

# Gidon Ernst: Academic CV

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[www.sosy-lab.org/people/ernst](http://www.sosy-lab.org/people/ernst)

Software Engineering, Augsburg University, Universitätsstraße 6a, 86159 Augsburg  
Software Verification, LMU, Oettingenstr. 67, 80538 Munich

[gidon.ernst@uni-a.de](mailto:gidon.ernst@uni-a.de)  
[gidon.ernst@lmu.de](mailto:gidon.ernst@lmu.de)

## ■ Personal

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Born: February 7, 1986, Freiburg im Breisgau      Nationality: German  
Languages: German (native), English (IELTS 8.5 of 9.0), French (intermediate)

## ■ Education

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2010–2016      Dr. rer. nat, Formal Methods, University of Augsburg (**summa cum laude**)  
Examiners: Prof. Wolfgang Reif, Prof. Alexander Knapp, Prof. John Derrick  
2008–2010      MSc with honours, Software Engineering Elite Graduate Program (1.15)  
TUM, LMU, University of Augsburg  
2005–2008      BSc, Informatics, University of Freiburg (1.3)

## ■ Academic Positions

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10/2024–03/2026      **Interim Professor W3 for Software Engineering, University of Augsburg**  
04/2019–09/2026      **Junior Professor W1 for Software Verification, LMU Munich** (*no tenure track*)  
05/2018–02/2019      Postdoc Fellow, University of Melbourne, Prof. Toby Murray  
02/2018–04/2018      Research Visit, Uni Waterloo, Profs. Krzysztof Czarnecki, Sean Sedwards  
06/2017–04/2018      Postdoc Researcher, National Institute of Informatics, Tokyo, Prof. Ichiro Hasuo  
01/2017–04/2017      Research Internship, Amazon New York, Prof. Byron Cook, Dr. Ernie Cohen  
08/2010–11/2016      Research Assistant, University of Augsburg, Prof. Wolfgang Reif  
2008–2010      Student Researcher, University of Augsburg, Prof. Wolfgang Reif

## ■ Research and Cooperation

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My research vision is that in the future, software engineers will be empowered to use formal methods to formulate expressive application- and domain-specific requirements and to prove using fully automated methods and tools that their implementation adheres to these requirements. I develop novel theories, methods, and tools aim to fundamentally expand the capabilities of automated testing and proof methods.

### Current Projects and Collaboration

- Specification and Proof Engineering for SMT-LIB and Boogie, lemma synthesis, inference of coupling relations and invariants. Tool: CUVÉE, [github.com/gernst/cuvee](https://github.com/gernst/cuvee)
- Integration and comparison of verification approaches, with M. Huisman, D. Beyer and others.  
Websites: [verifythis.github.io](https://verifythis.github.io) and [github.com/Contract-LIB](https://github.com/Contract-LIB) and [gitlab.com/sosy-lab/benchmarking/sv-lib](https://gitlab.com/sosy-lab/benchmarking/sv-lib).
- Security Concurrent Separation Logic, with T. Murray, D. Naumann, and M. Tiwari. Tool: SECC, [covern.org/secc](https://covern.org/secc)
- C code Verification with Horn-clauses and loop contracts. Tool: KORN, [github.com/gernst/korn](https://github.com/gernst/korn)

### Recent and Past Projects

- Simulation-based analysis of hybrid systems. Tool: FalStar, [github.com/ERATOMMSD/falstar](https://github.com/ERATOMMSD/falstar)
- Software fuzz testing with machine learning concepts. Tool: Legion, [github.com/gernst/legion-symcc](https://github.com/gernst/legion-symcc)
- Flashix: a verified file system for flash memory PI: W. Reif, [isse.de/flashix](https://isse.de/flashix)
- KIV: an interactive theorem prover, [isse.de/kiv](https://isse.de/kiv)

## ■ Awards and Recognitions

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- Application for W1 to W2 tenure track professorship “Software Development and Verification”, University of Münster, **third place**, 2025.
- Application for full professorship “Formal Methods”, JKU Linz, **second place**, 2024.
- Career-track professorship “Energy-efficient Software Engineering”, Twente University, **second place**, 2023.
- Application for W2 professorship “Reliable Software”, LMU Munich, **second place**, 2022.
- “Methods in Software Engineering” awarded **best master lecture in informatics**, student association, 2022.
- Nomination of “Formal Specification and Verification” for the teaching innovation price of LMU, 2021.
- VerifyThis @ ETAPS, Canada, 2025: **most impressive tool medley**, with Marian Lingsch-Rosenfeld.
- VerifyThis @ ETAPS, Luxembourg, 2024: **most impressive tool medley**, with Hanna Lachnitt.
- VerifyThis @ ETAPS, London, 2015: **best student team** with Jörg Pfähler.
- VerifyThis @ FM, Paris, 2012: **best student team** with Jörg Pfähler.
- 2nd VSCOMP 2011: **gold medal** with Gerhard Schellhorn, Bogdan Tofan, Kurt Stenzel.

