

Research Interests

My research focuses on tools and techniques for building reliable, efficient, and secure software. To this end, I work on testing and analysis of complex software systems. As part of my research, I have contributed to techniques that detected thousands of bugs and security problems in widely used software.

Positions and Experience

- Sep 2025 – **CISPA Helmholtz Center for Information Security, Germany**
now Tenured Faculty
- Sep 2019 – **University of Stuttgart, Germany**
now Full Professor
- Feb 2024 – **University of California, Berkeley, and University of California, Los Angeles, USA**
July 2024 Research sabbatical
- Feb 2019 – **Facebook, Menlo Park, USA**
Jul 2019 Sabbatical/industrial leave
- Oct 2014 – **TU Darmstadt, Germany**
Aug 2019 Assistant Professor (since April 2017, before: Independent research group leader)
- Sep 2013 – **University of California, Berkeley, USA**
Aug 2014 Postdoctoral researcher
- Jan 2013 – **ETH Zurich, Switzerland**
Jun 2013 Postdoctoral researcher and lecturer in the Laboratory for Software Technology lead by Thomas Gross
- 2008 – 2012 **ETH Zurich, Switzerland**
Research assistant in the Laboratory for Software Technology lead by Thomas Gross
- Aug 2006 – **Fraunhofer Institute for Secure Information Technology SIT, Darmstadt, Germany**
Sep 2006 Internship. Survey of static source code analysis tools. Study on Ajax-related security issues
- Jul 2005 – **Computer science research center FZI, Karlsruhe, Germany**
Aug 2005 Internship. Developed a Java application to visualize large object-oriented software
- 2001 – 2002 **Community service, Jena, Germany**
Day-care center for disabled children

Education

- 2008 – 2012 **ETH Zurich, Switzerland**
Ph.D. (Dr. sc.) in computer science. Laboratory for Software Technology lead by Thomas Gross.
Dissertation: *Program Analyses for Automatic and Precise Error Detection*.
Software Engineering Award of the Ernst-Denert-Foundation (best dissertation)
Examinors: Thomas Gross, Jonathan Aldrich, Andreas Zeller
- Jan 2008 – **Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland**
Jul 2008 Diploma thesis in the Programming Methods Laboratory lead by Martin Odersky.
Best student paper award at ICSOFT'08
- 2006 – 2008 **TU Dresden, Germany**
Diplom (\approx M.S.) in computer science, with distinction. Specialization: software engineering.
Awarded as one of the best engineering graduates of the year
- 2004 – 2006 **Ecole Centrale Paris, France**
Diplôme d'Ingénieur (\approx M.S.) in engineering
- 2002 – 2004 **TU Dresden, Germany**
Vordiplom (\approx B.S.) in computer science

Peer-reviewed Conference and Journal Publications

- ISSTA'25 **You Name It, I Run It: An LLM Agent to Execute Tests of Arbitrary Projects**
Islem Bouzenia, Michael Pradel. *International Symposium on Software Testing and Analysis*
- FSE'25 **DyLin: A Dynamic Linter for Python**
Aryaz Eghbali, Felix, Burk, Michael Pradel. *International Conference on the Foundations of Software Engineering*
- FSE'25 **ChangeGuard: Validating Code Changes via Pairwise Learning-Guided Execution**
Lars Gröninger, Beatriz Souza, Michael Pradel. *International Conference on the Foundations of Software Engineering*
- FSE'25 **An Empirical Study of Suppressed Static Analysis Warnings**
Huimin Hu, Yingying Wang, Julia Rubin, Michael Pradel. *International Conference on the Foundations of Software Engineering*
- ICSE'25 **RepairAgent: An Autonomous, LLM-Based Agent for Program Repair**
Islem Bouzenia, Premkumar Devanbu, Michael Pradel. *International Conference on Software Engineering*
- ICSE'25 **Treefix: Enabling Execution with a Tree of Prefixes**
Beatriz Souza, Michael Pradel. *International Conference on Software Engineering*
- ICSE'25 **Calibration and Correctness of Language Models for Code**
Claudio Spiess, David Gros, Kunal Suresh Pai, Michael Pradel, Md Rafiqul Islam Rabin, Amin Alipour, Susmit Jha, Premkumar Devanbu, Toufique Ahmed. *International Conference on Software Engineering*
- MSR'25 **Can LLMs Replace Manual Annotation of Software Engineering Artifacts?**
Toufique Ahmed, Premkumar Devanbu, Christoph Treude, Michael Pradel. *International Conference on Mining Software Repositories*
- OOPSLA'24 **Wasm-R3: Record-Reduce-Replay for Realistic and Standalone WebAssembly Benchmarks**
Doehyun Baek, Jakob Getz, Yusung Sim, Daniel Lehmann, Ben Titzer, Sukeyoung Ryu, Michael Pradel. *Proceedings of the ACM on Programming Languages*
- FSE'24 **Analyzing Quantum Programs with LintQ: A Static Analysis Framework for Qiskit**
Matteo Paltenghi, Michael Pradel. *International Conference on the Foundations of Software Engineering*
- FSE'24 **DyPyBench: A Benchmark of Executable Python Software**
Islem Bouzenia, Bajaj Piyush Krishan, Michael Pradel. *International Conference on the Foundations of Software Engineering*
- ICSE'24 **PyTy: Repairing Static Type Errors in Python**
Yiu Wai Chow, Luca Di Grazia, Michael Pradel. *International Conference on Software Engineering*
- ICSE'24 **Fuzz4All: Universal Fuzzing with Large Language Models**
Chunqiu Steven Xia, Matteo Paltenghi, Jia Le Tian, Michael Pradel, Lingming Zhang. *International Conference on Software Engineering*
- ICSE'24 **Resource Usage and Optimization Opportunities in Workflows of GitHub Actions**
Islem Bouzenia, Michael Pradel. *International Conference on Software Engineering*
- FSE'23 **LExecutor: Learning-Guided Execution**
Beatriz Souza, Michael Pradel. *Symposium on the Foundations of Software Engineering*
- ISSTA'23 **That's a Tough Call: Studying the Challenges of Call Graph Construction for WebAssembly**
Daniel Lehmann, Michelle Thalakottur, Frank Tip, Michael Pradel. *International Symposium on Software Testing and Analysis*
- ISSTA'23 **Beware of the Unexpected: Bimodal Taint Analysis**
Yiu Wai Chow, Max Schäfer, Michael Pradel. *International Symposium on Software Testing and Analysis*
- ICSE'23 **MorphQ: Metamorphic Testing of the Qiskit Quantum Computing Platform**
Matteo Paltenghi, Michael Pradel. *International Conference on Software Engineering*
- ICSE'23 **When to Say What: Learning to Find Condition-Message Inconsistencies**
Islem Bouzenia, Michael Pradel. *International Conference on Software Engineering*
- ICSE'23 **SecBench.js: An Executable Security Benchmark Suite for Server-Side JavaScript**
Masudul Hasan Masud Bhuiyan, Adithya Srinivas Parthasarathy, Nikos Vasilakis, Michael Pradel, Cristian-Alexandru Staicu. *International Conference on Software Engineering*

