29-31, Lille, France.
  - Weekend de l'innovation chirurgicale (WIC), Jun 23-25, Cabourg, France.
  - Talk, Congrès SMAI 2017, 8e Biennale Française des Mathématiques Appliquées et Industrielles, Jun 5-9, Ronce-les-bains, France.
  - Minisymposium talk, Computational and mathematical Biomedical Engineering (CMBE) , Apr 10-12, Pittsburgh, USA.
  - Seminar, bioMMeda group, Mar 8th, Ghent University, Ghent, Belgium.
  - Seminar, Laboratoire de mathématique MAP5, Mar 3rd, Université Paris Descartes, Paris, France.
- Ludovic Boilevin-Kayl
  - Minisymposium talk, 5th International Conference on Computational and Mathematical Biomedical Engineering (CMBE), April 10th-12th, Pittsburgh, PA, United States.
- Laurent Boudin
  - Contributed talk, Workshop "Franco-Italian meeting on kinetic theory and singular parabolic equations", Mar 16-17, Paris, France
  - Invited talk, "Aerosolstorming" meeting of the "Société de Pneumologie en Langue Française", May 2017, Paris, France
  - Invited talk, Summer School on Computational Social and Behavioral Sciences, Sep 2017, Paris, France
  - Seminar, ENS Paris-Saclay Starters scientific talks in mathematics and computer science, Sep 2017, Cachan, France
  - Invited talk, Workshop "Modelling, simulation and study of social behaviour", Oct 2017, Nancy, France
  - Invited talk, Conference on Partial differential equations and semi-groups, Dec 2017, Besançon, France
- Muriel Boulakia
  - Seminar Analysis, Ceremade, Univ. Paris Dauphine, December 2017
  - Seminar, Univ. Paris Descartes, November 2017
  - Seminar PDE, Univ. Versailles, May 2017
- Miguel Ángel Fernández Varela
  - Invited semi-plenary lecture, International conference on Finite elements in flow problems (FEF), Rome (Italy), 2017
- Jean-Frédéric Gerbeau
  - Invited lectures (6 hours), Maxwell Institute Graduate School on Evolution Equations, ICMS, Edinburgh, UK, 2017
  - Invited lecture, Conference "Quiet 2017", Quantification of Uncertainty: Improving Efficiency and Technology, SISSA, Trieste, Italy, July 2017

  - Invited lecture, Workshop "In Silico Human drug safety and efficacy", Oxford, UK, September 2017
  - Invited lecture, Workshop GDR Mamovi.
  - Seminar, Weierstrass Institute for Applied Analysis and Stochastics (WIAS), Berlin, Germany, November 2017
  - Minisymposium talk, ICCB conference, Compiègne, France, September 2017
- Céline Grandmont
  - ULB Maths Colloquium, Bruxelles, april 2017
  - Colloquium Univ. Lille, december 2017
- Florian Joly
  - Weekend de l'innovation chirurgicale (WIC), Jun 23-25, Cabourg, France.
  - Talk, GRIC Journées Françaises de Radiologie, Oct 12th, Paris, France.
- Damiano Lombardi
  - CMBE 2017, Pittsburgh (US), invited to the minisymposium on *Adaptation, growth and remodelling*
  - CMBE 2017, Pittsburgh (US), organiser of the minisymposium on *Reliable predictions in biomedical applications*
- Dena Kazerani
  - Talk, Groupe de travail de biologie, Tours-Orléans, October 2017, Orléans, France.
  - Poster, Congrès SMAI 2017, 8e Biennale Française des Mathématiques Appliquées et Industrielles, June 2017, Ronce-les-bains, France.
  - Talk, Ecole EGRIN: Ecoulements Gravitaires et Risques Naturels, June 2017, Cargèse, France.
  - Talk, Séminaire du Laboratoire Hydraulique Saint-Venant, January 2017, Chatou, France
  - Poster, vingt-neuème séminaire sur "la mécanique des fluides numériques" organised by GAMNI-CEA, Institut Herni Poincaré (IHP), January 2017, Paris, France.
- Alexandre This
  - Poster, 9th international conference on Functional Imaging and Modeling of the Heart, FIMH, Toronto, June 2017
- Eliott Tixier
  - Invited talk, Workshop on Mathematical Methods in Cardiac Electrophysiology, Nov 4-6, Ottawa, Canada
  - Invited talk, GdR Mamovi meeting, Sep 27-29, Lyon, France
  - Poster presentation, QUIET 2017 Workshop, Jul 18-21, Trieste, Italy
- Marina Vidrascu
  - Invited talk ,The Sixth International Conference on Scientific Computing and Partial Differential Equations, Hong Kong Baptist University, June 5-8, 2017
- Irene Vignon Clementel
  - Seminar, Universittsklinikum Aachen, Dec 4th 2017, Aachen, Germany
  - Seminar, LiSyM consortium, Nov. 28th 2017, Paris, France
  - Seminar, U. de Caen, Dpt of Mathematics, Nov. 13th 2017, Caen, France
  - Invited, SimInhale workshop, Oct. 4-5th 2017, Athens, Greece
  - Seminar, Ecole Polytechnique, Oct 16th 2017, Palaiseau, France
  - Seminar, Marie-Lannelongue Hospital, Sept 18th 2017, Plessis-Robinson, France