## ■ Press

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- Garantierte Fehlerfreiheit für Flash-Speicher, Augsburgs Allgemeine, Forschungsmagazin, 2016.  
(Guaranteed error-freedom for flash memory, Augsburgs Allgemeine, science magazine)

## ■ Grants

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### As Principal Investigator

- Security Specifications for Dafny, Amazon Research Award, USD 50,000 (2023).
- Mobility Grant, The Bavarian-Czech Academic Agency, EUR 1,000 (2023).

### In Preparation

- Automating software verification across the abstraction gap  
(revision of a prior submission to the german research council)
- Developer-friendly specification elicitation

### Via the LMU Postdoc Support Fund

- Funding for research students EUR 6,000 (2025).
- Funding for research students EUR 7,500 (2024).
- Travel support: EUR 6,750 (2023).
- Support for the Alpine Verification Meeting (AVM): EUR 4,600 (2022).  
Used to offer free registration and accommodation to 34 junior participants.
- Travel support: EUR 2,750 (2022).

### As Contributor

- Contribution to the proposal RE828/13-2, German research council  
(PI: W. Reif, 2 persons for 2 years, granted 2016):  
Co-conceptioned the scientific program, wrote approximately a third of the program.

## ■ Professional Activities

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### Conference/Workshop Organisation

- Dagstuhl Seminar “Software & System Contracts” (organizer), scheduled for 2026.
- Conference on Software Model Checking (SPIN, PC chair), Hamilton, Canada, 2025.
- SpecifyThis track (at ISoLA, PC chair), Crete, 2024.
- PhD Symposium of Integrated Formal Methods (iFM, PC chair), Leiden, The Netherlands, 2023.

- Alpine Verification Meeting (AVM, organizer), Frauenchiemsee, Germany, 2022.
- ETAPS Mentoring Workshop (organizer), Munich, Germany, 2022.
- VerifyThis Software Verification Competition (organizer), Thessaloniki, Greece, 2018.
- Workshop on Formal Techniques for Java-like Programs (FTfJP, PC chair), London, UK, 2019.

### **Organisation of Community Events**

- VerifyThis Long-term Challenge (VT-LTC), ongoing since 2023.
- CHC-COMP Horn clause verification competition, 2024, 2025.
- ARCH annual friendly competition, falsification category, 2019–2022.

### **Editorial Board**

- Software Tools for Technology Transfer (STTT). Theme: Competitions and Challenges (CoCha), 2021–.

### **Program Committee**

- Computer Aided Verification (CAV), 2025, 2026.
- Verification, Model-Checking and Abstract Interpretation (VMCAI), 2026.
- Horn Clause Verification and Synthesis (HCVS), 2021, 2024, 2025.
- Integrated Formal Methods (iFM), 2024.
- International Conference on Rigorous State-Based Methods (ABZ), 2024.
- Formal Methods in Software Engineering (FormaliSE), 2023.
- Hybrid Systems: Computation and Control (HSCC), 2021.
- Verified Software: Theories, Tools, Experiments (VSTTE), 2020.
- Symposium On Applied Computing (SAC), track: Software Verification and Testing, 2019, 2020.
- Symposium on Formal Approaches to Parallel and Distributed Systems (4PAD), 2018, 2019.
- Workshop on Automated Reasoning in Software Verification (ARiSvE), 2013.

### **Artifact Evaluation**

- Hybrid Systems: Computation and Control (HSCC), 2020.
- Static Analysis Symposium (SAS), 2018.

### **Journal Reviews, since 2013, e.g. for**

- Journal of Automated Reasoning (JAR).
- Science of Computer Programming (SCP).
- Formal Aspects of Computing (FAC).
- Software and Systems Modeling (SoSyM).
- Software Tools for Technology Transfer (STTT).
- Software Quality Journal (SQJO).
- Journal of Logical and Algebraic Methods in Programming (JLAMP).
- Nonlinear Analysis: Hybrid Systems (NAHS).
- Transactions on Modeling and Computer Simulation (TOMACS).
- Special Issue: Fundamental Approaches to Software Engineering (FASE).

