RESEARCH CENTER
Bordeaux - Sud-Ouest

FIELD

Activity Report 2012

Section Dissemination

Edition: 2013-04-24

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LFANT Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Editorships

K. Belabas acts on the editorial board of *Journal de Théorie des Nombres de Bordeaux* since 2005 and of *Archiv der Mathematik* since 2006.

H. Cohen is an editorial board member of *Journal de Théorie des Nombres de Bordeaux*; he is an editor for the Springer book series *Algorithms and Computations in Mathematics (ACM)*.

J.-M. Couveignes is associate editor of *Séminaires et Congrès* since 2008, of *Mathematics of Computation* since 2008, of *London Mathematical Society Journal for Computation and Mathematics* since 2009 and of *Publications mathématiques de Besançon* since 2010.

A. Enge is an editor of *Designs, Codes and Cryptography* since 2004.

9.1.2. Invited talks

- A. Enge: "Class polynomials for abelian surfaces by complex approximations" at *Number Theory, Discrete Mathematics and Their Applications*, Tsinghua University, China, 25–27/05

9.1.3. Conference organisation and programme committees

A. Enge acts on the scientific advisory board of the *Journées Nationales de Calcul Formel.*

9.1.4. Seminar

The following external speakers have given a presentation at the LFANT seminar, see http://lfant.math.u-bordeaux1.fr/index.php?category=seminar

- Charles Boyd (Amherst): "Paridroid"
- Loïc Grenié (Bergamo): "A modular HNF", "bnfinit ()"
- Vassily Golyshev (Bonn): "Searching for congruences of Galois representations "
- Marco Streng (Warwick): "Smaller class invariants for quartic CM-fields"
- Gaëtan Bisson (Sydney): "Un algorithme à la Pollard pour le problème du sac à dos"
- Bruno Salvy: "Itération de Newton: du numérique à la combinatoire, et réciproquement"
- Bernhardt Schmidt (Singapore): "Values and ideals in combinatorial problems"
- Fernando Mario (Berlin): "Packings of bodies in Euclidean space"
- Luca De Feo (Versailles): "Towards Quantum-Resistant Cryptosystems from Supersingular Elliptic Curve Isogenies"

9.1.5. Research administration

K. Belabas is the head of the mathematics department of University Bordeaux 1. He also leads the computer science support service ("cellule informatique") of the Institute of Mathematics of Bordeaux and coordinates the participation of the institute in the regional computation cluster PlaFRIM.

He is a permanent invited member of the councils of both the math and computer science department (UFR) and the Math Institute (IMB).

J.-P. Cerri is an elected member of the scientific council of the Mathematics Institute of Bordeaux (IMB) and responsible for the bachelor programme in mathematics and informatics.

Since January 2011, J.-M. Couveignes is involved in the *GDR mathématiques et entreprises* and in the *Agence pour les mathématiques en interaction avec l'entreprise et la société*.

A. Enge is responsible for the international affairs of Inria–Bordeaux-Sud-Ouest and a member of the COST-GTRI, the Inria body responsible for evaluating international partnerships.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- K. Belabas

  Algèbre et Calcul Formel, 100h, M2, Université Bordeaux 1, France
- J.-P. Cerri

  Cryptographie et Arithmétique, 24h, L3, Université Bordeaux 1, France

  Arithmétique, 36h, M1, Université Bordeaux 1, France

  Algorithmic Number Theory, 70h, M2, Université Bordeaux 1, France
- J.-M. Couveignes

  Algorithms for public key cryptograph, 40h, M2, Université Bordeaux 1, France

  Algorithms for number fields, 40h, M2, Université Bordeaux 1, France

  Algorithms for Modular Curves, Jacobians and Forms, 16h, Tsinghua University, Beijing, China
- A. Enge:

  Elliptic Curves in Cryptologie, 14h, L2–PhD, Tsinghua University, Beijing, China
- P. Lezowski: Moniteur and ATER at Université Bordeaux 1

  MHT411: Groupes, anneaux, corps, TD, 40h, L2, Université Bordeaux 1, France

  M1MI1002: Fondamentaux pour les Mathématiques et l'Informatique, cours–TD, 80h, L1, Université Bordeaux 1, France
- N. Mascot: Moniteur at Université Bordeaux 1

  MOSE1003: Analyse et algèbre, cours–TD, 36h h, L1, Université Bordeaux 1, France

  M1MI1001: Bases de l'analyse, cours–TD, 37.5h, L1, Université Bordeaux 1, France
- A. Page: Moniteur at Université Bordeaux 1

  M1CP3022:Maths analyse II, TD, 42h, L2, Université Bordeaux 1, France

  M1mi2012:Algèbre 1, TD, 18h, L1, Université Bordeaux 1, France

9.2.2. Supervision

- K. Belabas, A. Enge

  PhD Aurel Page, *Méthodes explicites pour les groupes arithmétiques*, University Bordeaux
- K. Belabas, J.-M. Couveignes

  PhD Nicolas Mascot, *Calcul de représentations galoisiennes modulaires*, University Bordeaux
- K. Belabas, P. Stevenhagen

  PhD Athanasios Angelakis, *Number fields sharing the same abelianized Galois group*, ALGANT, University Bordeaux and University Leiden

  K. Belabas, T. Dokchitser, P. Stevenhagen

  PhD Julio Brau, *Computing Galois representations attached to elliptic curves*, ALGANT, University Bordeaux and University Leiden

- A. Enge, D. Robert

  PhD Enea Milio, *Isogénies entre surfaces abéliennes*, University Bordeaux

9.2.3. Juries

- K. Belabas

  PhD Pierre Lezowski, *Questions d'Euclidianité*, University Bordeaux, 07/12 (committee).

  HdR Emmanuel Thomé *Théorie algorithmique des nombres et applications à la cryptanalyse de primitives cryptographiques*, University Nancy-Lorraine, 13/12 (referee, committee).

- A. Enge

  PhD Jean-Pierre Flori, *Fonctions booléennes, courbes algébriques et multiplication complexe*, Télécom Paristech, 03/02 (president)

  PhD Aurélien Bajolet, *Aspects numériques de l'analyse diophantienne*, University Bordeaux, 07/12 (committee)

9.3. Popularization

N. Mascot and A. Page have given a presentation "Cryptologie" for the Fête de la Science.

J.-M. Couveignes has given a presentation at the seminar "Unithé ou café" of INRIA Bordeaux–Sud-Ouest on "Vous trouvez ça complexe? Tant mieux!".

A. Enge has contributed to the Inria exhibition around Turing, computing machines and cryptology for the Fête de la Science.

A. Enge has given a presentation "Petit théorème de Fermat et courbes elliptiques, les mathématiques au service du secret" for the yearly meeting of Association des professeurs de mathématiques de l'enseignement public.

ALEA Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Editorial Board

P. Del Moral is currently associate editor/editor for the following journals

- Chief editor : American Journal of Algorithms and Computing, since 2012.
- Associate editor : Applied Mathematics and Optimization, since 2009.
- Associate editor Revista de Matematica: Teoria y Aplicaciones , since 2009.
- Associate editor : Stochastic Analysis and Applications, since 2001.

9.1.2. Senior Program Committee

- International conference on Uncertainty in Artificial Intelligence (UAI'2012): F. Caron
- 1eres rencontres R: P. Legrand

9.1.3. Responsibilities

B. Bercu is responsible of the thematic group MAS (Modélisation Aléatoire et Statistique) at SMAI.

B. Bercu is an assistant director of the Institut de Mathématiques de Bordeaux (IMB). He is also a member of the IMB council and the UFR council of the University of Bordeaux. He is a member of the CNU section 26.

B. Bercu is co-responsible of the specialty "Modélisation Statistique et Stochastique" of the Master MIMSE.

P. Legrand is a member of "bureau de l'association Evolution artificielle".

P. Legrand is in charge of the learning management system MOODLE of the UFR sciences et modélisation (University of Bordeaux II).

9.1.4. Organization of Conferences

- International Conference Evolve 2012: P. Legrand, P. Del Moral (with A.A. Tantar, E. Tantar, P. Bouvry, O. Schütze)
- International workshop on Sequential Monte Carlo methods and Efficient simulation in Finance: P. Del Moral (with E. Gobe, P. Hu)
- Workshop EDF/Inria, New stochastic forecasting methods for individual temporal series in energy context : B. Bercu, F. Proïa (with S. Bercu, P. Lé)

9.1.5. Reviewing

- Journals: Annals of Statistics, IEEE TPAMI, Journal of the Royal Statistical Society B, Computational Statistics and Data Analysis, Statistics and Computing, Journal de la Société Francaise de Statistiques
- Conferences: UAI, NIPS, ICML, AISTATS

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence :

- B. Bercu, Mathématiques générales, Analyse et Algèbre SVE, 36h, L1, University of Bordeaux, France

- P. Legrand, Espaces Euclidiens, 54h, L2, University of Bordeaux, France
- P. Legrand, Traitement du Signal, 18h, L3, University of Bordeaux, France
- P. Legrand, Informatique pour les mathématiques, 36h, L1, University of Bordeaux, France
- P. Legrand, Algèbre, 72h, L1, University of Bordeaux, France
- P. Legrand, Technologies de l'information, de la communication pour l'éducation, 42h, University of Bordeaux, France
- A. Richou, Probabilités et statistiques, 32h, L3, University of Bordeaux, France
- A. Richou, Probabilités et statistiques, 32h, L1, University of Bordeaux, France

Master :

- A. Richou, Probabilité, 32h, M1, University of Bordeaux, France
- B. Bercu, Séries chronologiques, 48h, M2, University of Bordeaux, France
- B. Bercu, Processus aléatoires à temps discret, 30h, M1, University of Bordeaux, France
- B. Bercu, Probabilités, 30h, L3, University of Bordeaux, France
- F. Caron, Bayesian Methods, 33h, M2, University Bordeaux II, France
- F. Caron, Statistical Methods in Robotics, 25h, M2, IPB, France
- F. Caron, Advanced estimation tools in signal and image processing, 30h, M2, University Bordeaux I, France
- P. Legrand, Traitement du signal, 15h, M2, IPB, France

Other:

- P. Del Moral, Professeur chargé de cours (1/3 temps), Monte Carlo methods and Stochastic models, and introduction to probability calculus, Ecole Polytechnique, France.
- P. Del Moral, Mean field particle simulation for Monte Carlo integration, 10h, Lectures INLN-CNRS of the University of Nice Sophia Antipolis.
- P. Legrand, Course on Matlab, 42H

9.2.2. Supervision

PhD:

- Aurélie Le Cain, Caractéristiques spatiales et temporelles d'une tache focale LMJ, university Bordeaux I, Jan. 2012, P. Del Moral and B. Bercu
- Peng Hu, Méthodes particulaires et applications en finance , university Bordeaux I, June 2012, P. Del Moral

PhD in progress :

- Vassili Blandin, Processus autorégressifs à bifurcation, Sept. 2011, B. Bercu
- Frédéric Proia, Processus autorégressifs stables, Dec. 2010, B. Bercu, P. Del Moral
- Philippe Fraysse, Algorithmes stochastiques pour la régression semi-paramétrique, Sept. 2010, B. Bercu
- Paul Lemaitre, Analyse de sensibilité et analyse de risques, Sept. 2010, P. Del Moral
- François Giraud, Méthodes particulaires adaptatives pour l'estimation non linéaire, Nov. 2009, P. Del Moral
- Nicolas Antunès, Etude du modèle GARP pour la prédiction de niches écologiques, Sept. 2011, P. Del Moral and P. Legrand
- Laurent Vézard, Réduction de dimension en apprentissage supervisé. Application à l'étude de l'activité cérébrale, Sept. 2010, P. Legrand
- Antoine Campi, Filtrage particulaire de fluides turbulents, 2012, P. Del Moral

- Christelle Vergé, Méthodes particulaires pour la propagation d'incertitudes dans des codes numériques, 2012, P. Del Moral
- Paula Craciun, Méthodes de filtrage multi-objets en analyse d'image, 2012, P. Del Moral

9.2.3. Juries

- Peng Hu, PhD, University of Bordeaux: P. Del Moral
- Cyrille Dubarry, PhD, TelecomParisSud: P. Del Moral
- Sébastien Gadat, HDR, University of Toulouse: P. Del Moral
- Jérémie Bureau, PhD, University of Toulouse : B. Bercu
- Valère Bitseki Penda, PhD, University Blaise Pascal : B. Bercu
- Pascal Szacherski, PhD, University of Bordeaux: F. Caron

BACCHUS Team

9. Dissemination

9.1. Scientific Animation

Rémi Abgrall is co-chief editor of the "International Journal on Numerical in Fluids". He is associate editor of the "Journal of Computational Physics", "Mathematcis of Computation", "Journal of Scientific Computiong", "Computers and Fluids" and "Advances in Applied Mathematics and Mechanics". He is member of the editorial board of the "Mathematiques et Applications" book series of the french SMAI (edited by Springer Verlag). He is responsible of the GAMNI group of SMAI. He is tresurer of ECCOMAS. He is the organiser of HONOM 2013 (http://honom2013.bordeaux.inria.fr/index.html) and member of the scientific comitee of second ECCOMAS Young Investigators Conference. He is member of the scientific comitee of ICCFD, the Scientific computing comitee of ECCOMAS and ICCP8 (http://www.math.hkbu.edu.hk/ICCP8/). He has been member of the AERES visitiong comitee of DynFuids (EA 92, ENSAM Paris Tech) and president of the AERES visiting comitee of the Jacques Louis Lions Laboratory (U. Pierre et Marie Curie, U. Paris Diderot). He is also member of the CERFACS scientific comitee and is in charge of the CERFACS "Commission socle" with S. Candel and J.C. André.

Héloïse Beaugendre is a member of the organizing committee of the second ECCOMAS Young Investigators Conference (http://yic2013.sciencesconf.org) and of HONOM2013.

Cécile Dobrzynski is one of the organizers of the seminar "*Modélisation et Calcul*" of the Institut de Mathématiques de Bordeaux. She is member of the board of the GAMNI group of SMAI, of which she is secretary. She is member of the scientific committee for the organization of mini-symposia in collaboration between SMAI-GAMNI and AUM for CANUM 2012. She is co-chairwoman for the organization of the second ECCOMAS Young Investigators Conference (http://yic2013.sciencesconf.org).

Pietro Marco Congedo is a member of the organizing committee of HONOM2013. In 2012, he gave 5 invited seminars (von Karman Institute ; Complex modeling, Convergence, and Uncertainty Quantification Workshop, Uppsala, Sweden ; Workshop BIS2012, Paris ; SIAM Conference on Uncertainty Quantification, Raleigh, USA ; 1st meeting GAMNI-MAIRCI: Précision et Incertitudes, Paris).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

License : Héloïse Beaugendre, Responsable des projets TER de première année, 10h, L3, ENSEIRB-MATMÉCA, France

License : Héloïse Beaugendre, Encadrement TER, 16h, L3, ENSEIRB-MATMÉCA, France

Licence : Cécile Dobrzynski, Langages en Fortran 90, 43h, L3, ENSEIRB-MATMÉCA, France

Licence : Cécile Dobrzynski, Analyse numérique, 24h, M1, ENSEIRB-MATMÉCA, France

Licence : Cécile Dobrzynski, Outils informatiques pour le calcul scientifique, 65h, formation Structures Composites, ENSCBP, France

Licence : François Pellegrini : Architecture des ordinateurs, 25h, L2, Université Bordeaux 1

Licence : Pietro Marco Congedo, Analyse numérique II, 24h, M1, ENSEIRB-MATMÉCA, France

Licence : Mario Ricchiuto, Fundamentals of Numerical Analysis, 24h,ENSEIRB-MATMÉCA, France.