- ICSE'23 **VulGen: Realistic Vulnerability Generation Via Pattern Mining and Deep Learning**
Yu Nong, Yuzhe Ou, Michael Pradel, Feng Chan, Haipeng Cai. *International Conference on Software Engineering*
- TSE'22 **DiffSearch: A Scalable and Precise Search Engine for Code Changes**
Luca Di Grazia, Paul Bredl, Michael Pradel. *IEEE Transactions on Software Engineering*
- CSUR'22 **Code Search: A Survey of Techniques for Finding Code**
Luca Di Grazia, Michael Pradel. *ACM Computing Surveys*
- FSE'22 **DynaPyt: A Dynamic Analysis Framework for Python**
Aryaz Eghbali, Michael Pradel. *Symposium on the Foundations of Software Engineering*
- FSE'22 **The Evolution of Type Annotations in Python: An Empirical Study**
Luca Di Grazia, Michael Pradel. *Symposium on the Foundations of Software Engineering*
- FSE'22 **Generating Realistic Vulnerabilities via Neural Code Editing: An Empirical Study**
Yu Nong, Yuzhe Ou, Michael Pradel, Feng Chen, Haipeng Cai. *Symposium on the Foundations of Software Engineering*
- ASE'22 **CrystalBLEU: Precisely and Efficiently Measuring the Similarity of Code**
Aryaz Eghbali, Michael Pradel. *International Conference on Automated Software Engineering*
- OOPSLA'22 **Bugs in Quantum Computing Platforms: An Empirical Study**
Matteo Paltenghi, Michael Pradel. *Proceedings of the ACM on Programming Languages*
- PLDI'22 **Finding the Dwarf: Recovering Precise Types from WebAssembly Binaries**
Daniel Lehmann, Michael Pradel. *Conference on Programming Language Design and Implementation*
- ICSE'22 **Nalin: Learning from Runtime Behavior to Find Name-Value Inconsistencies in Jupyter Notebooks**
Jibesh Patra, Michael Pradel. *International Conference on Software Engineering*
- ICSE'22 **Nessie: Automatically Testing JavaScript APIs with Asynchronous Callbacks**
Ellen Arteca, Sebastian Harner, Michael Pradel, Frank Tip. *International Conference on Software Engineering*
- S&P'22 **Wobfuscator: Obfuscating JavaScript Malware via Opportunistic Translation to WebAssembly**
Alan Romano, Daniel Lehmann, Michael Pradel, Weihang Wang. *Symposium on Security and Privacy*
- CACM'22 **Neural Software Analysis**
Michael Pradel, Satish Chandra. *Communications of the ACM* 65(1), pages 86–96
- ASE'21 **Thinking Like a Developer? Comparing the Attention of Humans with Neural Models of Code**
Matteo Paltenghi, Michael Pradel. *International Conference on Automated Software Engineering*
- FSE'21 **Semantic Bug Seeding: A Learning-Based Approach for Creating Realistic Bugs**
Jibesh Patra, Michael Pradel. *Symposium on the Foundations of Software Engineering*
- CCS'21 **Preventing Dynamic Library Compromise on Node.js via RWX-Based Privilege Reduction**
Nikos Vasilakis, Cristian-Alexandru Staicu, Grigoris Ntousakis, Konstantinos Kallas, Ben Karel, Andre DeHon, Michael Pradel. *Conference on Computer and Communications Security*
- ISSTA'21 **Finding Data Compatibility Bugs with JSON Subschema Checking**
Andrew Habib, Avraham Shinnar, Martin Hirzel, Michael Pradel. *International Symposium on Software Testing and Analysis*
- ISSTA'21 **Continuous Test Suite Failure Prediction**
Cong Pan, Michael Pradel. *International Symposium on Software Testing and Analysis*
- ICSE'21 **IdBench: Evaluating Semantic Representations of Identifier Names in Source Code**
Yaza Wainakh, Moiz Rauf, Michael Pradel. *International Conference on Software Engineering*
- WWW'21 **An Empirical Study of Real-World WebAssembly Binaries: Security, Languages, Use Cases**
Aaron Hilbig, Daniel Lehmann, Michael Pradel. *The Web Conference (WWW)*
- ICPE'21 **ConfProf: White-Box Performance Profiling of Configuration Options**
Xue Han, Tingting Yu, Michael Pradel. *International Conference on Performance Engineering*
- IEEE Sw.'21 **Automatic Program Repair**
Claire Le Goues, Michael Pradel, Abhik Roychoudhury, Satish Chandra. *IEEE Software* 38(4), pages 22–27

- ASE'20 **No Strings Attached: An Empirical Study of String-related Software Bugs**
Aryaz Eghbali, Michael Pradel. *International Conference on Automated Software Engineering*
- USENIX Security'20 **Everything Old is New Again: Binary Security of WebAssembly**
Daniel Lehmann, Johannes Kinder, Michael Pradel. *USENIX Security Symposium*
- FSE'20 **TypeWriter: Neural Type Prediction with Search-based Validation**
Michael Pradel, Georgios Gousios, Jason Liu, Satish Chandra. *Symposium on the Foundations of Software Engineering*
- ISSTA'20 **Scaffle: Bug Localization on Millions of Files**
Michael Pradel, Vijayaraghavan Murali, Rebecca Qian, Mateusz Machalica, Erik Meijer, Satish Chandra. *International Symposium on Software Testing and Analysis*
- ICSE'20 **Extracting Taint Specifications for JavaScript Libraries**
Cristian-Alexandru Staicu, Martin Toldam Torp, Max Schäfer, Anders Møller, Michael Pradel. *International Conference on Software Engineering*
- IEEE Sw.'20 **Satisfying Increasing Performance Requirements with Caching at the Application Level**
Jhonny Mertz, Ingrid Nunes, Luca Della Toffola, Marija Selakovic, Michael Pradel. *IEEE Software*
- OOPSLA'19 **Getafix: Learning to Fix Bugs Automatically**
Johannes Bader, Andrew Scott, Michael Pradel, Satish Chandra. *Conference on Object-Oriented Programming, Systems, Languages, and Applications*
- ISSTA'19 **Interactive Metamorphic Testing of Debuggers**
Sandro Tolksdorf, Daniel Lehmann, Michael Pradel. *International Symposium on Software Testing and Analysis*
- USENIX Security'19 **Small World with High Risks: A Study of Security Threats in the npm Ecosystem**
Markus Zimmermann, Cristian-Alexandru Staicu, Cam Tenny, Michael Pradel. *USENIX Security Symposium*
- USENIX Security'19 **Leaky Images: Targeted Privacy Attacks in the Web**
Cristian-Alexandru Staicu, Michael Pradel. *USENIX Security Symposium*
- WWW'19 **Anything to Hide? Studying Minified and Obfuscated Code in the Web**
Philippe Skolka, Cristian-Alexandru Staicu, Michael Pradel. *The Web Conference (WWW)*
- ICSE'19 **NL2Type: Inferring JavaScript Function Types from Natural Language Information**
Rabee Sohail Malik, Jibesh Patra, Michael Pradel. *International Conference on Software Engineering*
- ASPLOS'19 **Wasabi: A Framework for Dynamically Analyzing WebAssembly**
Daniel Lehmann, Michael Pradel. *International Conference on Architectural Support for Programming Languages and Operating Systems*
- CACM'19 **Automated Program Repair**
Claire Le Goues, Michael Pradel, Abhik Roychoudhury. *Communications of the ACM*, 62(12), pages 56–65
- CSUR'19 **A Survey of Compiler Testing**
Junjie Chen, Jibesh Patra, Michael Pradel, Yingfei Xiong, Hongyu Zhang, Dan Hao, Lu Zhang. *ACM Computing Surveys*, 53(1), pages 1–36
- OOPSLA'18 **DeepBugs: A Learning Approach to Name-based Bug Detection**
Michael Pradel, Koushik Sen. *Conference on Object-Oriented Programming, Systems, Languages, and Applications*
- OOPSLA'18 **Test Generation for Higher-Order Functions in Dynamic Languages**
Marija Selakovic, Michael Pradel, Rezwana Karim Nawrin, Frank Tip. *Conference on Object-Oriented Programming, Systems, Languages, and Applications*
- ASE'18 **How Many of All Bugs Do We Find? A Study of Static Bug Detectors**
Andrew Habib, Michael Pradel. *International Conference on Automated Software Engineering*
- ASE'18 **Is This Class Thread-Safe? Inferring Documentation using Graph-based Learning**
Andrew Habib, Michael Pradel. *International Conference on Automated Software Engineering*
- FSE'18 **Feedback-Directed Differential Testing of Interactive Debuggers**
Daniel Lehmann, Michael Pradel. *European Software Engineering Conference and Symposium on the Foundations of Software Engineering*
- ICSME'18 **Change-aware Dynamic Program Analysis for JavaScript**
Dileep R. K. Murthy, Michael Pradel. *International Conference on Software Maintenance and Evolution*