### **Conference Reviews**

- Formal Methods in Computer-Aided Design (FMCAD), 2022, 2023.
- International Symposium On Leveraging Applications of FM, V & V (ISoLA), 2022.
- Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2019–2021.
- Verification, Model Checking, and Abstract Interpretation (VMCAI), 2020.
- Foundations of Software Engineering (ESEC/FSE), 2020.
- Formal Modeling and Analysis of Timed Systems (FORMATS), 2019.
- Software Engineering and Formal Methods (SEFM), 2019.

- Integrated Formal Methods (iFM), 2018.
- Conference on Concurrency Theory (CONCUR), 2018.
- Hybrid Systems: Computation and Control (HSCC), 2017.
- Alloy, ASM, B, TLA, VDM, and Z (ABZ), 2016.
- Tests and Proofs (TAP), 2011.

## ■ Publications

Google Scholar: [https://scholar.google.com/citations?user=\\_JqtqisAAAAJ](https://scholar.google.com/citations?user=_JqtqisAAAAJ) Citations: 1320, h-Index: 23  
 Scopus: <https://www.scopus.com/authid/detail.uri?authorId=54388817100> Citations: 651, h-Index: 18  
 ORCID: <https://orcid.org/0000-0002-3289-5764>  
 DBLP: <https://dblp.uni-trier.de/pid/19/1202.html>

**Summary:** I have co-authored 8 journal articles (6 as first author) and 36 publications at peer-reviewed venues (17 as first author), and one book chapter (single author, to appear). I am the co-editor the four conference/workshop proceedings (Springer and ACM) and one upcoming journal special issue. I have co-authored 16 unrefereed reports, including those of ARCH-COMP and VerifyThis community events that I have co-organized.

### Editorials

1. Gidon Ernst and Kristin-Yvonne Rozier (editors). Special Issue for the International Symposium on Model Checking Software (SPIN). *Software Tools and Technology Transfer (STTT)*, Springer. In preparation.
2. Gidon Ernst and Kristin-Yvonne Rozier, editors. *Proc. of the 31st International Symposium on Model Checking Software (SPIN)*, volume 15945 of LNCS. Springer, 2025.
3. Gidon Ernst, Matthias Gdemann, Alexander Knapp, Florian Nafz, Frank Ortmeier, Hella Ponsar, Gerhard Schellhorn, and Alexander Schiendorfer, editors. *Go Where the Bugs Are—Essays Dedicated to Wolfgang Reif on the Occasion of His 65th Birthday*, volume 15765 of LNCS. Springer, 2025.
4. Gidon Ernst, Paula Herber, Marieke Huisman, and Mattias Ulbrich, editors. *Proc. of the SpecifyThis Track at ISoLa 2024*, volume 15221 of LNCS. Springer, 2024.
5. Toby Murray and Gidon Ernst, editors. *Proc. of Formal Techniques for Java-like Programs (FTfJP@ECOOP)*. ACM, 2019.

### Doctoral Thesis

- G. Ernst. A verified POSIX-compliant flash file system—modular verification technology & crash tolerance. PhD Thesis, Augsburg University, 2016. **Summa cum laude**.

### Book Chapters

- G. Ernst. A Survey of Interactive and Automated Deductive Program Verification Tools. Book Chapter in *Advances in Software Verification*. To Appear.

### Journal Articles

1. G. Ernst, S. Sedwards, Z. Zhang, and I. Hasuo. Falsification of hybrid systems using adaptive probabilistic search. *Transact. on Modeling and Comp. Simulations (TOMACS)*, 31(3):1–22, 2021.
2. Z. Zhang, G. Ernst, S. Sedwards, P. Arcaini, and I. Hasuo. Two-Layered Falsification of Hybrid Systems Guided by Monte Carlo Tree Search. *Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 37(11):2894–2905, 2018. Presented at the International Conference on Embedded Software (EMSOFT) 2018, **Nominated for best paper**.
3. Y. Bao, G. T. Leavens, and G. Ernst. Unifying separation logic and region logic to allow interoperability. *Formal Aspects of Computing*, 30(3–4):381–441, 2018.
4. G. Schellhorn, G. Ernst, J. Pfhler, S. Bodenmller, and W. Reif. Symbolic execution for a clash-free subset of ASMs. *Science of Computer Programming (SCP)*, 158:21–40, 2018.

