Aurèle Barrière

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Experience

Researcher (*chargé de recherche*) 2026 – Present
CNRS *CASH Team (LIP)*
Leading the Linden Regex project.

PostDoc 2023 – 2026
EPFL *SYSTEMF Lab*
Modern Regular Expression Engines and their Formal Verification.
With Clément Pit-Claudel.

PhD Student 2019 – 2022
ENS Rennes *Épicure Team (IRISA)*
Formal Verification of Just-in-Time Compilation.
Supervised by Sandrine Blazy and David Pichardie.

Publications

POPL 2026 Formal Verification for JavaScript Regular Expressions:
A Proven Semantics and its Applications.
Aurèle Barrière, Victor Deng, Clément Pit-Claudel.
Distinguished Paper Award.

ACM Book Formal Verification of Just-in-Time Compilation.
Aurèle Barrière.

ICFP 2024 A Coq Mechanization of JavaScript Regular Expression Semantics.
Noé De Santo, Aurèle Barrière, Clément Pit-Claudel.

PLDI 2024 Linear Matching of JavaScript Regular Expressions.
Aurèle Barrière, Clément Pit-Claudel.

PhD Thesis Formal Verification of Just-in-Time Compilation.
Aurèle Barrière.
EAPLS Best PhD Dissertation Award.

POPL 2023 Formally Verified Native Code Generation in an Effectful JIT:
Turning the CompCert Backend into a Formally Verified JIT Compiler.
Aurèle Barrière, Sandrine Blazy, David Pichardie.

POPL 2021 Formally Verified Speculation and Deoptimization in a JIT compiler
Aurèle Barrière, Sandrine Blazy, Olivier Flückiger, David Pichardie, Jan Vitek.

CoqPL 2020 Towards Formally Verified Just-in-Time Compilation
Aurèle Barrière, Sandrine Blazy, David Pichardie.

AAMAS 2019 Reasoning about Changes of Observational Power in Logics of Knowledge and Time
Aurèle Barrière, Bastien Maubert, Aniello Murano, Sasha Rubin.

KR 2018 Changing Observations in Epistemic Temporal Logic
Aurèle Barrière, Bastien Maubert, Aniello Murano, Sasha Rubin.

Service

POPL 2026	Student Volunteer Co-Chair
Rocqshop 2025	Program Committee
ICFP 2025	Program Committee
PriSC 2025	Program Committee
PLDI 2024 SRC	Local Arrangements Co-Chair & Program Committee
OOPSLA 2024	Artifact Evaluation Comittee
OOPSLA 2022	External Review Comittee & Artifact Evaluation Comittee

Subreviewer: CPP 2026, CPP 2025, ESOP 2024, ESOP 2023, ITP 2022

Teaching

Interactive Theorem Proving (ITP) — *EPFL*, 2024–2025
Lecturer. With Clément Pit-Claudel and Nate Foster

Semantics (SEM) — *University Rennes 1 / ENS Rennes*, 2019–2022
Lecturer. With Sandrine Blazy and David Pichardie
An introduction to Coq, program semantics and compiler verification.

Préparation Agrégation — *ENS Rennes*, 2021–2022
Preparing and supervising programming labs for the *Agrégation* teaching degree.

Software Engineering (GEN) — *University Rennes 1*, 2019–2021
Teaching Assistant. With Thomas Genet

Software Formal Analysis and Design (ACF) — *University Rennes 1*, 2020–2021
Teaching Assistant. With Thomas Genet

Grants and Awards

Distinguished Paper Award, *POPL 2026* 2026
ORD Contribute Grant, *FiRE (**F**oundations for JavaScr**i**pt **R**egular **E**xpressions)* 2024
Best PhD Dissertation Award, *EAPLS* 2023

Education

Magistère in Computer Science — *ENS Rennes*, 2015–2019
Four-year program focused on scientific research.

Master's Degree in Computer Science — *University Rennes 1*, 2016–2019

Prélab — *ENS Rennes*, 2017–2018
Year dedicated to research internships.

Bachelor's Degree in Computer Science — *University Rennes 1*, 2015–2016

Research Internships

Formally Verified Just-in-Time Compilation 2019
Supervisor: Sandrine Blazy *IRISA*

VST Verification of B+Trees with Cursors 2018
Supervisor: Andrew Appel *Princeton University*

Observation Change in Epistemic Temporal Logic 2017
Supervisors: Aniello Murano, Bastien Maubert and Sasha Rubin *Universita degli Studi Federico II*

Implementation of a C memory model for integer-pointer casts in CompCert 2017
Supervisor: Chung-Kil Hur *Seoul National University*

High level WCET estimation using Abstract Interpretation and Constraint Programming 2016
Supervisors: Charlotte Truchet and David Cachera *IRISA*