- Keynote (invited), Colloquium 595 Biomechanics and computer assisted surgery meets medical reality, Aug 29-31, Lille, France.
- Invited talk, Weekend de l'innovation chirurgicale (WIC), Jun 23-25, Cabourg, France.
- Minisymposium talk, Computational and mathematical Biomedical Engineering (CMBE), Apr 10-12, Pittsburgh, USA.
- Seminar, Eindhoven U., Dpt of Bioengineering, March 24th 2017, Eindhoven, The Netherlands
- Seminar, Organox - Paul Brousse Hospital, Jan 24th 2017, Villejuif, France

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence:

- Ludovic Boilevin-Kayl
  - Calculus, 80h, L1, UPMC
  - Matrix computations, 18h, L1, UPMC
- Laurent Boudin
  - Introduction to series for signal theory, 18h, L2, UPMC
  - Shared studies supervision in mathematics licence for approximately 500 students, 24h, L2, UPMC (until Aug 31, 2017)
  - Calculus, 38.5h, L1, UPMC
  - Student advising for orientation and professional insertion, 22h, L2, UPMC
  - Numerical methods for ODE, 26.5h, L3, UPMC
- Muriel Boulakia
  - Scilab, 35h, L2, UPMC
  - Nonlinear systems and optimization, 35h, L3, Polytech'Paris
  - Oral tests in in topology and differential calculus, 20h, L3
- Miguel Ángel Fernández Varela
  - Analysis and Scientific Computing, 30h, L3, ENPC
- Jean-Frédéric Gerbeau
  - Control of dynamical systems, 32h, L3, Ecole Polytechnique.
- Céline Grandmont
  - Ordinary differential equations, 24h, L3, UPMC
- Damiano Lombardi
  - Analysis and Scientific Computing, 32h, L3, ENPC
  - Numerical Methods, 48h, L3, Polytech'Paris
- Marc Thiriet
  - Modeling and Simulation for Computer-Aided Medicine and Surgery, 16h, L3-M2, National Taiwan University
- Irene Vignon Clementel
  - Numerical Methods for Ordinary Differential Equations, 24h ETD, L3, UPMC
  - Numerical simulations of blood flow, 1h30, as part of the undergraduate "continuum mechanics", AgroParisTech

Master:

- Laurent Boudin
  - Basics for numerical methods, 27h, M1, UPMC
  - Student advising for orientation and professional insertion, 20h, M1, UPMC
- Muriel Boulakia
  - Preparatory course for teaching admission examination “Agrégation”, 25h, M2, UPMC
- Miguel Ángel Fernández Varela
  - Modeling and numerical methods for hemodynamics, 30h, M2, UPMC
- Jean-Frédéric Gerbeau
  - Seminar for M2 students of the master “Math SV” (1h), M2, Univ Paris-Sud, December
  - Seminar for M2 students at Ecole des Mines (3h), Paris, February
- Irene Vignon Clementel
  - Modélisation hémodynamique & simulation numérique comme outil pour la chirurgie, 1h, M2, Université Paris Sud

10.2.2. Supervision

PhD: Chloé Audebert, Modeling of liver hemodynamics, defended on February 24, 2017. Supervisors: J.-F. Gerbeau & I. Vignon Clementel.