5. G. Ernst, J. Pfähler, G. Schellhorn, and W. Reif. Modular, crash-safe refinement for ASMs with submachines. *Science of Computer Programming (SCP)*, 131:3–21, 2016.
6. G. Ernst, J. Pfähler, G. Schellhorn, D. Haneberg, and W. Reif. KIV—Overview and VerifyThis competition. *Software Tools for Technology Transfer (STTT)*, 17(6):677–694, 2015.
7. G. Schellhorn, B. Tofan, G. Ernst, J. Pfähler, and W. Reif. RGITL: A temporal logic framework for compositional reasoning about interleaved programs. *Annals of Mathematics and Artificial Intelligence (AMAI)*, 71:1–44, 2014.
8. G. Ernst, G. Schellhorn, and W. Reif. Verification of B+ trees by integration of shape analysis and interactive theorem proving. *Software & Systems Modeling (SoSyM)*, 14(1):27–44, 2015.

### Conference/Workshop Publications

1. **Representative:** Gidon Ernst and Grigory Fedyukovich. Quick theory exploration for algebraic data types via program transformations. In *Proc. of Integrated Formal Methods (iFM)*, volume 16194 of LNCS. Springer, 2025. **Best paper candidate.**
2. Gidon Ernst and Marian Lingsch-Rosenfeld. Towards automatic structured inference of module abstractions. In *Go Where the Bugs Are—Essays Dedicated to Wolfgang Reif on the Occasion of His 65th Birthday*, volume 15765 of LNCS. Springer, 2025.
3. Jiří Fejlek and Gidon Ernst. Exploring behaviors of hybrid systems via the voronoi bias over output signals. In *Proc. of Hybrid Systems: Computation and Control (HSCC)*. ACM, 2025.
4. Gidon Ernst, Wolfram Pfeifer, and Mattias Ulbrich. Contract-LIB: A proposal for a common interchange format for software system specification. In *Proc. of the SpecifyThis Track at ISoLa 2024*, volume 15221 of LNCS. Springer, 2024.
5. W. Ahrendt, G. Ernst, P. Herber, M. Huisman, R. Monti, M. Ulbrich, and A. Weigl. The VerifyThis collaborative long-term challenge series. In *Proc. of ETAPS 2023 TOOLympics*, volume 14550 of LNCS, 2024.
6. A. Abate, M. Althoff, L. Bu, G. Ernst, G. Frehse, L. Geretti, T. Johnson, C. Menghi, S. Mitsch, S. Schupp, and S. Soudjani. The arch-comp friendly verification competition for continuous and hybrid systems. In *Proc. of ETAPS 2023 TOOLympics*, volume 14550 of LNCS, 2024.
7. G. Ernst and A. Weigl. VerifyThis: Memcached—a practical long-term challenge for the integration of formal methods (short paper). In *Proc. of Integrated Formal Methods (iFM)*, volume 14300 of LNCS, pages 82–89. Springer, 2023.
8. T. Murray, M. Tiwari, G. Ernst, and D. Naumann. Assume but verify: Deductive verification of leaked information in concurrent applications. In *Proc. of Computer and Communications Security (CCS)*, pages 1746–1760. ACM, 2023.
9. T. Murray, P. Yang, and G. Ernst. Compositional vulnerability detection with insecurity separation logic. In *Proc. of International Conference on Formal Engineering Methods (ICFEM)*, volume 14308 of LNCS, pages 65–82. Springer, 2023.
10. G. Ernst. KORN: Horn clause based verification of C programs (competition contribution). In *Proc. of Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, LNCS 13994. Springer, 2023.
11. G. Ernst, A. Knapp, and T. Murray. A Hoare logic with regular behavioral specifications. In *Proc. of International Symposium on Leveraging Applications of Formal Methods (ISoLA)*, volume 13701 of LNCS. Springer, 2022.
12. D. Liu, V.-T. Pham, G. Ernst, T. Murray, and B.I.P. Rubinstein. State selection algorithms and their impact on the performance of stateful network protocol fuzzing. In *Proc. of Software Analysis, Evolution and Reengineering (SANER)*. IEEE, 2022.
13. G. Ernst. Loop verification with invariants and summaries. In *Proc. of Verification, Model-Checking, and Abstract Interpretation (VMCAI)*, volume 13182 of LNCS. Springer, 2022.
14. G. Ernst, J. Blau, and T. Murray. Deductive verification via the debug adapter protocol. In *Proc. of Formal Integrated Development Environment (F-IDE)*, 2021.

