

## Curriculum Vitae: Andreas Zeller

Male · German · Born October 28, 1965 in Hanau, Germany

[CISPA Helmholtz Center for Information Security](#) and [Computer Science Department](#)

Saarland University; both in Saarbrücken, Germany

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ACM Fellow · Five 10-year Most Influential Paper awards · 17,000+ citations · h-index  $\geq 60$

### Education

1997 Ph.D. in Computer Science, TU Braunschweig (summa cum laude)

1991 Diploma in Computer Science, TU Darmstadt (passed with distinction)

### Positions

2019–present Faculty, CISPA Helmholtz Center for Information Security, Germany

2003–present Full Professor, Computer Science, Saarland University, Germany

2001–2003 Associate Professor (C3), Computer Science, Saarland University, Germany

1999–2001 Post-Doc Researcher (C1), Computer Science, Passau University, Germany

1997–1999 Post-Doc Researcher (C1), Computer Science, TU Braunschweig, Germany

1991–1997 Scientific Assistant, Computer Science, TU Braunschweig, Germany

Guest researcher/lecturer at Microsoft Research, Redmond, USA (2011, 2009, 2005); ETH Zürich, Switzerland (2007); and University of Washington, USA (2005).

### Career-Long Contribution Awards

2019 **IFIP Fellow** (IFIP’s recognition of substantial and enduring contributions to the ICT industry)

2018 **ACM SIGSOFT Outstanding Research Award** (The highest research award by ACM SIGSOFT, the ACM special interest group on software engineering)

2010 **ACM Fellow** (ACM’s most prestigious member grade recognizing the top 1% of ACM members for their outstanding accomplishments) as the youngest European researcher ever, for “contributions to automated debugging and mining software archives”, two fields I helped to shape.

### Impact Awards

2020 **ISSTA 2020 Impact Paper Award** (the single ISSTA 2010 paper with the biggest impact) for “Mutation-driven generation of unit tests and oracles” (with Gordon Fraser)

2017 **MSR 10-Year Most Influential Paper Award** (the single MSR 2007 paper with the biggest impact) for “How Long Will It Take to Fix This Bug?” (with Cathrin Weiß, Rahul Premraj, and Thomas Zimmermann)

2015 **MSR 10-Year Most Influential Paper Award** (the single MSR 2005 paper with the biggest impact) for “When do Changes induce Fixes?” (with Jacek Śliwerski and Thomas Zimmermann)

2014 **ICSE 10-Year Most Influential Paper Award** (the single ICSE 2004 paper with the biggest 10-year impact) for “Mining Software Histories to Guide Software Changes” introducing mining software repositories (with Thomas Zimmermann, Peter Weißgerber, and Stephan Diehl).

2009 **ACM SIGSOFT 10-Year Impact Award** (the single 1999 software engineering paper with the biggest 10-year impact) for “Yesterday, my program worked. Today, it does not. Why?” introducing delta debugging (single author).

## Significant Grants

2011 **ERC Advanced Grant** (Europe’s highest funding for individual researchers) of 2.2 Million EUR for “Specification Mining and Testing (SPECMATE)”

2011 **Google Focused Research Award** (750.000 US\$) for “Test Amplification”

## Supervision of Graduate Students and Postdoctoral Fellows

2001–present 12 Ph.D.s completed, 4 Ph.D.s to complete in 2020, 7 Ph.D.s currently supervised  
9 Post-Docs completed, 2 Post-Docs currently associated, all at CISPA and Saarland University

## Teaching Activities

1997–present Courses on Software Engineering, Introduction to Programming, Program Analysis, Software Testing, Security Testing

2019 Textbook “The Fuzzing Book” (with Gopinath, Böhme, Fraser, Holler)

2012 Udacity Online Course CM259 “Software Debugging” (commissioned by Udacity)

2005 Textbook “Why Programs Fail”, Morgan Kaufmann Editors

## Organization of Scientific Meetings

2022 **Program Chair** Intl. Conference on Software Engineering  
(ICSE 2022; co-chaired with Daniela Damian)

2020 **Program Chair** IEEE International Conference on Software Testing and Verification  
(ICST 2020; co-chaired with Corina Pasareanu)

2016 **General Chair** IEEE European Symposium on Security and Privacy (EuroS&P 2016)

2016 **General Chair** Intl. Symposium on Software Testing and Analysis (ISSTA 2016)

2013 **Program Chair** Intl. Conference on Automated Software Engineering (ASE 2013)  
(co-chaired with Tevfik Bultan)

2011 **Program Chair** European Conference on Software Engineering /  
ACM SIGSOFT Foundations of Software Engineering (ESEC/FSE 2011)

2008 **Program Chair** Intl. Symposium on Software Testing and Analysis (ISSTA 2008)

Co-Organizer of four Dagstuhl Seminars in the past ten years (2010, 2011, 2015, 2017).