Master : Héloïse Beaugendre, Mise à niveau en algorithmique et Programmation, 30h, M1, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Approximation numérique et problèmes industriels, 52h, M1, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Outils informatiques pour l'insertion professionnelle, 9h, M2, Université Bordeaux 1, France

Master : Héloïse Beaugendre, Calcul Haute Performance, 40h, M1, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Calcul Haute Performance, 40h, M2, ENSEIRB-MATMÉCA and Université Bordeaux 1, France

Master : Cécile Dobrzynski, Projet fin d'études, 6h, M2, ENSEIRB-MATMÉCA, France

Master : Cécile Dobrzynski, TER, 18h, M1, ENSEIRB-MATMÉCA, France

Master : Pietro Marco Congedo, Simulation Numérique des écoulements fluides, 20h, M3, ENSEIRB-MATMÉCA, France

Master : Mario Ricchiuto, Simulation Numérique des écoulements fluides, 16h, M3, ENSEIRB-MATMÉCA, France

Master : Pietro Marco Congedo, TER, 16h, M1, ENSEIRB-MATMÉCA, France

Master : Mario Ricchiuto, Post-graduate course on introduction to CFD, 18h, M2 IAS (Master Spe´cialisé Inge´nierie Ae´ronautique et Spatiale, http://www.ensam.fr/fr/formation_initiale/masteres_specialises/ingenierie_aeronautique_et_spatiale), ENSAM, France

Doctorat : Mario Ricchiuto, Post-Graduate plenary lecture on the use of residual methods in CFD, 3h, D1, CEMRACS summer school, France

9.2.2. Supervision

PhD : Algiane Froehly, Méthodes numériques pour la prise en compte exacte des géométries dans les codes de CFD, Université Bordeaux I, 7 Dec. 2012, R. Abgrall and C. Dobrzynski

PhD : Arnaud Krust, Méthodes d'enrichissement pour Les équations de Navier Stokes, Université de Bordeaux I, 31 october 2012. R. Abgrall.

PhD : François Vilar, "Méthodes d'ordre très élevé pour la résolution des équations de l'hydrodynamique Lagrangienne multidimensionnelles". Université de Bordeaux I, November 16th 2012, R. Abgrall and P.H. Maire.

PhD in progress: Dante de Santis, High order residual distribution methods for turbulent steady flows, since september 2010, R. Abgrall and M. Ricchiuto

PhD in progress: Gianluca Geraci. multi-resolution inspired methods for uncertainty quantification, 2010, Rémi Abgrall and Pietro Marco Congedo.

PhD in progress : Sébastien Fourestier, Redistribution dynamique parallèle efficace de la charge pour les problèmes numériques de très grandes tailles, 2008, F. Pellegrini

PhD in progress : Damien Genêt, Conception d'une plate forme parallèle pour la résolution des EDP de la mécanique des fluides, 2009, M. Ricchiuto, F. Pellegrini

PhD in progress : Cédric Lachat, Partitionnement et adaptation parallèles de maillages pour des simulations dans les tokamaks, 2009, F. Pellegrini and C. Dobrzynski

9.2.3. Juries

HdR : Stéphane Brull, Université Bordeaux I, R. Abgrall, November 19th, 2012.

HdR : Patrice Kadionik, Contribution à la conception des systèmes numériques embarqués. Application à l'adéquation algorithme-architecture pour la compression vidéo et à l'informatique ubiquitaire, September 5th, François Pellegrini : referee

Olivier Saut, Contributions en optique non-linéaire et en modélisation de la croissance tumorale en vue des applications cliniques, September 23th 2012, Université Bordeaux I, R. Abgrall, jury

HdR, Aswhin Chinnayya, Contribution à l'étude numérique des écoulements diphasiques et compressibles, Université de Rouen, Rémi Abgrall : referee. December 6th, 2012

PhD : Guilherme Cunha (ISAE), Optimisation d'une méthodologie de simulation numérique pour l'Aéroacoustique sur un couplage faible des méthodes d'aérodynamique instationnaire et de propagation acoustique, R. Abgrall, referee. October 18th, 2012

PhD, Steven Diot. Méthodes d'ordre élevé pour la mécanique des fluides compressible, Université de Toulouse, 30 August 2012. R. Abgrall, referee

PhD: Koen Hillewaert, Discontinuous Galerkin schemes for turbulent 3D applications, Université Catholique de Louvain, October 4th, 2012. R. Abgrall, referee.

PhD : Matthieu Lefebvre, Algorithmes sur GPU pour la simulation numérique en mécanique des fluides, François Pellegrini : referee

PhD : François-Henry Rouet, Memory and performance issues in parallel multifrontal factorizations and triangular solutions with sparse right-hand sides, François Pellegrini : jury

PhD : Kurt Sermeus, Multi-dimensional upwind discretization and application to compressible flows, Université Libre de Bruxelles, R. Abgrall, December 12th, 2012, referee

PhD : KunKun Tan, Combining discrete equations method and upwind downwind-controlled splitting for non-reacting and reacting two-fluid computations, Université de Grenoble, December 14th 2012, R. Abgrall, referee

PhD : Dario Isola, An interpolation-free two dimensional conservative ALE scheme over adaptive unstructured grids for rotorcraft aerodynamics, Politechnico de Milano, March 1st, 2012. R. Abgrall, referee.

MdC : Participation of Pietro Marco Congedo in the selection committee for position number 876 (section 60), Université Pierre et Marie Curie.

9.3. Popularization

Pietro Marco Congedo, Maria-Giovanna Rodio and Julie Tryoen participated in the "*Fête de la Science*", concerning flows and renewable energies, Bordeaux, October.
François Pellegrini has many activities related to software law and economic development, which are becoming part of his research activity. Yet, as they do not fit in the scope of the `BACCHUS` EPI, they are presented here:

- Talk entitled "*The case for creation and innovation vs. ACTA*", S&D Hearing "*ACTA: Whose rights does it protect?*", European Parliament, Brussels, April.
- Invited by the students of the ENSAA engineering school to deliver talks at the JOSENSAA open-source conference, Agadir, May.
- Presentation of `Scotch` during the `I-Match` academics-industry meeting organized by Inria Bordeaux Sud-Ouest, Talence, June.
- Participation in the round table "*Open innovation*" at Solutions Linux, Paris, June.
- Invitation to deliver a talk at the seminar on "*Accessibility and Diversity on Internet*" organized by the *Organization Internationale de la Francophonie* in the context of the Internet Governance Forum, Baku, November.
- Talk "*Le droit du numérique : une histoire à préserver*" delivered at the *Colloque pour un Musée de l'informatique et de la société numérique en France*, CNAM, Paris, November (published as [30]).
- Co-organization and co-chair of the colloquium "*Innovation ouverte et innovation libre*" at Conseil Régional d'Aquitaine, as co-president of Aquinetic, Bordeaux, November.
- Conference on the digital revolution at the *Festival du Film d'Histoire de Pessac*, Pessac, November.
- Participation in the colloquium "*Le droit au Libre*" on libre software licenses, organized by the association of barristers of Toulouse, November.

- Three hour training on author's right and software law delivered to about thirty academics and engineers. Training day organized by CNRS, Talence, November.
- Three hour training on software licenses, libre software licenses and interoperability delivered to about forty industry people, mostly from local SMEs. Training day organized by Cap'Tronic, Talence, December.

CAGIRE Team

8. Dissemination

8.1. Scientific Animation

The team members have been invited to review for the following journals:

- Journal of Computational Physics [VP]
- International Journal for Numerical Methods in Fluids [PB, VP]
- Computers and FLuids [VP]
- SIAM Journal on Applied Mathematics [VP]
- Shock Waves [VP]
- ESAIM: Mathematical Modelling and Numerical Analysis [VP]
- Mathematics and Computers in Simulation [VP]
- Review for the Engineering Computations [VP]
- Combustion and Flame [PB]
- Journal of Aerospace Engineering [PB]
- Computational Thermal Science [PB]

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Licence :

  TP Transferts thermiques, 8h, L1, IUT-GTE-UPPA, Pau, France. [PB]

  Programmation, 50h, L3, ENSGTI-UPPA, France [EF]

  TP Composants, 40h, L3, ENSGTI-UPPA, France [EF]

- Master :

  An introduction to the numerical simulation of reacting flows, 15h, M2, ISAE-SupAéro, Toulouse, France. [PB]

  Machines hydrauliques, 30h, M1, ENSGTI-UPPA, France [TK]

  Machines aérauliques, 30h, M1, ENSGTI-UPPA, France [TK]

  Thermo-économie, 30h M2, ENSGTI-UPPA, France [TK]

  Modélisation des écoulements diphasiques, 30h, M1, ENSGTI-UPPA, France [TK]

  TP systèmes, 50h, M1, ENSGTI-UPPA, France [TK]

  Simulation industrielle, 40h, M1, ENSGTI-UPPA, France [EF]

  Fluides compressibles, 20h, M1, ENSGTI-UPPA, France [EF]

  Combustion industrielle, 30h, M1, ENSGTI-UPPA, France [EF]

  Réseaux de chaleur, 4h, M2, ENSGTI-UPPA, France [EF]

  Géothermie, 4h, M2, ENSGTI-UPPA, France [EF]

  Biomasse, 4h, M2, ENSGTI-UPPA, France [EF]

8.2.2. Juries

+ PhD (PB, Referee) :J. Primus, Détermination de l'impédance acoustique de matériaux absorbants en écoulement par méthode inverse et mesures LDV, Université de Toulouse, 6 December 2012. Thesis advisors : F. Simon and E. Piot.
+ PhD (PB, external examiner) :L. Cheng, Combined PIV/PLIF measurements in a high swirl-fuel injector flowfield, Loughborough University, 19 december 2012. Thesis advisor: A. Spencer.

CONCHA Project-Team

8. Dissemination

8.1. Teaching - Supervision - Juries

8.1.1. Teaching

The LMA has proposed a new Master program starting in 2007, which is called MMS (Mathématiques, Modélisation et Simulation) and has a focus on analysis, modeling, and numerical computations in PDEs; Robert Luce and R. Becker are co-responsables of this Master program. The core of this education is formed by lectures in four fields : PDE-theory, mechanics, numerical analysis, and simulation tools.

This master program includes lectures on physical applications, one of the three proposed application fields is CFD; lectures are provided by the members of the project; especially the following lectures have been given:

Simulation numérique 1, Robert Luce and Eric Dubach,

Analyse numérique des EDP, R. Becker and D. Capatina,

Simulation numérique 2, Robert Luce and Eric Dubach,

Méthodes numériques pour les EDP, R. Becker,

Mécanique des fluides, R. Becker,

Simulation numérique 3, P. Puiseux

Mécanique des Fluides et Turbulence, Eric Schall, D. Graebling

CQFD Project-Team

8. Dissemination

8.1. Editorial activities

F. Dufour is associate editor of the journal: SIAM Journal of Control and Optimization since 2009.

All the member of the team are regular reviewers for the most important journals in applied probability and statistics.

8.2. Scientific responsibilities

F. Dufour is the leader of the ANR project FAUTOCOES. B. de Saporta is in charge of the tâche 3 of the ANR project FAUTOCOES.

8.3. Organization of workshops and conferences

The team CQFD organized the first french-speaking meeting on the software R in July 2012.

8.4. Administration of the universities and research institutes

F. Dufour is member of the scientific council of the engineering school ENSEIRB-MATMECA.

F. Dufour is member of the scientific council of the Institute of Mathematics of Bordeaux.

F. Dufour is vice-president of the Inria Project Committee.

B. de Saporta is president of the "Congress and Colloquium" commission of the Inria Bordeaux Sud-Ouest.

B. de Saporta is in charge of the seminar of the team ”Statistics and Probability” of the Institute of Mathematics of Bordeaux (IMB).

B. de Saporta is correspondent of the cursus *Ingénierie Economique* of the master MIMSE *Ingénierie Mathématique, Statistique et Economique* of the University of Bordeaux.

A. Gégout-Petit is elected member of the CEVU of University Bordeaux Segalen

A. Gégout-Petit is in charge to promote diplomas of UFR Science et Modélisation.

A. Gégout-Petit is member of the Mathematical Institute of Bordeaux council

A. Gégout-Petit is general secretary and elected member of the council of the Société Française de Statistique.

M. Chavent is co-director of the cursus *Modélisation Statistique et Sochastique* of the master MIMSE *Ingénierie Mathématique, Statistique et Economique* of the University of Bordeaux.

J. Saracco is member of the commission Inria ”Jeunes Chercheurs”.

J. Saracco is member of the council of ENSC

J. Saracco is the leader of the team ”Statistics and Probability” of the Institute of Mathematics of Bordeaux (IMB).

H. Zhang is director of the cursus *Ingénierie Mathématique* of the Licence de Mathématiques of the University of Bordeaux.

8.5. Scientific Animation

J. Saracco was member of the AERES visiting committee of the research unit of the "Laboratoire de Probabilités et modèles aléatoires" (LPMA Universités Paris 6 et Paris 7)

B de Saporta, J. Saracco and M. Chavent are elected (deputy) member of the CNU 26.

B. de Saporta belongs to the board of SMAI-MAS group.

A. Gégout-Petit was in the organizing committee of the first "Forum Emploi Mathématique" which was successful and had gather together a thousand of participants in january.

A. Gégout-Petit made a action in order to promote scientific studies with a class of secondary (statistical project with the pupils and presentation of a research project for the pupils in the university.

L. Vézard has presented the objectives of his PhD work and its contribution in the global project of musical informatics to a class of secondary school.

8.6. Teaching - Supervision - Juries

8.6.1. Teaching

Licence : F. Dufour, Probabilités et statistiques, 16 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France. Probabilités , 10,6 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

Licence : F. Dufour, Probabilités et statistiques, 16 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France. Probabilités , 10,6 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

Licence : A. Gégout-Petit, Etudes de cas en statistique, 28h, L3 MASS (applied mathematics), Université Bordeaux Segalen, France.

Licence : A. Gégout-Petit, Econométrie et séries chronologiques, 24h, L3 MASS (applied mathematics), Université Bordeaux Segalen, France.

Licence : M. Chavent, Statistique descriptive, 36 ETD ,L1, university Bordeaux Segalen, France

Licence: J. Saracco, Descriptive statistics, 10.5h, L3, First year of ENSC, France

Licence: J. Saracco, Mathematical statistics, 20h, L3, First year of ENSC, France

Licence:J. Saracco, Data analysis (multidimensional statistics), 20h, L3, First year of ENSC, France

Licence: J. Saracco, Mathematics (complement of linear algebra), 20h, L3, First year of ENSC, France

Master : F. Dufour, Méthodes numériques pour la fiabilité, 24 heures, niveau M1, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France. Probabilités, 20 heures, niveau M1, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

Master : B. de Saporta, Processus aléatoires en finance 30h ETD, M1, université de Bordeaux, France

Master : B. de Saporta, Finance en temps continu, 10h ETD, M2, université de Bordeaux, France

Master : B. de Saporta, Finance en temps discret, 29h ETD, M2, université de Bordeaux, France

Master : B. de Saporta, Processus de Markov, 25h ETD, M2, université de Bordeaux, France

Master : A. Gégout-Petit, Analyse de variance, 36h, M1, université Bordeaux, France.