15. G. Fedyukovich and G. Ernst. Bridging arrays and ADTs in recursive proofs. In *Proc. of Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, volume 12652 of *LNCS*, pages 24–42. Springer, 2021.
16. **Representative:** D. Liu, G. Ernst, T. Murray, and B. Rubinstein. Legion: Best-first concolic testing. In *Proc. of Automated Software Engineering (ASE)*, pages 54–65. IEEE, 2020.
17. D. Liu, G. Ernst, T. Murray, and B.I.P. Rubinstein. Legion: Best-first concolic testing (competition contribution). In *Proc. of Fundamental Approaches to Software Engineering (FASE)*, pages 545–549, 2020.
18. G. Ernst, S. Sedwards, Z. Zhang, and I. Hasuo. Fast falsification of hybrid systems using probabilistically adaptive input. In *Proc. of Quantitative Evaluation of Systems (QEST)*, volume 11785 of *LNCS*, pages 165–181. Springer, 2019.
19. **Representative:** G. Ernst and T. Murray. SecCSL: Security Concurrent Separation Logic. In *Proc. of Computer Aided Verification (CAV)*, volume 11562 of *LNCS*, pages 208–230. Springer, 2019.
20. G. Ernst, M. Huisman, W. Mostowski, and M. Ulbrich. VerifyThis – Verification Competition with a Human Factor. In *Proc. of Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, volume 11429 of *LNCS*. Springer, 2019.
21. G. Ernst, I. Hasuo, Z. Zhang, and S. Sedwards. Time-staging Enhancement of Hybrid System Falsification, 2018. Presented at: Symbolic and Numerical Methods for Reachability Analysis (SNR). To appear in *Proc. of SNR 2021*.
22. J. Pfähler, G. Ernst, S. Bodenmüller, G. Schellhorn, and W. Reif. Modular verification of order-preserving writeback caches. In *Proc. of Integrated Formal Methods (iFM)*, volume 10510 of *LNCS*, pages 375–390. Springer, 2017.
23. G. Schellhorn, G. Ernst, J. Pfähler, and W. Reif. A relational encoding for a clash-free subset of ASMs. In *Proc. of Alloy, ASM, B, TLA, VDM, and Z (ABZ)*, volume 9675 of *LNCS*, pages 237–243. Springer, 2016.
24. G. Ernst, J. Pfähler, G. Schellhorn, and W. Reif. Inside a verified Flash file system: transactions & garbage collection. In *Proc. of Verified Software: Theories, Tools, Experiments (VSTTE)*, volume 9593 of *LNCS*, pages 73–93. Springer, 2015.
25. Y. Bao, G. T. Leavens, and G. Ernst. Conditional effects in fine-grained region logic. In *Proc. of Formal Techniques for Java-like Programs (FTfJP)*. ACM, 2015.
26. G. Ernst, J. Pfähler, G. Schellhorn, and W. Reif. Modular refinement for submachines of ASMs. In *Proc. of Alloy, ASM, B, TLA, VDM, and Z (ABZ)*, volume 8477 of *LNCS*, pages 188–203. Springer, 2014.
27. G. Schellhorn, G. Ernst, J. Pfähler, D. Haneberg, and W. Reif. Development of a verified Flash file system. In *Proc. of Alloy, ASM, B, TLA, VDM, and Z (ABZ)*, volume 8477 of *LNCS*, pages 9–24. Springer, 2014. Invited Paper.
28. G. Ernst, G. Schellhorn, D. Haneberg, J. Pfähler, and W. Reif. Verification of a Virtual Filesystem Switch. In *Proc. of Verified Software: Theories, Tools, Experiments (VSTTE)*, volume 8164 of *LNCS*, pages 242–261. Springer, 2013.
29. B. Tofan, G. Schellhorn, G. Ernst, J. Pfähler, and W. Reif. Compositional verification of a lock-free stack with RGITL. *Electronic Communications of the Automated Verification of Critical Systems (EASST)*, 66, 2014.
30. J. Pfähler, G. Ernst, G. Schellhorn, D. Haneberg, and W. Reif. Formal specification of an erase block management layer for Flash memory. In *Haifa Verification Conference (HVC)*, volume 8244 of *LNCS*, pages 214–229. Springer, 2013.
31. G. Ernst, G. Schellhorn, D. Haneberg, J. Pfähler, and W. Reif. A formal model of a Virtual Filesystem Switch. In *Proc. of Software and Systems Modeling (SSV)*, volume 102 of *EPTCS*, pages 33–45, 2012.
32. G. Ernst, G. Schellhorn, and W. Reif. Verification of B+ trees: an experiment combining shape analysis and interactive theorem proving. In *Proc. of Software Engineering and Formal Methods (SEFM)*, volume 7041 of *LNCS*, pages 188–203. Springer, 2011.
33. G. Schellhorn, B. Tofan, G. Ernst, and W. Reif. Interleaved programs and rely-guarantee reasoning with ITL. In *Proc. of Temporal Representation and Reasoning (TIME)*, pages 99–106. IEEE, 2011.
34. M. Junker, D. Haneberg, G. Schellhorn, W. Reif, and G. Ernst. Simulating a Flash File System with CoreASM

