

Research Interests

Formally-verified software, formal methods, compilers and program analysis, programming languages theory and applications

Education

- Since 2012** > **University of California, San Diego**
Graduate student working towards a Ph.D. in Computer Science, in the field of Programming Languages, advised by Sorin Lerner.
- Since 2012** > **University of California, San Diego**
Teaching assistant for undergraduate and graduate Programming Languages course over 6 quarters. Very positive anonymous reviews from students.
- 2011 to 2012** > **University of California, San Diego**
Exchange student majoring in Computer Science. (4.0 CGPA)
- 2008 to 2011** > **ENSEIRB-MATMECA (Bordeaux Graduate School of Engineering), France**
Diploma of Engineering, majoring in Computer Science.
- 2006 to 2008** > **Lycée Louis Barthou in Pau, France**
Successfully achieved a 2-year intensive Math and Physics course in preparation for the selective entrance to French engineering schools.
- 2006** French baccalauréat, majoring in Engineering Science, specializing in Mathematics, with honors.

Publications

- V. Robert, S. Lerner – **A principled, automated approach to repairing functional programs** (to be submitted to OOPSLA 2018)
- D. Ricketts, V. Robert, D. Jang, Z. Tatlock, S. Lerner - **Automating Formal Proofs for Reactive Systems** (PLDI 2014)
- V. Robert, X. Leroy - **A formally-verified alias analysis** (CPP 2012)

Professional Experience

- June 2013 to Sept. 2013** > **Microsoft Research Cambridge**, Programming Principles and Tools team (research intern)
Explored ways to design modular implementations and specifications for a formalization of the x86 instruction set, and formalize notions of static and dynamic linking, using **Coq** and **ssreflect**.
- Jan. 2012 to Aug. 2012** > **Inria Paris-Rocquencourt**, project-team **Gallium** (research programmer)
Worked on the design and implementation of an unverified **assembly and linking validator** for the **PowerPC** backend of the **CompCert C compiler**, in **OCaml**.
- July 2011 to Dec. 2011** > **Inria Paris-Rocquencourt**, project-team **Gallium** (research intern)
Worked on the design, implementation and formal verification of an **alias analysis** for the verified **CompCert C compiler**, using **Coq**.

Skills and interests

- Strong interest in functional programming: Haskell, Coq, Ocaml, Agda
- Web technologies: JavaScript/ES6, TypeScript, Elm, PureScript, RxJS
- Strong knowledge of parsing, using parser generators (Happy, Menhir) or parser combinator libraries (Parsec, etc.)
- Small participation in NixOS packaging
- Strong interest in programming education
- Participation in groups promoting social justice, diversity, inclusion, solidarity, at the computer science department and at the university levels

Personal Experience

- Currently working on an automated program-and-proof repair technique for dependently-typed languages
<https://github.com/Ptival/chick>
- Holding a programming-related blog <https://ptival.github.io/>
- Developed a web front-end to the Coq proof assistant <https://github.com/Ptival/PeaCoq>
- Development of an OCaml library to parse and edit ELF executables: OCamELF <https://github.com/Ptival/ocamelf>
- Translated the tutorial “Learn You a Haskell for Great Good” into French: <http://lyah.haskell.fr/>

Languages

French	Mother tongue	Spanish	Basic notions (5 years)
English	Fluent	Japanese	Beginner (2 years)