

# Solal Pirelli, PhD

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## Experience

### Scala Compiler Engineer, EPFL

Jan 2026 — Present

Working on new Scala features such as capture checking.

### Static Code Analysis Developer, Sonar

May 2024 — April 2025

Redesigned the **dataflow bug detection engine** to use state-of-the-art symbolic execution techniques, resulting in **2× the true positive rate** and **1/5<sup>th</sup> the false detection rate** on Java and Python benchmarks without degrading performance. As a result, the engine is now enabled by default.

Rotated for the role of facilitator in a Scrum team using **Agile methods** and tools.

### Graduate Researcher, EPFL

Feb. 2018 — Feb. 2024

Led research project on **automated formal verification** of network functions.

Developed static analysis tools in **C#, Python, Scala, OCaml**, and **C++** to verify the correctness of source code, compiled binaries, and **LLVM IR**, using new techniques based on **symbolic execution**.

Designed new NIC driver models for **high performance software** network functions in **C, C#, Rust**, and **Ada**.

Presented results at 3 **top international conferences** in computer systems and software engineering.

**Supervised 18 student projects** and was a teaching assistant for Software Engineering, Software Dev. Project, and Software Security.

### Research Intern, Microsoft Research

June 2023 — Aug. 2023

Developed a domain-specific language and compiler for **non-convex optimization problems** and heuristics.

Enabled domain modelers to write simpler and more transparent models that get solved in less time.

### Course Co-Instructor, EPFL

Sep. 2021 — June 2023

Redesigned the Software Eng. & Software Dev. Project courses with evidence-based teaching methods.

**Lectured for ≈150 students per year** leading a team of ≈10 assistants.

### Software Developer, PocketCampus

Nov. 2014 — Feb. 2018

Ported the official EPFL app to Windows Phone in **C#** with **.NET** using Visual Studio, with ≈300 daily users.

Implemented the backend in **Java** using IntelliJ, with **≈10,000 daily users** across platforms.

Designed backend APIs using Apache Thrift for communication between the apps and the server.

## Education

### PhD in Computer Science, EPFL

2024

Thesis: “Automated Formal Verification of Software Network Functions”, advised by George Candea.

### Master’s in Computer Science, EPFL

2018

### Bachelor’s in Computer Science, EPFL

2015

## Volunteering

### President, LauzHack Association

2021-23

**Led a team of ≈15 volunteers** organizing LauzHack, the yearly student-run hackathon at EPFL, for ≈300 Swiss and European attendees. Founding member of the event from 2016 onwards.

### President, PolyProg Association

2016-19

**Led a team of ≈15 volunteers** organizing the yearly Helvetic Coding Contest, Switzerland’s largest ICPC-style programming competition, for ≈200 attendees.

### Artifact Evaluation, Computer Systems Conferences

2022

Co-chair for the EuroSys 2022 conference, **leading 65 PhD students and early-career researchers** to evaluate the reusability and reproducibility of research artifacts. Will be co-chair for the SOSP 2026 conference.

Also volunteered as artifact evaluator for the OSDI 2020-21, EuroSys 2021, and SOSP 2021 conferences.

## Awards

### Distinguished Service Award, EPFL

2023

For exceptional contributions to the PhD program in Computer Science.

### Teaching Assistant Award, EPFL

2021, 2016, 2015

For outstanding work in the Software Engineering course.

## Languages

**French**, native

**English**, fluent