- and Eclipse. In *Proc. of Dependable Software for Critical Infrastructures (DSCI)*, volume 192 of *GI Lecture Notes in Informatics*. Gesellschaft für Informatik, 2011.
35. T. Borner, M. Brockschmidt, D. Distefano, G. Ernst, J.-C. Filliâtre, R. Grigore, M. Huisman, V. Klebanov, C. Marché, R. Monahan, W. Mostowski, N. Polikarpova, C. Scheben, G. Schellhorn, B. Tofan, J. Tschannen, and M. Ulbrich. The COST IC0701 verification competition 2011. In *Proc. of Formal Verification of Object-Oriented Software (FoVeOOS)*, volume 7421 of *LNCS*, pages 3–21. Springer, 2011.
  36. F. Aslam, L. Fennell, C. Schindelhauer, P. Thiemann, G. Ernst, E. Haussmann, S. Rührup, and Z. A. Uzmi. Optimized Java binary and virtual machine for tiny motes. In *Proc. of Distributed Computing in Sensor Systems (DCOSS)*, volume 6131 of *LNCS*, pages 15–30. Springer, 2010.

### Unrefereed/Other

1. Dirk Beyer, Gidon Ernst, Martin Jonáš, and Marian Lingsch-Rosenfeld. SV-LIB 1.0: A standard exchange format for software-verification tasks, 2025.
2. Dilian Gurov, Reiner Hähnle, Marieke Huisman, Giles Reger, and Christian Lidström. Principles of Contract Languages (Dagstuhl Seminar 22451). *Dagstuhl Reports*, 12(11):1–27, 2023. Sec. 4.3 Specification Engineering: Report from Breakout Group 3.
3. G. Ernst et al. ARCH-COMP 2022 category report: Falsification with unbounded resources. In *Proc. of Applied Verification of Continuous and Hybrid Systems (ARCH)*, volume 90 of *EPiC*, pages 204–221. EasyChair, 2022.
4. G. Ernst et al. ARCH-COMP 2021 category report: Falsification with validation of results. In *Proc. of Applied Verification of Continuous and Hybrid Systems (ARCH)*, volume 80 of *EPiC*, pages 133–152. EasyChair, 2021.
5. G. Ernst et al. ARCH-COMP 2020 category report: Falsification. In *Proc. of Applied Verification of Continuous and Hybrid Systems (ARCH)*, volume 74 of *EPiC*, pages 140–152. EasyChair, 2020.
6. G. Ernst and L. Rieger. Information Flow Testing of a PGP Keyserver. In *Proc. of the VerifyThis Long-term Challenge 2020*, pages 11–13. KIT Library, 2020. Technical Report.
7. G. Ernst, T. Murray, and M. Tiwari. Verifying the Security of a PGP Keyserver. In *Proc. of the VerifyThis Long-term Challenge 2020*, pages 14–16. KIT Library, 2020. Technical Report.
8. G. Ernst, P. Arcaini, A. Donze, G. Fainekos, L. Mathesen, G. Pedrielli, S. Yaghoubi, Y. Yamagata, and Z. Zhang. ARCH-COMP19 Category Report: Results on the Falsification Benchmarks. In *Proc. of Applied Verification of Continuous and Hybrid Systems (ARCH)*, volume 61 of *EPiC*, pages 129–140. EasyChair, 2019.
9. A. Dokhanchi, S. Yaghoubi, B. Hoxha, G. Fainekos, G. Ernst, Z. Zhang, P. Arcaini, I. Hasuo, and S. Sedwards. ARCH-COMP18 Category Report: Results on the Falsification Benchmarks. In *Proc. of Applied Verification of Continuous and Hybrid Systems (ARCH)*, volume 54 of *EPiC*, pages 104–109. EasyChair, 2018.
10. M. Huisman, R. Monahan, P. Müller, A. Paskevich, and G. Ernst. VerifyThis 2018: A Program Verification Competition. Technical Report hal-01981937, Université Paris-Saclay, 2018.
11. Z. Zhang, G. Ernst, I. Hasuo, and S. Sedwards. Time-staging Enhancement of Hybrid System Falsification (Abstract). In *Proc. of Monitoring and Testing of Cyber-Physical Systems (MT-CPS)*. IEEE, 2018.
12. A. Issa, T. Murray, and G. Ernst. In Search of Perfect Users: Towards Understanding the Usability of Converged Multi-Level Secure User Interfaces. In *Proc. of Computer Human Interaction Australia (OzCHI)*, pages 572–576. ACM, 2018. Work in Progress Report.
13. Y. Bao, G. T. Leavens, and G. Ernst. Translating separation logic into dynamic frames using fine-grained region logic. Technical Report CS-TR-13-02a, University of Central Florida, 2014.
14. J. Pfähler, G. Ernst, G. Schellhorn, D. Haneberg, and W. Reif. Crash-safe refinement for a verified Flash file system. Technical Report 2014-02, University of Augsburg, 2014.
15. G. Ernst and A. Habermaier. Garantiert fehlerfrei! *Mechatroniknews*, Februar 2013.
16. F. Aslam, C. Schindelhauer, G. Ernst, D. Spyra, J. Meyer, and M. Zalloom. Introducing TakaTuka: a Java Virtual Machine for motes. In *Proc. of the Embedded Network Sensor Systems (SENSYS)*, pages 399–400. ACM, 2008. Poster Abstract.