- USENIX Security'18 **Freezing the Web: A Study of ReDoS Vulnerabilities in JavaScript-based Web Servers**
Cristian-Alexandru Staicu, Michael Pradel. *USENIX Security Symposium*
- ICSE'18 **ConflictJS: Finding and Understanding Conflicts Between JavaScript Libraries**
Jibesh Patra, Pooja N. Dixit, Michael Pradel. *International Conference on Software Engineering*
- NDSS'18 **Synode: Understanding and Automatically Preventing Injection Attacks on Node.js**
Cristian-Alexandru Staicu, Michael Pradel, Ben Livshits. *Network and Distributed System Security Symposium*
- CGO'18 **Synthesizing Programs that Expose Performance Bottlenecks**
Luca Della Toffola, Michael Pradel, Thomas R. Gross. *International Symposium on Code Generation and Optimization*, pages 314–326
- ASE'17 **Automatically Reducing Tree-Structured Test Inputs**
Satia Herfert, Jibesh Patra, Michael Pradel. *International Conference on Automated Software Engineering*, pages 861–871
- ASE'17 **Saying “hi!” Is Not Enough: Mining Inputs for Effective Test Generation**
Luca Della Toffola, Cristian-Alexandru Staicu, Michael Pradel. *International Conference on Automated Software Engineering*, pages 44–49
- OOPSLA'17 **Detecting Argument Selection Defects**
Andrew Rice, Edward Aftandilian, Ciera Jaspan, Emily Johnston, Michael Pradel, Yulissa Arroyo-Paredes. *Conference on Object-Oriented Programming, Systems, Languages, and Applications*, pages 104:1–104:22
- PLDI'17 **Systematic Black-Box Analysis of Collaborative Web Applications**
Marina Billes, Anders Møller, Michael Pradel. *Conference on Programming Language Design and Implementation*, pages 171–184
- ISSTA'17 **An Actionable Performance Profiler for Optimizing the Order of Evaluations**
Marija Selakovic, Thomas Glaser, Michael Pradel. *International Symposium on Software Testing and Analysis*, pages 170–180
- ICSE'17 **Making Malory Behave Maliciously: Targeted Fuzzing of Android Execution Environments**
Siegfried Rasthofer, Steven Arzt, Stefan Triller, Michael Pradel. *International Conference on Software Engineering*, pages 300–311
- ICSE'17 **Efficient Detection of Thread Safety Violations via Coverage-Guided Generation of Concurrent Tests**
Ankit Choudhary, Shan Lu, Michael Pradel. *International Conference on Software Engineering*, pages 266–277
- CSUR'17 **A Survey of Dynamic Analysis and Test Generation for JavaScript**
Esben Andreasen, Liang Gong, Anders Møller, Michael Pradel, Marija Selakovic, Koushik Sen, Cristian-Alexandru Staicu. *ACM Computing Surveys*, 50(5), pages 1–36
- EMSE'17 **Pinpointing and Repairing Performance Bottlenecks in Concurrent Programs**
Tingting Yu, Michael Pradel. *Empirical Software Engineering (EMSE)*, 23(5), pages 3034–3071
- ICSE'16 **Performance Issues and Optimizations in JavaScript: An Empirical Study**
Marija Selakovic, Michael Pradel. *International Conference on Software Engineering*, pages 61–72
- ICSE'16 **Nomen Est Omen: Exploring and Exploiting Similarities between Argument and Parameter Names**
Hui Liu, Qiurong Liu, Cristian-Alexandru Staicu, Michael Pradel, Yue Luo. *International Conference on Software Engineering*, pages 1063–1073
- ISSTA'16 **Monkey See, Monkey Do: Effective Generation of GUI Tests with Inferred Macro Events**
Markus Ermuth, Michael Pradel. *International Symposium on Software Testing and Analysis*, pages 82–93
- ISSTA'16 **SyncProf: Detecting, Localizing, and Optimizing Synchronization Bottlenecks**
Tingting Yu, Michael Pradel. *International Symposium on Software Testing and Analysis*, pages 389–400
- OOPSLA'15 **Performance Problems You Can Fix: A Dynamic Analysis of Memoization Opportunities**
Luca Della Toffola, Michael Pradel, Thomas R. Gross. *Conference on Object-Oriented Programming, Systems, Languages, and Applications*, pages 607–622

