

Charles Grellois

French citizen

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Research activities

Research interests

My main interest so far has been the connection of **semantics** and **verification**. It encompasses (tree) automata theory, notions of languages and recognition, logic over words and trees, linear logic and its models, domain theory, game semantics, type theory, some game theory, but also coinduction and infinitary rewriting.

I am at the moment working on **probabilistic** aspects of computation, and especially on type systems for probabilistic notions of termination, with Dr. dal Lago in Bologna.

I also worked a little in combinatorics of words, where I disclosed the coinductive nature of centralizers.

I have a personal taste for synthesis and tentative **unification** of domains.

Research experiences

- 2016 **Postdoctoral Research Assistant** in the joint team FOCUS of INRIA and University of Bologna.
- Fall 2015 **Research Assistant** at the University of Dundee, working with Marco Gaboardi on linear dependent types for higher-order model-checking.
- 2012-2016 **PhD thesis**, entitled *Semantics of linear logic and higher-order model checking*, advised by **Paul-André Melliès** (PPS, Université Paris Diderot) and **Olivier Serre** (LIAFA, Université Paris Diderot). Defense : April 8, 2016. Reviewers : **Kazushige Terui** and **Igor Walukiewicz**. Manuscript : <http://research.grellois.fr/doc/these.pdf>

Visits

- January : two weeks in Turku visiting **Juhani Karhumäki**.
- February : one week in Oxford visiting **Luke Ong** and **Takeshi Tsukada**.
- 2015 September : one week in Salerno, visiting **Antonio di Nola**'s group. I gave a 8-hours **research course** there.
- October : two weeks in Aarhus, visiting **Lars Birkedal** and his group.
- 2013 Visits to **Luke Ong** and **Takeshi Tsukada** in Oxford : one month in August, one week in October.

Events

I notably attended the **NII Shonan** meeting on higher-order verification in March 2016, the EPIT **Coq school** organized by Yann Régis-Gianas in Fréjus in May 2015, the **winter school** of the ESF GAMES network in 2013, the **school** on Geometry of Interaction of the LOGOI project in Carry-Le-Rouet during Spring 2011, and **Dagstuhl seminar 10252** "Game semantics and verification" in July 2010.

I was invited to the whole program on Automata, Logic and Games of the *Institute for Mathematical Science* of Singapore in August-September 2016.

Research organization

I used to organize the *Semantics and Verification working group* at PPS and LIAFA, and its predecessor, the *Recursion Schemes, Automata, Semantics* working group.

I was a representative of the PhD candidates of our *Ecole doctorale* (2014-2016).

I used to be an organizing member of the seminar of Parisian students in Logic (“GDT Logique”, founded by Marc Bagnol), which ran weekly at ENS Ulm (2010-2012). I gave seven talks there.

I was reviewer for 14 papers, for the conferences and workshops TCS (2014), ICFP (2015), MFPS (2015), CSL (2015, 2016), FoSSaCS (2016, 2017), LICS (2016, 2017), FSCD (2016), and LCC (2016). I am also a reviewer for Mathematical Reviews, part of the American Mathematical Society (AMS).

Communications

The complete list of my talks is available at http://research.grellois.fr/talks_date.htm — with the associated slides.

I gave 46 talks since 2009 (plus 7 at the working group of Parisian students in logic). The complete list is here : http://research.grellois.fr/talks_date.htm and contains links and slides. I have talked in :

- 3 international conferences with proceedings and program committee,
- 2 international conferences without proceedings and with program committee,
- 1 national conference without proceedings and with program committee,
- 1 international workshop with proceedings and program committee,
- 4 international workshops without proceedings and with program committee,
- 4 international workshops without proceedings and on invitation,
- 2 international workshops without proceedings nor program committee,
- 5 national workshops without proceedings nor program committee,
- 21 seminars,
- 3 talks during “journées de rentrées” of labs or teams.