Master : M. Chavent, Analyse des données 1, 43 ETD, niveau M1, university Bordeaux Segalen, France

Master : M. Chavent, Modèle de régression, 29 ETD, niveau M1, university Bordeaux Segalen, France

Master : M. Chavent, Logiciels de statistique, 12 ETD, niveau M1, university Bordeaux Segalen, France

Master : M. Chavent, Analyse des données 2, 25 ETD, niveau M2, university Bordeaux Segalen, France

Master : M. Chavent, Scoring, 21 ETD, niveau M2, university Montesquieu Bordeaux 4, France

Master: J. Saracco, Mathematics (complement of linear algebra and analysis), 20h, M1, First year of ENSC, France

Master: J. Saracco, Statistical modeling, 20h, M1, Second year of ENSC, France

Master: J. Saracco, training project, 20h, M1, Second year of ENSC, France

Master: J. Saracco, Sampling techniques and experimental designs, 25h, M2, Master “Ingénierie Mathématique, Statistique et Economique”, the University of Bordeaux, France

8.6.2. Supervision

HdR : Anne Gégout-Petit, "Contribution à la statistique des processus : modélisation et applications, Université Bordeaux 2, 19 novembre 2012

PhD : Adrien Brandejski, Méthodes numériques pour les Processus Markoviens Déterministes par Morceaux,Université Bordeaux 1, 2 juillet 2012, supervised by F. Dufour and B. de Saporta

PhD in progress : Azaïs Romain, Inférence des processus Markoviens déterministe par morceaux , juillet 2013, supervised by François Dufour and Anne Gégout-Petit

PhD in progress : Camille Baysse, Analyse et optimisation de la fiabilité d’un équipement opto-électronique équipé de HUMS, novembre 2013, supervised by Anne Gégout-Petit and Jérôme Saracco

PhD in progress : Laurent Vezard, "Classification de signaux EEG et synthèse de paramètres musicaux par algorithme évolutionnaire", University of Bordeaux 1, supervised by M. Chavent and P. Legrand.

PhD in progress : Raphaël Coudret, Modélisation statistique de données acquises à haute fréquence : application en environnement et génétique, University of Bordeaux 1, supervised by J. Saracco and G.Durrieu.

PhD in progress : Karim Claudio, Un outil d’aide à la maîtrise des pertes dans les réseaux d’eau potable : mise en place d’un modèle de fuite multi-état en secteur hydraulique instrumenté , University of Bordeaux 1, supervised by J. Saracco and V. Couallier.

PhD in progress : Amaury Labenne, Approche Statistique du diagnostic territorial par la notion de qualité de vie, University of Bordeaux 1, supervised by M. Chavent, J. Saracco and V. Kuentz.

PhD in progress : Isabelle Charlier, Optimal quantization applied to conditional quantile estimation, University of Bordeaux 1 and Université Libre de Bruxelle, supervised by J. Saracco and D. Paindaveine.

8.6.3. Juries

B. de Saporta was a member of the selection committee for an assistant professor position (MdC 26) at University Montesquieu Bordeaux IV.

F. Dufour was referee of the PhD dissertation of C. Illand at Université Paris 6.

F. Dufour was referee of the PhD dissertation of Ariane Lorton at Université Technologique de Troyes.

J. Saracco was referee of the PhD dissertation of Adriana Cucu Gogonel at Université Paris 5.

J. Saracco was president of jury of the PhD of Adriana Christophe Denis at Université Paris 5.

J. Saracco was referee of the PhD dissertation of Adriana Cucu Gogonel at Université Paris 5.

J. Saracco was member of the juries for the HDR of Charles Bouveyron (Université Paris 1) and Julien Jacques (Université de Lille 1).

GEOSTAT Project-Team

8. Dissemination

8.1. Scientific Animation

- H. Yahia is a member of the editorial board of Elsevier's journal *Digital Signal Processing* (http://www.journals.elsevier.com/digital-signal-processing/editorial-board).
- H. Yahia is a member of the editorial board of *Frontiers in fractal physiology* (http://www.frontiersin.org/Fractal_Physiology/editorialboard).
- H. Yahia is a member of CNU's section 61 (CNU: *Conseil National des Universités*).

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master : K. Daoudi was invited by the Moroccan CNRST within the FINCOME'2012 program (http://www.fincome.cnrst.ma/) to give a 20 hours lecture on speech processing at the Master2 InfoTelecom of the faculty of sciences, Rabat (http://www.fsr.ac.ma/MIT/).

8.2.2. Supervision

PhD : R. Jourani, title: *reconnaissance automatique du locuteur par GMM à grande marge*, co-supervised between University Paul Sabatier (Toulouse, France) and Rabat-Agdal University (Morroco), defended September 6th, 2012, supervisors: K. Daoudi and R. André-Obrecht.

PhD in progress : V. Khanagha, title: *novel multiscale methods for nonlinear speech analysis using the Microcanonical Multiscale Formalism*, PhD started in 2009, supervisors: H. Yahia and K. Daoudi, to de defended on January 16th, 2013.

PhD in progress : S. Maji, title: *méthodes multiéchelles en traitement du signal pour l'optique adaptative*, PhD started in 2010, supervisor: H. Yahia.

PhD in progress : H. Badri , title: *sparse representation and gradient manipulation: application to multidimensional signals, natural and synthetic*, PhD started in 2012, supervisors: H. Yahia, D. Aboutajdine.

PhD in progress : A. Tamim , title: *image procesing for the segmentation and temporal evolution of moroccan upwelling*, PhD started in 2010, supervisors: K. Daoudi, D. Aboutajdine, H. Yahia.

8.2.3. Juries

- H. Yahia was a member of Mr. Binbin Xu's PhD jury. The PhD was defended on July 11th, 2012, at Université de Bourgogne. Title: *étude de la dynamique des ondes spirales à l'échelle cellulaire par modèles expérimental et numérique*. The jury was composed of: Professor O. Meste, Dr. H. Yahia, Professors V. Kazantzev, M. Nadi, J.-M. Bilbault, S. Binczak, Dr. G. Laurent and Dr. S. Jaquir.
- H. Yahia and K. Daoudi were members of H. Badri's master internship jury. The defence took place on October, 13th, 2012, at Rabat University, Morroco.

8.3. Diffusion

- H. Yahia was an invited speaker at the EGU (European Geophysical Association) General Assembly, held in Vienna, Austria, from April 22th to April 27th, 2012. Session NP3.1 ("Nonlinear, scaling and Complex Physical and Biogeophysical Processes in the Atmosphere and Ocean") [14].

- K. Daoudi was invited from April 11th to April 22th, 2012, by Concordia University (Montreal, Canada), for a visit to Concordia and Sherbrooke universities. K. Daoudi has given a talk at Concordia on April 16th.
- K. Daoudi was invited from September 13th to September 15th, 2012, by the Speech Group at Microsoft Research (Redmond, USA) and has given a talk on September 14th on the subject of nonlinear signal processing for speech.
- H. Yahia participated to the CNU session held in Saint Malo, France, on January, 23th, 24th, 2012.
- H. Yahia was invited by F. Schmidt, head of the LOG (Laboratoire d'Océanologie et de Géosciences, UMR CNRS 8187 and Université du Littoral), to make a lecture on the subject: *structure multiéchelle des signaux complexes et circulation océanique*, on June, 29th, 2012.

MC2 Project-Team

9. Dissemination

9.1. Scientific Animation

Thierry Colin is elected as a member of the national committee of the French Universities (CNU). It is a national structure that has in charge a peer review of the carriers of mathematicians in France.

Charles-Henri Bruneau is member of the executive board of the international conferences on CFD. Selection of the 270 abstracts recieved for the next conference in Hawaii july 2012.

Angelo Iollo is managing the national ANR research project Carpeinter.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

All Professors and Associate Professors teach 192 hours per year.

Licence : Modélisation et calcul scientifique, 32H, L2, Université Bordeaux 1, France (Michel Bergmann)

Licence : Initiation au langage de programmation Fortran 90, 28H, ENSEEIRB-MATMECA, France (Michel Bergmann)

Master : approximation des EDP 2, 28h, M1, Université Bordeaux 1, France (Michel Bergmann)

Master : electrical modelling of biological cells, 32H, M2, Université Bordeaux 1, France (Clair Poignard)

9.2.2. Supervision

PhD & HdR :

HdR: O. Saut, Contributions en optique non-linéaire et en modélisation de la croissance tumorale en vue des applications cliniques, Université Sciences et Technologies - Bordeaux I, September 2012

M. Cisternino, A parallel second order Cartesian method for elliptic interface problems and its application to tumor growth model, Université Sciences et Technologies - Bordeaux I and Politecnico di Torino, April 2012

PhD: Y. Gorsse, Méthode cartésienne pour les fluides compressibles et l'élasticité non-linéaire autour d'obstacles, November 2012

J. Hovnanian, Modélisation, Simulation et contrôle d'écoulement autour d'obstacle déformables, December 2012

PhD: V. Huber, Numerical modelling of complex bifluid flows, September 2012

J. Pinilla, , Modélisation et simulation à l'échelle du pore de la récupération assistée des hydrocarbures par injection de polymères, December 2012

PhD in progress : F. Cornelis is a medical doctor of the Institut Bergonié. He is a radiologist practicing CT-Scans, MRI but also local mini-invasive treatments (interventional radiology). He spends one day a week to prepare a PhD on the modelling aspects of his work. started 2010

PhD in progress : X. Jin, Etude et conception d'une éolienne, started 1st May 2011, supervisors : Angelo Iollo and Michel Bergmann

PhD in progress : M. Leguebe, Electroporation modelling at the cell scale, started 1st october 2011, supervisors : Thierry Colin and Clair Poignard

PhD in progress : M. Lattige, (co-director G. Gallice, CEA CESTA). Numerical modeling of ablation. started october 2010

PhD in progress, started October 2011: F. Bernard, V. Pianet

PhD in progress, started October 2012: A. De Bauer, J. Jouganous, G. Lefevre, H. Ung.

REALOPT Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Organization of workshops

- Arnaud Pêcher was in the organizing committee of the Bordeaux Graph Workshop 2012.
- Pierre Pesneau is member of the organizing committee of the working group "Polyhedra and Combinatorial Optimization" affiliated to the French operations research society (ROADEF) and the operations research group of CNRS. The purpose of this working group is to promote the field of polyhedra in the research domain of combinatorial optimization. To this aim, the group organizes every even years a biennial international symposium on combinatorial optimization (ISCO 2010 in Tunisia, ISCO 2012 in Greece, ISCO 2014 will be held in Portugal) and every odd years the national Polyhedra and Combinatorial Optimization Days. Both of them are preceded by a doctoral spring school.

9.1.2. Invitations to conferences

- Arnaud Pêcher, *How unique is Lovász's theta function?*, 2012 International Conference on Graph Theory, Combinatorics and Applications, Jinhua, Chine, 2012
- Francois Vanderbeck had an "invited talk" at the *International Workshop on Column Generation*, Montréal 2012. He was also an *Invited speaker* at the *Workshop on Integer Programming*, Valparaiso, Chile, March 2012.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master "Ingénierie Mathématique, Statistiques, et Economique": "Optimisation dans les graphes", University of Bordeaux, France.

"Modèles de Flot et Combinatoire", 45 hetd, M1 (Gautier Stauffer)

"Optimisation dans les graphes", 15h, M1, (Arnaud Pêcher)

"Optimisation combinatoire", 30 hetd, M1, (Andrew Miller, Francois Vanderbeck)

"Outils et logiciels d'optimisation", 14 hetd, M1, (Andrew Miller)

"Programmation linéaire", 60 hetd, M1, (Andrew Miller, Pierre Pesneau)

"Programmation linéaire", 30 hetd, M1 (Pierre Pesneau)

"Introduction à la Programmation en Nombres Entiers", 15 hetd, M1 (Pierre Pesneau)

"Programmation Orienté Objet", 15 hetd, M1 (Pierre Pesneau)

"Introduction à la Programmation par Contraintes", 30 hetd, M2, (Ruslan Sadykov).

"Gestion des opérations et Planification de la Production", 30 hetd, M2, (Ruslan Sadykov).

Other Masters:

Enseirb, Computer Sciences: "Recherche Opérationnelle", 37 hetd, 2nd year, Institut Polytechnique de Bordeaux, France (Pierre Pesneau, Francois Vanderbeck)

9.2.2. Supervision

PhD: Petru Valicov, “Algorithmes de graphes pour les problèmes d’ordonnancement”, Juillet 2012, A. Pêcher, M. Montassier, E. Sopena

PhD in progress: Sagnik Sen, “Graphes et télécommunications”, January 2011, E. Sopena, A. Pêcher, A. Raspaud.

PhD in progress: Nastaran Rahmani, “Planning and Routing via decomposition approaches”, April 2011, R. Sadykov, F. Vanderbeck

PhD in progress: Nicolas Dupin, “Scheduling Maintenance of Nuclear Plants in Power Production Planning”, Mai 2011, A. Miller, R. Sadykov, E. Talbi, F. Vanderbeck.

9.2.3. Juries

- Francois Vanderbeck was a member of the PhD jury of Sergey Kovalev, at Ecole des mines de St Etienne.

9.2.4. Administrative Responsabilities

Each member of the team is quite involved in teaching in the thematic specialties of the project, including in the research track of the Masters in applied mathematics or computer science and an Operations Research Track in the computer science department of the Engineering school ENSEIRB-MATMECA. Moreover, we are largely implied in the organization of the curriculum:

- Arnaud Pêcher was the head of IUT Computer Science’s special year, since 2010.
- Francois Vanderbeck has succeeded to Andrew Miller as the head of the Master Speciality in Operations Research. He is aslo a member of the council of the laboratory of mathematics of Bordeaux (IMB) and its scientific committee.
- Pierre Pesneau is elected (since March 2011) to the council of the laboratory of mathematics of Bordeaux (IMB) and (since March 2012) to the council of the department of Mathematics and Computer Science of the University of Bordeaux.
- Ruslan Sadykov is elected (since September 2012) to the research council of the laboratory of mathematics of Bordeaux (IMB).

CARMEN Team

7. Dissemination

7.1. Scientific Animation

- reviewing for (many) applied mathematics journals
- N. Zemzemi was an Invited speaker in *Workshop on Efficient Solvers in Biomedical Applications*. July 2-5, 2012 Graz, Austria.
- Leading the cardiac challenge group in *the 3rd VPH NoE Study Group*. Plenary session on Cardiac modeling challenges (1h) + 4 hours course (cardiac modeling, mathematical methods in cardiac electrphysiology, drug modeling and computational tools in cardiac electrophysiology). May 7-11, 2012. Barcelona, Spain.
- Invitation to give a presentation at the *Inria-Bcam workshop*, Bilbao, 2012.
- LAMSIN Seminar: 6 hours course on cardiac modeling for the EPIC groupe (*Équipe Proble`mes Inverses et Contrôle*), Forward and inverse problem in cardiac electrophysiology. June 18-21, 2012, Tunis, Tunisia.

Partial list of presentations given by the team members (besides the invitations above).

- *Printemps de la cardiologie*, March 2012.
- *Congrès d'Analyse Numérique* (CANUM), May 2012.
- *21st International Conference on Domain Decomposition Methods*. June 25-29 2012, Inria Rennes, Bretagne-Atlantique, France.
- *Computing in Cardiology 2012* conference. September 9-12 2012, Krakow, Poland.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Licence : Y. Coudière, Calcul scientifique : résolution des grands systèmes creux, 34.66 h eq. TD, L3, Université Bordeaux 1.

Master : Y. Coudière, Analyse numérique avancée, 36 h eq. TD, M2 Enseignant, titre du cours, nombre d'heures en équivalent TD, niveau (M1, M2), Université Bordeaux 1.

Licence : Simon Labarthe, probabilité et statistique, 22 h eq. TD, première année IUT, IUT HSE, Université Bordeaux 1.