- FSE'15 **JITProf: Pinpointing JIT-Unfriendly JavaScript Code**
Liang Gong, Michael Pradel, Koushik Sen. *European Software Engineering Conference and Symposium on the Foundations of Software Engineering*, pages 357–368
- ISSTA'15 **DLint: Dynamically Checking Bad Coding Practices in JavaScript**
Liang Gong, Michael Pradel, Manu Sridharan, Koushik Sen. *International Symposium on Software Testing and Analysis*, pages 94–105
- ECOOP'15 **The Good, the Bad, and the Ugly: An Empirical Study of Implicit Type Conversions in JavaScript**
Michael Pradel, Koushik Sen. *European Conference on Object-Oriented Programming*, pages 519–541
- ICSE'15 **TypeDevil: Dynamic Type Inconsistency Analysis for JavaScript**
Michael Pradel, Parker Schuh, Koushik Sen. *International Conference on Software Engineering*, pages 314–324
- OOPSLA'14 **EventBreak: Analyzing the Responsiveness of User Interfaces through Performance-Guided Test Generation**
Michael Pradel, Parker Schuh, George Necula, Koushik Sen. *Conference on Object-Oriented Programming, Systems, Languages, and Applications*, pages 33–47
- ISSTA'14 **Performance Regression Testing of Concurrent Classes**
Michael Pradel, Markus Huggler, Thomas R. Gross. *International Symposium on Software Testing and Analysis*, pages 13–25
- ASE'13 **BitA: Coverage-guided, Automatic Testing of Actor Programs**
Samira Tasharofi, Michael Pradel, Yu Lin, Ralph Johnson. *International Conference on Automated Software Engineering*, pages 114–224
- ICSE'13 **Automatic Testing of Sequential and Concurrent Substitutability**
Michael Pradel, Thomas R. Gross. *International Conference on Software Engineering*, pages 282–291
- TSE'13 **Name-based Analysis of Equally Typed Method Arguments**
Michael Pradel, Thomas R. Gross. *IEEE Transactions on Software Engineering*, 39(8), pages 1127–1143
- PLDI'12 **Fully Automatic and Precise Detection of Thread Safety Violations**
Michael Pradel, Thomas R. Gross. *Conference on Programming Language Design and Implementation*, pages 521–530
- ISSTA'12 **Static Detection of Brittle Parameter Typing**
Michael Pradel, Severin Heiniger, Thomas R. Gross. *International Symposium on Software Testing and Analysis*, pages 265–275
- ICSE'12 **Leveraging Test Generation and Specification Mining for Automated Bug Detection without False Positives**
Michael Pradel, Thomas R. Gross. *International Conference on Software Engineering*, pages 288–298
- ICSE'12 **Statically Checking API Protocol Conformance with Mined Multi-Object Specifications**
Michael Pradel, Ciera Jaspan, Jonathan Aldrich, Thomas R. Gross. *International Conference on Software Engineering*, pages 925–935
- ICSE'12 **Ballerina: Automatic Generation and Clustering of Efficient Random Unit Tests for Multithreaded Code**
Adrian Nistor, Qingzhou Luo, Michael Pradel, Thomas R. Gross, Darko Marinov. *International Conference on Software Engineering*, pages 727–737
- ISSTA'11 **Detecting Anomalies in the Order of Equally-typed Method Arguments**
Michael Pradel, Thomas R. Gross. *International Symposium on Software Testing and Analysis*, pages 232–242
- ICSM'10 **A Framework for the Evaluation of Specification Miners Based on Finite State Machines**
Michael Pradel, Philipp Bichsel, Thomas R. Gross. *International Conference on Software Maintenance*, pages 1–10
- IJEIS'10 **A Good Role Model for Ontologies: Collaborations**
Michael Pradel, Jakob Henriksson, Uwe Aßmann. *International Journal of Enterprise Information Systems*, 6(1), pages 1–11
- ASE'09 **Automatic Generation of Object Usage Specifications from Large Method Traces**
Michael Pradel, Thomas R. Gross. *International Conference on Automated Software Engineering*, pages 371–382

- ICSOFT'08 **Scala Roles - A Lightweight Approach towards Reusable Collaborations**
Michael Pradel, Martin Odersky. *International Conference on Software and Data Technologies*, pages 13–20. **Best student paper award**
- RR'08 **Ontology Design and Reuse with Conceptual Roles**
Jakob Henriksson, Michael Pradel, Steffen Zschaler, Jeff Z. Pan. *International Conference on Web Reasoning and Rule Systems*, pages 104–118

Awards and Distinctions

- 2025 ACM SIGSOFT Distinguished Paper Award at MSR'25 for *Can LLMs Replace Manual Annotation of Software Engineering Artifacts?*
- 2025 Hosting Cristian Cadar as a Humboldt Research Award Winner at the University of Stuttgart
- 2023 Hosting Prem Devanbu as a Humboldt Research Award Winner at the University of Stuttgart
- 2023 ACM SIGSOFT Distinguished Paper Award at FSE'23 for *LExecutor: Learning-Guided Execution*
- 2023 ACM SIGSOFT Distinguished Paper Award at ISSTA'23 for *Beware of the Unexpected: Bimodal Taint Analysis*
- 2023 ACM SIGSOFT Distinguished Artifact Award at ISSTA'23 for *That's a Tough Call: Studying the Challenges of Call Graph Construction for WebAssembly*
- 2022 Distinguished Member of the ACM
- 2022 ACM SIGSOFT Distinguished Paper Award at FSE'22 for *The Evolution of Type Annotations in Python: An Empirical Study*
- 2022 ACM SIGSOFT Distinguished Paper Award at ASE'22 for *CrystalBLEU: Precisely and Efficiently Measuring the Similarity of Code*
- 2021 ACM SIGSOFT Distinguished Paper Award at FSE'21 for *Semantic Bug Seeding: A Learning-Based Approach for Creating Realistic Bugs*
- 2021 ACM SIGSOFT Distinguished Artifact Award at ISSTA'21 for *Finding Data Compatibility Bugs with JSON Subschema Checking*
- Since 2021 Faculty Member in the International Max Planck Research School for Intelligent Systems (IMPRS-IS)
- Since 2021 Member of the European Laboratory for Learning and Intelligent Systems (ELLIS)
- Since 2019 Member of the IFIP Working Group 2.4 (Software Implementation Technology)
- 2019 Best Paper Award at ASPLOS'19 for *Wasabi: A Framework for Dynamically Analyzing WebAssembly*
- 2016 Distinguished Poster Award at ECOOP'16 for *Language-Independent Fuzz Testing with Probabilistic, Generative Models*
- 2014 Software Engineering Award of the Ernst-Denert-Foundation for the best dissertation (€5,000)
- 2009 Enno Heidebroek award (best engineering graduates at TU Dresden)
- 2009 Second winner in the Student Research Competition at OOPSLA'09 for paper *Dynamically Inferring, Refining, and Checking API Usage Protocols*
- 2008 Best student paper award at the International Conference on Software and Data Technology for paper *Scala Roles - A Lightweight Approach towards Reusable Collaborations*

Awards Received by Students Under My Supervision

- 2023 Daniel Lehmann. Best PhD Thesis in Computer Science at the University of Stuttgart. *Program Analysis of WebAssembly Binaries*
- 2022 Islem Bouzenia. Winner at ACM Student Research Competition at ASE'22. *Detecting Inconsistencies in If-Condition-Raise Statements*
- 2022 Luca Di Grazia. Second winner at ACM Student Research Competition at ICSE'22. *Efficiently and Precisely Searching for Code Changes with DiffSearch*
- 2018 Daniel Lehmann. Best Master Thesis in Computer Science at TU Darmstadt (Datenlotsen-Preis). *Automatic Testing of Interactive JavaScript Debuggers*

