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Education and degrees

2018 **Qualification** to the duties of University Professor.

2017 **Habilitation to Supervize Research**, Paris Diderot U., *Complétude en logiques*. Jury : D. Kesner, D. Miller and S. Negri (examiners) ; G. Dowek, C. Dubois, A. Guglielmi, P. Jouvelot and A. Leitsch.

2005 **PhD**, Paris Diderot U., *Méthodes sémantiques en déduction modulo*. Jury : G. Dowek (advisor) ; T. Coquand et M. Okada (examiners) ; J. Goubault-Larrecq, D. Kesner, T. Hardin and J. Lipton.

2002 **Engineer**, ENSTA ParisTech, France and Politecnico di Milano, Italy.

Professional experience

2018 – present **Full Professor, MINES ParisTech**. 160h annual teaching, 3-years curriculum :
- (1Y) *Introduction to programming in Java* : lectures, practical sessions, project ;
- (1Y) *Algorithmics* : lectures on signal processing, compression, hashing, cryptogtaphy, SAT ;
- (2Y) *Computer Science Foundations* : logic, λ-calculus, operational semantics, complexity ;
- (2Y-3Y) *CS Major* : functional program, formal methods, field trip, projects, graduation works ;
- others : Executive Master MSIT, mentoring ; ISEP, *Formal Methods* ;
- duties : "CS Foundations" course head, CS Major vice-chair, pedagogical committee.

2012 – 2018 **Tenured Associate Researcher, MINES ParisTech**. 120h annual teaching (see above).

2015 – 2016 **Invited Professor, Wesleyan U., USA**. 120h annual teaching :
- (BSc) *CS 112 : Introduction to programming (Python)* : organization, lectures, practical and help sessions, project ;
- (MSc and BSc) *Automated theorem proving* : organization, lectures, practical sessions.

2008 – 2012 **Tenured Associate Professor, ISEP**. 280h annual teaching, 3-years curriculum :
- (1Y) *Introduction to Programming (C then java)* : organization, lectures, practical sessions, project ;
- (1Y) *Project-Based Learning* : HTML, Javascript, PHP, MySQL, UML, mentoring, evaluation ;
- (2Y) *Object-oriented programming* : Java, practical sessions ;
- (2Y-3Y) *Formal methods* (english) : logic, λ-calculus, model-checking, Coq, Frama-C ;
- (3Y) *Programming contest* : lectures and practical sessions ;
- (3Y) *Algorithmic* (english) : operations research and complexity ;
- (MPRI MSc, 2Y) *Semantic Methods of Cut Elimination* (english) : lecture ;
- Duties : CS major, internal committees, elected member at the board of director.

2007 – 2008 **Post-doctoral Fellow, Complutense de Madrid U., Spain**. MSc lecture, 4h, *The Tableaux Method*.

2006 – 2007 **Assistant Professor, Paris Diderot U.**. 192h annual teaching :
- (BSc, 1Y) *Introduction to Programming in Java* : practical sessions ;
- (BSc, 1Y) *Introduction to Operating Systems* : shell and scripts, lectures and practical sessions ;
- (BSc, 1Y) *Object-Oriented Programming in Java* : practical sessions ;
- (BSc, 3Y) *Logic* : practical sessions ;
- (MSc, 1Y) *System Programming* : IPC in C, POSIX, practical sessions.

2005 – 2006 **Assistant Professor, Pierre et Marie Curie U.**. 192h annual teaching :
- (BSc, 1Y) *Introduction to programming in Scheme* : practical sessions ;
- (BSc, 2Y) *Mathematical Structures for CS* : orders, graphs, induction. . . practical sessions ;
- (BSc, 2Y) *Project* : first-order theorem prover in OCaml, lectures and practical sessions ;
- (BSc, 3Y) *Computer Science Foundations* : typing, semantics, practical sessions.

2005 **Assistant, École polytechnique**. *Principles of Programming Langanges* : Java, practical sessions (48h).

2002 – 2005 **PhD student, Inria & École polytechnique.**

2003 – 2004 **Oral examiner, Louis-le-Grand High School**. *Mathematics*, preparatory classes (50h).

2001 – 2002 **Part-time Developer, Observing, Italy**. Databases and internet protocols.

Publications

— **6 articles**, of which : 1 book chapter, 4 international journals and 1 national journal.
— **30 communications**, of which : 17 in international conferences with committee and acts, 5 in international workshops with committee and acts, 7 in international conferences and workshops with committee.
— **1 submitted work** in a journal.
— Many oral communications during seminars, including popularization talks and dissemination outside the community.

Involvment in the community

2019	Organization of the *International School on Rewriting* (ISR 2019) at MINES ParisTech.
2018	Program Committee (PC) of the *3rd International Workshop on Sets and Tools* (SETS).
2017	PC of he *Workshop on Proof eXchange for Theorem Provers* (PxTP).
2016	PC of the workshop *Logical Frameworks and Meta-Languages : Theory and Practice* (LFMTP).
2016–2019	Scientific Committee of the Research Group *Génie de la programmation et du logiciel* (GDR GPL, CNRS).
2015–2016	Reviewer and pre-reviewer, ANR 2015 and 2016 campaigns.
2015	PSL-ITI PhD grant selection committee.
2014	PC of the joint *Rewriting Techniques and Application–Typed Lambda-Calculi and Applications* (RTA–TLCA), within the *Vienna Summer of Logic* federation of conferences. Co-organization of the conference *High Performance Computing and Communications* (HPCC) at MINES ParisTech.
2012–2015	Deducteam seminar organizer.
—	Reviews for workshops (PxTP, LFMTP...), conferences (LICS, CSL, RTA, TLCA...) and journals (TCS, Information and Computation...).

PhD and post-doctoral supervision

since 2021	**Yoan Géran, PhD student** (advisor, co-supervision G. Dowek 50%). Proof sharing among systems with Dedukti, and reverse mathematics.
since 2020	**El Mehdi Cherradi, PhD student** (Referent on behalf of MINES ParisTech – advisor P.-A. Melliès). Computational and interactive interpretation of homotopy type theory and higher-order toposes.
2017–2021	**Guillaume Genestier, PhD** (co-supversion 50%, advisor F. Blanqui). Termination criterion for the $\lambda\Pi$-calcul modulo theory, implementation in Dedukti.
2014–2015	**Arnaud Spiwack, post-doctoral fellow**. Type reconstruction and basic tactic language for Dedukti.
2013–2016	**Pierre Halmagrand, PhD** (co-supervision 50%, advisor D. Delahaye), *Automated Deduction and Proof Certification for the B Method*. Automated thoerem proving for the set theory of the B method, using rewriting and the tools Zenon and Dedukti.
2012–2015	**Ronan Saillard, PhD** (co-supervision 80%, advisor P. Jouvelot), *Type Checking in the $\lambda\Pi$-Calculus Modulo : Theory and Practice*. Theoretical framework and implementation of Dedukti, the associated proof checker.
2012–2015	**Vivien Maisonneuve, PhD** (co-supervision 60%, advisor F. Irigoin), *Static Analysis of Control-Command Systems : Floating-Point and Integer Invariants*. Stability proofs for floating-point-number control-command systems, and autoamtic invariant computation through abstract interpretation.
2010–2013	**Truong Giang Le, PhD** (co-supervision 30%, advisor R. Rioboo), *Using Event-Based and Rule-Based Paradigms to Develop Context-Aware Reactive Applications*. Developpment of the INI programming langage, syntax, typing, semantics and model-checking.
2009–2017	**Around 25 students**, of which : 6 2nd-year MSc, 3 1st-year MSc, research engineer projects, visiting students.