Licence : Simon Labarthe, introduction aux bases de données, 24h eq. TD, première année IUT, IUT HSE, Université Bordeaux 1.

Licence : Enseignant, titre du cours, nombre d'heures en équivalent TD, niveau (L1, L2, L3), université, pays

Master : Enseignant, titre du cours, nombre d'heures en équivalent TD, niveau (M1, M2), université, pays

Doctorat : Enseignant, titre du cours, nombre d'heures en équivalent TD, université, pays

7.2.2. Supervision

PhD in progress : A. Davidovic, *Modelling the cardiac ventricular structural heterogeneities*, started on October 2012, supervised by M. Bendahmane and Y. Coudière.

PhD in progress : S. Labarthe, *Modélisation de l'activité électrique cardiaque dans les oreillettes et les veines pulmonaires*, started on October 2010, supervised by Y. Coudière and J. Henry.

PhD in progress : G. Ravon, *An inverse problem for cardiac optical mapping*, started on October 2012, supervised by Y. Coudière and A. Iollo.

7.2.3. Juries

- Y. Coudière Reviewer and member of the jury for defense of the PhD of J. Relan, *Personalised Electrophysiological Models of Ventricular Tachycardia for Radio Frequency Ablation Therapy Planning*, June 2012.
- Y. Coudière, supervisor and member of the jury for defense of the PhD of A. Uzureau, *Modélisations et calculs de la cicatrisation osseuse. Application à la modélisation d'un bioréacteur*, December 2012.
- Recruitment commitee for an associate professor position, University of Nice, June 2012.

7.3. Popularization

- Reception of the students from *Ecole Nationale des Ponts et Chaussées*, September 2012.
- Exposé *Unithé ou café*, June 12, 2012. Inria Bordeaux Sud-Ouest. France.

MAGIQUE-3D Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Conferences Organization

- In collaboration with the Institute of Numerical Mathematics and Mathematical Geophysics (Novosibirsk State University), Magique 3D organized the First Russian-French Conference on Mathematical Geophysics, Mathematical Modeling in Continuum Mechanics and Inverse Problems (June 18-22) in Biarritz. This conference was the kick-off meeting of the GEO3D project between the two teams. It focused on direct and inverse problems in mathematical geophysics, mathematical modeling in continuum mechanics, and wave propagation.

  Gathering well recognized specialists with a large spectrum of domain of expertise (geophysical modeling, wave propagation, numerical analysis, large scale problems, inverse problems...), it aimed at creating synergy resulting in theoretical and technological advances in these domains. It initiated discussions and defined joint research projects between French and Russian researchers.

  It gathered around forty participants.

  http://uppa-inria.univ-pau.fr/m3d/ConfFR/
- Magique 3d coorganized with the BCAM the Aquitanie-Euskadi Workshop on Applied Mathematics (October 29-31) in Biarritz. It was the closing workshop of the AKELARRE project (Aquitaine-Euskadi fundings), it focused on wave problems which were the subject of the joint project and take place in different areas of applied mathematics (control, finite elements, asymptotic analysis, boundary conditions, high performing computing, ...). and it gathered around 30 participants.

  http://uppa-inria.univ-pau.fr/m3d/ConfInriaBcam/

9.1.2. Administrative Activities

- Hélène Barucq is vice-chair of the Inria evaluation committee. From 2009 to 2012, she has been member of the panel of experts for the ANR programs "SIMI1 programmes blanc et jeunes chercheurs", http://www.agence-nationale-recherche.fr/programmes-de-recherche/recherches-exploratoires-et-emergentes/. She is the scientific leader of the strategic action Inria-TOTAL "DIP: Depth Imaging Partnership", http://dip.inria.fr/
- Julien Diaz is elected member of the Inria evaluation committee and member of the CDT (Commission de Développement Technologique of Inria Bordeaux Sud-Ouest.
- Victor Peron is member of the CJC (Commission Jeunes Chercheurs) of Inria Bordeaux Sud-Ouest
- Sébastien Tordeux is elected member of the 26th section of the CNU.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master : Julien Diaz et Sébastien Tordeux, Introduction aux phénomènes de propagation d'ondes, 55 Eq TD, M2,

Master : Victor Peron et Sébastien Tordeux, Analyse numérique fondamentale, 110 Eq. TD, M1, UPPA, France,

Summer School : Sébastien Tordeux, Introduction à l'analyse mathématique de l'équation de Helmholtz, 12 Eq. TD, Ecole d'été de Jaca 2012, Espagne

9.2.2. Supervision

HdR : Sébastien Tordeux, Modélisation asymptotique pôur les problèmes de propagation d'ondes, Université de Pau et des Pays de l'Adour, January 2012.

PhD in progress : Julien Alvarez, hp-adaptive inversion of magnetotelluric measurements, October 2011, Hélène Barucq and David Pardo.

PhD in progress : Lionel Boillot, Propagateurs optimisés pour les ondes élastiques en milieux anisotropes, May 2011, Hélène Barucq and Julien Diaz.

PhD in progress : Marie Bonnasse-Gahot, Simulation de la propagation d'ondes élastiques et visco-élastiques en régime harmonique par des méthodes Galerkin discontinues d'ordre élevé en maillage non-structuré adaptées au calcul haute performance, October 2012, Julien Diaz and Stéphane Lantéri.

PhD in progress : Théophile Chaumont Frélet, , October 2012, Hélène Barucq and Christian Gout.

PhD in progress : Élodie Estecahandy, Sur la rsolution de problèmes de diffraction inverses avec des angles d'ouverture réduits, October 2010, Hélène Barucq and Rabia Djellouli.

PhD in progress : Jérôme Luquel, RTM en milieu hétérogène par équations d'ondes élastiques, November 2011, Hélène Barucq and Julien Diaz.

PhD in progress : Vanessa Mattesi, détection des hétérogéenéeités en acoustique et élastodynamique, October 2011, Hélène Barucq and Sébastien Tordeux.

PhD in progress : Florent Ventimiglia, Schémas d'ordre élevé et pas de temps local pour les ondes élastiques en milieux hétérogènes, November 2010, Hélène Barucq and Julien Diaz.

9.2.3. Juries

- Hélène Barucq was jury member for the PhD defense of
  - Sébastien Impériale, Modélisation mathématique et numérique de capteurs piézoélectriques, January 2012 (Université de Paris Dauphine).
  - Sébastien Cambon, Méthodes d'élements finis d'ordre élevé et d'équations intégrales pour la résolution de problèmes de furtivité radar d'objets à symétrie de révolution, July 2nd 2012 (Université de Toulouse).
  - Mohamed Hansbo, Sur le modèle de Kerr-Debye pour la propagation des ondes électromagnétiques, October 1st 2012 (Université de Bordeaux).
  - Dimitri Nicolas, Couplage de méthodes d'échantillonnage et de méthodes d'optimisation de formes pour des problèmes de diffraction inverses, November 28th 2012 (École polytechnique).
- Sébastien Tordeux was jury member for the PhD defense of
  - Pierre-Henri Cocquet, Étude mathématique et numérique homogénéisé de métamatériaux, December 7th 2012 (Université de Toulouse).

9.3. Popularization

- Hélène Barucq, Lycée Cassin à Bayonne, conférence pour des classes de seconde, première et terminale, sur l'application des mathématiques dans la vie courante, April 6th 2012;
- Hélène Barucq, Médiathèque de Cambo-les-Bains, Cycle Café des Sciences, "Les mathématiques, ça sert!!!", April 6th 2012.

MAGNOME Project-Team

9. Dissemination

9.1. Scientific Animation

Elisabeth Bon is :

member of the “Comité Technique d’Etablissement” (since 2008 until 2014)

member of the “Comité Hygiène et Sécurité, et Conditions de Travail” (since 2012) at the Univ. of Bordeaux Segalen.

Pascal Durrens is :

leader of the “Comparative Genomics” theme and member of the Scientific Council of the LaBRI UMR 5800/CNRS.

responsible for scientific diffusion for the Génolevures Consortium.

member of the editorial board of the journal ISRN Computational Biology, and was reviewer for the journal BMC Genomics

expert in Genomics for the Fonds de la Recherche Scientifique-FNRS (FRS-FNRS), Belgium

Tiphaine Martin is :

member of the Local Committee and member of Local Committee for Occupational Health and Safety of the Inria Bordeaux Sud-Ouest.

member of the GIS-IBiSA GRISBI-Bioinformatics Grid working group.

member of the Institut de Grilles, and active in the Biology/Health working group.

David Sherman is :

president of the Commission de Jeunes Chercheurs, Inria Bordeaux Sud-Ouest

member of the editorial board of the journal Computational and Mathematical Methods in Medicine

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Elisabeth Bon, ICTs-Information & Communication Technologies (basic and advanced sections) and the national “IT and Internet certificate (C2i®, level 1) for the STS- biology variant Licence programs at the Univ. Bordeaux Segalen, and for MISMI Licence program at the Univ. Bordeaux 1. 109h éq. ED.

Licence & Master : Elisabeth Bon, Computer sciences & Bioinformatics-Genomics, Computerised resources, data banks and Methods for the Biology & Healthcare STS (Sciences, Technologies & Sante) bachelor’s degrees, research oriented STS licence and master’s degrees . 102h éq. ED.

Licence : Elisabeth Bon is responsable for The bachelor’s degree “Information Technologies & Internet advanced course”, Life Sciences Department, University Bordeaux

Licence : Elisabeth Bon is responsable for The “IT and Internet certificate (C2i®), level 1” at Life Sciences Department, University Bordeaux Segalen

Licence : Elisabeth Bon is responsable for The presidence (2005-2007; since sept. 2011) of the “IT and Internet certificate (C2i, level 1) committee” in charge of the C2i evaluation and certification for students (n=2000), University Bordeaux Segalen

Licence : Laetitia Bourgeade, Informatics for MISMI Licence program, University Bordeaux 1, 43h éq. ED.

Master : Laetitia Bourgeade, Statistics for bioinformaticians, University Bordeaux 1, 16h éq. ED.

Master : Laetitia Bourgeade, Object-oriented Programming, 2ème année Ingénieur, EnseirbMatmeca (Institut Polytechnique de Bordeaux), Bordeaux, 34h éq. ED.

Master : Laetitia Bourgeade, Methods & Tools for Systems Biology, 2ème année Ingénieur, Enseirb-Matmeca (Institut Polytechnique de Bordeaux), Bordeaux, 22h éq. ED. Tiphaine Martin and Pascal Durrens have :

the supervision of 4 Bioinformatics MSc students from the University of Bordeaux: Master : Development of search tools on Ge´nolevures databases, 6hETC, M1, University Bordeaux 1 and University Bordeaux Segalen, France

Master : Tiphaine Martin, Utilisation of EGEE GRID via virtual organisation GRISBI , 8h, niveau (M2), University Lyon, France

Master : Tiphaine Martin, Utilisation of EGEE GRID via virtual organisation GRISBI, 8h, niveau (M2), INRA Toulouse, France

Master : David Sherman, Web et Interfaces Homme-Machine, 50h, 2ème année Ingénieur, Enseirb-Matmeca (Institut Polytechnique de Bordeaux), Bordeaux

9.2.2. Supervision

PhD in progress : L. Bourgeade, Filtres sur les arborescences modélisant les ARN et plasticité génique, 2011–, E. Bon, P. Ferraro and J. Allali

PhD in progress : N. Golenetskaya, Big Data for comparative genomics, 2009–, D. Sherman

PhD in progress : R. Issa, Analyse symbolique de données génomiques, 2010–, D. Sherman

PhD in progress : A. Zhukova, Knowledge engineering for biological networks, 2011–, D. Sherman

9.2.3. Juries

David Sherman:

was external reviewer and member of the thesis defense jury for Anisah Ghoorah, Nancy.

was a member and president of the jury for the thesis defense of Jean-Paul Soularue, Bordeaux.

MNEMOSYNE Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Responsabilities

- F. Alexandre and T. Viéville are members (and moderators) of the scientific committee of NeuroComp, the initiative to gather the french community in Computational Neuroscience (annual conference and web site: http://www.neurocomp.fr/).

8.1.2. Review activities

- Reviewing for journals: Applied Intelligence, Cognitive Computation, J. Physiol. (F. Alexandre)
- Member of program committees of conferences: AMINA, CAP, CWPR, JCIB, SAB, TAIMA (F. Alexandre)
- Reviewing for the Fonds Recherche Quebec, the CNRS, the ANR and several french regional and territorial agencies (F. Alexandre)

8.1.3. Workshops, conferences and seminars

Organization of conferences and workshops:

- Robots & Corps, Conférence ARCO / IPAC, 18/10/2012 (N. Rougier)
- EuroScipy 2012, Brussels, Belgium (N. Rougier)
- Organization of the The NeuroComp/KEOpS'12 workshop, Beyond the retina: from computational models to outcomes in bioengineering. Focus on architecture and dynamics sustaining information flows in the visuomotor system. Bordeaux, October the 10th and 11th (F. Alexandre and T. Viéville). http://www.neurocomp.fr/neurocomp-2012
- Invited Talks given to the IPAC Seminar (Nancy), to the Annual Forum in Cognitive Science at University of Nancy, to the Seminar Bordeaux Neuroscience, to the second French-Chinese workshop on Network Dynamics and Synaptic Plasticity in the Central Nervous System (F. Alexandre).

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Many courses are given in universities and schools of engineers at different levels (LMD) by most team members, in computer science, in applied mathematics, in neuroscience and in cognitive science.

F. Alexandre has given a lecture to the Master/Doctorate program in Neuroscience, University of Valparaiso.

N. Rougier has given this year a tutorial on scientific visualization at Euroscipy 2012, Brussels.

8.2.2. Juries

We also participate to many juries each year.

8.3. Popularization

We have a strong activity for popularization of science:

- The other half-time of Thierry Viéville's activity is dedicated to popularization of science (http://science-info-lycee.fr, http://www.inria.fr/mecsci, http://interstices.info) with about 10 conferences and 20 days of scientific animation [8], [7].
- "Les Robots, le futur... demain ?", Les cafés des sciences et techniques, Bibliothèque Intercommunale, Epinal, 22 novembre 2012 (N. Rougier)
- Meeting with the general public for the national scientific film festival, Nancy, 2012 (N. Rougier)
- Exchange with a scientific journalist (5 days in Nancy, 5 days in Paris), 2012 (N. Rougier)

CEPAGE Project-Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Editorial Work

- Ralf Klasing is Associate Editor for
  - Algorithmic Operations Research (since May 2007),
  - Parallel Processing Letters (since August 2007),
  - Networks (since September 2007),
  - Computing and Informatics (since January 2008),
  - **Theoretical Computer Science (since December 2009),**
  - Fundamenta Informaticae (since January 2010),
  - Discrete Applied Mathematics (since February 2010),
  - Wireless Networks (since May 2010),
  - Journal of Interconnection Networks (since November 2010).
- Olivier Beaumont is Associate Editor for
  - **IEEE Transactions on Parallel and Distributed Systems (since June 2010).**

8.1.2. Steering Committees

- Ralf Klasing is a member of the Steering Commitee of the *International Colloquium on Structural Information and Communication Complexity (SIROCCO)*.

8.1.3. Organizing Commitees

- Ralf Klasing was a member of the organization committee of the *Bordeaux Graph Workshop*, Bordeaux, France, November 21-24, 2012.

