

STEFAN ZETZSCHE

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EMPLOYMENT

Amazon Web Services , Applied Scientist	Dec 2022 - Present
• Working on programming language design, theorem proving, software verification, formalized mathematics, and neuro-symbolic AI. Based in the Agentic Automated Reasoning Group.	
Meta , Software Engineer Intern	Jul 2022 - Sep 2022
• Extended a static analyzer for the Hack programming language. Advised by Mistral Contrastin.	
Amazon Web Services , Applied Scientist Intern	Aug 2021 - Nov 2021
• Wrote a verified quantum circuit optimizer in the Dafny programming language. Advised by Rustan Leino.	

EDUCATION

PhD Computer Science , University College London	2018 - 2023
• Wrote my thesis <i>Canonical Algebraic Generators in Automata Learning</i> on automata learning, Kleene algebra, and category theory. Supported through grants of VeTTs and ERC. Part of the Programming Principles, Logic, and Verification (PPLV) Group. Advised by Alexandra Silva and Matteo Sammartino.	
MSc Mathematics , University of Hamburg	2016 - 2018
• Wrote my thesis <i>Generalised Duality Theory for Monoidal Categories and Applications</i> on category theory (First-Class Honours 1.0). Advised by Christoph Schweigert. Graduated with First-Class Honours with Distinction 1.0.	
BSc Mathematics , University of Hamburg	2014 - 2016
• Wrote my thesis <i>Isomorphism Classes of Vertex-Transitive Tournaments</i> on group and graph theory (First-Class Honours 1.0). Minor in Computer Science. Advised by Matthias Hamann.	

PUBLICATIONS

Conferences

[C1] CLEVER: A Curated Benchmark for Formally Verified Code Generation	2025
A. Thakur, J. Lee, G. Tsoukalas, M. Sistla, M. Zhao, <u>S. Zetzscche</u> , G. Durrett, Y. Yue, S. Chaudhuri	
Conference on Neural Information Processing Systems (NeurIPS)	
[C2] Verified Foundations for Differential Privacy	2025
M. Medeiros, M. Naveed, T. Lepoint, T. Kahsai, T. Ravitch, <u>S. Zetzscche</u> , A. Joshi, J. Tassarotti, A. Albargouthi, J. Tristan	
Distinguished Artifact Award	
Conference on Programming Language Design and Implementation (PLDI)	
[C3] Compiler Fuzzing in Continuous Integration: a Case Study on Dafny	2025
K. Boonriong, <u>S. Zetzscche</u> , A. F. Donaldson	
International Conference on Software Testing, Verification and Validation (ICST)	
[C4] Well-Behaved (Co)algebraic Semantics of Regular Expressions in Dafny	2024
<u>S. Zetzscche</u> , W. Różowski	
International Colloquium on Theoretical Aspects of Computing (ICTAC)	
[C5] Generators and Bases for Monadic Closures	2023
<u>S. Zetzscche</u> , A. Silva, M. Sammartino	
Conference on Algebra and Coalgebra in Computer Science (CALCO)	
[C6] Guarded Kleene Algebra with Tests: Automata Learning	2022
<u>S. Zetzscche</u> , A. Silva, M. Sammartino	
Conference on Mathematical Foundations of Programming Semantics (MFPS)	
[C7] Canonical Automata via Distributive Law Homomorphisms	2021
<u>S. Zetzscche</u> , G. v. Heerdt, M. Sammartino, A. Silva	
Conference on Mathematical Foundations of Programming Semantics (MFPS)	

Workshops

[W1] ATLAS: Automated Toolkit for Large-Scale Verified Code Synthesis	2026
M. Bakšys, <u>S. Zetzsche</u> , O. Bouissou, S. Kong, R. Delmas	
Dafny Workshop at the Symposium on Principles of Programming Languages (POPL)	
[W2] MiniF2F-Dafny: LLM-Guided Mathematical Theorem Proving via Auto-Active Verification	2026
M. Bakšys, <u>S. Zetzsche</u> , O. Bouissou	
Dafny Workshop at the Symposium on Principles of Programming Languages (POPL)	
[W3] DafnyPro: LLM-Assisted Automated Verification for Dafny Programs	2026
D. Banerjee, O. Bouissou, <u>S. Zetzsche</u>	
Dafny Workshop at the Symposium on Principles of Programming Languages (POPL)	
[W4] CLEVER: A Curated Benchmark for Formally Verified Code Generation	2025
A. Thakur, J. Lee, G. Tsoukalas, M. Sistla, M. Zhao, <u>S. Zetzsche</u> , G. Durrett, Y. Yue, S. Chaudhuri	
AI for Math Workshop at the International Conference on Machine Learning (ICML)	
[W5] Well-Behaved (Co)algebraic Semantics of Regular Expressions in Dafny	2025
<u>S. Zetzsche</u> , W. Różowski	
Dafny Workshop at the Symposium on Principles of Programming Languages (POPL)	
[W6] Verifying the Fisher-Yates Shuffle Algorithm in Dafny	2025
<u>S. Zetzsche</u> , T. Lepoint, J. Tristan, M. Mayer	
Dafny Workshop at the Symposium on Principles of Programming Languages (POPL)	
[W7] Dafny as Verification-Aware Intermediate Language for Code Generation	2025
Y. C. Li, <u>S. Zetzsche</u> , S. Somayajula	
Dafny Workshop at the Symposium on Principles of Programming Languages (POPL)	
[W8] Randomised Testing of the Dafny Compiler: Into the CI	2025
K. Boonriong, A. F. Donaldson, <u>S. Zetzsche</u>	
Dafny Workshop at the Symposium on Principles of Programming Languages (POPL)	
[W9] VMC: a Dafny Library for Verified Monte Carlo Algorithms	2024
F. Zaiser, <u>S. Zetzsche</u> , J. Tristan	
Dafny Workshop at the Symposium on Principles of Programming Languages (POPL)	

