

Clément Pit-Claudel

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MIT graduate student specializing in programming languages, synthesis, and verification.

Education

- 2014 – present **MIT**, Cambridge (Research focusing on formal logic, programming languages, and verification)
Currently studying towards a PhD in Computer Science, advised by Adam Chlipala. MSc completed in 2016.
- 2011 – 14 **École Polytechnique**, Palaiseau (Specialization in computer science)
Diplôme d'ingénieur Modules include randomized algorithms, computer-aided reasoning, networking, algorithm design, compilation, information theory, harmonic analysis, and molecular biology. **GPA: 4.35/4.4**
- 2009 – 11 **Lycée Louis-le-Grand**, Paris (Specialization in mathematics and computer science)
Classes préparatoires (MP Info). Modules include Mathematics, Physics and Computer Science.

Publications

- 2016 **Compilation Using Correct-by-Construction Program Synthesis** (web-friendly, pdf, bib)
Clément Pit-Claudel. *Master's Thesis at MIT*; *William A. Martin Memorial Thesis Award for Outstanding Thesis in CS*
Trigger Selection Strategies to Stabilize Program Verifiers (pdf, bib)
Rustan Leino, Clément Pit-Claudel. *Computer Aided Verification: 28th International Conference (CAV 2016)*
Company-Coq: Taking Proof General one step closer to a real IDE (pdf, bib)
Clément Pit-Claudel, Pierre Courtieu. *CoqPL'16: The Second International Workshop on Coq for PL*
- 2015 **Fiat: Deductive Synthesis of Abstract Data Types in a Proof Assistant** (pdf, bib)
Benjamin Delaware, Clément Pit-Claudel, Jason Gross, Adam Chlipala. *Proceedings of the 42nd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL 2015)*

Professional experience

- 2017 **Implemented reflective pattern-matching tactics for F***; contributed to research on effect erasure.
INRIA – 3 months internship in Paris supervised by Cătălin Hrițcu
- 2015 **Improved the predictability of the Dafny program verifier**, generating triggers to prevent spurious quantifier instantiations and matching loops.
Microsoft Research – 3 months internship in Redmond, WA supervised by K. Rustan M. Leino
- 2013 **Designed and implemented a fast upper body limb detection and tracking framework** based on Bayesian inference in graphical models.
华为 | Huawei – 6 weeks internship in Shenzhen, China
Improved the performance of the Psyche theorem prover, extending its DPLL module to allow restarts.
École Polytechnique – 3 months research project supervised by Stéphane Lengrand
- 2011 – 12 **Organized and taught training sessions in mathematics and physics** targeted at motivated teenagers from low-income neighborhoods, to increase their chances of getting into college.
Association Tremplin – 8 months internship in Paris, France
- 2009 **Built a Fortran static analyzer** to analyze control flow, build call graphs, and locate dead code
CSSI Communication & Systèmes – 1 month internship in Le Plessis Robinson, France

Entrepreneurial initiatives

- 2013 – present **Launched YiXué Chinese Dictionary**, a paid English-Chinese dictionary for Windows Phone. YiXué was featured three times on Microsoft's app store.
- 2009 – present **Created Create Synchronicity**, an open source backup & synchronization app (350k downloads, 2k daily users, translated to 29 languages). Featured in *PC Magazine's Best free software of 2011* list and included in *Computer Bild's Open Source DVD*.

Community service

- Served in **artifact evaluation committees** for POPL'16 and '18, and as **external reviewer** for NASA's 8th Formal Methods Symposium.
- Co-organized the **26th French national session of the European Youth Parliament**, raising 20k€ and hosting 250 persons for 4 days.

Extra-curricular activities

- Blogged about mathematics and programming**, getting featured in the *Code Project's Insider* daily newsletter.
- Launched a twitter feed about Chinese linguistics and etymology**, with over 500 subscribers.
- Launched or contributed to various free software projects**: wrote plugins and translations for Rockbox (a free audio player firmware); contributed to multiple Emacs packages (wrote company-coq, F*-mode, and boogie-friends; co-maintained Flycheck and Proof-General)

Awards

- Ranked 2nd in *École Polytechnique's Group Research Projects Awards* for research on webcam-based gaze tracking.
- Received the 2015 **Robert B. Guenassia Award** at MIT
- Received the 2016 **William A. Martin Memorial Thesis Award for Outstanding Thesis in CS** at MIT
- Received a 2017 **Frederick C. Hennie III Teaching Award** in Recognition of Outstanding Contributions to Departmental Teaching

Skills

- Languages**: French (mother tongue), English (fluent – TOEFL iBT 119/120), Spanish, Chinese (notions), Japanese (beginner)
- Software design & development**: Developed professional applications in C#, Emacs Lisp, Python, JavaScript, VB.Net, and C++. Other languages include Java, C, OCaml, Gallina, Dafny, F*, Racket, PHP, HTML/CSS.