8.1.4. Program Committees – Chair

- Nicolas Hanusse was the Conference Chair of *14th French Conference of Communications in Network (Algotel 2012)*
- Nicolas Hanusse was the Conference Chair of *International Conference on Algorithm (FUN 2012)*
- Ralf Klasing was the Conference Chair of the *11th International Symposium on Experimental Algorithms (SEA 2012)*, Bordeaux, France, June 7-9, 2012.
- Philippe Duchon was the Conference Chair of the *The 8th edition of the conference GASCom on random generation of combinatorial structures*, Bordeaux, France, June 7-9, 2012.
- Sofian Maabout was the conference Chair of *8th French Conference on Data Warehouses and OLAP (EDA2012)*, Bordeaux, June 12-13, 2012.
- Olivier Beaumont will be the Conference Chair (Algorithms Track) of the *42th International Conference on Parallel Processing*, ICPP 2013, Lyon, France, 2013

8.1.5. Program Committees

- Olivier Beaumont
  - ICPP 2012, 41st International Conference on Parallel Processing, Pittsburgh, PA, USA, September 10-13, 2012

  - IPDPS 2012, 26th IEEE International Parallel & Distributed Processing Symposium, May 21-25, 2012, Shanghai, China
  - HCW 2012, 20th International Heterogeneity in Computing Workshop, May 21-25, 2012, Shanghai, China
  - ISCIS 2012, 27th International Symposium on Computer and Information Sciences, Paris, France
  - CSE 2012, 15th IEE International Conference on Computational Science and Engineering, Paphos, Cyprus
- Nicolas Bonichon
  - AlgoTel 2012 (May 29- June 1, La Grande Motte, France) Rencontres Francophones sur les aspects Algorithmiques des Télécommunications
- Cyril Gavoille
  - DISC 2012 (Oct. 16-18, Salvador, Brazil), International Symposium on Distributed Computing
  - ISAAC 2012 (Dec. 19-21, Taipei, Taiwan), International Symposium on Algorithms and Computation
  - ICDCN 2012 (Jan. 3-6, Hong-Kong), International Conference on Distributed Computing and Networking
- David Ilcinkas
  - FOMC 2012 (8^{th} ACM SIGACT/SIGMOBILE International Workshop on Foundations of Mobile Computing)
  - **OPODIS 2012 (16^{th} International Conference On Principles Of DIstributed Systems)**
- Ralf Klasing
  - SEA 2012, 11th International Symposium on Experimental Algorithms, Bordeaux, France, June 7-9, 2012
  - ADHOC-NOW 2012, 11th International Conference on Ad Hoc Networks and Wireless, July 9-11, 2012, Belgrade, Serbia
  - FOMC 2012, 8th ACM SIGACT/SIGMOBILE International Workshop on Foundations of Mobile Computing (formerly known as DIALM-POMC), July 19, 2012, Madeira, Portugal
  - IWOCA 2012, 23rd International Workshop on Combinatorial Algorithms, July 19-21, 2012, Kalasalingam University, Anand Nagar, Krishnankoil, Tamil Nadu, India
- Lionel Eyraud-Dubois
  - Cluster 2012, *IEEE Conference on Cluster Comuting*, September 24-28, Beijing, China.
- Adrian Kosowski
  - SEA 2012, 11th International Symposium on Experimental Algorithms, Bordeaux, France, June 7-9, 2012.
  - SSS 2012, 14th International Symposium on Stabilization, Safety, and Security of Distributed Systems, Toronto, September 24-27, 2012 .
  - ICDCN 2012, 13th International Conference on Distributed Computing and Networking, January 3-6, 2012, Hong Kong, China.
  - MFCS 2012, 37th International Symposium on Mathematical Foundations of Computer Science, August 27-31, 2012, Bratislava, Slovakia.
- Sofian Maabout

– ICWIT 2012, 4th Int. Conf. on Web and Information Technologies, Sidi Bel Abbes, Algeria, April 29-30, 2012.

8.1.6. Research Administration

8.1.6.1. Main Administrative Duties

- Olivier Beaumont is the Scientific Deputy of Inria Bordeaux Sud-Ouest (since September 2011)
- Nicolas Hanusse is the Head of the Doctoral School (Computer Science) of the University of Bordeaux (since 2010)
- Cyril Gavoille was a Deputy Director of LaBRI laboratory (2008–2011)
- Ralf Klasing is responsible of the "Combinatorics and Algorithms" Team of the LaBRI. (since November 2010)
- Nicolas Hanusse is responsible of the "Distributed Algorithms" Group in LaBRI. (since November 2010)
- Philippe Duchon is the Head of the University Bordeaux 1 Computer Science Master program (since 2010)
- Ralf Klasing is responsible for the International Relations of the LaBRI. (since January 2009)
- Sofian Maabout is responsible of the second year of the "Information Systems for Health Care" Master (since 2010).
- Ralf Klasing is a member of the Evaluation Committee of the programme "ANR DEFIS".
- David Ilcinkas is a member of the *Conseil de Laboratoire* of the LaBRI.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master : Communication and Routing (last year of engineering school ENSEIRB, 2012) O. Beaumont, N. Bonichon, L. Eyraud, N. Hanusse, R. Klasing, A. Kosowski (16h)

Master : Communication Algorithms in Networks (2nd year MASTER "Algorithms and Formal Methods", University of Bordeaux, 2012) R. Klasing (24h)

Master : Search Engines (2nd year of engineering school ENSEIRB, 2012) O. Beaumont (20h)

Master : Distributed Computing (2nd year MASTER "Réseaux, Systèmes et Mobilité"), (24h)

8.2.2. Supervision

PhD :

- Florent Foucaud, Aspects combinatoires et algorithmiques des codes identifiants dans les graphes, Ralf Klasing, André Raspaud, Université Bordeaux 1, 10.12.2012
- Godfroy Quentin, From spanners to multipath spanners, Cyril Gavoille, Université Bordeaux 1, dec. 2012.

PhD in progress :

- Przemyslaw Uznanski, Communication modeling on large scale platforms, November 2010, Olivier Beaumont, Nicolas Bonichon, Lionel Eyraud-Dubois, Université Bordeaux 1.
- Ahmed Wade, Mobile agent protocols for dynamic networks, February 2011, David Ilcinkas, Ralf Klasing, Université Bordeaux 1.
- Dominik Pajak, Multi-agent protocols for efficient graph exploration, October 2011, Adrian Kosowski, Ralf Klasing, Université Bordeaux 1.
- Pierre Halftermeyer, Structuration des graphes et étiquetages compacts, October 2010, Cyril Gavoille, Université Bordeaux 1.

8.2.3. Juries

- Ralf Klasing was examinateur and president of the PhD committee of Thomas Morsellino (University Bordeaux 1, 25.9.2012)
- Ralf Klasing was external PhD reviewer and member of the PhD committee in the Ph.D. defense of Aline Parreau (University of Grenoble, 5.7.2012)
- Ralf Klasing was external PhD reviewer and member of the PhD committee in the Ph.D. defense of Marwane Bouznif (University of Grenoble, 4.7.2012)
- Cyril Gavoille was external reviewer for the PhD thesis of Mikaila Toko Worou, Université Nice Sophia-Antipolis, Outils algorithmiques pour la détection des communautés dans les réseaux (12/2012).
- Cyril Gavoille was was external reviewer for the PhD thesis of Jean-François Couturier, Université Paul Verlaine (Metz), LITA, Algorithmes exacts et exponentiels sur les graphes: énumération, comptage et optimisation (12/2012).
- Cyril Gavoille was (anonymous) external reviewer for the PhD thesis of Université des Sciences et de la Technologie Houari Boumédiène in Algeria (11/2012).
- Cyril Gavoille was president of the committee and examinator for the PhD thesis of Nicolas Delfosse, Université de Bordeaux, IMB, Constructions et performances de codes LDPC quantiques (12/2012).
- Nicolas Hanusse was examinator for the PhD thesis of Dominique Dion, Dyname d'évolution de graphes de cooccurences lexicales: application à l'analyse de comptes-rendus en prévention spécialisée entre 1972 et 2010.
- Nicolas Hanusse was president of the committee and examinator for the PhD thesis of Quention Godfroy, Multipath Spanners, Université de Bordeaux (11/2012)
- Nicolas Hanusse was external reviewer and examinator for the "Habilitation of Research Direction" of Jean-Loup Guillaume, Déterminisme et non-déterminisme au service de la détection de communautés dynamiques, Paris 6 University (11/2012)
- Nicolas Hanusse was president of the committee and examinator for the PhD thesis of Asma Ben Zakour, Extraction des utilisations typiques à partir de données hétérogènes historisées en vue d'optimiser la maintenance d'une flotte de véhicules , Université de Bordeaux (06/2012)

HIEPACS Project-Team

9. Dissemination

9.1. Scientific Animation

Olivier Coulaud is member of the Inria COST GTAI committe (in charge of incentive actions), of the C3I GENCI committe and of the scientific board of the regional computing mesocentre. Moreover, he is the leader of the Inria PlaFRIM computing plateform.

Luc Giraud has been member of the scientific committee of the international conferences SuperComputing'12, PDSEC'12 and VecPar'12. He was member of the selection committee for the ANR MN programme. He is also member of the editorial board of the SIAM Journal on Matrix Analysis and Applications (SIMAX), expert for the Dutch FWO programme and for the Italian VQR 2004-2010 programme.

Jean Roman is the Deputy Scientific Director of the Inria research domain entitled *Applied Mathematics, Computation and Simulation* and is in charge at the national level of the Inria activities concerning High Performance Computing. He is member of the "Strategic Comity for Intensive Computation" of the French Research Ministry, of the the GENCI WP2 - FRANCE for PRACE and is member of the "Scientific Board" of the CEA-DAM. He has been member of the scientific committee of the international conference EuroMicro PDP'12 (IEEE).

Finally, the HiePACS members have contributed to the reviewing process of several international journals (Applied Numerical Mathematics, Numerical Linear Algebra with Applications, Parallel Computing, SIAM J. Numer. Analysis , SIAM J. Scient. Comp., ...), to the reviewing process of international conferences (IEEE IPDPS 2013, Supercomputing 2012, vecPar 2012, ...), and have acted as experts for the research agency ANR-MN.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

In the following are listed the lectures given by the HiePACS members.

Undergraduate level

1. A. Esnard: Operating system programming, 36h, University Bordeaux I; Using network, 23h, University Bordeaux I.
2. A. Esnard: in charge of the computer science certificate for Internet (C2i) at the University Bordeaux I.

Post graduate level

1. O. Coulaud: Paradigms for parallel computing, 28h, ENSEIRB-MatMeca, Talence; Code coupling, 6h, ENSEIRB-MatMeca, Talence.
2. A. Esnard: Network management, 27h, University Bordeaux I; Programming distributed applications, 60h, ENSEIRB-MatMeca, Talence.
3. L. Giraud: Introduction to intensive computing and related programming tools, 20h, INSA Toulouse; Introduction to high performance computing and applications, 20h, ISAE-ENSICA; On mathematical tools for numerical simulations, 10h, ENSEEIHT Toulouse; Parallel sparse linear algebra, 11h, ENSEIRB-MatMeca, Talence.
4. A. Guermouche: Network management, 92h, University Bordeaux I; Network security, 64h, University Bordeaux I; Operating system, 24h, University Bordeaux I.
5. J. Roman: Parallel sparse linear algebra, 10h, ENSEIRB-MatMeca, Talence; Parallel algorithms, 22h, ENSEIRB-MatMeca, Talence.
6. X. Vasseur: Solution of PDE, 16 h, ENSEEIHT Toulouse; Linear Algebra and Optimization, 25 h, ISEA-ENSICA, Toulouse; Introduction to MPI, 11 h, ENM, Toulouse; Introduction to Fortran 90, 5 h, CERFACS, Toulouse.

9.2.2. Supervision

Defended PhD thesis

1. Jérôme Soumagne, *"An In-situ Visualization Approach for Parallel Coupling and Steering of HPC Applications using Files in Distributed Shared Memory"*, Université Bordeaux I, defended on 14 Dec. 2012, advisors: J. Bidiscombe (CSCS), A. Esnard and J. Roman.

PhD in progress :

1. Rached Abdelkhalek, *"Modélisation et imagerie sismique sur accélérateurs matériels"* , starting Jan. 2008, advisors: O. Coulaud, G. Latu (CEA) and J. Roman.
2. Yohann Dudouit, *"Scalable parallel elastodynamic solver with local refinment in geophysics"*, starting Oct. 2010, advisors: L. Giraud and S. Pernet (CERFACS).
3. Arnaud Etcheverry, *"Toward large scale dynamic dislocation simulation on petaflop computers"*, starting Oct. 2011, advisors: O. Coulaud and J. Roman.
4. Andra Hugo *"Composabilité de codes parallèles sur plateformes hétérogènes"*, starting Oct. 2011, advisors: A. Guermouche, R. Namyst and P-A. Wacrenier.
5. Alexis Praga, *"Parallel atmospheric chemistry and transport model solver for massivelly platforms"*, starting Oct. 2011, advisors: D. Cariolle (CERFACS) and L. Giraud.
6. Stojce Nakov, *"Parallel hybrid solver for heterogenous manycores: application to geophysics"*, starting Oct. 2011, advisors: E. Agullo and J. Roman.
7. Fabien Rozar, *"Peta and exaflop algorithms for turbulence simulations of fusion plasmas"*, starting Nov. 2012, advisors: Guillaume Latu (CEA) and Jean Roman.
8. Pablo Salas Medina, *"Parallel eigensolvers for large scale combustion chamber simulations"*, starting June 2010, advisors: L. Giraud and X. Vasseur (CERFACS).
9. Moustapha Salli, *"Design of a massively parallel version of the SN method for neutronic simulations"*, starting Oct. 2012, advisors: Laurent Plagne (EDF), Pierre Ramet and Jean Roman.
10. Clément Vuchener, *"Algorithmique de l'équilibrage de charges pour des couplages de codes complexes"*, starting Sept. 2010, advisors: A. Esnard and J. Roman.
11. Mawussi Zounon, *"Numerical resilient algorithms for exascale"*, starting Oct. 2011, advisors: E. Agullo and L. Giraud.

9.2.3. Juries

PhD thesis defences

1. J. Charles, Amélioration des performances de méthodes Galerkin discintinues d'ordre élevé pour la résolution numérique des équations de Maxwell instationnaires sur des maillages simplexes, Université de Nice-Sophia Antipolis, spécialité Mathématiques, April 26, Referee: L. Giraud.
2. S. Duminil, Extrapolation vectorielle et applications aux équations aux dérivées partielles, Université du Littoral Côte d'Opale, spécialité Mathématiques Appliquées, July 6, Referee: L. Giraud.
3. S. Detournay, Multigrid methods for zero-sum two player stochastic games, Ecole Polytechnique and Inria, September 25th, Member: X. Vasseur.
4. C. Obrecht, High Performance Lattice Boltzmann Solvers on Massively Parallel Architectures with Applications to Building Aeraulics, INSA de Lyon, spécialité Mécanique - Energétique - Génie Civil - Acoustique, December 11, Referee: J. Roman.
5. S. Jauré, Methodology for conjugate heat transfer simulations relying on Large Eddy Simulations in massively parallel environments, Institut National Polytechnique de Toulouse, spécialité Dynamique des Fluides, December 14, Member: L. Giraud.

HdR defences

1. N. Raveu, Contribution à la modélisation de dispositifs hyperfréquences par méthode modale, Institut National Polytechnique de Toulouse, spécialité Electronique, November 29, Member: L. Giraud.