## Institutional Responsibilities

2016–2018 Elected member, Saarland University Senate.

2008–2018 Scientific Vice-Coordinator, Saarbrücken Graduate School for Computer Science.

2001–2018 Head of the Software Engineering Chair at Saarland University.  
Position offers from Mannheim, Hannover, Zürich, and Karlsruhe.

2001–present Faculty member, Department of Computer Science, Saarland University.

## Commissions of Trust

2016–present Research Highlights Editorial Board, Communications of the ACM

2016–present Editorial Board, Journal of Software Testing, Verification and Reliability

2013–2017 Editorial Board, IEEE Transactions on Software Engineering (TSE)

2011–2020 National DFG Proposal Review Panel for Computer Science, Elected Member











2008–present Steering Committee, Int. Symposium on Software Testing and Analysis (ISSTA)

2009–2017 Editorial Board, Springer Journal on Empirical Software Engineering (ESEM)



2011–2016 Steering Committee, European Software Engineering Conference (ESEC)

## Ten-Year Track Record: Andreas Zeller


### Ten Representative Publications

- [1] Fraser, G. and Zeller, A. 2011. “[Mutation-driven generation of unit tests and oracles](#)”  IEEE TSE 38(2), pp. 278–292. Conference version at ISSTA 2011. **441 citations.**<sup>1</sup>
- [2] Dallmeier, V., Knopp, N., Mallon, C., Fraser, G., Hack, S., and Zeller, A. 2012. “[Automatically Generating Test Cases for Specification Mining](#)”  IEEE TSE 38(2), pp. 243–257. Invited paper; conference version at ISSTA 2010. **226 citations.**
- [3] Holler, C., Herzig, K., and Zeller, A. 2012. “[Fuzzing with Code Fragments](#)”  *Proc. USENIX Security 2012*, pp. 38–48. **203 citations.**
- [4] Gorla, A., Tavecchia, I., Gross, F., and Zeller, A. 2014. “[Checking App Behavior against App Descriptions](#)”  *Proc. ICSE 2014*, pp. 1025–1035. **358 citations.**
- [5] Avdiienko, V., Kuznetsov, K., Gorla, A., Zeller, A., Arzt, S., Rasthofer, S., and Bodden, E. 2015. “[Mining Apps for Abnormal Usage of Sensitive Data](#)”  *Proc. ICSE 2015*. **198 citations.**
- [6] Jamrozik, K., von Styp-Rekowsky, P., and Zeller, A. 2016. “[Mining Sandboxes](#)”  *Proc. ICSE 2016*, pp. 37–48. **29 citations.**
- [7] Mathis, M., Gopinath, R., Mera, M., Kampmann, A., Hörschele, M., and Zeller, A. 2019. “[Parser-Directed Fuzzing](#)”  *Proc. PLDI 2019*, pp. 548–560.
- [8] Gopinath, R., Kampmann, A., Havrikov, N., Soremekun, E., and Zeller, A. 2020. “[Abstracting Failure-Inducing Inputs](#)”  *Proc. ISSTA 2020*. **ACM SIGSOFT Distinguished Paper Award.**
- [9] Gopinath, R., Mathis, M., and Zeller, A. 2020. “[Mining Input Grammars from Dynamic Control Flow](#)”  *Proc. ESEC/FSE 2020*.
- [10] Kampmann, A., Havrikov, N., Soremekun, E., and Zeller, A. 2020. “[When does my Program do this? Learning Circumstances of Software Behavior](#)”  *Proc. ESEC/FSE 2020*.