## ■ Invited Talks

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I have given 23 invited talks during research visits and at workshops and community events.

1. M. Lingsch-Rosenfeld and G. Ernst. SV-LIB: A Standard Exchange Format for Software-Verification Tasks. VerifyThis Online Seminar on Contract Languages, 2025.
2. G. Ernst. Contract-LIB: A Common Interchange Format for Software System Specification. Verification Witness Workshop, Frauenchiemsee, Germany, 2025.
3. G. Ernst. Deductive Verification of Information Flow in Security Concurrent Separation Logic. CS Seminar, University of Konstanz, Germany, 2024.
4. G. Ernst. Contract-LIB: A Common Interchange Format for Software System Specification. Alpine Verification Meeting, Freiburg, Germany, 2024.
5. G. Ernst. Deductive Verification: Reasoning Across Abstraction Boundaries. Seminar of the ConVeY graduate program, LMU Munich, Germany, 2024.
6. G. Ernst. Automating software verification with respect to strong specifications. Verimag Seminar, Grenoble, France, 2023.
7. G. Ernst. Calculating Equational Laws over ADTs. Seminar on Abstract Interpretation, Schloss Dagstuhl, Germany, 2023. Joint work in progress with G. Fedyukovich and R. Sögtrop.
8. G. Ernst. Contracts for Loops. Seminar on Principles of Contract Languages, Schloss Dagstuhl, Germany, 2022.
9. G. Ernst. Verification of Loops with Invariants and Summaries. Security Research Seminar, University of Exeter, 2022.
10. G. Ernst. Verification of Loops with Invariants and Summaries. CPAchecker Workshop, 2020.
11. G. Ernst. VerifyThis tasks in the SV-COMP benchmarks. CPAchecker Workshop, Frauenchiemsee, Germany, 2019.
12. G. Ernst. SecCSL: Security Concurrent Separation Logic. Alpine Verification Meeting (AVM), Brno, Czech Republic, 2019.
13. G. Ernst. Curious Computation Models. CONNECTIONS Computer Art Workshop by fuzzybinaires, Kreativquartier Munich, Germany, 2019.
14. G. Ernst. SecCSL: Security Concurrent Separation Logic. Ringvorlesung of the Software Engineering Graduate Program, Augsburg University, Germany, 2019.
15. G. Ernst. Applications of type theory for software verification. TYPES workshop, Munich, Germany, 2019.
16. G. Ernst. Hybrid System Falsification by Optimization and Tree Search. Generative Software Development Lab, University of Waterloo, Canada, 2018.
17. G. Ernst. Insights and Future Directions from the Verification of a Flash File System. LMU Munich, Germany, 2018.
18. G. Ernst. Flashix: A verified, crash-tolerant flash file system. ERATO project colloquium, National Institute of Informatics, Tokyo, Japan, 2017.
19. G. Ernst. On modular verification and substitution. Oberseminar Theoretical Computer Science group, LMU Munich, Germany, 2016.
20. G. Schellhorn and G. Ernst. KIV-A Mini Tutorial. Seminar on Evaluating Software Verification Systems: Benchmarks and Competitions, Schloss Dagstuhl, Germany, 2014.
21. G. Ernst. Solving the VSTTE'12 competition with KIV. COST IC0701 WG meeting, Darmstadt, Germany, 2012.
22. G. Ernst. The KIV Tool. Verified Software: Theories, Tools, Experiments (VSTTE), Philadelphia, PA, USA, 2012. Prize talk for winning a gold medal at the 2nd VSCOMP.
23. G. Ernst. Verification of  $B^+$  Trees: An Experiment Combining Shape Analysis and Interactive Theorem Proving. COST IC0701 WG meeting, Aalborg, Denmark, 2011.

