

# Stefan Winter

---

## Curriculum Vitæ

### Research Interests

- Construction and assessment challenges for reliable software systems with a focus on testing approaches and execution determinism
- Repeatability, reproducibility, and replicability of scientific results

### Experience

#### Current and Previous Academic Positions

- 01.10.2021 **Postdoctoral research fellow, lecturer**, LMU MUNICH.  
– Present
  - Research Reproducibility/Replicability
  - Flaky Tests
- 08.05.2015 **Postdoctoral research fellow, lecturer**, TU DARMSTADT.  
– 30.09.2021
  - Research Reproducibility/Replicability (FSE'20)
  - Analyzing test inter-dependencies on shared resources (ICSE'15, PRDC'18, ISSTA'19)
  - Representative faults for fault injections and mutation testing (ISSTA'14, ISSRE'19, TSE'20)
  - Error propagation analysis for multi-threaded programs (ICST'17, DSN'20)
- 29.08.2019 **Visiting scholar**, UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN.  
– 26.11.2019
  - Research on flaky tests with the group of Prof. Darko Marinov (ISSRE'20, OOPSLA'20)
  - Research on timing error propagation with the group of Prof. Ravishankar K. Iyer
- 01.06.2009 **Research assistant, lecturer**, TU DARMSTADT.  
– 07.05.2015
  - Fault injection for AUTOSAR safety mechanism validation (DSN'12, ISORC'15, EDCC'15)
  - Fault models for OS robustness testing (ICSE'11, DSN'13, ICSE'15)

#### Awards

- 2021 **Distinguished Reviewer Award**, “*The International Symposium on Software Reliability Engineering*”, ISSRE 2021.
- 2020 **ACM SIGSOFT Distinguished Paper Award**, “*Community Expectations for Research Artifacts and Evaluation Processes*”, FSE 2020.

Muggenthalerstr. 8b – 82152 Krailling

☎ +49 174 1699767 • ✉ sw@stefan-winter.net

🌐 <https://stefan-winter.net>

1/6

## Grants

- 2018 – 2019 **Research funding “Safety Verification of AI Systems”**,  
*Hitachi Research*, 20 K €.
- 2017 – 2020 **Research funding “Security at Large – Assessment”**,  
*Project within the BMBF/LOEWE Center for Research in Security and Privacy (CRISP)*, 1 PhD position.
- 2015 – 2018 **“Agile Trust: Enhancing Trust in Evolving Large Scale Software Systems”**,  
*Project within the BMBF/LOEWE Center for Research in Security and Privacy (CRISP)*, 1 PhD position.
- 2013 – 2015 **Research funding “Cyber-Physical System Verification & Validation for Mass Production”**,  
*Hitachi Research*, 20 K €.
- 2012 – 2014 **Research funding “Assessing and Validating AUTOSAR Safety Mechanisms”**,  
*General Motors*, 2 PhD positions.

---

## Education

- 01.06.2009 **Dr.-Ing. (PhD equiv.) in computer science**,  
– 07.05.2015 *Technische Universität Darmstadt*, Darmstadt/Germany, Grade: summa cum laude.
- 01.10.2001 **Diplom (MSc equiv.) in computer science**,  
– 30.04.2009 *Technische Universität Darmstadt*, Darmstadt/Germany.
- 01.10.2006 **Semester abroad**,  
– 28.02.2007 *Tōhoku University*, Sendai, Japan.

---

## 10 Selected Peer Reviewed Publications

*More than 30 peer reviewed publications in top tier conferences and journals.*

My full list of peer-reviewed publications can be retrieved via

- my web site: <https://www.stefan-winter.net/publications/>
- my Google Scholar profile: <https://scholar.google.de/citations?user=pUxbBG4AAAAJ>