External Funding

- January 2024 ERC Proof of Concept Grant. *BugGPT: Practical, Learning-Based Tools for Finding and Fixing Bugs*. Principal investigator.
- November 2023 Individual research project funded by the German Research Foundation (DFG). *LExecution: Learning to Guide and Analyze Program Executions*. Principal investigator.
- August 2023 Individual research project funded by the German Research Foundation (DFG). *QPTest: Automated Testing of Quantum Computing Platforms*. Principal investigator.
- December 2021 Individual research project funded by the German Research Foundation (DFG). *DeMoCo: Developer-Centered, Neural Models of Code*. Principal investigator.
- September 2019 ERC Starting Grant. *LearnBugs: Learning to Find Software Bugs*. Principal investigator. €1,500,000
- October 2017 Individual research project funded by the German Research Foundation (DFG). *Perf4JS: Automatically Fixing Performance Problems in Real-World JavaScript Applications*. Principal investigator.
- July 2017 Collaborative research project funded by the State of Hesse. *Software-Factory 4.0*. Principal investigator.
- May 2017 Collaborative research project funded by the German Federal Ministry of Education and Research (BMBF) and by the State of Hesse. *Center for Research in Security and Privacy (CRISP)*. Principal investigator.
- October 2015 Collaborative research project funded by the German Federal Ministry of Education and Research (BMBF) and by the State of Hesse. *Center for Research in Security and Privacy (CRISP)*. Principal investigator.
- October 2014 Collaborative research project funded by the German Federal Ministry of Education and Research (BMBF). *European Center for Security and Privacy by Design (EC-SPRIDE)*. Principal investigator.
- September 2014 Emmy Noether research group funded by DFG. *ConcSys: Reliable and Efficient Complex, Concurrent Software Systems*. Principal investigator. €1,300,000
- Spring 2008 Scholarship of the German Academic Exchange Service DAAD. €4,250
- 2004 – 2006 Scholarship of the French-German University UFA/DFH. €6,000

Talks

Note: The following does not include regular paper presentations at conferences and workshops

- 2025 Shonan seminar on *Trusted Automated Programm*
TU Delft. Host: Sebastian Proksch
IQST Day 2025, Stuttgart
February meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
Imperial College London. Host: Cristian Cadar
Dagstuhl seminar on *Testing Program Analyzers and Verifiers*
Dagstuhl seminar on *Utilising and Scaling the WebAssembly Semantics*
New Faculty Symposium at FSE'25
- 2024 University of California, Berkeley. Host: Koushik Sen
NLBSE at ICSE'24. Keynote
University of California, Davis. Host: Prem Devanbu
Google, Sunnyvale. Host: Satish Chandra
TU Darmstadt. Host: Mira Mezini
TU Munich. Host: Thomas H. Kolbe
Amazon Web Services, Santa Clara. Host: Rajdeep Mukherjee
University of California, Los Angeles. Host: Miryung Kim
University of Southern California. Host: Nenad Medvidovic
University of California, Riverside. Host: Manu Sridharan
Huawei Future Trustworthiness Technology Summit

- Dagstuhl seminar on *Automated Programming and Program Repair*
 University of Chicago. Host: Kexin Pei
 York University. Host: Gias Uddin
 TU Wien. Host: Georg Weissenbacher
 CISPA. Host: Andreas Zeller
- 2023 Microsoft Research, Redmond. Hosts: Sumit Gulwani and Gustavo Soares
 LLMs for Code Seminar. Host: Nadav Timor
 IBM Research. Host: Saurabh Sinha
 AI4Code Meetup London. Host: Konstantina Dritsa
 SDD Workshop at FSE'23. Invited talk
 MET Workshop at ICSE'23. Keynote
 inteNSE Workshop at ICSE'23. Keynote
 April meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
 Uber. Host: Raj Barik
 Dagstuhl seminar on *Programming Language Processing*
- 2022 International Symposium on Software Testing and Analyses (ISSTA). Keynote
 Microsoft Research. Host: Roshanak Zilouchian Moghaddam
 PL South-West Workshop, Tübingen
 National University of Singapore. Host: Umang Mathur
 June meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
 ASA Workshop at PLDI'22. Invited talk
 New Faculty Symposium at ICSE'22. Invited talk
 ETH Zurich. Host: Zhendong Su
 University of Lugano (USI). Host: Mauro Pezze
 ML4Code@Montreal. Host: Jin Guo
- 2021 Massachusetts Institute of Technology (MIT). Host: Niko Vasilakis
 Northeastern University. Host: Frank Tip
 Columbia University. Host: Baishakhi Ray
 Stevens Institute of Technology. Host: Michael Greenberg
 May meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
 New Faculty Symposium at ISSRE'22. Invited talk
 November meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
 Workshop on Product Security at Bosch. Host: Christopher Huth
- 2020 Belgium-Netherlands Software Evolution Workshop (BENEVOL). Keynote
 October meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
 January meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
- 2019 Shonan seminar on *Fuzzing and Symbolic Execution*
 University of California, Berkeley. Host: Koushik Sen
 Workshop at PLDI'19 program committee meeting
- 2018 Dagstuhl seminar on *Genetic Improvement of Software*
 Dagstuhl event on *Research Methods in Software Engineering*
 Paderborn University. Host: Eric Bodden
 Saarland University. Host: Holger Hermanns
 ML4P Workshop at CAV. Invited talk
 SOAP Workshop at ECOOP and ISSTA. Invited talk
 Meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
 University of Maryland. Host: Michael Hicks
 Facebook Big Code Summit. Host: Satish Chandra
- 2017 Dagstuhl seminar on *Testing and Verification of Compilers*
 Imperial College London. Hosts: Ben Livshits and Alastair Donaldson