PhD: Matteo Aletti, Multiscale retinal vascular modeling, defended on May 30, 2017. Supervisors: J.-F. Gerbeau & D. Lombardi.

PhD: Eliott Tixier, Variability modeling and numerical biomarkers design in cardiac electrophysiology, defended on December 18, 2017. Supervisors: J-F. Gerbeau & D. Lombardi.

PhD: Nicolas Pozin, Multiscale lung ventilation modeling in health and disease, defended on October 6, 2017. 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.

PhD in progress: Ludovic Boilevin-Kayl, Modeling of cardiac implantable devices, since February 2016. Supervisors: J.-F. Gerbeau & M.A. Fernández Varela

PhD in progress: Alexandre This, Fusion data/simulation for the assessment of mitral regurgitation, since January 2016. Supervisor: J.-F. Gerbeau

PhD in progress: Chen-Yu Chiang, Transport on biological systems and some applications, since February 2016. Supervisor: M. Thiriet

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

10.2.3. Juries

- Muriel Boulakia
  - PhD committee: Charlie Douanla Lontsi, Inria Bordeaux Sud-Ouest
- Jean-Frédéric Gerbeau
  - PhD committees: Ivan Fumagalli, Politecnico di Milano (referee); Rajnesh Lal, Univ Montpellier (referee).
  - HDR committees: Edmond Vigmond, Univ Bordeaux; Sébastien Boyaval, Univ Paris-Est.
  - Hiring committee: Inria Paris (CR2).
- Céline Grandmont
  - Member of the “agrégation” jury in mathematics.

  - Hiring committees: Inria Nancy (CR2), Inria DR2, Professor position Paris-Sud University.
  - PHD committee: M. Deville, Bordeaux University (Referee), Nicolas Pozin, UPMC (co-advisor).
- Marina Vidrascu
  - Hiring committee: IR CNRS
- Irene Vignon Clementel
  - Hiring committees: Starting Research Positions and Senior Research Positions at Inria
  - PhD comittee: Roch Mollero, University of Nice-Sophia Antipolis (Referee), Nicolas Pozin, UPMC, (co-advisor), Arthur Ghigo, UPMC, Chloé Audebert, UPMC, (co-advisor), Andie de Villiers, U. of Cape Town, (Referee), Petru Bucur, Inserm.

10.3. Popularization

- Céline Grandmont
  - Conference “Métier”: Master Maths students, UPMC, Oct 2017
- Irene Vignon Clementel
  - Presentation to celebrate the renewal of UPMC-Inria Paris partnership, June 22nd 2017, Paris, France

SISTM Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

Daniel Commenges co-organised a SFB (French Region of the International Biometric Society) and GdR "Statistique et Santé" conference in Bordeaux (http://gdr-stat-sante.math.cnrs.fr/spip/spip.php?rubrique20),

Daniel Commenges organised a session of the French Region at the "Journées de Statistiques" (Avignon),

Robin Genuer Co-organises a reading group called Smiling in Bordeaux

Boris Hejblum organizes the Biostatistics Seminar Series at the Bordeaux Public Health Inserm Research Center

Mélanie Prague organized the "Déjeuners scientifiques" at the "Journées de la statistique française" 2017 and 2018.

