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

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, 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.

Service

POPL 2026 **Student Volunteer Co-Chair**.

Rocqshop 2025 **Committee**.

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ICFP 2025 **Committee**.

PriSC 2025 **Committee**.

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

OOPSLA 2024 **Artifact Evaluation Comittee**.

OOPSLA 2022 **External Review Comittee**.

OOPSLA 2022 **Artifact Evaluation Comittee**.

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 (**F**oundations for JavaScr**i**pt **R**egular **E**xpressions)*.

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.