

Curriculum Vitæ

Jacques-Henri JOURDAN

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Research experiences

October 2017–...

Full-time CNRS researcher. VALS team (Verified Algorithms, Languages and Systems) in LRI (Computer science laboratory), Université Paris-Sud.

April 2016–September 2017

Postdoctoral position at *Max Plank Institute for Software Systems, Sarrebruck (Germany)*. RustBelt project: study and formal proof in Coq of the type system of the Rust language by using the Iris concurrent separation logic [1, 3].

April 2012–March 2016

PhD of Computer Science of *Paris VII Diderot University (France)*, advised by Xavier Leroy, in *Gallium team, Inria Paris. Verasco: a Formally Verified C Static Analyzer* [6, 4, 7, 8, 12, 9, 11, 2].

2016 thesis prize of GdR GPL (french research group on programming and software engineering).

September 2011–March 2012

Internship in *LMeASI, CEA Saclay (France)*, with Eric Goubault and Sylvie Putot. Inference of invariant inequalities for polynomial dynamical systems [10].

April–July 2011

Internship in *Gallium team, Inria Rocquencourt (France)*, with François Pottier and Xavier Leroy. Implementation of a certified parser for Compcert, a formally verified C compiler [14].

April–August 2010

Internship in *Rise team, Microsoft Research Redmond (USA)*, with Francesco Logozzo. Design and implementation of abstract interpretation techniques in Spur, a powerful Javascript engine.

Performance improvements in Clousot, a static analyzer for .Net code, based on abstract interpretation.

July–August 2009

Internship in *ASAP team, INRIA Rennes (France)*, with Davide Frey and Anne-Marie Kermarrec. Design and implementation of Papeer, a P2P papers sharing system. Taking part of the Gossple project.

Education and Diplomas

2008–2013

École Normale Supérieure diploma. Main specialty: computer science. Secondary specialty: physics.

2009–2011

Master of Computer Science at *MPRI* (Paris Master of Research in Computer Science), delivered by *École Normale Supérieure*.

2008–2009

License of Computer Science, delivered by *Paris VII Diderot University*.

2008

Entered *École Normale Supérieure de Paris* by *concours d'entrée, option MPI* (Mathematics, Physics and Computer Science entrance contest).

2006–2008

Classes Préparatoires aux Grandes Écoles at *Lycée Louis le Grand* (Paris, France).

Publications

- [1] Ralf Jung, Jacques-Henri Jourdan, Robbert Krebbers, and Derek Dreyer. RustBelt: Securing the foundations of the Rust programming language. In *Symposium on Principles of Programming Languages (POPL)*. ACM, January 2018.
- [2] Jacques-Henri Jourdan and François Pottier. A simple, possibly correct LR parser for C11. *Transactions on Programming Languages and Systems (TOPLAS)*, 39(4), August 2017.
- [3] Robbert Krebbers, Ralf Jung, Aleš Bizjak, Jacques-Henri Jourdan, Derek Dreyer, and Lars Birkedal. The essence of higher-order concurrent separation logic. In *European Symposium on Programming (ESOP)*. Springer, April 2017.
- [4] Jacques-Henri Jourdan. Sparsity preserving algorithms for octagons. In *Numerical and Symbolic Abstract Domains Workshop (NSAD)*, pages 57–70. Elsevier, September 2016.
- [5] Jacques-Henri Jourdan. Statistically profiling memory in OCaml. OCaml Workshop, September 2016.
- [6] Jacques-Henri Jourdan. *Verasco: a Formally Verified C Static Analyzer*. PhD thesis, Université Paris Diderot (Paris 7), May 2016.
- [7] Sylvie Boldo, Jacques-Henri Jourdan, Xavier Leroy, and Guillaume Melquiond. Verified compilation of floating-point computations. *Journal of Automated Reasoning (JAR)*, 54(2):135–163, February 2015.
- [8] Jacques-Henri Jourdan, Vincent Laporte, Sandrine Blazy, Xavier Leroy, and David Pichardie. A formally-verified C static analyzer. In *Symposium on Principles of Programming Languages (POPL)*, pages 247–259. ACM, January 2015.
- [9] Thomas Braibant, Jacques-Henri Jourdan, and David Monniaux. Implementing and reasoning about hash-consed data structures in Coq. *Journal of Automated Reasoning (JAR)*, 53(3):271–304, October 2014.
- [10] Eric Goubault, Jacques-Henri Jourdan, Sylvie Putot, and Sriram Sankaranarayanan. Finding non-polynomial positive invariants and lyapunov functions for polynomial systems through darbox polynomials. In *American Control Conference (ACC)*, pages 3571–3578. IEEE, June 2014.
- [11] Thomas Braibant, Jacques-Henri Jourdan, and David Monniaux. Implementing hash-consed structures in Coq. In *Interactive Theorem Proving (ITP)*, pages 477–483, July 2013.
- [12] Sylvie Boldo, Jacques-Henri Jourdan, Xavier Leroy, and Guillaume Melquiond. A formally-verified C compiler supporting floating-point arithmetic. In *IEEE Symposium on Computer Arithmetic (ARITH)*, pages 107–115. IEEE, April 2013.

- [13] Sébastien Briaies, Stéphane Caron, Jean-Michel Cioranescu, Jean-Luc Danger, Sylvain Guilley, Jacques-Henri Jourdan, Arthur Milchior, David Naccache, and Thibault Porteboeuf. 3D hardware canaries. In *Cryptographic Hardware and Embedded Systems (CHES)*, pages 1–22. Springer, September 2012.
- [14] Jacques-Henri Jourdan, François Pottier, and Xavier Leroy. Validating LR(1) parsers. In *European Symposium on Programming (ESOP)*, pages 397–416. Springer, March 2012.

Teaching and Science popularization experiences

2013–2015

Teaching Assistant at *École Normale Supérieure*. Compilation and programming languages course with Jean-Christophe Filliâtre.

2006–...

Member of the *France-IOI* association, teaching algorithmics to French teenagers and coaching the French team for the International Olympiad in Informatics (IOI).

2011–2013

Member of the french *beaver* contest organization committee, allowing high school and junior high school students to discover computer science.

2017

Member of the jury of the *SWERC* contest. The SWERC is the West European branch of the ACM ICPC.

Collective responsibilities

Program committee member: ITP 2018, Coq Workshop 2018

Reviewer for the conférences: NASA Formal methods 2012, ICFP 2015, SAS 2016, POPL 2017, ESORICS 2017, POPL 2018

2012–2015

Coorganizer of the *Inria Paris-Rocquencourt junior seminar*. Scientific seminar by PhD students about the very diverse subjects studied at Inria.