Rodolphe Thiébaut organised a summer school course « Statistical analysis of big data in immunology », 14 participants from The Netherlands, Germany, UK and France. All the team members helped in the ground organisation and were involved in teaching. (http://bss-publichealth.u-bordeaux.fr/en/Teaching-team/Course-n-1-Statistical-analysis-of-big-data-linked-to-immunology-systems/r745.html

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

Daniel Commenges was a member of the scientific committee of the SFB (French Region of the International Biometric Society) and GdR "Statistique et Santé" conference in Bordeaux (http://gdr-stat-sante.math.cnrs.fr/spip/spip.php?rubrique20),

10.1.2.2. Member of the Conference Program Committees

Daniel Commenges is a member of the scientific committee of the International Biometric Conference Barcelona, July 2018 (http://2018.biometricconference.org),

Mélanie Prague is a member of the scientific committee of CIMI conference “Statistics in Health - personalised medicine” (http://www.cimi.univ-toulouse.fr/mib/en/conference-statistics-and-health), Toulouse 2018, 10-12 January

Mélanie Prague is a member of the scientific committee of the "Déjeuners scientifiques” at the "Journées de la statistique française" 2017 and 2018.

Rodolphe Thiébaut was a member of the scientific committee of the national conference on clinical research (EPICLIN)

Rodolphe Thiébaut was a member of the scientific committee of the IWHOD International Workshop on HIV Observational Databases since 2013 (http://newsite.iwhod.org/Committee)

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Lifetime Data Analysis (Daniel Commenges)

Statistics Surveys (Daniel Commenges)

2017 IMIA Yearb Med Inform, section editor (Rodolpe Thiébaut)

10.1.3.2. Reviewer - Reviewing Activities

AIDS (Rodolphe Thiébaut)

Annals of Applied Statistics (Boris Hejblum)

Annals of Statistics (Robin Genuer)

Am J Epidemiol (Marta Avalos)

Am J Public Health (Mélanie Prague)

BioData Mining (Boris Hejblum)

Biostatistics (Laura Richert)

Biometrics (Mélanie Prague)

IMIA Yearb Med Inform (Marta Avalos)

International Journal of Epidemiology (Daniel Commenges)

Journal of the Royal Statistical Society: Interaction (Mélanie Prague)

Machine Learning (Robin Genuer)

Neural Information Processing Systems (Robin Genuer)

Pattern Recognition Letters (Robin Genuer)

JRSS-B (Mélanie Prague)

Scientific Reports (Laura Richert)

Society of clinical trial (Mélanie Prague)

Statistical Methods in Medical Research (Robin Genuer, Mélanie Prague)

Statistical science (Mélanie Prague)

Statistics in Medicine (Marta Avalos)

10.1.4. Invited Talks

Rodolpe Thiébaut gave 3 invited talks. He gave an invited talk intitled “Objets connectés et Big Data” at the conference “10 ANS DE L’IRESP : Journées de la recherche en santé publique”

Daniel Commenges gave 2 invited talks: Evidence based Medicine (Canterbury) and Biophamaceutic group of the French Statistical Society (Paris)

Mélanie Prague gave 3 invited talks (Philadelphia Upenn, Boston Harvard school of public health, Inria Bordeaux) and had an invited session in Society for clinical trials, Liverpool, UK (11-14 Mai 2017) on "Integrate approaches for analysis of cluster randomised trials. New development in analysis “.

Robin Genuer was invited to the "Recent advances in tree-based methods (EO380)" session of ERCIM2017, by Ruoqing Zhu (University of Illinois Urbana-Champaign).

Boris Hejblum gave 2 invited talks on Dirichlet process mixtures of multivariate skew t-distributions for unsupervised clustering of cell populations from flow-cytometry data at The Biostatistics Unit at the Cambridge University (UK)

Marta Avalos gave 2 invited talks at the National Centre for Epidemiology & Population Health at the Australian National University, Canberra (Australia), April 2017 and at CSIRO’s Data61, Canberra (Australia), February 2017

Chloé Pasin gave an invited talk at the Probability-Statistics seminair of the Institute Montpelliérain Alexander Grothendieck, Montpellier

10.1.5. Leadership within the Scientific Community

Rodolpe Thiébaut and Chloé Pasin are elected members of the “collège des écoles doctorales’, University of Bordeaux

Daniel Commenges is President of the French Region of the International Biometric Society

Mélanie Prague is an elected member of the “Young statistician group” of SFdS (French Society of Statistics)

Mélanie Prague and Boris Hejblum are part of the group responsible for the communication of the SFdS - in charge of organising the sponsoring of the society by public and private companies.