Publications

International conferences with proceedings and program committee

1. Charles Grellois et Ugo Dal Lago. *Probabilistic Termination by Monadic Affine Sized Typing*, European Symposium on Programming (ESOP) 2017.
Selected for the journal issue of the best papers of ESOP 2017, to appear in ACM TOPLAS.
2. Charles Grellois et Paul-André Melliès. *Relational semantics of linear logic and higher-order model-checking*. 24th EACSL Annual Conference on Computer Science Logic (CSL) 2015 <http://drops.dagstuhl.de/opus/volltexte/2015/5419/>, 2015.
3. Charles Grellois et Paul-André Melliès. *Finitary semantics of linear logic and higher-order model-checking*. Mathematical Foundations of Computer Science (MFCS) 2015 http://link.springer.com/chapter/10.1007%2F978-3-662-48057-1_20, 2015.
4. Charles Grellois et Paul-André Melliès. *An infinitary model of linear logic*. Foundations of Software Science and Computation Structures (FoSSaCS) 2015 http://link.springer.com/chapter/10.1007%2F978-3-662-46678-0_3, 2015

International workshops with proceedings and program committee

1. Charles Grellois et Paul-André Melliès. *Indexed linear logic and higher-order model checking*. Proceedings Seventh Workshop on Intersection Types and Related Systems, ITRS 2014, <https://arxiv.org/html/1503.04377v1>, 2014.

Thesis

1. Charles Grellois. *Semantics of linear logic and higher-order model checking*. Thèse de doctorat, Université Paris 7, <http://research.grellois.fr/doc/these.pdf>, 2016.

2. Charles Grellois. *Interprétation catégorique des arbres rationnels*. Mémoire de Master, Université Paris 7, <http://research.grellois.fr/doc/grellois-interpretation-categorique-des-arbres-rationnels.pdf>, 2012.
3. Charles Grellois. *Algebraic theories, monads, and arities*. Mémoire de Master, Université Paris 6, <http://arxiv.org/abs/1110.3294>, 2011.
4. Charles Grellois. *Game semantics of higher-order recursion schemes establishes the decidability of MSO model-checking*. Mémoire de Master, Université Paris 7, <http://research.grellois.fr/doc/grellois-game-semantics-and-ho-model-checking.pdf>, 2010.

Teaching

- 2014-2015 **Teaching Assistant** at University Paris 7 : in charge of the Java **programming sessions** (first year). The course was totally reorganized, which is why I took it for one more year. We implemented a Web interface for discovering Java, named **Hackojo**. I mainly contributed to expanding the set of exercises. I also gave **exercise sessions** of the **Elements of algorithmics and combinatorics** course.
- 2013-2015 **Teaching Assistant** of the *Duality Theory in Logic and Computer Science* course taught by **Mai Gehrke** at the LMFJ Master.
- 2013 Member of the **jury** evaluating BSc's and MSc's internships at University Paris 7.
- 2012-2014 **Teaching Assistant** at University Paris 7 : in charge of the Java **programming sessions** (first year), and **exercise sessions** of the Mathematics for Computer Science course at the EIDD engineering school (third year).
- 2010-2012 **Mathematics examinations** at Lycée Buffon, Paris (first year).
- 2010-2012 **Maple teacher** and preparation to oral examinations at Lycée Carnot, Paris (second year).
- 2009-2015 Private tutoring of Mathematics, Physics and Chemistry at all levels.
- 2001-2006 Volunteer teacher of the basics of computer use at the Grand-Parc social center, Bordeaux.

Education

Student of the *Ecole Normale Supérieure de Cachan* (2008-2012).

- 2011 - 2012 **Master 2 of Computer Science** at the *Master Parisien de Recherche en Informatique* (MPRI), with honours.
Semantics, automata theory, game theory, linear logic, type theory.
- 2010 - 2011 **Master 2 of Pure Mathematics** at University Paris 6, with honours.
Algebraic geometry, homology, differential geometry, mathematical physics.
- 2009 - 2010 **Master 1 of Computer Science** at MPRI, with honours.
- 2008 - 2009 **Bachelor of Computer Science** at ENS Cachan, with honours.
- 2007 - 2008 **Bachelor of Mathematics** at University Bordeaux 1.
- 2005 - 2008 A three-year preparation course for admission to the French *grandes écoles*, Lycée Montaigne, Bordeaux. I was notably accepted to ENS Lyon and ENS Cachan.