- CREST workshop on *Bimodal Program Analysis* at University College London
University of Edinburgh. Host: Paul Jackson
CISPA, Saarbrücken. Host: Michael Backes
Meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
University of Lugano (USI). Host: Mauro Pezze
Karlsruhe Institute of Technology. Host: Ralf Reussner
Stanford University. Host: Alex Aiken
Google, Mountain View. Host: Omer Tripp
Dagstuhl seminar on *Automated Program Repair*
University of Passau. Host: Christian Lengauer
SE 2017
- 2016 Meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
IMDEA Software Institute, Madrid. Host: Alessandra Gorla
Massachusetts Institute of Technology (MIT). Host: Martin Rinard
Harvard University. Host: Stephen Chong
Workshop at the ECOOP program committee meeting.
University of Stuttgart. Host: Daniel Weiskopf
TU Dresden. Host: Ivo F. Sbalzarini
- 2015 ETH Zurich. Host: Thomas R. Gross
Purdue University. Host: Mathias Payer
Aarhus University. Host: Anders Møller
Workshop on Programming Language Evolution. Invited speaker
Advisory Council of University Professors for the German Informatics Society (GIBU), Invited speaker
SE 2015. Two talks
Max Planck Institute for Software Systems, Host: Viktor Vafeiadis
- 2014 Workshop on Software Engineering for Parallel Systems. Invited speaker
Mozilla Research, San Francisco. Host: Michael Bebenita
University of California, Davis. Host: Zhendong Su
Google, Mountain View. Host: Ciera Jaspan
Samsung Research, San Jose. Host: Satish Chandra
TU Darmstadt. Hosts: Mira Mezini and Eric Bodden
SE 2014, Kiel. Award talk on the occasion of receiving the Software Engineering award of the Ernst-Denert-Foundation for the best dissertation
Meeting of the IFIP Working Group 2.4 (Software Implementation Technology)
- 2013 University of Lugano (USI). Host: Matthias Hauswirth
TU München. Host: Alexander Pretschner
TU Kaiserslautern. Host: Arnd Poetzsch-Heffter
TU Berlin. Host: Jean-Pierre Seifert
TU Dresden. Host: Uwe Assmann
Saarland University. Host: Andreas Zeller
University of Bern. Host: Oscar Nierstrasz
University of Zurich. Host: Harald Gall
Karlsruhe Institute of Technology. Host: Walter Tichy
TU Darmstadt. Hosts: Mira Mezini and Eric Bodden
- 2012 Coverity, San Francisco. Host: Murali Krishna Ramanathan
University of California, Berkeley. Host: Koushik Sen
University of Washington. Host: Michael Ernst
Google, Zurich. Host: Andreas Leitner
- 2011 Google, Zurich. Hosts: Jürgen Allgayer and Andreas Leitner

- University of Waterloo. Hosts: Ondrej Lhotak and Patrick Lam
Carnegie Mellon University. Host: Jonathan Aldrich
- 2010 Dagstuhl seminar on *Relationships, Objects, Roles, and Queries in Modern Programming Languages*
Saarland University. Hosts: Sebastian Hack and Andreas Zeller
- 2009 Victoria University of Wellington. Host: David J. Pearce

Teaching Experience

Lecturer

- Summer 2025 **Programming Paradigms**
Lecture and exercise at University of Stuttgart. About 180 students.
- Winter 2024/25 **Program Analysis**
Lecture and project at University of Stuttgart. About 60 students.
- Programming Paradigms**
Lecture and exercise at University of Stuttgart. About 150 students.
- Winter 2023/24 **Program Analysis**
Lecture and project at University of Stuttgart. About 60 students.
- Machine Learning for Programming**
Seminar at University of Stuttgart. About 10 students.
- Summer 2023 **Analyzing Software using Deep Learning**
Lecture and project at University of Stuttgart. About 40 students.
- Programming Paradigms**
Lecture and exercise at University of Stuttgart. About 170 students.
- Winter 2022/23 **Machine Learning for Programming**
Seminar at University of Stuttgart. About 10 students.
- Summer 2022 **Analyzing Software using Deep Learning**
Lecture and project at University of Stuttgart. About 40 students.
- Programming Paradigms**
Lecture and exercise at University of Stuttgart. About 200 students.
- Winter 2021/22 **Program Analysis**
Lecture and project at University of Stuttgart. About 30 students.
- Machine Learning for Programming**
Seminar at University of Stuttgart. About 10 students.
- Summer 2021 **Analyzing Software using Deep Learning**
Lecture and project at University of Stuttgart. About 50 students.
- Programming Paradigms**
Lecture and exercise at University of Stuttgart. About 260 students.
- Winter 2020/21 **Program Analysis**
Lecture and project at University of Stuttgart. About 30 students.
- Machine Learning for Programming**
Seminar at University of Stuttgart. About 10 students.
- Summer 2020 **Analyzing Software using Deep Learning**
Lecture and project at University of Stuttgart. About 60 students.
- Programming Paradigms**
Lecture and exercise at University of Stuttgart. About 240 students.
- Winter 2019/20 **Program Analysis**
Lecture and project at University of Stuttgart. 20-30 students.
- Programming Paradigms**
Lecture and exercise at University of Stuttgart. About 200 students. Newly designed course.
- Practical Program Analysis**
Practical course at University of Stuttgart. About 10 students. Newly designed course.

Machine Learning for Programming

Seminar at University of Stuttgart. 10-15 students.

- Winter 2018/19 **Machine Learning for Programming**
Seminar at TU Darmstadt. About 15 students.
- Summer 2018 **Analyzing Software using Deep Learning**
Integrated course at TU Darmstadt. About 180 students.
- Winter 2017/18 **Program Testing and Analysis**
Integrated course at TU Darmstadt. About 100 students.
- Summer 2017 **Analyzing Software using Deep Learning**
Integrated course at TU Darmstadt. About 300 students. Newly designed course. In addition to a final exam, students work on a larger coding project.
- Winter 2016/17 **Program Testing and Analysis**
Integrated course at TU Darmstadt. About 80 students.
- Winter 2015/16 **Program Testing and Analysis**
Integrated course at TU Darmstadt. About 60 students. Newly designed course (13 lectures of 90 minutes). In addition to a final exam, students work on a larger coding project and write a term paper.
- Winter 2014/15 **Program Analysis**
Seminar at TU Darmstadt. 10-20 students. Newly designed course.
- Spring 2013 **Software Architecture and Engineering**
Core undergraduate course at ETH Zurich. About 100 students. Co-taught with Martin Vechev. Re-designed and extended existing course. Full responsibility for 13 lectures of 90 minutes, exercise sessions, a larger coding project, and for managing a group of teaching assistants.
- Fall 2012 **Compiler Design**
Replacement lecturer for one lecture of 90 minutes, at ETH Zurich.
- Teaching Assistant**
- Teaching assistantships involve preparing and presenting exercises, preparing and grading exams, organizing office hours, and organizing larger coding projects.
- Fall 2012 **Compiler Design**
- Fall 2011 **Compiler Design**
- Fall 2009 **System Programming and Computer Architecture**
- Fall 2008 **Computer Architecture**
- Fall 2008 **System Programming**
- Mentor**
- Spring 2011 **Software Engineering seminar**
- Fall 2008 **Software Engineering seminar**

Advising and Mentoring

- PhD students Doehyun Baek. Since March 2025
Beatriz Souza. Since April 2023
Huimin Hu. Since October 2022
Islem Bouzenia. Since September 2021
Matteo Paltenghi. Since December 2020
Aryaz Eghbali. Since October 2020
Luca Di Grazia. Since September 2019 – February 2024
Daniel Lehmann. Since December 2017 – August 2022
Andrew Habib. October 2015 – February 2021
Jibesh Patra. Since March 2015 – April 2021
Cristian-Alexandru Staicu. October 2014 – May 2020
Marija Selakovic. Since October 2014 – June 2019
- Master theses Lars Gröninger. *Reasoning about Code Changes via Pairwise Learning-Guided Execution*. 2024. See paper at FSE'25

Jakob Getz. *Wasm-R3: Creating Executable Benchmarks of WebAssembly Binaries via Record-Reduce-Replay*. 2024. See paper at OOPSLA'24

Jan Geistler. *Automatically Detecting Malicious GitHub Actions*. 2023

Piyush Krishan Bajaj. *DyPyBench: A Benchmark of Executable Python Software*. 2023. See paper at FSE'24