- B. Hermann, S. Winter, and J. Siegmund. “Community Expectations for Research Artifacts and Evaluation Processes”. In: *Proceedings of the 28th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering. ESEC/FSE 2020*. 2020, pp. 469–480 **ACM SIGSOFT Distinguished Paper Award**
- W. Lam, S. Winter, A. Wei, T. Xie, D. Marinov, and J. Bell. “A Large-Scale Longitudinal Study of Flaky Tests”. In: *Proc. ACM Program. Lang.* 4.OOPSLA (2020)
- W. Lam, S. Winter, A. Astorga, V. Stodden, and D. Marinov. “Understanding Reproducibility and Characteristics of Flaky Tests Through Test Reruns in Java Projects”. In: *2020 IEEE 31st International Symposium on Software Reliability Engineering (ISSRE)*. 2020, pp. 403–413

*Muggenthalerstr. 8b – 82152 Krailling*

☎ +49 174 1699767 • ✉ [sw@stefan-winter.net](mailto:sw@stefan-winter.net)

🌐 <https://stefan-winter.net>

- R. Natella, S. Winter, D. Cotroneo, and N. Suri. “Analyzing the Effects of Bugs on Software Interfaces”. In: *IEEE Transactions on Software Engineering* 46.3 (Mar. 2020), pp. 280–301
- Y. Chen, S. Winter, and N. Suri. “Inferring Performance Bug Patterns from Developer Commits”. In: *2019 IEEE 30th International Symposium on Software Reliability Engineering (ISSRE)*. Oct. 2019, pp. 70–81
- O. Schwahn, N. Coppik, S. Winter, and N. Suri. “Assessing the State and Improving the Art of Parallel Testing for C”. in: *Proceedings of the 28th ACM SIGSOFT International Symposium on Software Testing and Analysis*. ISSTA 2019. 2019, pp. 123–133
- N. Coppik, O. Schwahn, S. Winter, and N. Suri. “TrEKer: Tracing Error Propagation in Operating System Kernels”. In: *Proceedings of the 32nd IEEE/ACM International Conference on Automated Software Engineering, ASE 2017*. 2017
- S. Winter, O. Schwahn, R. Natella, N. Suri, and D. Cotroneo. “No PAIN, No Gain? The Utility of PARallel Fault INjections”. In: *Software Engineering (ICSE), 2015 IEEE/ACM 37th IEEE International Conference on*. 2015, pp. 494–505
- A. Lanzaro, R. Natella, S. Winter, D. Cotroneo, and N. Suri. “An Empirical Study of Injected Versus Actual Interface Errors”. In: *Proceedings of the 2014 International Symposium on Software Testing and Analysis*. ISSTA 2014. 2014, pp. 397–408
- S. Winter, C. Sarbu, N. Suri, and B. Murphy. “The impact of fault models on software robustness evaluations”. In: *Software Engineering (ICSE), 2011 33rd International Conference on*. 2011, pp. 51–60

## Talks and Presentations

*Talks and presentations in this section do not include conference and workshop presentations for published articles.*

- 2019 “Detecting and Characterizing Error Propagation Across Software Components”, invited talk at the DEPEND research group, University of Illinois, Urbana-Champaign
- 2019 “Detecting and Characterizing Error Propagation Across Software Components”, invited talk at the CS dept.’s software engineering seminar, University of Illinois, Urbana-Champaign
- 2019 “Fault Injection – A Gentle Introduction”, invited talk at the University of Luxembourg
- 2018 “Detecting and characterizing bug migration across software components”, invited talk at the University of British Columbia, Vancouver
- 2016 “No PAIN, No Gain? The Utility of PARallel Fault INjections”, Software Engineering & Management, Vienna
- 2015 “Error models for the representative injection of software defects”, Software Engineering & Management, Dresden
- 2013 “The Hierarchical Microkernel: A Flexible and Robust OS Architecture”, fall meeting of the GI SIG on operating systems

Muggenthalerstr. 8b – 82152 Krailling

☎ +49 174 1699767 • ✉ sw@stefan-winter.net

🌐 <https://stefan-winter.net>

3/6

## Research Mentoring

*Three co-advised PhD students, 35 supervised Master's and Bachelor's theses; degrees and collaborations with industry partners indicated in brackets*

