

Aurea Bílá

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Education

- 2020–2026 **ETH Zurich, Programming Methodology group**
PhD student, supervised by Peter Müller
Focus on deductive verification of Rust, concurrency, asynchrony, refinement proofs
- 2016–2020 **MEng Computing, Imperial College London, United Kingdom**
First-class honours

Publications

- 2025 OOPSLA **A Refinement Methodology for Distributed Programs in Rust**
A. Bílá, J. C. Pereira, P. Müller
Distinguished Artifact award
- OOPSLA **Place Capability Graphs: A General-Purpose Model of Rust's Ownership and Borrowing Guarantees**
Z. Grannan, A. Bílá, J. Fiala, J. Geer, M. de Medeiros, P. Müller, A. J. Summers
- 2023 IWACO **Compositional Reasoning about Advanced Iterator Patterns in Rust**
A. Bílá, J. Hansen, P. Müller, A. J. Summers
- 2022 NFM **The Prusti project: Formal verification for Rust** (invited)
V. Astrauskas, A. Bílá, J. Fiala, Z. Grannan, C. Matheja, P. Müller, F. Poli, A. J. Summers
- 2021 OOPSLA **Modular Specification and Verification of Closures in Rust**
F. Wolff, A. Bílá, C. Matheja, P. Müller, A. J. Summers

Talks

- 2026 **Prusti Version 2 (and why there is one)**
Workshop talk at Rust Verification Workshop 2026 (ETAPS'26)
- 2025 **A Refinement Methodology for Distributed Programs in Rust**
Conference talk at OOPSLA'25
- 2024 **Refinement Proofs in Rust Using Ghost Locks**
Workshop talk at Rust Verification Workshop 2024 (ETAPS'24)
- 2023 **Compositional Reasoning about Advanced Iterator Patterns in Rust**
Workshop talk at IWACO'23
- 2022 **Modular Specification and Verification of Closures in Rust**
Conference talk at OOPSLA'22

Student Supervision

- 2024 **Verification of Asynchronous Code in a Rust Verifier**
Christoph Erdmann, Practical Work
- Documentation Generator for a Deductive Verifier**
Ferdinand Nussbaum, Bachelor's Thesis
- 2023 **Contract Checking at Runtime and Verification-based Optimizations for a Rust Verifier**
Cedric Hegglin, Master's Thesis (co-supervised with Jonáš Fiala)
- Proving Refinement in a Rust Verifier**
Jan Schär, Master's Thesis (co-supervised with João C. Pereira)
- Advanced Counterexample Generation in Viper**
Raoul van Doren, Bachelor's Thesis (co-supervised with Marco Eilers)
- Evaluating and Documenting a Rust Verifier**
Patrick Muntwiler, Bachelor's Thesis
- Obligations and Resources in Prusti**
Viktor Fukala, Student internship (co-supervised with Jonáš Fiala)
- Time Reasoning and Secure Information Flow in a Rust Verifier**
Alexandre Pinazza, Master's Thesis
- Extending IDE Integration of a Rust Verifier**
Cedric Hegglin, Joseph Thommes, Practical Work
- Annotating the Rust Standard Library with Specifications for Use in a Rust Verifier**
Julian Dunskus, Master's Thesis
- Specification and Verification of Iterators in a Rust Verifier**
Jonas Hansen, Master's Thesis
- Coupled Borrows: Modelling Rust's Aliasing Information with Capabilities**
Markus de Medeiros, Bachelor's Thesis (co-supervised with Alexander J. Summers)
- 2022 **Counterexamples for Complex Data Structures for a Rust Verifier**
Markus Limbeck, Bachelor's Thesis (co-supervised with Vytautas Astrauskas)
- Place Capability Summaries in Prusti**
Markus de Medeiros, Ryan Mehri, Student internship
(co-supervision Alexander J. Summers)
- 2021 **Reasoning about Complexities in a Rust Verifier**
Lowis Engel, Master's Thesis (co-supervised with Christoph Matheja)
- Specifying and Verifying Sequences and Array Algorithms in a Rust Verifier**
Johannes Schilling, Master's Thesis (co-supervised with Federico Poli)
- Counterexamples for a Rust Verifier**
Cedric Hegglin, Bachelor's Thesis (co-supervised with Christoph Matheja)
- Improvements to Prusti Specification Parsing and External Specifications**
Justin Hu, Jerry Liu, Student internship (co-supervised with Alexander J. Summers)

Teaching

- 2020–2026 **Teaching Assistant**
Formal Methods and Functional Programming (2021)
Program Verification (2022, 2023, 2024, 2025, 2026)
Concepts of Object-Oriented Programming (2022, 2023, 2024, 2025)

Service

- Artefact evaluation for CAV'26
- Reviewer for CPP'26
- Subreviewer for PLDI'21, ISSTA'22, TACAS'23, ESOP'26

Internships

2024 **Amazon Web Services, USA**

Research intern

With Rajeev Joshi

Improvements to the shuttle stateless model checker,
support for tokio-based synchronisation primitives

2019 **Haxe Foundation, France**

Intern

Work on the Haxe compiler (in OCaml), new libuv-based system APIs,
binary format to serialise typed AST, Unicode compliance in the stdlib

2017 **Imperial College London, United Kingdom**

Undergraduate Researcher (UROP), Awarded an EPSRC UROP Bursary

With Dr. Julie McCann and Michael Johnson

Spacecraft-on-demand printer simulator in FreeCAD/Python, G-code interpreter

2016 **Imperial College London, United Kingdom**

Undergraduate Researcher (UROP)

With Dr. Emil Lupu and Federico Morini

Determining FSM from untagged packet captures using APTA, Exbar, Prospex

Personal projects

- Open-source libraries for Rust and Haxe: game engines, coroutine tools, FFI generator
- Active participation in CTF events (cybersecurity competitions), member of the teams `cr0wn`, **Organisers**; received awards for solution write-ups (Google CTF 2018, 2019, 2020)
- Creation of CTF challenges for Facebook BountyCon 2020, 2022, ECSC 2025
- Regular participation in gamejams (rapid game prototyping events), such as **Ludum Dare** (27 entries) and **Alakajam!** (15 entries)
- StackOverflow member (top 0.5% of contributors, 2024), active in the Rust, Javascript tags

Languages

- Slovak (native), English (fluent), French (B2), German (A2)

References

- Peter Müller, ETH Zurich, Switzerland peter.mueller@inf.ethz.ch
- Alexander J. Summers, UBC, Canada alex.summers@ubc.ca
- Rajeev Joshi, AWS, USA jorajeev@amazon.com