Laura Richert is a member of F-CRIN Steering Committee

10.1.6. Scientific Expertise

- Rodolphe Thiébaut is an expert for INCA (Institut National du Cancer) for the PHRC (Programme hospitalier de recherche Clinique en cancérologie) and for the PRME (Programme de recherche médico-économique en cancérologie).
- Rodolphe Thiébaut is a member of the Membre du CNU 46.04 (Biostatistiques, informatique médicale et technologies de communication).
- Rodolphe Thiébaut is a member of the Scientific Council of INSERM.
- Rodolphe Thiébaut is a member of the commitee “Biologie des Systèmes et Cancer (Plan Cancer)”, a member of the Scientific Advisory Board of the “Institut Pierre Louis d’Epidémiologie et de Santé Publique” (UPMC, Dir : Dominique Costagliola), a member of the independent committee of international trials ODYSSEY and SMILE, a member of the scientific council of Muraz’s Center (Bobo-Dioulasso, Burkina Faso)
- Mélanie Prague is an expert for ANRS (France Recherche Nord&Sud Sida-HIV Hépatites) in the CSS 3 (Recherches cliniques et physiopathologiques dans l’infection à VIH).
- Laura Richert is an expert for the PHRC (Programme hospitalier de recherche Clinique).
- Marta Avalos is an expert for L’ASNM (Agence nationale de sécurité du médicament et des produits de santé)

10.1.7. Research Administration

Daniel Commenges is the director of the Biostat-Info axis in the Inserm BPH (Bordeaux Public Health) institute.

Rodolphe Thiébaut is an elected member of the research committee (health sector) in University of Bordeaux and a member of the INSERM Scientific Council

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

In class teaching

Master : Robin Genuer, teaches in the two years of the Master of Public Health (M1 Santé publique, M2 Biostatistique) and 2nd year of the "Modélisation Stochastique et Statistique" Master, University of Bordeaux.

Master : Boris Hejblum, teaches in the two years of the Master of Public Health (M1 Santé publique, M2 Biostatistique).

Master : Rodolphe Thiébaut, 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.

Master : Laura Richert teaches in the Master of Public Health at ISPED, Univ. Bordeaux, France (M2 Biostatistiques, M2 Eidémiologie).

Master : Mélanie Prague teaches in the Master of Public Health at ISPED, Univ. Bordeaux, France (M2 Biostatistiques).

Master : Marta Avalos teaches in the two years of the Master of Public Health (M1 Santé publique, M2 Biostatistique) at ISPED, Univ. Bordeaux and the 2nd year of the Biostatistics Master, University of Valencia (Spain).

Master : Chloe Pasin, Laura Villain, Hadrien Lorenzo and Louis Capitaine are teaching assistants for the two years.

Edouard Lhomme teaches in the Master of Public Health at ISPED, Univ. Bordeaux (M2 Epidémiologie) and in the Master of Vaccinology from basic immunology to social sciences of health (University Paris-Est Créteil, UPEC)

Bachelor : Laura Richert teaches in PACES and DFASM1-3 for Medical degree at Univ. Bordeaux

Edouard Lhomme teaches in PACES and DFASM1-3 for Medical degree at Univ. Bordeaux

Bachelor : Mélanie Prague and Boris Hejblum teach in the third year ingenious school ENSAI, Rennes.

Summer School: All the SISTM team member teach in the ISPED Summer school.

E-learning

Marta Avalos is head of the first year of the e-learning program of the Master of Public Health, and teaches in it.

Mélanie Prague teaches in the Diplôme universitaire "Méthodes statistiques de régression en épidémiologie".