- 2021 Yiqun Chen (PhD)
- 2020 Nicolas Coppik (PhD), Karthikeyan Srinivasan (MSc), Prashanth Kumar (MSc)
- 2019 Oliver Schwahn (PhD), Meghana Shanti Pamula (MSc), Shujie Zhao (MSc), Sebastian Roland (MSc), Luca Gladiator (BSc), Lukas Rothenberger (BSc), Timo Freitag (BSc)
- 2018 Kevin Kelpen (MSc, ERNW GmbH)
- 2017 Sumit Sati (MSc, NEC Europe), Yiqun Chen (MSc), Sujay Gopalakrishna (MSc, Bosch), Dinesh Kandavel (MSc, IBM), Mahdi Enan (BSc, usd AG), Alexander Hirsch (BSc)
- 2016 Soha Alboghdady (MSc), Arun Tawatia (MSc)
- 2014 Manuel Benz (BSc)
- 2013 Oliver Schwahn (MSc), Jannik Kappes (MSc), Michael Tretter (MSc), Martin Tsarev (MSc), Magnus Brand (BSc), Jan Andresen (BSc), Holger Rother (BSc), Ralf Almon (BSc)
- 2012 Gregor Wicklein (BSc), Nicolas Coppik (BSc), Olga Koziol (BSc), Julio Missao (BSc), Robert Reinecke (BSc)
- 2011 Michael Tretter (BSc), Benjamin Sattler (BSc), Fabian Vogt (BSc)
- 2010 Martin Tsarev (BSc)

Muggenthalerstr. 8b – 82152 Krailling

☎ +49 174 1699767 • ✉ [sw@stefan-winter.net](mailto:sw@stefan-winter.net)

🌐 <https://stefan-winter.net>

---

## Teaching Experience

*More than 10 years of teaching experience with different types of courses and up to 600 participants. Detailed descriptions of the taught courses can be found in the separate teaching statement enclosed with this CV.*

LMU  
Munich  
since 2021

Seminars (Reproducibility in Software Engineering Research, Tools for Software Verification) (biannual, 10–20 participants)

HAW  
Landshut  
2020 – 2021

Software Engineering I (~100 participants)

TU  
Darmstadt  
2009 – 2021

- Betriebssysteme/Operating Systems (annual, ~600/250 participants)
- Reliable Software and Operating Systems (annual, 100–200 participants)
- Seminars (Program Analysis and Software Test, Implementing Secure and Reliable Software, Building and Breaking Operating Systems) (biannual, 5–10 participants)

---

## Service to Professional Community

Organizing  
Committee  
Member

- Artifact Evaluation Co-Chair, ECOOP 2022

PC Member

- The ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA), 2022
- The International Symposium on Software Reliability Engineering (ISSRE), since 2018
- The International Workshop on Software Certification (WoSoCer), since 2014
- The International Symposium on Software Testing and Analysis (ISSTA), Artifact Evaluation Committee, 2016 & 2018
- The International Workshop on Software Engineering for Parallel Systems, 2016–2018

Reviewer

- The ACM Student Research Competition
- IEEE Transactions on Dependable and Secure Computing (TDSC)
- IEEE Transactions on Parallel and Distributed Systems (TPDS)
- ACM Transactions on Software Engineering and Methodology (TOSEM)
- IEEE Access

Co-Reviewer

- TACAS 2022
- DSN 2010–2020
- EuroSys 2017, 2020
- ICSE 2016

Muggenthalerstr. 8b – 82152 Krailling

☎ +49 174 1699767 • ✉ sw@stefan-winter.net

🌐 <https://stefan-winter.net>

## Professional Memberships and Affiliations

- 2011 ACM member
- Present
  - SIGSOFT
  - SIGOPS
  
- 2004 GI member (Gesellschaft für Informatik, German computer science association)
- Present
  - SIG Software Testing, Analysis, and Verification
  - SIG Operating Systems
  - SIG Fault-tolerant Systems

*Muggenthalerstr. 8b – 82152 Krailling*

☎ +49 174 1699767 • ✉ [sw@stefan-winter.net](mailto:sw@stefan-winter.net)

🌐 <https://stefan-winter.net>