Aurèle Barrière

Post-Doc at EPFL

Experience

2023–now	**PostDoc**, *EPFL, SYSTEMF Team*, Modern Regular Expression Engines and their Formal Verification.
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

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 Comittees

PLDI 2024 SRC	**Comittee**.
OOPSLA 2024	**Artifact Evaluation Comittee**.
OOPSLA 2022	**External Review Comittee**.
OOPSLA 2022	**Artifact Evaluation Comittee**.

Subreviewer	**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 JavaScript **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.