Boris Hejblum teaches in the Diplôme universitaire "Méthodes statistiques en santé.

Laura Richert teaches in the Diplôme universitaire "Recherche Clinique".

Robin Genuer participated to the IdEx Bordeaux University "Défi numérique" project "BeginR" (http://beginr.moutault.net/).

10.2.2. Supervision

PhD in progress : Perrine Soret, *Modélisation de données longitudinales en grande dimension*, from Oct 2014, co-directed by Marta Avalos and Rodolphe Thiébaut.

PhD in progress : Chloé Pasin, *Modelling the immune response to HIV vaccine*, from Sep 2015, co-directed by Rodolphe Thiébaut and Francois Dufour

PhD in progress : Wenjia Wang "Modèle de Rasch", co-directed by Daniel Commenges with Mickael Guedj CIFRE Pharnext, from Oct 2015.

PhD in progress : Laura Villain "Modélisation de l'effet du traitement par injection IL7", co-directed by Daniel Commenges and Rodolphe Thiébaut, from Oct 2015.

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, Cédric Galera and Marta Avalos.

PhD in progress : Edouard Lhomme, *Analyse des déterminants de la réponse immunitaire post-vaccination dans des stratégies vaccinales expérimentales*, from Oct 2016, co-directed by Rodolphe Thiébaut and Laura Richert.

PhD in progress : Hadrien Lorenzo, *Analyses de données longitudinales de grandes dimensions appliquées aux essais vaccinaux contre le VIH et Ebola*, from Oct 2016, co-directed by Rodolphe Thiébaut and Jérôme Saracco.

PhD in progress : Louis Capitaine, *Random forests for high dimensional longitudinal data*, from Oct 2017, co-directed by Robin Genuer and Rodolphe Thiébaut.

PhD in progress : Madelyn Rojas *Self-management of injury risk and decision support systems based on predictive computer modelling. Development, implementation and evaluation in the MAVIE cohort study*, from Oct 2017, co-directed by Emmanuel Lagarde, David Conesa and Marta Avalos.

Master internship : Nicolas Lafosse "Déterminants de la réponse cellulaire T mesurée par Elispot après vaccination avec différentes stratégies vaccinales "prime-boost" préventives contre le VIH", directed by Laura Richert (1/03/2017 - 1/08/2017)

Master internship : Louis Capitaine, *Random forests for high dimensional longitudinal data*, directed by Robin Genuer (27/02/2017 - 31/08/2017)

Master internship : Paul Tauzia, *Utilisation de la déconvolution cellulaire pour détecter des différences d'expression génique*, directed by Mélanie Prague and Boris Hejblum (01/03/2017 - 31/08/2017)

Master internship : Augusta Alphonse, *Proof of concept for an automated gating tool applied to flow cytometry data from a HIV therapeutic vaccine trial*, directed by Mélanie Prague and Boris Hejblum (01/02/2017 - 31/07/2017)

Master internship : Marie Alexandre, *Correlation between cellular and antibodies response in Ebola vaccine*, directed by Mélanie Prague (01/06/2017 - 31/08/2017)

10.2.3. Juries

Daniel Commenges was involved in the PhD defences jury of Mr Adjakossa (Paris).

Robin Genuer was a PhD thesis examinator of Wei FENG thesis, defended the 07/19, "Investigation of training data issues in ensemble classification based on margin concept. Application to land cover mapping".

Mélanie Prague is a member of the follow-up dissertation comity of Nicolo Chiara (working on "Mathematical modeling of systemic aspects of cancer and cancer therapy"), Sébastien Benzkcry's PhD student (Inria Bordeaux Sud-ouest, MONC team) and Thiebaut Larivière (working on "Population Kalman estimation in Partial differential equations"), Annabelle Colin's PhD student (Inria Bordeaux Sud-ouest, MONC team).

Marta Avalos was a member of the follow-up dissertation comity of her PhD students Perrine Soret and Mélanie Née.

