Solal Pirelli

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Work

Static Code Analysis Developer, Sonar — May 2024 — April 2025
Redesigned the Java and Python dataflow bug detection engine to use state-of-the-art symbolic execution techniques, resulting in 2× the true positive rate and 1/5th the false detection rate on internal Java and Python benchmarks without degrading performance. Used Agile methods and tools such as JIRA and Trello.

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.

Research Intern, Microsoft Research Redmond — Summer 2023
Designed a .NET domain-specific language in C# to model optimization problems and heuristics.
Enabled domain modelers to write simpler and more transparent models that get solved faster.

Software Developer, PocketCampus — Nov. 2014 — Feb. 2018
Ported the official EPFL app to Windows Phone in C# using Visual Studio, with ~300 daily users.
Implemented the backend in Java using IntelliJ, with ~10,000 daily users across platforms.

Education

PhD in Computer Science, EPFL — 2024
"Automated Formal Verification of Software Network Functions", advised by George Candea.
Designed new verification techniques and implemented them in C#, Python, C, C++, and OCaml, using compiler and static analysis techniques and tools such as LLVM and angr.

Master's & Bachelor's in Computer Science, EPFL — 2018, 2015
GPA: 5.6/6 and 5.2/6 respectively.

Selected Publications

Safe Low-Level Code Without Overhead is Practical
S. Pirelli, G. Candea. ICSE 2023.

Automated Verification of Network Function Binaries
S. Pirelli, A. Valentukonytė, K. Argyraki, G. Candea. NSDI 2022.

A Simpler and Faster NIC Driver Model for Network Functions
S. Pirelli, G. Candea. OSDI 2020.

A Formally Verified NAT
A. Zaostrovnykh, S. Pirelli, L. Pedrosa, K. Argyraki, G. Candea. SIGCOMM 2017.

Volunteer Work

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 Chair, Computer Systems Conferences — 2022, 2026
Co-chair for EuroSys 2022, leading 65 evaluators. Co-chair for SOSP 2026.
Also volunteered as artifact evaluator for OSDI 2020-21, EuroSys 2021, and SOSP 2021.

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