

Aurèle Barrière

Post-Doc at EPFL

Experience

- 2023–now **PostDoc**, *EPFL, SYSTEMF Team*,
Modern Regular Expression Engines and their Formal Verification,
With Clément Pit-Claudel.
- 2019–2022 **PhD student**, *ENS Rennes, Celtique/Épicure Team (IRISA)*,
Formal Verification of Just-in-Time Compilation,
Supervised by Sandrine Blazy and David Pichardie.

Publications

- 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, My thesis received the **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.

Program Committees

- ICFP 2025 **Committee**.
- PriSC 2025 **Committee**.
- PLDI 2024 **Local Arrangements Co-Chair and Committee**.
SRC

OOPSLA **Artifact Evaluation Comittee.**
2024
OOPSLA **External Review Comittee.**
2022
OOPSLA **Artifact Evaluation Comittee.**
2022
Subreviewer **CPP 2025, ESOP 2024, ESOP 2023, ITP 2022.**

Teaching

2024 **ITP, EPFL**, Interactive Proof Assistants, With Clément Pit-Claudel and Nate Foster.
Lecturer.
2019–2022 **SEM, University Rennes 1**, An introduction to Coq, program semantics and compiler verification, With Sandrine Blazy and David Pichardie.
Lecturer.
2021–2022 **Préparation Agrégation, ENS Rennes**, Preparing students for the *Agrégation* teaching degree.
Preparing and supervising programming labs.
2019–2021 **GEN, University Rennes 1**, Software Engineering, With Thomas Genet.
Teaching Assistant.
2020–2021 **ACF, University Rennes 1**, Software Formal Analysis and Design, With Thomas Genet.
Teaching Assistant.

Grants and Awards

Grant **ORD Contribute 2024, FiRE (Foundations for JavaScript Regular Expressions).**
Award **EAPLS, Best PhD Dissertation Award, 2023.**

Education

2015–2019 **Magistère in Computer Science, ENS Rennes**,
Four-year program focused on scientific research.
2016–2019 **Master's Degree in Computer Science, University Rennes 1.**
2017–2018 **Prélab, ENS Rennes**, Year dedicated to research internships.
2015–2016 **Bachelor's Degree in Computer Science, University Rennes 1.**

Research Internships

2019 **Formally Verified Just-in-Time Compilation,**
IRISA, Supervisor: Sandrine Blazy.
2018 **VST Verification of B+Trees with Cursors,**
Princeton University, Supervisor: Andrew Appel.

- Winter 2017 **Observation Change in Epistemic Temporal Logic**,
Universita degli Studi Federico II,
Supervisors: Aniello Murano, Bastien Maubert and Sasha Rubin.
- Summer 2017 **Implementation of a C memory model for integer-pointer casts in CompCert**,
Seoul National University, Supervisor: Chung-Kil Hur.
- 2016 **High level WCET estimation using Abstract Interpretation and Constraint Programming**,
IRISA, Supervisors: Charlotte Truchet and David Cachera.