Rodolphe Thiébaut took part in the HDR committee of Patricia Thebault, Benoit Lepage, Simon Cauchemez, Sébastien Benzekry and Romulus Breban.

Rodolphe Thiébaut was involved in the PhD defences jury of Nicky De La Mata and Edouard Ollier.

Mélanie Prague took part in the recruitment commission MCF CNU 26 (CNAM).

Laura Richert, Rodolphe Thiébaut, Robin Genuer, Boris Hejblum and Marta Avalos participated to the juries of Master in Public Health (Biostatistics, Epidemiology)

Edouard Lhomme participated to the juries of two medical thesis defense, Medical School of Bordeaux University

10.3. Popularization

Participation to the Inria magazines "Plug-in" and "So news" (Mélanie Prague).

Participation in "The ou café" in Inria Bordeaux (Mélanie Prague).

Lightning talk to present the NIMROD software in Dev Days at Inria (Mélanie Prague).

Edouard Lhomme, as President of AquitHealth, a non profit organisation for the development of e-Health in south west France organized the When Doctors Meet Hackers (WDMH) Congress 2017. The WDMH Congress is a 3 day event with one day of conference on the futur of health and 50 hours of hackathon. The Hackathon is a human adventure where healthcare professionals, patients, developers, designers and entrepreneurs collaborate over a weekend to develop prototypes of eHealth solutions.Six WDMH meetups were also organised each month from January to June 2017 in Bordeaux to discuss about several e-heath topics (telemedecine, data protection, simulation, ...)

XPOP Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

Julie Josse and Eric Moulines were members of the Organizing Committee of the *First Data Science Summer School* at École Polytechnique (August 28th - September 1st).

Marc Lavielle was member of the Organizing Committee of the meeting *Tres dias al azar* en Cartagena, Colombia (December 14 - 16).

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

Julie Josse was member of the Program Committee of the *useR!2017 meeting* in Bruxelles (June, 3-7).

10.1.3. Scientific Expertise

Marc Lavielle is member of the Scientific Committee of the High Council for Biotechnologies.

10.1.4. Research administration

Marc Lavielle is member of the Scientific Programming Committee (CPS) of the Institute Henri Poincaré (IHP).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master : Julie Josse, Statistics with R, 48, M2, X-HEC
Master : Eric Moulines, Regression models, 36, M2, X-HEC
Engineering School : Eric Moulines, Statistics, 36, 2A, X
Engineering School : Eric Moulines, Markov Chains, 36, 3A, X
Engineering School : Erwan Le Pennec, Statistics, 36, 2A, X
Engineering School : Erwan Le Pennec, Statistical Learning, 36, 3A, X
Engineering School : Marc Lavielle, Statistics in Action, 48, 3A, X

10.2.2. Supervision

PhD in progress : Nicolas Brosse, September 2016, Eric Moulines
PhD in progress : Geneviève Robin, September 2016, Julie Josse and Eric Moulines
PhD in progress : Belhal Karimi, October 2016, Marc Lavielle and Eric Moulines
PhD in progress : Marine Zulian, October 2016, Marc Lavielle
PhD in progress : Wei Jiang , October 2017, Julie Josse and Marc Lavielle

10.3. Popularization

Marc Lavielle developed the learning platform Statistics in Action. The purpose of this online learning platform is to show how statistics (and biostatistics) may be efficiently used in practice using R. It is specifically geared towards teaching statistical modelling concepts and applications for self-study. Indeed, most of the available teaching material tends to be quite "static" while statistical modelling is very much subject to "learning by doing”.

Julie Josse participated in the jury of the "Speed data scientist" competition organized by Animath and the Société Générale. The students worked on anomaly detection: they have to identify the days of malfunctioning of the web application. They had to figure out how to anticipate breakdowns.

Julie Josse presented "How to manage missing data in R" at the meetup Rladies Paris. This meeting was associated with the Rforwards initiative, which aims to develop women's participation in the R community.

Marc Lavielle participated to the *Jeudis de la recherche de l'X* on June 29th dedicated to "Health challenge: tools for tomorrow's medicine".