CURRICULUM VITÆ

Patrick BAILLOT

19 mars 2008

Chargé de recherche 1e classe (Research associate) au CNRS (Centre National de la Recherche Scientifique), section 7, Département ST2I.
Laboratoire d’Informatique de Paris-Nord (UMR 7030 du CNRS).
Team Logique, Calcul et Raisonnement (Logic, Computation and Reasoning).

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Personal Information

1 Education :

– 3/2008 : Habilitation à diriger les recherches, Spécialité : informatique,
  Title : Linear logic, Types and Implicit Computational Complexity. Université Paris 13, defended on March 11th 2008.
  Jury : P.-L. Curien (Referee), C. Fouqueré, J.-Y. Girard (President), M. Hofmann (Referee),
  Title : “Approches dynamiques en sémantique de la logique linéaire : jeux et géométrie de l’interaction” (Dynamical approaches in semantics of linear logic : games and geometry of interaction) defended on january 22nd 1999 at Faculté de Luminy (Marseille).
  Referees : J.-L. Krivine (Paris 7), G. McCusker (Univ. of Sussex, UK).
  Mention très honorable.
– 1994-95 : DEA de logique et fondements de l’informatique de l’Université Paris 7 (equivalent to a Master).
2 Professional Experience

2.1 Positions:

- Since January 2006: chargé de recherches 1e classe au CNRS.
- October 2001: chargé de recherches 2e classe au CNRS, section 07 (département STIC). Member of Laboratoire d’Informatique de Paris-Nord (UMR 7030).
- October 2000-August 2001: temporary teaching and research position (ATER) at École Supérieure de Mécanique de Marseille (Université Aix-Marseille II), and Laboratoire d’Informatique de Marseille (Research group: MOVE, led by R. Amadio).
- September 1999 to September 2000: Post-doctoral Fellowship at Laboratory for Foundations of Computer Science (University of Edinburgh, UK) funded by the European Network “Linear Logic in Computer Science”. Advisor: S. Abramsky.
- September 1996 to September 1999: PhD student (until 1/1999) at Université Aix-Marseille II, Institut de Mathématiques de Luminy (CNRS), allocataire-moniteur-normalien en Mathématiques.

2.2 Participation to Research Projects

- As scientific leader:
  In charge of the project Nouveaux Outils pour la Complexité : Sémantique et Types NO-CoST (New tools for Complexity : Semantics and Types); Project Young Researchers of ANR (Agence Nationale de la Recherche); duration: 3 years; funding: 150 keuro; started on 1/11/2005.

  Projects of international exchanges:

- As site leader:
  National projects:
  - 2003-06: ACI Sécurité Informatique CRISS (Contrôle de Ressources et d’Interférences dans
les Systèmes Synchrones / Control of Resources and Interference in Synchronous Systems).
Scientific leader : R. Amadio. Duration : 3 ans. 4 participating sites.
- As participating member :
project MathSTIC (2001-02) Logique et sémantique de la programmation / Logic and semantics of Programming., Coordinated by laboratories IML (Marseille) and PPS (Paris).

2.3 Program committees, Organization of Workshops

International Conferences :
2008 : Member of the Program Committee of CSL’08, 17th EACSL Annual Conference on Computer Science Logic.

Workshops :
- Member of the Scientific committee of the meeting Geometry of Computation (GEOCAL 2006) : CIRM (Centre International de Rencontres Mathématiques, Marseille), January-February 2006.
- Organisation of workshops :
  - Journées 2008 des groupes de travail GEOCAL et LAC (Géométrie du Calcul et Logique, Algèbre et Calcul) du GDR IM, co-organized with Micaela Mayero and Virgile Mogbil, March 6-7 2008, around 45 participants :
  http://www-lipn.univ-paris13.fr/~mogbil/gdr-im08/
  - Workshop on Implicit Computational Complexity (co-organized with J.-Y. Marion) , 13-17/2/2006, as part of the meeting GEOCAL 2006, Marseille, 20 talks and 50 participants (from 7 countries).
  http://www-lipn.univ-paris13.fr/~baillot/GEOCAL06/workshopICC.html
Following this workshop a Special Issue of ACM Transactions on Computational Logic on Implicit Computational Complexity is in preparation, with guest editors P. Baillot, J.-Y. Marion, S. Ronchi Della Rocca.
  - Implicit Computational Complexity and Logic (as part of project GEOCAL), co-organized with V. Mogbil, September 2004, Université Paris 13, Villataneuse, 30 participants.
  http://lipn.fr/~baillot/workshopGEOCAL/complexite.html
  - Organization of a course “Complexity and Logic” as part of the Winter School of the GEO- CAL06 (Geometry of Computation) meeting (12 hours) , CIRM Marseille, lecturers : P. Baillot, M. Hofmann, J-Y. Marion ; 6-10 February 2006. 55 participants.

