

Roméo La Spina

PhD Student in Computer Science

+33 6 43 34 97 88

romeo.la-spina@irisa.fr

people.irisa.fr/Romeo.La_Spina/

Born on October 9, 2000

Education

- 2022 – today **PhD thesis**, *Université Rennes 1*, Rennes, France.
Subject: Data-flow and dependency analysis for optimizing verified compilation
Supervisors: Sandrine Blazy, Delphine Demange (IRISA, EPICURE team)
- 2020 – 2022 **Magistère in Computer Science**, *Ecole Normale Supérieure de Rennes*, Bruz, France.
- 2021 – 2022 **Second year of Master's degree**, *Université Paris Diderot*, Paris, France.
Master Parisien de Recherche en Informatique (M2 MPRI)
- 2020 – 2021 **First year of Master's degree**, *Université Rennes 1*, Rennes, France.
Science Informatique (SIF) curriculum
- 2019 – 2020 **Bachelor's degree**, *Ecole Normale Supérieure de Lyon*, Lyon, France.
Fundamentals of Computer Science
Admission to the Master's degree cycle (*concours cycle master*) in computer science at the ENS Rennes
- 2019 – 2020 **Bachelor's degree**, *Université Claude Bernard Lyon 1*, Lyon, France.
Double diploma in Mathematics
- 2017 – 2019 **Preparatory classes, MPSI/MP**, *Lycée Pierre de Fermat*, Toulouse, France.
Computer Science speciality
Eligible to ENS Lyon, Paris-Saclay and Rennes, CentraleSupélec, Mines-Ponts
- 2016 – 2017 **High School Diploma in Science**, *Lycée Marie-Louise Dissard Françoise*, Tournefeuille, France.
Mathematics speciality, with first-class honors (mention très bien)

Research experience

- March 2022 – **Research Internship (M2)**, *IRISA*, Rennes, France.
July 2022 *Subject*: A data-flow analyser parametrized by an iteration order for the formally verified compiler CompCert
Supervisors: Sandrine Blazy, Delphine Demange (IRISA, CELTIQUE team)
- May 2021 – **Research Internship (M1)**, *LORIA*, Nancy, France.
July 2021 *Subject*: Secure compilation of speculative-constant-time programs
Supervisors: Vincent Laporte (LORIA, PESTO team)
- Sept. 2020 – **Master's degree Research Project**, *IRISA*, Rennes, France.
April 2021 *Subject*: Verification of a Just-In-Time compiler
Supervisors: David Pichardie, Aurèle Barrière (IRISA, CELTIQUE team)
- June 2020 – **Research Internship (L3)**, *INRIA Paris*, Paris, France.
July 2020 *Subject*: Study of the scalability of video conference servers
Supervisor: Gilles Muller (INRIA Paris, WHISPER team)

Teaching

2022 – 2023 **Semantics of programming languages (teaching assistant)**, *ISTIC, M1 SIF*.

With Sandrine Blazy.

Contents : Introduction to the Coq proof assistant, inductive types, tactics and logic in Coq. Syntax and semantics of an imperative language, small-step/big-step operational semantics, type theory.

Important properties: determinism, progress, type preservation. Introduction to verified compilation.

2022 – 2023 **Trusted programming (teaching assistant)**, *ISTIC, L3 Computer Science*.

With Sandrine Blazy.

Contents : Programming with the platform for deductive program verification Why3.

Handling of arrays, lists, sum types, and recursive programs in Why3.

Type / loop invariants de type. Ghost code.

Skills

Languages

French	Mother tongue	English	Advanced
Spanish	Intermediate	Italian	Basic

Programming skills

- ★★★ Coq, OCaml
- ★★ Haskell, C/C++, Python, JavaScript, Bash
- ★ Java, SQL, Lua, HTML/PHP

Other tools \LaTeX , Git, SSH, Makefile, Emacs/Org-mode

Interests

Research interests

- Formal verification
- Abstract interpretation
- Operating systems
- Compilation
- Security

Extracurricular activities

Arts Piano (High School Diploma's Music option)
Theater (musical with the association *Muses & Co* at the ENS Rennes)
Painting

Hobbies Chess (FIDE Elo Rating 1500), Badminton, Swimming, Hiking, Cooking

Associative Class representative in high school

Other CTF (Capture The Flag) cybersecurity challenges (over 9000 points on the platform Root-Me)