### Research Monographs, Chapters in Collective Volumes

- [11] Zeller, A. 2007. “Beautiful Debugging.” In: Oram, Wilson (Eds.), *Beautiful Code: Leading Programmers Explain How They Think*, Chapter 28.
- [12] Zeller, A. 2009. *Why programs fail: A guide to systematic debugging*.  Morgan Kaufmann Publishers (Second edition, 2009). **657 citations.** Translations: Russian, Chinese, Japanese.
- [13] Zeller, A. and Schuler, D. 2009. “Seeding Bugs to Find Bugs: Beautiful Mutation Testing” In: Riley, Goucher (Eds.), *Beautiful Testing: Leading Professionals Reveal How They Improve Software*, Chapter 18.
- [14] Herzig, K. and Zeller, A. 2010. “Mining Your Own Evidence” In: Oram, Wilson (Eds.), *Making Software: What Really Works, and Why We Believe It*, Chapter 27.
- [15] Kuznetsov, K., Gorla, A., Tavecchia, I., Gross, F., and Zeller, A. 2015. “[Mining Android Apps for Anomalies](#)”  In: Menzies, Bird, Zimmermann (eds.), *The Art and Science of Analyzing Software Data*.

### Patents

- Zeller, A., and Jamrozik, K., 2016. “Mining Sandboxes.” European Patent [WO 2016/131830 A1](#) .
- Nagappan, N., Zimmermann, T., Murphy, B., and Zeller, A., 2016. “Predicting Defects in Code”, US Patent 9378015.

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<sup>1</sup>Citation numbers according to Google Scholar, retrieved 2020-06-01. Citations of journal papers include citations of earlier conference version.

## Invited Presentations


**Invited presentations at peer-reviewed, international conferences** — Facebook TAV (2019) · ICSE (2018) · RV (2017) · MSR (2017) · ICST (2017) · ICPC (2015) · ICSE (2014) · ICMT (2013) · SPIN (2012) · SSBSE (2011) · NASA Formal Methods Symposium (2011) · SCAM (2010)





**International advanced schools** — Halmstad Summer School on Software Testing, Halmstad, Sweden (2017) · Summer School on Applied Software Engineering, Bolzano, Italy (2010)

## Organization of International Conferences


- **ACM/IEEE International Conference on Software Engineering (ICSE)** — *Program Co-Chair* (2022)
- **IEEE International Conference on Software Testing and Verification (ICST)** — *Program Co-Chair* (2020)
- **European Symposium on Security and Privacy (EuroS&P)** — *General Chair* (2016)
- **ACM International Conference on Software Testing and Analysis (ISSTA)** — *General Chair* (2016) · *Steering Committee Chair* (2016–2017) · PC Member (2020, 2018, 2013, 2011, 2010)
- **ACM/IEEE International Conference on Software Engineering (ICSE)** — *Program Board Member* (2018, 2016) · *Doctoral Symposium Chair* (2012) · *Tutorial Chair* (2011) · *Emerging Faculty Symposium Chair* (2010) · PC Member (2020, 2017, 2015, 2014, 2013, 2011, 2010)
- **IEEE/ACM International Conference on Automated Software Engineering (ASE)** — *Program Co-Chair* (2013) · *Doctoral Symposium Chair* (2012) · PC Member (2017, 2014, 2012)
- **European Software Engineering Conference / ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)** — *Program Chair* (2011) · *Doctoral Symposium Chair* (2017) · PC Member (2017, 2015, 2013) · ESEC Steering Committee Member (2009–2016)
- **Dagstuhl Seminars** — *Co-Organizer* (“Testing and Verification of Compilers”, 2017; “Artifact Evaluation for Publications”, 2015; “Self-Healing Programs”, 2011; “New Frontiers for Empirical Software Engineering”, 2010)

## Major Contributions to the Early Careers of Excellent Researchers

**Thomas Zimmermann**  (Senior Principal Researcher at Microsoft Research; Associate Professor at University of Calgary) did his Master thesis (2001) and Ph.D. thesis (2006) with me, shaping and pioneering the new research field of Mining Software Repositories. With an h-index of 63 fourteen years after his Ph.D. and elected president of SIGSOFT, Thomas is now one of today’s most influential Software Engineering researchers.

**Gordon Fraser** , **Marcel Böhme** , **Alessandra Gorla** , **Juan Pablo Galeotti**  are four of my former Post-Docs now occupying excellent positions—**Gordon Fraser** is full professor at Passau University; **Marcel Böhme** is a 2019 ARC DECRA Fellow and Senior Lecturer at Monash University; **Alessandra Gorla** is assistant researcher professor at the IMDEA Software Institute in Madrid; **Juan Pablo Galeotti** is professor at University of Buenos Aires.

## Examples of Leadership in Industrial Innovation or Design

**Testfabrik AG** , founded in 2011, applies test generation techniques to automatically determine cross-browser issues and regression errors in Web applications. After attracting more than 1 million € in startup funding and awards as co-founder, I serve as chair of the supervisory board.