PHOENIX Project-Team

9. Dissemination

9.1. Scientific Animation

Charles Consel has been involved in the following events as

- Program Committee member of
  - NIER track of ICSE 2012 (co-chair): New Ideas and Emerging Results track of the 34th International Conference on Software Engineering.
  - IEEE ICWS 2012: the 19th International Conference on Web Services
  - WEH 2012: ICSE International Workshop on Exception Handling
- Invited speaker at
  - Programming Language Mentoring Workshop, POPL 2012
  - Colloquium series of the department of computer science of Halmstad University, Sweden, June 2012.
  - Colloquium series of the department of Computer Science, University of Montreal, Canada, October 2012.
  - Colloquium series of the department of Computer Science, Mc Gill University, Canada, December 2012.
  - Colloquium series of the department of Computer Science, University of Sherbrooke, Canada, December 2012.

Charles Consel has participated in the following thesis defense committees:

- Julien Bruneau, May 16, University of Bordeaux, France
- Hongyu Guan, June 1, University of Bordeaux, France

Emilie Balland has been involved in the following events as

- Program Committee member of
  - SLE 2012: 5th International Conference on Software Language Engineering
  - WRLA 2012: 9th International Workshop on Rewriting Logic and its Applications (Co-located with ETAPS 2012)
  - PEPM 2012: ACM SIGPLAN 2012 Workshop on Partial Evaluation and Program Manipulation (Co-located with POPL 2012)
  - LDTA 2012 (local chair): 12th Workshop on Language Descriptions, Tools and Applications (Co-located with ETAPS 2012)
- Member of the thesis defense committee of Julien Bruneau, May 16, University of Bordeaux

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master level courses:

Master : Charles Consel, Domain-Specific Languages, 13 hours (M2 level), ENSEIRB engineering school, France.

Master : Charles Consel, Telephony over IP, 10 hours (M2 level), ENSEIRB engineering school, France.

Master : Charles Consel, Domain-Specific Languages for Telephony Services, 15 hours (M2 level), ENSEIRB engineering school, France.

Master : Charles Consel, Architecture Description Languages, 12 hours (M2 level), ENSEIRB engineering school, France.

Master : Emilie Balland, Software Development guided by modeling and verification, 20 hours (M2 level), ENSEIRB engineering school, France.

Master : Emilie Balland, Software Development Methodologies, 40 hours (M2 level), Ho Chi Minh University, Vietnam.

9.2.2. Supervision

PhD : Julien Bruneau, "Plateforme d'exécution paramétrable de systèmes communicants", University of Bordeaux, May 16, 2012, supervised by Charles Consel

PhD : Hongyu Guan, "Gestion de l'hétérogénéité des environnements ubiquitaires et de la consommation d'énergie des environnements mobiles", University of Bordeaux,June 1, 2012, supervised by Charles Consel

PhD in progress : Pengfei Liu, "Politiques de securité pour les environnements ubiquitaires", started in October 2009, supervised by Charles Consel

PhD in progress : Stéphanie Gatti, "Architecture en composants et qualification incrémentale", started in February 2010, supervised by Charles Consel and Emilie Balland

PhD in progress : Quentin Enard, "Intégration de concepts de sûreté de fonctionnement dans un langage de description d'architecture et son support d'exécution", started in February 2010, supervised by Charles Consel

9.2.3. Juries

Charles Consel was a member of the selection committee for a professor position at Rennes University (section 27).

9.3. Popularization

- Demonstration of DiaSuiteBox during Rencontre Inria Industries "Sciences Numériques et Efficacité Énergétique" (digital technologies for efficient energy use), March 2012
- General audience article in the Sud-Ouest newspaper, 15/03/12

RUNTIME Project-Team

9. Dissemination

9.1. Scientific Animation

Raymond NAMYST is vice-chair of the Research and Training Department in Mathematics and Computer Science (UFR Math-Info) of the University of Bordeaux 1. He is also a member of the Scientific Committee of the University of Bordeaux 1

Raymond NAMYST is the head of the LaBRI-CNRS "SATANAS" (*Runtime systems and algorithms for high performance numerical applications*) research team (about. 50 people) that includes the BACCHUS, HIEPACS, PHOENIX and RUNTIME Inria groups.

Raymond NAMYST chairs the scientific committee of the ANR "Numerical Models" program for the 2011-2013 period.

Raymond NAMYST was the coordinator of the chapter about runtime systems within the "Software Eco-System" Workgroup of EESI (*European Exascale Software Initiative*).

Raymond NAMYST serves as an expert for the following initiatives/institutions:

- EESI (*European Exascale Software Initiative*, since 2010) ;
- CEA/DAM (as a "scientific expert" for the 2008-2012 period) ;
- CEA-EDF-Inria School technical committee (since 2009) ;
- GENCI (http://www.genci.fr/?lang=en, since 2009) ;

Raymond NAMYST was a program committee member of the following international conferences: SC'12, MSEPT 2012, ROSS 2012, ISPA 2012, CASS 2012.

Raymond NAMYST gave invited talks at the following international workshops: CCDSC'12 (Dareizé), COMPEEF'12 (Grenoble), Torrents'12 (Toulouse), FGPS'175 (Mons).

Samuel THIBAULT was a program committee member of the following conferences: IPDPS 2013, Renpar 2013

Brice GOGLIN was a program committee member of SC'12 technical program and posters, Hot Interconnect 2012 and EuroMPI 2012. He was also a member of the SC'12 ACM Student Research Competition jury.

Guillaume MERCIER was program committee member of EuroMPI 2012, ICPADS 2012 and CCGrid 2012. He was also a reviewer for the IEEE TPDS and FGCS journals.

Olivier AUMAGE was reviewer for the IEEE TPDS journal and for the SC12, IPDPS 2012, ROSS, DATE 2013 and RenPar/Compas conference and workshops. He is part of the Inria Bordeaux – Sud-Ouest committee for scientific event fundings.

Emmanuel JEANNOT was program committee member for: ISPA 2012, HPDC 2012, PDGC 2012, HiPC 2012, Heteropar 2012, renpar 21, Realis-01, CCGrid2013 and IPDPS 2013.

Emmanuel JEANNOT is member of the steering committee of Euro-Par and Cluster.

Emmanuel JEANNOT is associate editor of the International Journal of Parallel and Emergent Distributed Systems.

Emmanuel JEANNOT was reviewer for the following journals: JPDC, IEEE TPDS, CEJCS.

Emmanuel JEANNOT has given an invited talk and CCDSC 2012 (Darize, France), the 7th scheduling workshop (Pittsburgh USA), CCMSE 2012 (La Manga, Spain), and the Inria-Joint-Lab meeting at Argonne National Lab.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Members of Runtime project gave thousands of hours of teaching at University of Bordeaux and ENSEIRB-MATMECA engineering schools, covering a wide range of topics from basic use of computers and C programming to advance topics such as operating systems, parallel programming and high-performance runtime systems.

9.2.2. Supervision

PhD & HdR :

PhD: Jérôme CLET-ORTEGA, Exploitation efficace des architectures parallèles de type grappes de NUMA à l'aide de modèles hybrides de programmation, 2012/04, Raymond NAMYST and Guillaume MERCIER

PhD: Andres CHARIF-RUBIAL, On code performance analysis and optimization for multicore architectures, 2012/02, Denis BARTHOU and William JALBY (Université de Versailles Saint Quentin en Yvelines)

PhD in progress : Julien JAEGER, Source-to-source transformations for irregular and multithreaded code optimization, 2012/02, Denis BARTHOU

PhD in progress : Bertrand PUTIGNY, Modèles de performance pour l'ordonnancement sur architectures multicoeurs hétérogènes, 2010/11, Brice GOGLIN and Denis BARTHOU

PhD in progress : François TESSIER, Placement d'applications hybrides sur machine non-uniformes multicœurs, 2011/10 Emmanuel JEANNOT and Guillaume MERCIER

PhD in progress : Paul-Antoine ARRAS, Development of a Flexible Heterogeneous System-On-Chip Platform using a mix of programmable Processing Elements and harware accelerators. 2011/10, Emmanuel JEANNOT and Samuel THIBAULT

PhD in progress : Sylvain HENRY, Modèles de programmation et systèmes d'exécution pour architectures hétérogènes, 2009/10, Denis BARTHOU and Alexandre DENIS

PhD in progress: Andra HUGO, Composability of parallel codes over heterogeneous platforms, 2013/10, Abdou GUERMOUCHE and Pierre-André WACRENIER and Raymond NAMYST

PhD in progress: Cyril BORDAGE, Parallélisation de la méthode multipôle sur architecture hybride, 2012/10, Raymond NAMYST and David GOUDIN (CEA CESTA)

PhD in progress: Corentin ROSSIGNON, Design of an object-oriented runtime system for oil reserve simulations on heterogeneous architectures, 2012/04, Olivier AUMAGE and Pascal HÉNON (TOTAL) and Raymond NAMYST and Samuel THIBAULT

9.2.3. Juries

Raymond NAMYST was member of the PhD defense jury for the following candidates:

- Marcio CASTRO (University of Grenoble, reviewer)
- Vincent PICHON (University of Lyon, reviewer)
- Marc PALYART (CEA-CESTA, Bordeaux, reviewer)
- Andres CHARIF RUBIAL (University of Versailles, president)

Samuel THIBAULT was member of the PhD defense jury for the following candidates:

- Vincent BOULOS (University of Grenoble, examinator)

Emmanuel JEANNOT was member of the PhD defense jury for the following candidates:

- Mohamed Slim BOUGUERRA (University of Grenoble, reviewer)
- Cristian KLEIN (ENS Lyon, reviewer)
- Jan-Christian MEYER (NTNU, Trondhiem, Norway, opponent)

9.3. Popularization

Brice GOGLIN is in charge of the diffusion of the scientific culture for the Inria Research Center of Bordeaux. He is also a member of the national Inria committee on Scientific Mediation. He gave numerous talks about high performance computing and research careers to generac public audience and school student, as well as several radio and paper interviews about Inria's activities.

Brice GOGLIN, François TESSIER and Bertrand PUTIGNY presented the team's research work to one hundred high-school students at the "Fête de la Science".

Brice GOGLIN and Bertrand PUTIGNY presented research careers at the Aquitec student exhibition.

Samuel THIBAULT was an invited speaker for a public round table about Author rights and HADOPI.

FLOWERS Project-Team

9. Dissemination

9.1. Animation of the Scientific Community

9.1.1. Editorial boards

Pierre-Yves Oudeyer has worked as Editor of the IEEE CIS AMD Newsletter, and member of the IEEE CIS Technical Committee on Autonomous Mental Development.

Pierre-Yves Oudeyer has worked as Associate Editor for IEEE Transactions on Autonomous Mental Development, Frontiers in Neurorobotics (Frontiers Foundation), International Journal of Social Robotics (Springer).

Pierre-Yves Oudeyer has worked as member of the editorial board of the book series Advances in Interaction Studies, John Benjamins Publishing Company.

9.1.2. Steering committees

Pierre-Yves Oudeyer has worked as member of the Steering Committee of the International Conference on Epigenetic Robotics, and participated to the setting up of the second joint conference with IEEE ICDL, i.e. the IEEE ICDL/Epirob conference that was held in San Diego, US.

Manuel Lopes participated in the steering committee of the IEEE TC on Robot Learning.

9.1.3. Conference Organization

Pierre-Yves Oudeyer co-organized the third International Workshop on Human Behavior Understanding, and was co-editor of the proceedings [67], [59]: http://www.cmpe.boun.edu.tr/hbu/2012/ (together with A. A. Salah, Cetin Mericli and Javier Ruiz-del-Solar).

9.1.4. Program Committees

Freek Stulp was on the program committee of the IEEE International Conference on Development and Learning/Epigenetic Robotics.
Pierre-Yves Oudeyer was a member of the following program committees: IEEE ICDL-EPIROB 2012; IEEE RAS International Conference on Humanoid Robots (HUMANOIDS); 3rd International Workshop on Human-Behaviour Understanding (HBU).
Manuel Lopes was on the program committee of STAIRS/ECAI, AAAI, Inter. Conf. on Autonomous Robot Systems and Competitions and European Workshop on Reinforcement Learning (EWRL).

9.1.5. Journal Reviews

David Filliat reviewed papers for the journals: Autonomous Robots, Robotics and Autonomous Systems and Journal of Visual Communication and Image Representation.
Freek Stulp reviewed papers for the journals: IEEE Transactions on Robotics, Transactions on Mechatronics, IEEE Transactions on Control Systems Technology.
Pierre-Yves Oudeyer reviewed papers for the journals:IEEE Transactions on Autonomous Mental Development, Neural Networks.
Manuel Lopes reviewed for the journals: IEEE Transactions on Robotics, IEEE Transactions on Autonomous Mental Development, Robotics and Autonomous Systems and Advanced Robotics.
Alexander Gepperth was a reviewer for the journals "Cognitive Computation", "Neural Processing Letters" and "Intelligent Transportation Systems".
Thomas Degris was a reviewer for the Neural Computation Journal and Revue d'Intelligence Artificielle.

9.1.6. Conference Reviews

Alexander Gepperth reviews articles for the International Conference on Neurally Inspired Processing (ICONIP) and the ACM/IEEE HRI conference.
Freek Stulp was reviewer for IEEE International Conference on Robotics and Automation (ICRA), IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), IEEE International Conference on Development and Learning (ICDL-EpiRob), IEEE-RAS International Conference on Humanoid Robots (Humanoids), IEEE International Symposium on Robot and Human Interactive Communication (ROMAN).
David Filliat was reviewer for IEEE International Conference on Robotics and Automation (ICRA), IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Advanced Concepts for Intelligent Vision Systems (ACIVS), International Conference on Control, Automation, Robotics and Vision (ICARCV) and the 10th International IFAC Symposium on Robot Control (SYROCO).
Pierre-Yves Oudeyer was a reviewer for the conferences IEEE ICDL-EPIROB, Humanoids, ICRA.
Pierre Rouanet has reviewed papers for the IEEE 2012 ICRA conference, IEEE 2011 IROS conference and IEEE HRI 2011 workshop "Expectations in intuitive HRI".
Thomas Cederborg has has reviewed one paper for the IROS 2012 conference, one paper for the ICDL-EpiRob 2012 conference and one paper for the HBU 2012 conference.
Jonathan Grizou has reviewed papers for the IEEE ICDL 2012 conference.
Sao Mai Nguyen has reviewed a paper for IROS 2012, ICDL 2012 and a workshop of IROS 2012.
Olivier Mangin has reviewed papers for the Humanoid 2012 conference, for the Human Behavior Understanding 2012 workshop, and for the ICRA 2013 conference.
Thomas Degris has reviewed papers for the ICDL Epirob 2012 conference.

9.1.7. PhD Jury

Pierre-Yves Oudeyer was rapporteur in the PhD jury of Matthias Rolf (Bielefeld University, Germany), for its PhD entitled “Goal babbling for an efficient bootstrapping of inverse models in high dimensions”, as well as rapporteur in the PhD jury of Duong Dang (LAAS CNRS, France), for its PhD entitled “Manipulation et locomotion en robotique humanoïde avec optimisation en temps réel des pas”, and also participated to the PhD jury of John Nassour (Univ. Versailles, France; and TUM, Germany), for its PhD entitled “Success-failure learning for humanoid: study on bipedal walking”.
David Filliat was rapporteur in the PhD jury of Mathieu Dubois (Méthodes probabilistes basées sur les mots visuels pour la reconnaissance de lieux par un robot mobile, 20/02/12), of Thomas Moulard (Optimisation numérique pour la robotique et exécution de trajectoires référencées capteurs, 17/09/12), of Fengchun Dong (Vision sensor design and evaluation for autonomous navigation, 22/11/12), of Ahmad Mohammed Hasasneh (Robot semantic place recognition based on deep belief networks and a direct use of tiny images, 23/11/12) and participated in the jury of Pierre Rouanet (Apprendre à un robot à reconnaître des objets visuels nouveaux et à les associer à des mots nouveaux : le rôle de l’interface, 04/03/12).
Manuel Lopes acted as member of the advising committee for the PhD thesis of: Pedro Sequeira entitled ”Biologically-inspired Mechanisms to Enhance Learning in Autonomous Agents”, Instituto Superior Técnico, Lisbon, Portugal, and Salomon Ramire entitled ”Active Vision in the Peripersonal Space for Humanoid Robots”, University of Plymouth, England.
Alexander Gepperth is/will be rapporteur in the PhD jury of Michael Garcia Ortiz, for his PhD entitled "Driver Behavior Prediction in intelligent vehicles", to be submitted to the university of Bielefeld, Germany in January 2013.

