Guillaume ALLAIS
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Education

2010–2011 **Master of Science (2nd year) - Research in Computer Science**
Attending lectures on type theory, proof theory, category theory and models, linear logic, automata & monoid theory and philosophy of logic.
Parisian Master of Research in Computer Science (`http://mpri.master.univ-paris7.fr/`)

2009–2010 **Master of Science (1st year) - Research in Computer Science**
Attending lectures on proof theory, complexity theory, concurrent algorithms, markov chains and history of science.
École Normale Supérieure de Lyon (`http://www.ens-lyon.fr`)

2008–2010 **Bachelor of Science - Computer Science (with honors)**
Attending lectures on the foundations of computer science, complexity & calculability theory, algorithmic, programming, operating systems and epistemology.
École Normale Supérieure de Lyon (`http://www.ens-lyon.fr`)

2008 **Admitted to the ENS Lyon**
Highly selective national competition.

2006–2008 **Preparatory classes MPSI - MP***
French highly selective prep school that gives strong basis in mathematics & physics in order to prepare to enter prestigious universities.
Lycée Louis-Le-Grand, Paris

2006 **A-level in Science (with honors)**
Lycée Notre-Dame de Boulogne

Research interests

- Logic

  Proof theory (especially constructivism); machine-checked proofs

  Lambda-calculus; type theory

- To a lesser extent:

  Calculability theory; complexity theory

  Automata theory

  Real & complex analysis

Professional activities

2010–? **The Coqtail Project - Administrator & developper**
Junior Laboratory funded by the ENS Lyon and open-source project dealing with computer-aided proof of mathematical theorems in Coq. We tackle results that are usually stated and proved during a Bachelor of Science in mathematics. My contributions are mainly about real and complex analysis (power series, function classes, etc.)
`http://coqtail.sf.net`

03–07 / 2010 **Research internship under T. Altenkirch's supervision: "Proof automatization: using reflection to implement decision procedures".**
I worked on Agda and implemented a solver for propositional logic using reflection before tackling Presburger arithmetic.
The solver for propositional logic is based on the axiomatic system defined in Negri & Dickhoff's paper "Admissibility of Structural Rules for Contraction-Free Systems of Intuitionistic Logic" and the one for Presburger arithmetic is based on Cooper's decision procedure using a normalization process that is described in Chaieb & Nipkow's paper "Verifying and Reflecting Quantifier Elimination for Presburger Arithmetic"
Functional programming laboratory - The University of Nottingham

06–07 / 2009 **Research internship under Y. Bertot's supervision: "Minimalizing the reals' axiomatisation in Coq's standard library"**
I worked on Coq and proved theorems dealing with real analysis in order to get rid off the axiom stating that "$\sin\left(\frac{\pi}{2}\right) = 1$*".*
INRIA - Sophia Antipolis

Languages

- English: fluent
- Spanish: intermediate level
- German: basis

Computer skills

- Operating system: Linux
- Languages: Coq; Agda; Ocaml; C and (to a lesser extent) Python
- Web: php; XHTML; CSS

Other interests

- Science related: epistemology; philosophy of logic
- Sports: tennis; cycling
- Reading: french, spanish & american litterature