

ODILE RADET

Computer science student

MSc, 21 years old

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Paris, France

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EDUCATION

Master's degree, Computer science (MPRI)

Université de Paris

September 2020 – Ongoing

Paris, France

- Compiler Principles
- Algorithms
- Computability and Complexity theory
- Advanced Automata theory
- Introduction to Artificial Intelligence and Game Theory
- Advanced Algorithms (planned)
- Semantics & Computer Assited Proofs (planned)
- Advanced Functional Programming (planned)

Master's degree, Computer science

Ecole Normale Supérieure

September 2019 – Ongoing

Rennes (Brittany), France

- Compiler Principles
- Solver Principles and Architectures
- Advanced Complexity Theory
- Model Checking
- Signal Processing
- Semantics & Coq Proof Assistant
- Logic and Constraint Programming
- Computer Science Philosophy

Bachelor's degree, Computer science

Ecole Normale Supérieure

September 2018 – August 2019

Rennes (Brittany), France

- Programming fundamentals in OCaml and C++
- Automata theory
- Computability theory
- Algorithms
- Unix System Programming
- Low-level Network Programming
- Advanced Programming Concepts in Lisp, Scheme & C++
- Propositional Calculus & First Order Logics
- Computer Architecture
- Probabilistic Algorithms
- Statistics & Introduction to Machine Learning
- Mathematics: Convex optimisation
- Mathematics: Algebra & Introduction to Cryptography

MPSI/MP* Preparatory classes

Lycée Joffre

September 2015 – August 2018

Montpellier, France

RESEARCH INTERESTS

Logic & Theoretical Foundations

Formal Methods

Proof Assistants

Functional Programming

PROGRAMMING & TOOLS

OCaml

Coq

Python

C/C++

Unix

LaTeX

Git

Make

OCamlBuild

LANGUAGES

French



English



Spanish



Ancient Greek



MISCELLANEOUS



Violin, Classical Guitar

Played at professional level. Won several first prizes in international contests during my childhood and teenage years. Many performances as a soloist.



Piano, Trombone, French Horn

End of conservatory playing.



Other Musical Aspects

Teaching level in music theory. Experience as choir and orchestra conductor.



Sports

Swimming (10 years of intensive training), windsurfing, archery, roller skating, fencing.



Others

Strong interest in philosophy, literature, ancient languages.

RESEARCH EXPERIENCE

Summer Internship (Computer Science)

Impact of a block representation in CompCert, a verified compiler

📅 June - July 2019

📍 INRIA, Rennes (Brittany), France

Bachelor Research Internship. I spent 8 weeks in the CELTIQUE team at INRIA at Rennes (Brittany, France), for an internship supervised by David Pichardie and Jean-Christophe L  chenet.

I worked on CompCert, a verified C compiler written in Coq by Xavier Leroy. The current representation in the *Register Transfer Language* is quite atypical, as it maps a single instruction to each node in the control flow graph. My job was to study the impact of a more common representation, with blocks of instructions. It represents a few thousands lines of Coq code.

Summer Internship (Mathematics)

Knot Theory and Tait Conjectures, supervised by Anne Pichon

📅 July 2016

📍 CIRM, Luminy, France

PROJECTS

Small Compiler (compilers course)

Implementation of a compiler, written with a classmate (Alexandre Drewery). It is written in OCaml, and compiles a small imperative language to LLVM code.

Applying various solvers to cellular automatas (solvers course with Khalil Ghorbal)

Study of a decision problem about one-dimensional cellular automatas.

- Proof of the NP-completeness of the given problem
 - Solving with different kinds of solvers (some of them completely irrelevant, but it was fun to show it) : SMT solver (two ways of doing it), Constraint Programming solver, Linear solver, Convex Optimization solver, Quantifier Elimination
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Various school projects (bachelor)

- Lisp interpreter (written in C++ for programming class, rewritten in OCaml for fun)
 - Little two-player game of the 7 colors (system programming class, written in C)
 - Iceberg detection (network class, written in C++)
 - Raytracing engine (programming class, written in C++)
 - Digit recognition (machine learning class, written in Python and C++ to compare performances)
 - Delaunay triangulation, Hanoi towers & Penrose tiling (programming class, written in OCaml)
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Small undergraduate research projects (preparatory classes)

- 2017 - 2018 : Selberg sieve and prime numbers that can be written $p = n^2 + 1$
 - 2016 - 2017 : Simulated annealing applied to music generation and automatic harmonization (comparison of performances for Python code and OCaml code)
 - 2015 - 2016 : Knot theory & Tait conjectures
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Personal projects

- Automata library in OCaml (Work in Progress)
- Formalization of measure theory, general topology and probabilities in Coq (Work in Progress)
- Coq Proof of the Cantor-Bernstein-Schr  der theorem
- Algorithms competitions (SWERC, Google Hash Code, PrologIn)
- Project Euler : ~ 200 problems solved (Ocaml)