9.1.8. Expertise

David Filliat reviewed projects for the ’Programme Evaluation-orientation de la Coopération Scientifique (ECOS)’.
Pierre-Yves Oudeyer was expert for the European Commission for review and evaluations of several FP7 projects and calls (ICT and FET). He was also reviewer for ANR projects’, and was a member of Commission de Développement Technologique, Inria Bordeaux Sud-Ouest.
Manuel Lopes participated in the Cost-Gtri: Groupe de travail des relations internationales du comite d’orientation scientifique et technologique.

Thomas Degris reviewed a project proposal in Reinforcement Learning for the The Netherlands Organisation for Scientific Research (NWO).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

License: Introduction à Matlab, 21 heures. L3 - ENSTA ParisTech (Alexander Gepperth)

License: Traitement numérique du signal , 21 heures. L3 - ENSTA ParisTech (Alexander Gepperth)

Master : Robotique de Comnpagnie, 12 heurs. M2, ENSTA - Paris Tech (Manuel Lopes).

Master : Robotique Mobile, 24 heures. M2, ENSTA - ParisTech (David Filliat).

Master : Vision pour la robotique, 12 heures. M2, University Pierre et Marie Curie (David Filliat).

License : Introduction to Matlab, 21 heures. L3, ENSTA - ParisTech (David Filliat).

License : Projet informatique, 21 heures. L3, ENSTA - ParisTech (David Filliat).

Licence 2 : Graphe, Langage, Cryptologie, 21 heures. Ple Universitaire Francais de Ho Chi Minh Ville

Master : Option Robotique, Projet Robot Autonome, 32 heures. ENSEIRB, Bordeaux, France.

Licence : Mathématique, 64 heures, niveau (L2), Pôle Universitaire Français, Ho Chi Minh ville (Olivier Mangin)

Licence : Programmation système, 30 heures, niveau (L2), Pôle Universitaire Français, Ho Chi Minh ville (Olivier Mangin)

9.2.2. Supervision

PhD & HdR :

HdR: Pierre-Yves Oudeyer defended his HdR, entitled “Developmental constraints on the evolution and acquisition of sensorimotor and social skills”, at University of Bordeaux, 18 May, 2011.

HdR : David Filliat, Navigation, Perception et Apprentissage pour la robotique, University Pierre et Marie Curie, 12 Juillet 2011.

PhD defended by Pierre Rouanet ([21]), “Apprendre à un robot à reconnaître des objets visuels nouveaux et à les associer à des mots nouveaux : le rôle de l’interface”, at University Bordeaux I, march 2012 (superv. Pierre-Yves Oudeyer).

PhD in progress : Louis-Charles Caron, Developmental learning in multimodal sensory-motor loops, started january 2012 (superv. Alexander Gepperth).

PhD in progress : Natalia Lyubova, A developmental approach to perception for a humanoid robot, started nov 2010 (superv. David Filliat).

PhD in progress : Matthieu Lapeyre, Developmental constraints for biped humanoid walking, started oct. 2010 (superv. Pierre-Yves Oudeyer and Olivier Ly).

PhD in progress : Mai Nguyen, Bootstrapping Intrinsically Motivated Learning with Human Demonstration, started oct. 2010 (superv. Pierre-Yves Oudeyer).

PhD in progress : Fabien Bénureau, Cumulative, hierarchical and intrinsically motivated learning of robot skills, started oct. 2010 (superv. Pierre-Yves Oudeyer).

PhD in progress : Jonathan Grizou, Fluid simultaneous learning of task and feedback models, started oct. 2011 (superv. Manuel Lopes and Pierre-Yves Oudeyer).

PhD in progress : Olivier Mangin, Learning of sensorimotor primitives with Non-Negative Matrix Factorization, started oct. 2010 (superv. Pierre-Yves Oudeyer).

PhD in progress : Thomas Cederborg, A unified view of context-dependant skill learning and language acquisition, started oct. 2009 (superv. Pierre-Yves Oudeyer).

Master internships and others:

- J. Grizou supervised the 6 month master 2 internship of Mathieu Duteil Master thesis project, coming from "Université Pierre et Marie Curie", where he studied Intelligent Systems and Robotics. The project consisted in detecting if humans provide non-verbal feedback during interactions with robots. Mathieu did several user studies to record the necessary data using several human-machine interaction protocols, recording the commands provided by the person, the sounds and the facial expressions. With this data he tested several kernel based methods to allow classifying the relevant feedback from the human.
- J. Grizou supervised two middle school students. The purpose of such one week internship is to allow pre high-school students to discover what being a researcher means as well as discovering some simple technological setup.
- F. Benureay supervised one middle school student, Victor Melançon, 16 years old, for one week internship. He worked on a visualization and control of the motion of robotic arm using a interface created during the internship using Processing. The goal was to elaborate an aesthetically pleasing visualization of the robot motion that would engage non-expert users in an interaction with the robot. The project was also the opportunity to learn the basics of programming and robot control.
- M. Nguyen supervised the internship of Thomas Huet (ENS Paris) for a 2 months internship entitled : "Learning Methods for Robotic Models in a Fishing Experiment".
- P-Y. Oudeyer supervised the 3 months master 1 internship of Sébastien Forestier (ENS Cachan). The project consisted in experimenting the SAGG-RIAC architecture on the Ergo-Robots, and it was shown to allow successful learning of inverse kinematics.

9.3. Invited talks

Pierre-Yves Oudeyer:

- (5th december 2012) *Developmental mechanisms for life-long autonomous learning in robots and humans*, FIAS Winter School on Intrinsic Motivation: From Brains to Robots, Frankfurt, Germany.
- (18th october 2012) Le rôle du corps en robotique développementale, Conférence "Corps et Robots", ARCO/IPac, Inria Nancy, France.
- (12th october 2012) *A Robotic Platform for Scalable Life-Long Learning Experiments*, IROS 2012 Workshop on Learning and Interaction in Haptic Robots, Vilamoura, Algarve, Portugal.
- (5th october 2012) *Developmental mechanisms for life-long autonomous learning*, INNS Symposium on Autonomous Learning, 2012 International Neural Network Society Winter Conference (INNS-WC2012).
- (6th september 2012) *The challenges of active exploration and learning in high-dimensional continuous spaces*, GdR CNRS Robotique et Neurosciences.
- (31st august 2012) *Developmental mechanisms for life-long autonomous learning in robots*, Frontiers of AI track, 20th European Conference on Artificial Intelligence (ECAI 2012).
- (6th july 2012) *Bootstrapping language development out of multimodal sub-symbolic sensorimotor learning in robots*, Symposium on Origins of Communication and Language, Epigenetic Modeling and Ethodological Observation, Konrad Lorenz Institute, Altenberg, Austria.
- (5th april 2012) *Developmental autonomous learning*, Séminaire du laboratoire L3i de l'Université de La Rochelle.
- (30th january 2012) *Les modèles robotiques: un nouveau langage pour comprendre le vivant*, Colloque "Mathématiques pour tous?", organisé par l'UNESCO en partenariat avec l'IHES et la Fondation Cartier pour l'Art Contemporain, UNESCO, Paris, France.
- (26th january 2012) *From the language Gavavai problem to the motor Gavagai problem: Modeling language acquisition as an instance of general multimodal context-dependant learning by imitation*, Workshop on Socio-Cognitive Mechanisms of Symbolic Communication, Tilburg University, Tilburg, The Netherlands.

Freek Stulp:

- (february 2012) Invited talk at a meeting of the EU IP project "HANDLE: Developmental pathway towards autonomy and dexterity in robot in-hand manipulation". Benicassim, Spain. Title: *Motion Primitives and Direct Reinforcement Learning for Robot Manipulation*.
- (november 2012) Invited talk at "Journée Evolution Artificielle Thématique" in Paris, France. Title: *From Episodic Reinforcement Learning and Quantum Mechanics to Evolutionary Optimization*'.

Manuel Lopes:

- (december 2012), *Active and Social Learning for Robots*, Bosch Research, Palo Alto, USA.
- (september 2012) *Autonomous Exploration Through Curiosity and Social Guidance*, Evo-Devo-Robo: Evolutionary Robotics and Developmental Robotics, GECCO, Philadelphia, USA.
- (july 2012) *Interactive Learning in Social Robots*, German-French Workshop: Perspectives on Cognitive Interaction and Technology, Bielefeld, Germany, 2012.
- (april 2012) *"Ces robots qui nous imitent"*, Unithé ou café, Bordeaux.

Thomas Degris:

- (march 2012) *Off-policy Actor-critic: Algorithm and empirical evaluations*, 7th Workshop on Reinforcement Learning, Policy Approximation, Barbados.
- (march 2012) *Formalizing Curiosity, Social interaction and Maturation*, 7th Workshop on Reinforcement Learning, Policy Approximation, Barbados.

9.4. Popularization

9.4.1. Popular Science Articles

Filliat, D. (2012) Vers une cartographie sémantique d'environnements intérieurs. Réalités Industrielles, Février 2012.
Oudeyer, P-Y. (2012) GX-29 n'est pas un objet comme les autres, Sciences et Avenir Hors-Série, dec/jan 2011, "Qu'est-ce-que l'homme". http://flowers.inria.fr/documents/SciencesEtAvenirDec2011.pdf
Oudeyer, P-Y. (2012) Les Robots Curieux, DocSciences 14, Alan Turing: La pensée informatique. http://www.pyoudeyer.com/DocSciencesErgoRobots12.pdf.

Ly, O., Oudeyer, P-Y., Langlois, A. (2012) Le déséquilibre de l'apprentissage, Interstices. http://interstices.info/jcms/int_68096/le-desequilibre-de-lapprentissage

9.4.2. Popular Science Radio Broadcast

France Culture (2012), interview of P-Y. Oudeyer, La robotique pour mieux comprendre l'homme, (Interview, 45 mn), Emission « Continent Sciences » de Stéphane Deligeorges. http://www.franceculture.fr/emission-continent-sciences-pierre-yves-oudeyer-2012-01-16
France Info (2012), interview of P-Y. Oudeyer, Robotique et Sciences Cognitives (Interview, 5 minutes). http://www.pyoudeyer.com/FranceInfo19Jan2012.mpg
RCF Aquitaine (october 2012) interview of Fabien Benureau. It allowed us to communicate on PhD work on autonomous intrinsic motivation algorithms done at our lab.

9.4.3. Popular Science Videos

Ly, O., Oudeyer, P-Y., Langlois, A. (2012) Le déséquilibre de l'apprentissage, Inria (selected in category "hors-compétition" at Festival du Film de Chercheur à Nancy, to be used as support in schools). http://interstices.info/jcms/int_68096/le-desequilibre-de-lapprentissage
Langlois, A., Oudeyer, P-Y. (2012) Alan Turing et la robotique développementale (interview of Pierre-Yves Oudeyer), Vidéothèque Inria. http://www.pyoudeyer.com/turing_oudeyer_inria_2012.mp4

9.4.4. Popular Science Talks

(4th august 2012) "Un robot peut-il apprendre comme un enfant?", Marathon des Sciences, Festival d'astronomie de Fleurance, Fleurance, France. http://www.festival-astronomie.com/

(30th january 2012), P-Y. Oudeyer: “Les modèles robotiques: un nouveau langage pour comprendre le vivant”, Colloque "Mathématiques pour tous?", UNESCO, organisé par l’UNESCO en partenariat avec l’IHES et la Fondation Cartier pour l’Art Contemporain, UNESCO, Paris, France. http://www.science.gouv.fr/fr/agenda/bdd/res/4374/colloque-mathematiques-pour-tous-/
(14th december 2012), P-Y. Oudeyer, "Design et Auto-Design de Comportements et d’Interactions chez les Robots", Escales du Design, Bordeaux.

9.4.5. Museum exhibitions, science festivals and general public demonstrations

9.4.5.1. Ergo-Robots, exhibition “Mathematics, a Beautiful Elsewhere” at Fondation Cartier pour l’Art Contemporain

The FLOWERS team, in collaboration with University Bordeaux I/Labri, has participated as a central actor of the exhibition “Mathematics: A Beautiful Elsewhere” at Fondation Cartier pour l’Art Contemporain in Paris. This installation, called “Ergo-Robots/FLOWERS Fields” was made in collaboration with artist David Lynch and mathematician Mikhail Gromov (IHES, France), and shows computational models of curiosity-driven learning, human-robot interaction as well as self-organization of linguistic conventions. This exhibition, at the crossroads of science and art, allowed to disseminate our work towards the general public, explaining concepts related to learning mechanims in humans and robots to a large audience (80000 visitors). This was also an opportunity for experimenting and improving our technologies for life-long robot learning experimentation. For one of the first times in the world outside the laboratory, we demonstrated how it is possible to achieve experimentation with learning robots quasi-continously for 5 months. This opens novel stimulating scientific perspectives in the field of developmental robotics. This experimentation was presented through large audience radios, magazines and newspapers (France Inter, France Culture, RFI, Sciences et Avenir, Tangente, Financial Times, Daily Telegraph, Liberation, ...).
More information available at: http://flowers.inria.fr/ergo-robots.php and http://fondation.cartier.com/.

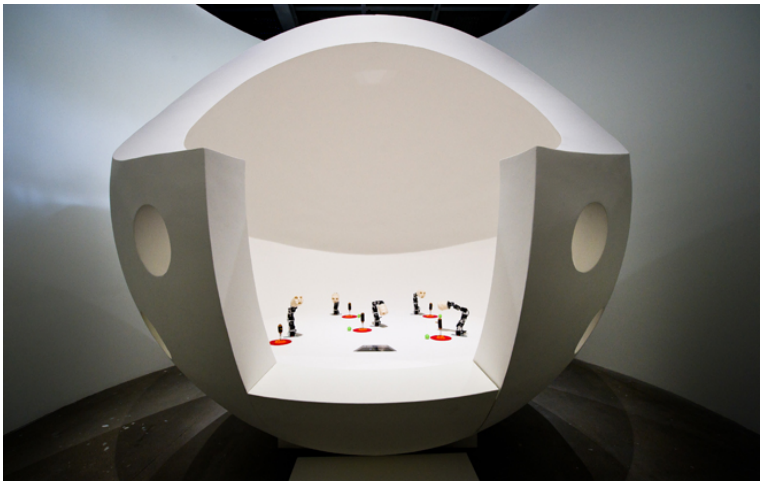

Figure 30. The Ergo-Robot experiment: robot learning experiment running continuously for 5 months at Fondation Cartier pour l’Art Contemporain, exhibition ”Mathématiques: Un Depaysement Soudain”.