Valentin Knappich. *Tests4J Benchmark: Execution-based Evaluation of Context-Aware Language Models for Test Case Generation*. 2023

Felix Burk. *A Dynamic Analysis-Based Linter for Python*. 2023. See paper at FSE'25

Yiu Wai Chow. *Bimodal Taint Analysis for Detecting Unusual Parameter-Sink Flows*. Co-advised with Max Schäfer. 2022. See paper at ISSTA'23

Maximilian Reichel. *Metamorphic Testing of Version Control Systems*. Co-advised with Maria Christakis. 2022

Dominik Huber. *Neural Models for Automatic Program Repair vs. Human Developers*. 2022

Koushik Ragavendran. *NullnessGraphSeq: Learning-based Java Nullness Inference*. 2022

Ya-Jen Hsu. *Learning to Identify Equivalent Code*. Co-advised with Andreas Bulling. 2021

Sebastian Harner. *Automated Test Generation for Asynchronous, Higher-Order JavaScript Functions*. Co-advised with Frank Tip. 2020. See paper at ICSE'22

Fahad Ghouri. *Learning to Profile: Finding Optimization Opportunities through Machine Learning*. 2020

Yaza Wainakh. *A Benchmark for Evaluating and Improving Word Embeddings for Identifier Names*. 2019. See paper at ICSE'21

Markus Zimmermann. *An Empirical Study of the npm Ecosystem*. 2018. See paper at USENIX Security'19

Sandro Tolksdorf. *Metamorphic Testing of Interactive JavaScript Debuggers*. 2018. See paper at ISSTA'19

Giacomo Iadarola. *Graph-based Classification for Detecting Instances of Bug Patterns*. 2018

Rabee Sohail Malik. *DeepTypes: a Probabilistic Approach to Inferring JavaScript Function Type Signatures*. 2018. See paper at ICSE'19

Prabhjot Singh. *Deep Assist: Contextual Code Assistance using Deep Learning*. 2018

Talal Ahmed. *VFix: Fixing Semantic Errors by Deep Learning*. 2018

Philippe Skolka. *An Empirical Study of Obfuscation and Minification of Client-Side Web Code*. 2018. See paper at WWW'19

Saeed Ehteshamifar. *Chameleon: A Benchmark for Analyzers of Malicious PDF Documents and Anti-Evasion Techniques*. 2017

Daniel Lehmann. *Automatic Testing of Interactive JavaScript Debuggers*. 2017. See paper at FSE'18

Sebastian Ruhleder. *Automatic Generation of Performance Benchmarks for JavaScript Libraries*. 2017

Dileep R. K. Murthy. *Change-aware Dynamic Program Analysis*. 2016. See paper at ICSME'18

Pooja Dixit. *Detecting Unexpected Interferences between Scripts in JavaScript Applications*. 2016. See paper at ICSE'18

Markus Ermuth. *Effective UI-Level Test Generation for Web Applications through Inferred Macro Events*. 2015. See paper at ISSTA'16

Ankit Choudhary. *Coverage-driven Generation of Concurrent Tests*. 2015. See paper at ICSE'17

Michael Fäs. *Automatic and Precise Detection of Deadlocks in Libraries*. 2013

Markus Huggler. *Performance Regression Testing for Thread-safe Classes*. 2013. See paper at ISSTA'14

Jérémie Bresson. *Finding API Usage Bugs with Runtime Monitoring*. 2010

Philipp Bichsel. *Inference of API Usage Documentation*. 2010. See paper at ICSM'10

- Sebastian Grössl. *Finding Implicit Programming Rules and their Violations in Java Programs*. 2009
- Bachelor theses Fabian Hick. *androGNN: Graph-based Malware Detection for Android Applications*. 2023
- Patrick Bareiß. *Extracting Metamorphic Test Oracles from Natural Language Documentation*. 2021
- Paul Bredl. *Improving the Recall of Searching for Code Changes*. 2021. See paper in IEEE TSE, 2022
- Lars Gröninger. *Building an Extensible Dataset of Code Reviews*. 2020
- Aaron Hilbig. *A Benchmark of WebAssembly Programs*. 2020. See paper at WWW'21
- Patrick Mell. *Detecting Parallelization Opportunities in JavaScript Programs*. 2016
- Thomas Glaser. *A Dynamic Analysis to Help Refactoring Complex Conditions for Improved Performance*. 2015. See paper at ISSTA'17
- Pascal Zimmermann. *Name-based Type Inference*. 2012
- Christine Zeller. *Software Anomaly Detection in a Real-world Setting*. Collaboration with Google, Zurich. 2012
- Severin Heiniger. *API Usage Anomaly Detection Based on Points-to Analysis*. 2011. See paper at ISSTA'12
- Claudio Corrodi. *Detecting Library Usage Anomalies*. 2011
- Undergraduate supervision Yiu Wai Chow. 2021–2022. See paper at ICSE'24
- Satia Herfert. 2016–2017. See paper at ASE'17
- Abhijit Singh. 2015–2016.
- Hosam Nima. 2015.
- Parker Schuh. 2013–2014. See papers at OOPSLA'14 and ICSE'15

Reviewing and Service

- Steering Committee International Conference on the Foundations of Software Engineering (FSE), 2025–now
- International Symposium on Software Testing and Analysis (ISSTA), 2022–now
- Organizer/Chair Program Committee Co-Chair of International Conference on the Foundations of Software Engineering (FSE), 2027
- Area Chair of International Conference on Software Engineering (ICSE), 2026
- Associate Chair of OOPSLA issue of the Proceedings of the ACM on Programming Languages (PACMPL), 2026
- Program Committee Co-Chair of Software Engineering (SE), 2026
- Dagstuhl seminar on Evaluation of AI Models in Software Engineering, 2026
- Area Chair of International Conference on Automated Software Engineering (ASE), 2025
- Co-Chair of New Faculty Symposium at International Conference on Automated Software Engineering (ASE), 2025
- Workshop on AgenticSE, 2025
- Program Committee Chair of International Symposium on Software Testing and Analysis (ISSTA), 2024
- Area Chair of Conference on Automated Software Engineering (ASE), 2024
- Dagstuhl seminar on Automated Programming and Program Repair, 2024
- Dagstuhl seminar on Code Search, 2024
- Dagstuhl seminar on Programming Language Processing, 2023
- Chair of Doctoral Symposium at Symposium on the Foundations of Software Engineering (ESEC/FSE), 2022
- Chair of Tool Demonstrations at International Symposium on Software Testing and Analysis (ISSTA), 2021
- Chair of Artifact Evaluation at International Symposium on Software Testing and Analysis (ISSTA), 2019

Chair of Artifact Evaluation at European Conference on Object-Oriented Programming (ECOOP), 2017

Dagstuhl seminar on Automated Program Repair, 2017

Workshop on Dynamic Analysis (WODA), 2016

Workshop on Tools for JavaScript Analysis (JSTools) at ECOOP, 2016

Workshop on Tools for JavaScript Analysis (JSTools) at ECOOP, 2015

Editor IEEE Transactions on Software Engineering, 2020–2024, Associate editor
IEEE Software, 2020, Guest editor of special issue on “Automatic program repair”