2.4 Organization of seminars

- Coordinator of the seminar of the team Logic, Computation and Reasoning of LIPN from 2002 to September 2005 (2 talks by month in average).
- Coordinator of the seminar (groupe de travail) Implicit Computational Complexity, as part of project NO-CoST, LIPN : from 2 to 4 talks per month, since September 2005.
http://www-lipn.univ-paris13.fr/nocost/
2.5 Other responsibilities

- directeur de recherche du stage de Paulin Jacobé de Naurois comme CR2 du CNRS, 10/2006 to 10/2007, LIPN.

3 Research activity

3.1 Main research interests

- Linear logic, lambda-calculus, functional programming.
- Implicit computational complexity; logical systems and types for computational complexity.
- Denotational semantics, game semantics, geometry of interaction.

3.2 Invited Talks, Tutorials

- Invited talks at international conferences:
  2007 : invited talk at the International Conference on Typed Lambda-Calculi and Applications (TLCA’07), Paris, june 2007. Title : From Proof-Nets to Linear logic type systems for polynomial time computing.
  2004 : P. Baillot “Type Inference for Light Affine Logic Via Constraints on Words”, 6th International Workshop on Logic and Computational Complexity (LCC’04) (satellite workshop of LICS’04), 12/7/04, Turku, Finland.

- Invited talks at international workshops:
  2004 : P. Baillot “Type Inference for Light Affine Logic Via Constraints on Words”, 6th International Workshop on Logic and Computational Complexity (LCC’04) (satellite workshop of LICS’04), 12/7/04, Turku, Finland.

- Tutorials (Research schools):
  2008 (forthcoming) : course “Complexité calculatoire implicite” as part of École Jeunes Chercheurs en Informatique Mathématique (GDR IM), Marseille, march 31- april 4 2008
  2006 : tutorial (1 talk) as part of the course Implicit Computational Complexity (Lecturer in charge : Simone Martini), Bertinoro International Spring School for Graduate Studies in Computer Science, Italy, March 2006.
  2006 : tutorial (Linear logic, lambda-calculus and polynomial time complexity) as part of a course “Complexity and Logic” at the Winter School of GEOCAL06 (Geometry of Computation), CIRM Marseille, February 2006.

3.3 Supervision of Master and PhD Thesis

- Master Thesis advised:
  2003 : D. de Carvalho (DEA de logique université P7), Logique linéaire, complexité polynomiale et théorie des ensembles naïve.

- PhD Thesis:
  - 2003-07 : co-advising with Thomas Ehrhard (Directeur) of the thesis of Daniel de Carvalho, université Aix-Marseille II. "Sémantiques de la logique linéaire et temps de calcul". Defended on September 4th 2007 in Marseille. Allocation de thèse de l’ACI NIM GEOCAL.
Current situation of D. de Carvalho : Postdoctoral fellow at LORIA-INRIA Nancy.

3.4 Post-Doctoral Grants

I have been responsible for the following Postdoctoral Fellowships :
- Damiano Mazza, 1/10/2006-1/10/2007, Postdoctoral Fellowship funded by project NO-CoST (project of Agence Nationale de la Recherche).
  Current situation : Postdoctoral Fellow at PPS-Université Paris 7 (FSM).
  Current situation : Ricercatore (Lecturer) of Università di Bologna.
  Current situation : Maître de Conférences (Lecturer) at Université Paris 13, LIPN, since 9/2006.

3.5 Participation to juries of PhD Thesis

I have been a member of the juries of the following PhD Thesis :
- Daniel de Carvalho (as co-adviser), Sémantiques de la logique linéaire et temps de calcul, Université Aix-Marseille II, September 2007.

3.6 International visitors

I have been responsible for the following visits of foreign researchers with whom I have collaborated :
- Kazushige Terui (National Institute of Informatics, Japan) : 5 visits since 2002 (for a total of 12 weeks). In 2007 a visiting position of 6 months from CNRS at Laboratoire d'Informatique de Paris-Nord was obtained for K. Terui.
- Martin Hofmann (LMU Munich, Germany) : 1 month in 2007 (invited Professor of University Paris 13).
- Harry Mairson (Brandeis, USA) : 2 weeks in 2006 (funded by project NO-CoST), 1 week in 2005.
- Paolo Coppola (Udine, Italy) : May-June 2006 (2 months) (invited Lecturer of University Paris 13).
- Simone Martini (Bologna, Italy) : 4 weeks in November-December 2004 (invited Professor of University Paris 13).
- Glynn Winskel (Cambridge, UK) : 3 weeks between March and May 2004 (invited Professor of University Paris 13).
- Marco Pedicini (IAC CNR Rome, Italy) : 4 weeks in 2004 ; 3 weeks in 2005.