## ■ Events attended

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- Dagstuhl Seminar on Software and System Contracts, Germany, 2026 (organizer).
- Dagstuhl Seminar on Information Exchange between Verifiers, Germany, 2025.
- VeWit Workshop and SV-COMP community meeting, Frauenchiemsee, Germany, 2025.
- Alpine Verification Meeting (AVM), Freiburg, Germany, 2014.
- Lorentz Seminar on Contract Languages, Leiden, The Netherlands, 2024.
- Dagstuhl Seminar on Abstract Interpretation, Germany, 2023.
- Dagstuhl Seminar on Principles of Contract Languages, Germany, 2022.
- Alpine Verification Meeting (AVM), Frauenchiemsee, Germany, 2019 (organizer).
- CPAchecker workshop, virtual, 2020, 2021.
- CPAchecker workshop, Frauenchiemsee, Germany, 2019.
- Alpine Verification Meeting (AVM), Brno, Czech Republic, 2019.
- Summer School on Information Security and Protection (ISSISP), Canberra, Australia, 2018.
- Shonan Seminar on Model-Based Design for Smart Products and Systems: Advanced Capabilities and Challenging Applications, Japan, 2017.
- Django Girls Workshop (as Coach), Munich, Germany, 2015.
- Dagstuhl Seminar on Evaluating Software Verification Systems, Germany, 2014.
- Summer School on Formal Techniques (SSFT), Menlo Park, USA, 2013.
- COST IC0701 WG meetings: Darmstadt, Germany (2012), Aalborg, Denmark (2011), Turin, Italy (2011).

### Software Verification Events and Competitions

- SV-COMP @ ETAPS, 2021–2026 Tool: KORN.
- VerifyThis @ ETAPS, 2021–2025. Tools: SECC, Dafny, Isabelle.
- CHC-COMP @ HCVS, 2024, 2025 (co-organizer).
- VerifyThis Long-term Challenge Series (since 2019, co-organizer).
- VerifyThis @ ETAPS, Thessaloniki, Greece, 2018 (co-organizer).
- VerifyThis @ ETAPS, Eindhoven, Netherlands, 2016.
- VerifyThis @ ETAPS, London, UK, 2015 (best student team).
- 4th VSCOMP 2014.
- VerifyThis @ FM, Paris, France, 2012 (best student team).
- 2nd VSCOMP 2011 (gold medal).
- VerifyThis @ FoVeOOS, Turin, Italy, 2011.

### Testing Competitions

- Test-Comp, 2022 and 2023 @ FASE. Tool: Legion/SymCC.
- Test-Comp, 2021 @ FASE. Tools: Legion, CMA-ES Fuzz.
- Test-Comp, 2020 @ FASE. Tool: Legion.

### Hybrid Systems Falsification Competitions

- ARCH-COMP 2018–2023 (Group Leader, 2019–2022). Tool: FalStar.

## ■ Academic Engagement

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- Admission board member for the master program at LMU (since 2024)
- Adaption “introduction to informatics” (secondary subject) from Java to Python, LMU Munich (2022)
- Robotics lab course, open days, LMU Munich (2020, cancelled)
- Host of Public Climate School lecture, with Students for Future Munich (2019)
- Representation of the SE Elite Graduate Program at the VHK career forum, Garching (2011–2014)
- Contribution to curriculum bachelor program Computer Science Engineering, Augsburg (starting 2013)

- Contribution to the planning of the new MRM building at University of Augsburg