Program International Conference on the Foundations of Software Engineering (FSE), 2026
committees International Conference on Software Engineering (ICSE), 2025
LLM4Code workshop at ICSE, 2025
International Conference on the Foundations of Software Engineering (FSE), 2025
Software Engineering (SE), 2025
LLM4Code workshop at ICSE, 2024
International Conference on Software Engineering (ICSE), 2023
Symposium on the Foundations of Software Engineering (ESEC/FSE), 2023
Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOP-SLA), 2023
International Symposium on Software Testing and Analysis (ISSTA), 2023
Conference on Automated Software Engineering (ASE), 2023
Software Engineering (SE), 2023
International Conference on Software Engineering (ICSE), 2022
Symposium on the Foundations of Software Engineering (ESEC/FSE), 2022
International Symposium on Software Testing and Analysis (ISSTA), 2022
Conference on Automated Software Engineering (ASE), 2022
Workshop on Automated Program Repair at ICSE, 2022
Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOP-SLA), Extended review committee, 2021
Conference on Automated Software Engineering (ASE), 2021
Conference on Programming Language Design and Implementation (PLDI), 2021
International Conference on Software Engineering (ICSE), 2021
Symposium on the Foundations of Software Engineering (ESEC/FSE), 2021
International Symposium on Software Testing and Analysis (ISSTA), 2021
European Conference on Object-Oriented Programming (ECOOP), 2021
Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOP-SLA), External review committee, 2020
Conference on Automated Software Engineering (ASE), 2020
IEEE Transactions on Software Engineering, Review board, 2019–2020
TheWebConf (WWW), Security track, 2020
Doctoral Symposium at SPLASH, 2019
Journal First Presentations at Conference on Automated Software Engineering (ASE), 2019
Conference on Programming Language Design and Implementation (PLDI), 2019
International Conference on Software Engineering (ICSE), Program board, 2019
Conference on Automated Software Engineering (ASE), 2018
European Conference on Object-Oriented Programming (ECOOP), 2018
International Symposium on Engineering Secure Software and Systems (ESSoS), 2018
Workshop on API Usage and Evolution (WAPI) at ICSE, 2018
Workshop on Programming Technology for the Future Web (ProWeb), 2018
Software Engineering (SE), 2018
IEEE Transactions on Software Engineering, Review board, 2017–2018

Conference on Programming Language Design and Implementation (PLDI), 2017
 International Conference on Software Engineering (ICSE), 2017
 International Symposium on Software Testing and Analysis (ISSTA), 2017
 Workshops at SPLASH, Program Committee, 2017
 ACM Student Research Competition at ESEC/FSE, 2017
 ProWeb workshop on programming methodology for the future web, Program Committee, 2017
 Conference on Programming Language Design and Implementation (PLDI), External review committee, 2016
 European Conference on Object-Oriented Programming (ECOOP), 2016
 International Symposium on Software Testing and Analysis (ISSTA), 2016
 International Symposium on the Foundations of Software Engineering (FSE), Demonstrations Track, 2016
 Student Contest on Software Engineering (SCORE) at ICSE, 2016
 Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), 2015
 ACM SIGPLAN Student Research Competition at SPLASH, 2015
 Conference on Automated Software Engineering (ASE), Tool Demonstration Track, 2015
 Workshop on Software Engineering for Parallel Systems at OOPSLA, 2015
 Software Engineering (SE), 2015
 Workshop on Software Engineering for Parallel Systems at OOPSLA, 2014
 ACM Student Research Competition at International Conference on Software Engineering (ICSE), 2014
 International Conference on Software Engineering (ICSE), poster track, 2014
 Journal reviewer IEEE Transactions on Software Engineering, 2014–2022
 Journal of Systems and Software, 2019
 Journal on Empirical Software Engineering, 2016
 ACM Transactions on Software Engineering and Methodology (TOSEM), 2015–2023
 IEEE Transactions on Parallel and Distributed Systems, 2014
 Science of Computer Programming, 2013, 2014
 Information and Software Technology, 2013
 IEEE Transactions on Information Forensics and Security, 2012
 Journal of Computer Science and Technology (JCST), 2011
 External reviewer International Symposium on Software Testing and Analysis (ISSTA), 2019
 Symposium on the Foundations of Software Engineering (FSE), 2016
 Symposium on Principles of Programming Languages (POPL), 2016
 European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2015
 Conference on Computer Aided Verification (CAV), 2014
 Conference on Programming Language Design and Implementation (PLDI), 2014
 Principles and Practice of Parallel Programming (PPoPP), 2014
 European Conference on Object-Oriented Programming (ECOOP), 2013
 USENIX Workshop on Hot Topics in Parallelism (HotPar), 2012
 Conference on Programming Language Design and Implementation (PLDI), 2011
 Workshop on Relationships and Associations in Object-Oriented Languages (RAOOL) at ECOOP 2009
 Other committees Selection Committee of Heidelberg Laureate Forum (2025–2027)
 IEEE Technical Council on Software Engineering Rising Star Award, 2023
 ACM SIGSOFT Research Highlights Committee (2020–2022)
 Grant German Research Foundation (DFG)

reviewing European Research Council (ERC)
Fonds National de la Recherche Luxembourg (FNR)
Austrian Science Fund (FWF)
Research Grants Council, Hong Kong (RGC)
Alexander von Humboldt Foundation
Dutch Research Council (NWO)
National Research Foundation, Singapore (NRF)

PhD thesis Frank Busse (Imperial College London, advisor: Cristian Cadar), 2025

committee Amir Mir (TU Delft, advisor: Sebastian Proksch), 2025
Hossein Hajipour (Saarland University, advisor: Mario Fritz), 2024
Daniel Fortunato (University of Porto, advisor: Jose Campos), 2024–ongoing
Ellen Arteca (Northeastern University, advisor: Frank Tip), 2022–2023
Muhammad Numair Mansur (TU Kaiserslautern, advisor: Maria Christakis), 2023
Mohammad Bajammal (University of British Columbia, advisor: Ali Mesbah), 2022
Arianna Blasi (USI Lugano, advisor: Mauro Pezzè), 2020–2022
Sven Keidel (Johannes Gutenberg-University Mainz, advisor: Sebastian Erdweg), 2021
Anil Koyuncu (University of Luxembourg, advisor: Yves Le Traon), 2020
Profir-Petru Partachi (University College London, advisor: Earl Barr), 2020
Rafael-Michael Karampatsis (University of Edinburgh, advisor: Charles Sutton), 2020
Luca Della Toffola (ETH Zurich, advisor: Thomas R. Gross), 2018
Francesco Bianchi (USI Lugano, advisor: Mauro Pezzè), 2018
Matthias Keil (University of Freiburg, advisor: Peter Thiemann), 2018

I also served on 15+ Ph.D. examination committees at TU Darmstadt and University of Stuttgart

Last update: September 17, 2025