### 3.7 Invitations and visits abroad (selection)

I have done the following visits for scientific collaborations, either invited by the hosting team, or as part of a mission funded by my lab or a project :

**Invitations**
- March 2006 (1 week) : Keio University, Tokyo, Japon : invited by M. Okada.

**Other visits abroad**
- 2005 : NII Tokyo, Japan October-November : 1 week (host : K.Terui) ; University of Padova, Italy : 8 weeks (research team of G. Sambin).
- 2004 : University of Padova, Italy : 6 weeks (research team of G.Sambin) ; IAC CNR Rome, Italy : 1 week (host : M. Pedicini).
- 2003 : University of Cambridge (UK), Computer Lab : 3 weeks.

### 3.8 Publications

- **International Journals : 5**


- **Articles in Proceedings of international conferences with program commitee : 9**

- Invited articles at international conferences: 1

- Volumes edited:
P. Baillot, S. Ronchi Della Rocca, J.-Y. Marion (guest editors), Special Issue on Implicit Computational Complexity, ACM Transactions on Computational Logic, special issue in preparation.

- International Workshops with Program Committee and without Proceedings:

- Posters:

- Papers submitted for publication:
  [21] P. Baillot, K. Terui. Light types for polynomial time computation in lambda calculus (long version),
35 pages, journal long version of the article [9], 10/2007, submitted to an international journal.


- **Other works**:


### 3.9 Talks at Seminars, Workshops, Meetings (selection)

- Turin (Italy), Computer Science Department, “Light Logic, Optimal reduction and polynomial time computation in \( \lambda \)-calculus”, Talk at the occasion of the Thesis day of M.Gaboardi, 12/12/2007.
- Bologna (Italy), Meeting of the Italian project FOLLIA. “Verification of Ptime reducibility for system F terms via Dual Light Affine Logic”, 17/10/2006.
- Université de Chambéry, LAMA. " Des types light podur le temps polynomial en lambda-calcul", October 2004.
- Université Paris 7, Seminar of PPS. “Inférence de type pour la complexité polynomiale et contraintes sur les mots”, October 2003.
- Università di Padova (Italy) “Types for polynomial time programming”, May 2003.

### 3.10 Refereeing activity

I have refereed articles submitted to:

Computation, ACM Transactions on Computational Logic, Fundamenta Informaticae, Logical Methods in Computer Science, Logic Journal of the IGPL.

- the international conferences: International Symposium on Logic in Computer Science (LICS, IEEE) (6 years), Conference on Typed Lambda-calculi and Applications (LNCS Springer) (4 years), Conference on Computer Science Logic (LNCS Springer) (3 years), FoSSaCS (LNCS Springer) (2 years), Conference on Concurrency (LNCS Springer), Conference on Principles of Programming Languages, POPL (ACM) (2 years).

3.11 Activity for popular science (Vulgarisation scientifique)


4 Teaching

4.1 Master courses

- from 2005 to 2008 : Master Parisien de Recherche en Informatique (University Paris 7) : 9h, and 12h in 2008 (*Logique linéaire et complexité*) as part of the course *Logique linéaire et paradigmes logiques du calcul* (resp. : Roberto Di Cosmo and Dale Miller).
- 2004-05 : Master Parisien de Recherche en Informatique : one session (3h) as part of the course *Logique linéaire et paradigmes logiques du calcul* (resp. : Roberto Di Cosmo and Dale Miller).
- 2003-04 : DEA de Logique Mathématique et Fondements de l’Informatique (University Paris 7) : course *Théorie de la démonstration*, joint course with Olivier Laurent, 24h.
- 2001-02 and 2002-03 : DEA de Logique Mathématique et Fondements de l’Informatique (University Paris 7) : participation to the course *Théorie de la démonstration* (resp. : Jacqueline Vauzeilles), 12h per year.

4.2 Undergraduate teaching (since 2000)

- 2002-03 et 2003-04 : *Logique* (cours), 1ère année de Formation d’Ingénieur (Licence), Institut Galilée, Université Paris 13 ; 11h per year.
- 2000-01 : *cours d’Algorithmique et cours d’introduction aux Bases de données (SQL)* à l’Ecole Supérieure de Mécanique de Marseille.