9.4.5.2. Cap Sciences exhibition on "Brain and Cognition"

Cap Sciences is an organization in Bordeaux to promote and to communicate about science to the public. Cap Sciences is preparing an exhibit about the brain starting in February 2013. The Flowers team will contribute to this exposition by setting up a booth to explain the complexity of the processing required for intelligent artificial systems (e.g. robots) to transform observations from the environment to actions done in this environment, such processing being done continuously by all living beings, most notably by nervous systems and brains. To explain this idea, the Flowers team is working on a game for the visitors of the exhibit: a player has to drive forward a mobile robot, specifically an iRobot Roomba, while avoiding obstacles. The difficulty for the visitor in this game is that the player is not able to watch the robot in its environment: the player has to control it using only the sensory-information displayed on a computer screen (see figure 31). The player wins when the robot has traveled a given distance in a straight line and in limited time without bumping into an obstacle. This exhibit will start in February 2013 and last for a year. After that, it may move to different locations. More than 100,000 visitors are expected in Cap Sciences, half of them will come from elementary schools. The data generated by the robot and the visitors will be logged and will be available for research on life long learning with robots.

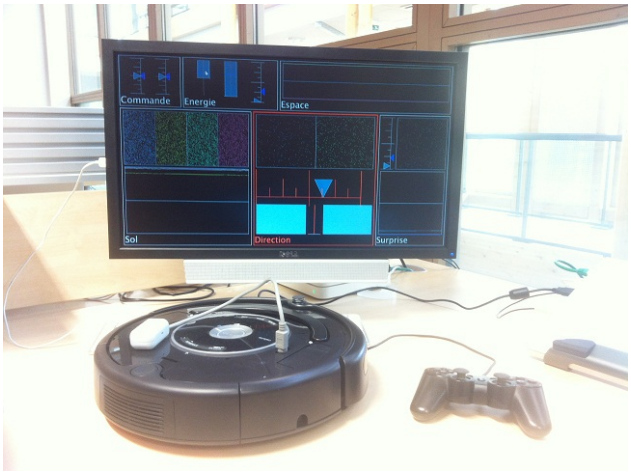

Figure 31. Picture of the mobile robot with the computer screen displaying the sensori-motor information the visitor needs to use to control the robot using a joystick.

9.4.5.3. Robots at International Exposition held in Yeosu, South Korea

. In collaboration with Rhoban project/Labri/CNRS/Univ. Bordeaux I, the Flowers team participated to a project where several robots were elaborated and installed at the May 12, 2012 - August 12 2012 International Exposition held in Yeosu, South Korea (600k visitors). Exhibited robots were three humanoids (one dancing, two playing on a spring) and five musicians (arms only) playing musical instruments (electric guitar, electric bass guitar, keytar, drums, DJ turntables). Robots were installed inside the french ward, in a specific room named botanic garden. Humanoids were closed to the audience to allow interaction between people and robots (see Figure 33) while musicians robots were higher on a dedicated wall to increase visibility of the show (see Figure 32).

9.4.5.4. Science Festivals:

- 13 october 2012 : Lab visit and robot demonstration for the 'Fete de la science' in the robotics lab at ENSTA ParisTech, Palaiseau.

Figure 32. Exhibited musician robots on the wall of the french ward

Figure 33. Exhibited humanoid robots on the wall of the french ward

- 9, 10 et 11 Février 2012: Aquitec exhibiton. Acquitec is an opportunity for high-school students to discover jobs and formations directly from the schools and institutes that exhibit there. We presented few robotic platforms. (Fabien Benureau and Jonathan Grizou)

9.4.6. Press

Web links to the following press items are available on http://flowers.inria.fr/press.php.

9.4.6.1. TV

Universcience TV, jan. 2012: "Art et maths".

France 2, Tele-matin, jan. 2012: "Les Maths: le 'probleme' des enfants".

France TV/Culturebox, jan. 2012: "Mathematiques: Un Depaysement Soudain" A la Fondation Cartier pour l'Art Contemporain.

9.4.6.2. Radio

France Info, 19 jan. 2012: "Robotique et sciences cognitives" (3mn).

France Culture, jan. 2012, Entretien sur le sujet "La robotique pour mieux comprendre l'homme" (45 mn), Emission Continent Sciences de Stephane Deligeorges. A propos du contexte scientifique dans lequel s'inscrit le projet Ergo-Robots.

9.4.6.3. Magazines

Jan 2012: Sciences et Avenir Hors-Serie, Numero Special "Qu'est-ce-que l'homme": "GX-29 n'est pas un objet comme les autres".

9.4.6.4. Newspapers

Sud-Ouest, march, 2012: "Les Etonnants robots de la Fondation Cartier".

MANAO Team

7. Dissemination

7.1. Scientific Animation

7.1.1. Program committee

- **Conferences:** Web3D 2012, ACM SIGGRAPH Asia 2012 (posters)

7.1.2. Reviews

The members of *MANAO* have also participated to the reviewing process for conferences and journals:

- **Journals:** ACM Transaction on Graphics, Computer and Graphics, Computer Graphics Forum, The Visual Computer, Signal Image and Video Processing.
- **Conferences:** ACM Siggraph 2012, ACM Siggraph Asia 2012, Eurographics 2013, Eurographics Symposium on Rendering 2012, Graphics interface (GI) 2012, CGI 2012, Web3D 2012

7.1.3. Committees

In 2012, the members of *MANAO* have been involved in the following responsibilities:

- Inria - Evaluation committee member - Gaël Guennebaud.
- Inria Bordeaux - commission for technological development (CDT) - Gaël Guennebaud.
- AFIG - Best paper jury - Romain Pacanowski, Gaël Guennebaud.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

The members of our team are implied in teaching computer science at University Bordeaux 1 and 2, ENSEIRB Engineering School, and IOGS. General computer science is concerned, as well as the following graphics related topics:

Master : Xavier Granier, Algorithmic and Numerical Algorithmes, 30HETD, M1, IOGS, France

Master : Xavier Granier and Romain Pacanowski, Radiometry and Colorimetry, 15HETD, M1, IOGS, France

Master : Gaël Guennebaud and Simon Boyé, High-performance 3D Graphics, 60HETD, M1, Univ. Bx 1, France.

Master : Gaël Guennebaud and Simon Boyé, Physically based Image Synthesis, 60HETD, M2, Univ. Bx 1, France.

Master : Romain Pacanowski, Simon Boyé, Object-Orientated Programming, 60HETD, M1, IOGS, France

Some members are also in charge of some fields of study:

Master : Xavier Granier, Optics and Computer Science, M1/M2 , IOGS, France.

License : Patrick Reuter, Science and Modeling, L2, Univ. Bx 2, France.

7.2.2. Supervision

HdR : Ivo Ihrke, Computational Optical Measurement and Display: Case Studies in Plenoptic Imaging and Projection, Univ. Bordeaux 1, 7th of December, Xavier Granier

PhD : Simon Boyé, Représentation hybride pour la modélisation géométrique interactive, Univ. Bordeaux 1, 12th of December, Gaël Guennebaud and Christophe Schlick.

PhD : Jiazhou Chen, Image structures: From augmented reality to image stylization, Université Sciences et Technologies - Bordeaux I, 12th of July, Xavier Granier and Qunsheng Peng and Pascal Barla

PhD : Nicolas Mellado, Analyse des objets 3D a plusieurs échelles: application à l'assemblage de formes, Univ. Bordeaux 1, 6th of December, Patrick Reuter and Christophe Schlick.

7.2.3. Juries

PhD : Anthony Pajot, Toward robust and efficient physically-based rendering, Université de Toulouse, 26th of April, Examiner

PhD : Jonathan Claustres, Modèle particulaire 2D et 3D sur GPU pour plasma froid magnétisé : application à un filtre magnètique, Université de Toulouse, 17th of December, Examiner

7.3. Popularization

7.3.1. Exhibitions

Our results of the ANR SeARCH project (see Section 6.2.1) applied to the Alexandria lighthouse were one of the key event of the exhibition dedicated to lighthouses at the "musée de la marine" in Paris.

7.3.2. Interviews

Our work on 2D images deformations and vector graphics has lead to interviews published on 3DVF.com, the most important french online magazine on image synthesis and numeric content creation in general.

- http://www.3dvf.com/dossier-874-1-interview-surface-flows-publication-presentee-lors-siggraph-2012.html
- http://www.3dvf.com/actualite-4893-recherche-free-form-vector-gradients.html

Moreover, the french radio channel "France Inter" published an interview about the leader *MANAO*of the ANR SeARCH project.

7.3.3. Articles

The french daily newspaper "Le monde" and the french bi-mestrial science magazine "Science Magazine" have published rather long reports on the ANR SeARCH project where *MANAO*is the leader.

POTIOC Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Reviewing

Potioc team members have been involved in the review of numerous submissions in conferences and journals. They include:

- **Conferences:** Sound and Music Computing Conference 2012 (F. Berthaut), CHI 2013 (J. Laviole, F. Lotte, J. Jankowski, A. Cohé), 3DUI 2013 (J. Laviole, F. Lotte, J. Jankowski), JVRC 2012 (A. Cohé), VRST 2012 (F. Larrue), BBCI workshop 2012 (F. Lotte), ECAI 2012 (F. Lotte), ICMI 2012 (F. Lotte), ICMI Grand Challenge on BCI 2012 (F. Lotte), PRNI 2012 (F. Lotte), NordiCHI 2012 (F. Lotte)
- **Journals:** Computer and graphics (M. Hachet), AJSE (M. Hachet), Biomedical Engineering Online (F. Lotte), Eurasip Journal on Advances in Signal Processing (F. Lotte), Frontiers in Neuroprosthethics (F. Lotte), IEEE Transactions on Biomedical Engineering (F. Lotte), IEEE Transactions on Computational Intelligence and Artificial Intelligence in Games (F. Lotte), IEEE Transactions on Neural Systems and Rehabilitation Engineering (F. Lotte), IEEE Transactions on Systems, Man and Cybernetics, Part A (F Lotte), International Journal of Neural Systems (F Lotte), Journal of Neural Engineering (F. Lotte), Journal of Neurosciences Methods (F. Lotte)

8.1.2. Program Committees Members

- IEEE VR 2013 (M. Hachet)
- European Conference on Artificial Intelligence 2012 (ECAI 2012) (F. Lotte)
- International Conference on Multimodal Interaction 2012 (ICMI 2012 – Area Chair) (F. Lotte)
- Grand challenge on BCI at ICMI 2012 (F. Lotte)
- International Workshop on Pattern Recognition in NeuroImaging 2012 (PRNI 2012) (F. lotte)

8.1.3. Other

- Guest Editor for IEEE Transactions on Computational Intelligence and Artificial Intelligence in Games, together with D. Coyle, J. Principe and A. Nijholt, for the special issue “Brain/Neuronal-Computer Games Interfaces and Interaction”, 2012 (F Lotte)
- Organiser of a workshop on NeuroDesign with Architect Pierre Cutellic at the Advance in Architectural Geometry (AAG 2012) international conference (F Lotte)

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Teaching at ENSEIRB engineering school:

Master: Martin Hachet, Virtual Reality, 15h, 3rd Year, ENSEIRB, France

Master: Florent Berthaut, Virtual Reality, 9h eqTD, M2, ENSEIRB, France

Master: Florent Berthaut, Music Interaction, 8h eqTD, M2, ENSEIRB, France

Master: Florent Berthaut, Human Computer Interation, 8h eqTD, M1, ENSEIRB, France

Master: Florent Berthaut Jérémy Laviole, 3D Music Instrument Project, 20h eqTD, M2, ENSEIRB, France

Teaching at University of Bordeaux 1:

Licence: Jérémy Laviole, Introduction to Computer Science, 25h Course + 17.3h practical work. L1, University of Bordeaux 1, France

Licence: Florent Berthaut, Initiation to Computer Science, 30h eqTD, L1, University of Bordeaux 1, France

Licence: Florent Berthaut, UNIX, 16h eqTD, L3, University of Bordeaux 1, France

Licence: Jérémy Frey, Réseau et projet de programmation 2, 30h eqTD, L3, University of Bordeaux 1, France

Licence: Jérémy Frey, C2i - certificat informatique et internet, 14h eqTD, L1, University of Bordeaux 1, France

Master: Jérémy Laviole, Research Project, 10h. M2, University of Bordeaux 1, France

Master: Florent Berthaut Jérémy Laviole, Virtual Reality, 24h eqTD, M2, University of Bordeaux 1, France

Master: Florent Berthaut, Object Oriented Programming, 30h eqTD, M1, University of Bordeaux 1, France

Master: Florent Berthaut, C++, 16h eqTD, M2, University of Bordeaux 1, France

Master: Florent Berthaut, Project Management, 30h eqTD, M1, University of Bordeaux 1, France

Teaching at University of Bordeaux 2:

Master: Martin Hachet, Fabien Lotte, Virtual Reality and 3D Interaction, 8h each, Master 2 Cognitive Sciences, University of Bordeaux 2, France

Master: Florian Larrue, Réalité Virtuelle, Interfaces et Navigation, 5h, Master Recherche Sciences Cognitives, University of Bordeaux 2, France

Various other teaching activities:

Ecole de Podologie: Florian Larrue, Introduction à la sécurité et à l'Informatique, 18h, Ecole de Podologie Bordeaux, France.

Ecole de Podologie: Florian Larrue, Formation Word, Excel, Powerpoint, 30h, Ecole de Podologie Bordeaux, France

Master: Fabien Lotte, Virtual Reality and Brain-Computer Interfaces, 6h eqTD, 2nd and 3rd year, ENSSAT Lannion, France

Architecture School (all years): Fabien Lotte, Brain-Computer Interfaces and Neurodesign, 16h, ENSAPM Paris, France

Master/Doctorat: Fabien Lotte, Spatial filtering techniques for practical Brain-Computer Interfaces, 2h, Berlin BCI neurotechnology summer school, Berlin, Germany

8.2.2. Supervision

PhD: Aurélie Cohé, "Manipulating 3D content on Touch Screens", Université de Bordeaux, defended December 13th 2012, supervised by Martin Hachet and Pascal Guitton

PhD in progress: Jérémy Frey, "Using Passive Brain-Computer Interfaces to assess and design 3D User Interfaces", Université de Bordeaux, started October 1st 2012, supervised by Fabien Lotte and Martin Hachet

PhD in progress: Jérémy Laviole, "Projection Mapping for Physical Drawing", Université de Bordeaux, started October 1st 2010, supervised by Martin Hachet

PhD in progress: Renaud Gervais, "Desktop-based stereoscopy", Inria - Université de Bordeaux, started October 1st 2012, supervised by Martin Hachet

8.2.3. Juries

PhD juries:

- Laurent George, Insa de Rennes, December 8, 2012 (M. Hachet - examinateur)
- Francisco Javier Velasco Alvarez, Malaga University, Spain, November 23, 2012 (F. Lotte)

8.3. Popularization

- Creatives Tuesday, Bordeaux, 27th November, "New 3D User Interfaces for the city" (M. Hachet)
- Les signaux du numériques, Talence, 5th March, Demo PapARt (M. Hachet, P. Davignon)
- Participation to the exhibition "Lascaux" in Cap Sciences (PapARt, Toucheo), (M. Hachet, J. Laviole)
- Participation to the Aquitec student job fair, doing demonstrations and talking about jobs in computer science research (P. Davignon, J. Laviole)
- Interview for the journal “Sciences et Vie Junior”, about Brain-Computer Interfaces (F. Lotte)
- Talk given at the science festival in Goteborg, Sweden, entitled “Playing with the brain: Using ‘Brain-Computer Interface’ to control video games with mental activity” (F. Lotte)
- Interview for a TPE for high schools student about “Touch-based interactive technologies” (J. Frey)
- Care of an high school student (classe de sconde) visiting the Potioc group for a week
- Care of a junior high school student (classe de troisième) visiting the Potioc group for a week