SUPERVISION

Interns at Amazon Web Services

- Jonas Bayer (PhD Student at the University of Cambridge) 2025
- Mantas Bakšys (PhD Student at the University of Cambridge) 2025
- Debangshu Banerjee (PhD Student at the University of Illinois Urbana-Champaign) 2025
- Yue Chen Li (Undergraduate Student at MIT) 2024
- Wojciech Różowski (PhD Student at the University College London) 2024
- Fabian Zaiser (PhD Student at the University of Oxford) 2023
- Yann Herklotz (PhD Student at the Imperial College London) 2022

TEACHING

Teaching Assistant

- Logic and Database Theory (University College London) 2020
- Discrete Mathematics for Computer Scientists (University College London) 2020
- Computability and Complexity (University College London) 2020
- Theory of Computation (University College London) 2019
- Principles of Programming (University College London) 2019
- Discrete Mathematics for Computer Scientists (University College London) 2018
- Analysis I (University of Hamburg) 2017

- Linear Algebra and Analytic Geometry II (University of Hamburg) 2016
- Linear Algebra and Analytic Geometry I (University of Hamburg) 2015

TALKS

[T1]	COMP0010 Software Engineering module at the University College London	2025
[T2]	Dafny Workshop at the Symposium on Principles of Programming Languages (POPL)	2025
[T3]	International Colloquium on Theoretical Aspects of Computing (ICTAC)	2024
[T4]	South of England Regional Programming Languages Seminar (SREPLS) at Jane Street	2024
[T5]	Theoretical Computer Science Seminar Series at the University of Birmingham	2023
[T6]	Oxford Advanced Seminar on Informatic Structures at the University of Oxford	2023
[T7]	Programming Languages Discussion Group at Cornell University	2023
[T8]	Lectures on Logic and its Mathematical Aspects Seminar at the University of Amsterdam	2023
[T9]	Programming Principles, Logic, and Verification Seminar at the University College London	2023
[T10]	Conference on Algebra and Coalgebra in Computer Science (CALCO)	2023
[T11]	Conference on the Mathematical Foundations of Programming Semantics (MFPS)	2022
[T12]	Programming Principles, Logic, and Verification Seminar at the University College London	2022
[T13]	Lectures on Logic and its Mathematical Aspects Seminar at the University of Amsterdam	2022
[T14]	Symposium on Compositional Structures (SYCO) at the Tallinn University of Technology	2021
[T15]	Conference on the Mathematical Foundations of Programming Semantics (MFPS)	2021
[T16]	Programming Principles, Logic, and Verification Seminar at the University College London	2021
[T17]	Programming Principles, Logic, and Verification Reading Group at the University College London	2020
[T18]	VeTSS Verified Software Workshop at the Isaac Newton Institute for Mathematical Sciences	2019
[T19]	Scottish Programming Languages and Verification Summer School	2019
[T20]	School of Computer Science at the University of Birmingham	2018

PROFESSIONAL SERVICES

Program Committee Chair

- Dafny Workshop at the Symposium on Principles of Programming Languages (POPL) 2026
- Dafny Workshop at the Symposium on Principles of Programming Languages (POPL) 2025
- Dafny Workshop at the Symposium on Principles of Programming Languages (POPL) 2024

Program and (Sub-)Review Committee Member

- International Conference on Machine Learning (ICML) 2025
- International Conference on Computer-Aided Verification (CAV) 2025
- Conference on Algebra and Coalgebra in Computer Science (CALCO) 2023
- International Symposium on Model Checking of Software (SPIN) 2023

Mentor

- Symposium on Principles of Programming Languages (POPL) 2021
- Conference on Systems, Programming, Languages and Applications: Software for Humanity (SPLASH) 2020

Organizer

- Dafny Workshop at the Symposium on Principles of Programming Languages (POPL) 2026
- South of England Regional Programming Languages Seminar (SREPLS) 2025
- Dafny Workshop at the Symposium on Principles of Programming Languages (POPL) 2025

- Dafny Workshop at the Symposium on Principles of Programming Languages (POPL) 2024

Artifact Evaluator

- International Conference on Computer-Aided Verification (CAV) 2025
- Conference on Programming Language Design and Implementation (PLDI) 2025
- International Conference on Functional Programming (ICFP) 2025
- Symposium on Principles of Programming Languages (POPL) 2025
- Conference on Systems, Programming, Languages and Applications: Software for Humanity (SPLASH) 2025
- International Conference on Functional Programming (ICFP) 2024
- Conference on Programming Language Design and Implementation (PLDI) 2024
- Symposium on Principles of Programming Languages (POPL) 2024
- International Conference on Computer-Aided Verification (CAV) 2023
- International Conference on Computer-Aided Verification (CAV) 2022

Student Volunteer

- International Conference on Computer-Aided Verification (CAV) 2021
- Conference on Systems, Programming, Languages and Applications: Software for Humanity (SPLASH) 2020
- Symposium on Principles of Programming Languages (POPL) 2020
- Conference on Programming Language Design and Implementation (PLDI) 2020
- Conference on Mathematical Foundations of Programming Semantics (MFPS) 2019
- Conference on Algebra and Coalgebra in Computer Science (CALCO) 2019