Guillaume Bury

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Born on January 13, 1992, in Paris.

Education

- 2014-current Computer science thesis in Automated Theorem Proving, INRIA.
 - 2012–2014 Computer science research master (MPRI), École normale supérieure.
 - 2011–2012 Computer science bachelor, École normale supérieure.
 - 2009–2011 **Classes préparatoires MPSI-MP***, *Lycée Hoche*, Versailles. Admitted to the École Normale Supérieure in computer science
 - 2009 Scientific Baccalauréat, Lycée Passy St Nicolas Buzenval, Rueil Malmaison.

Master thesis (in progress)

title Integrating Rewriting, Tableaux and Superposition into SMT

- supervisors David Delahaye, Gilles Dowek
- description SMT solvers are nowadays very efficient for solving ground problems but are still behind first-order thorem provers when it comes to reasoning about quantified formulas. My thesis propose ways to integrate first-order theorem proving techniques, such as rewriting, the tableaux method, and superposition, into an SMT solver in order to increase performances.

Experiences

- 2016–2018 **Teaching responsabilities**, *ENS Paris-Saclay*, Cachan, France. In charge of tutorials ("Travaux dirigés") for first years in Algorithmic and Lambda-calculus.
 - 2014 Intern, INRIA, Paris, France. Integration of linear arithmetic to Zenon, a first order automated prover which uses the tableau method, see [1] and [4]
 - 2014 **Google Paris Hash code**, Paris, France. Team contest organised by Google France. Ranked second.
 - 2013 **Exchange visitor**, *Stevens Institute of Technology*, Hoboken, USA. Design and implementation of a small prototype verification-condition generator for relational properties of imperative code acting on first-order heap objects in Why3.
 - 2012 **Intern**, *Nexedi*, Lille, France. Development of re6stnet: a scalable, resilient IPv6 overlay mesh network.
- 2011–2013 **Oral examiner**, *Lycée Hoche*, Versailles. Training students of scientific classes préparatoires for oral exams in physics

Skills

- Theoretical Theorem proving, SAT Solvers, SMT Solvers, Data structures, lambda-calculus, linear arithmetic, computer logic
 - Practical OCaml, Opam, Git, Linux, UNIX, Python, Network, LATEX

Languages

French Mother tongue

English Fluent

Publications

- [1] Guillaume Bury. Internship report: Integrating the simplex algorithm to the tableau method, September 2014.
- [2] Guillaume Bury. mSAT: An OCaml SAT Solver. In OCaml Users and Developers Workshop, September 2017.
- [3] Guillaume Bury, Raphaël Cauderlier, and Pierre Halmagrand. Implementing Polymorphism in Zenon. In 11th International Workshop on the Implementation of Logics (IWIL), Suva, Fiji, November 2015.
- [4] Guillaume Bury and David Delahaye. Integrating Simplex with Tableaux. In Automated Reasoning with Analytic Tableaux and Related Methods, 24th International Conference, TABLEAUX 2015, Wroclaw, Poland, September 21–24, 2015. Proceedings, pages 86–101, Wrowlaw, Poland, September 2015.
- [5] Guillaume Bury, David Delahaye, Damien Doligez, Pierre Halmagrand, and Olivier Hermant. Automated Deduction in the B Set Theory using Typed Proof Search and Deduction Modulo. In LPAR 20 : 20th International Conference on Logic for Programming, Artificial Intelligence and Reasoning, Suva, Fiji, November 2015.