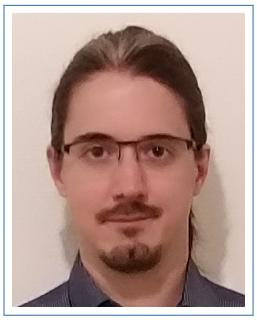
Xavier MONTILLET



cv@xavier.montillet.pro
http://xavier.montillet.pro
xavier-montillet
xaviern02

Having graduated from ENS Rennes in Computer Science and been admitted at the "Agrégation de mathématiques option informatique", I have a strong background in algorithmics, computer science, and mathematics, as well as extensive programming experience.

Work experience

2023 - 2024 **Compiler engineer**, *Marigold (Accélérateur de Blockchain)*

- Addition of new features (including union types and singleton types) and bug fixing in the LIGO compiler, written in OCaml, that allows writing contracts for the Tezos blockchain in a high-level language (with two possible syntaxes, CameLIGO ≈ OCaml and JsLIGO ≈ TypeScript) and then compiling them to the abstract machine (called Michelson) that can be executed by the protocol. **The code is open source and the merge request for my largest contribution can be found here.**
- Partial implementation of the Streams WebAPI in jstz, a JavaScript runtime written in Rust that allows executing Tezos layer 2 contracts on smart rollups.

2017 - 2023 **PhD student - Untyped polarized calculi**, *Université de Nantes*

- Demonstration of the utility of the program / environment duality for the study of untyped programming languages, and in particular for scaling up the study of the observational equivalence and of solvability. Detection of an error in the call-by-value solvability litterature.
- Collaborations on generalizing records and modules in the presence of dependent types and on the interaction between dependent types and classical logic.
- Courses taught in Nantes :
  - MATLAB at École Centrale
  - JavaScript at École des Mines and at the university
  - Python, graphs and automata at the IUT

Summer 2017 **M2 internship - Open call-by-push-value**, *École des mines de Nantes*

Summer 2015 **M1 internship - Semantics of universe polymorphism in dependent type theory**, *Stockholm University*, Suède

Summer 2014 **L3 internship - Coq proof of a self-stabilizing distributed algorithm**, *VERIMAG*

Education

2016 - 2017 **M2 in Computer Science**, *École normale supérieure de Lyon*

2015 - 2016 **"Agrégation de mathématiques" - Computer Science track**, *ENS Rennes*

2013 - 2015 **L3 & M1 in Computer Science** and **L3 in Mathematics**, *ENS Rennes*

Summer 2012 **CSCI S-111 : Intensive Introduction to Computer Science Using Java**, *Harvard*

2011 - 2013 **"Classes préparatoires MPSI et MP"**, *Lycée Lakanal*

Skills

Languages	French (native), English (fluent, TOEIC 990/990)
Programming languages	JavaScript, OCaml — Coq, Guile, Java, LaTeX, Python, Rust, TypeScript — Bash, C, C++, MATLAB, PHP, TI-Basic
Libraries and tools	Debian, LyX — Batteries, Core, Git, Guix, NixOS, NodeJS, QubesOS, SSReflect, TikZ — GIMP, Raspberry Pi
Mathematics	Computer science — Algebra — Analysis

Projects

ENS projects	SMT solver, ray tracer, compiler, static analyzer

Personal projects	Script to combine a keyfile and a password in cryptsetup, website generating a personalized .ics file from a .pdf file containing the general timetable, DDR mat

Hobbies

Badminton, Board games, Chess, Dance, Go, Guitar, Video games, Volley-ball