# Sven Apel Curriculum Vitae



### Coordinates

Positions:	Full Professor at Saarland University Director of the Saarbrücken Graduate School of Computer Science		
Affiliation:	Saarland University	Phone:	+49 681 302 57211
	Chair of Software Engineering	E-mail:	apel@cs.uni-saarland.de
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# **Research Interests**

A key vision driving my research is to empower software engineering practice to enter an **era of intensive automation**. I develop and evaluate methods, tools, and theories for the construction and analysis of efficient, reliable, maintainable, and configurable software systems. In this endeavor, I pay special attention to the **human factor** and **interdisciplinary** research questions. In particular, I am interested in:

Software variability and configuration

AI-based program generation and optimization

Socio-technical software analysis

Empirical and neurophysiological methods

I apply my research results routinely to real-world software systems and projects from various domains, both from the open-source realm or in collaborations with partners from industry, such as Siemens AG, Bosch Engineering, and Airbus Helicopters.

### **Education**

2003 – 2007	Doctoral degree in Computer Science (Doktor-Ingenieur), University of Magdeburg, Germany, grade " <b>summa cum laude</b> " (with distinction)
1996 – 2002	Diploma degree in Computer Science (Diplom-Informatiker), University of Magdeburg, Germany, grade " <b>A</b> " (excellent)

### **Academic Employment**

since 2019	Full Professor, Chair of Software Engineering, Saarland University, Germany
2013 – 2019	Full Professor (Heisenberg Professorship, tenured in 2017), Chair of Software Engineering I, University of Passau, Germany
2010 - 2013	Head of Emmy Noether Research Group "Safe and Efficient Software Product Lines", University of Passau, Germany
2012	Visiting Researcher, University of Waterloo, Canada
2007 – 2010	Postdoctoral Researcher, University of Passau, Germany
2006	Visiting Scholar, University of Texas at Austin, USA
2003 – 2007	Research Assistant, University of Magdeburg, Germany

# Awards and Honors (selected)

2022	ERC Advanced Grant
2022	ASE Fellow
2018	ACM Distinguished Member
2016	Hugo Junkers Award for Research and Innovation
2015	Appointment to the Young Academy of Europe
2013	Heisenberg Professorship of the German Research Foundation
2010	Emmy Noether Fellowship of the German Research Foundation
2007	Dissertation Award of the University of Magdeburg and the Karin Witte Foundation
2007	Software Engineering Award of the Ernst Denert Foundation for the Best Doctoral Dissertation
2006	Award of the School of Computer Science, University of Magdeburg for Outstanding Scientific Achievements

Most Influential Paper Awards: SPLC'19, ICPC'22, GPCE'23

ACM SIGSOFT Distinguished Paper Awards: ICSE'15, ICSE'21

Best Paper Awards: SPLC'11, Modularity'15, Academy of Management'18

Distinguished Reviewer Awards: ASE'18, ICSE'24, FSE'24

# **Research Grants and Projects**

2022 – 2027	A Neuroscientific Foundation of Program Comprehension (Brains On Code), <b>ERC Advanced Grant</b> (101052182): <b>2 500 000</b> €
2022 – 2026	Foundations of Perspicuous Software Systems (CPEC), funded within <b>DFG Transregio- nal Collaborative Research Centre 248</b> : Principal investigator (Projects C2 and E3)
2020 - 2023	Foundations and Implications of Socio-Technical Congruence in Large-Scale, Decentralized, and Distributed Software Projects (Congruence), funded by <b>DFG</b> (AP 206/14-1): <b>620 000</b> €
2017 – 2024	Performance Evolution of Highly Configurable Software Systems (Pervolution), funded by <b>DFG</b> (AP 206/11-1&2): <b>520 000</b> € of <b>1 040 000</b> €, with Norbert Siegmund
2013 - 2018	Advanced Stencil-Code Engineering (ExaStencils), funded within <b>DFG Priority Program 1648</b> (AP 206/7-1&2): <b>510 000</b> € of <b>2 500 000</b> €, with Christian Lengauer, Ulrich Rüde, Jürgen Teich, and Matthias Bolten
2013 - 2018	Generation of Correct and Efficient Software based on Product-Line Technology (SafeSPL++), funded within <b>DFG Heisenberg Program</b> (AP 206/6-1&2): 660 000 €
2012 - 2017	Techniques and Prediction Models for Sustainable Product-Line Engineering (Pythia), funded within <b>DFG Priority Program 1593</b> (AP 206/5-1&2): <b>700 000</b> €
2015 - 2018	Taming and Optimizing Feature Interaction in Software-intensive Automotive Systems (FeatureOpt), funded by FFG: 100 000 € of 500 000 €, with Hermann Kaindl and Bosch Austria
2010 - 2015	Safe and Efficient Software Product Lines (SafeSPL), funded within <b>DFG Emmy Noether Program</b> (AP 206/4-1&2): <b>1 300 000</b> €
2011 - 2013	Typing of MapReduce (MapReduceFoundation), funded by <b>DFG</b> (LE 912/13-1): <b>160 000</b> $\in$ (no share), with Christian Lengauer
2009 - 2013	Algebra-Based Feature-Oriented Program Synthesis (FeatureFoundation), funded by <b>DFG</b> (AP 206/2-1&2): <b>320 000</b> € of <b>640 000</b> €, with Christian Lengauer and Bernhard Möller

# Professional Service (selected)

### **Steering Committees**

SE3 Committee for coordinating the major conferences in software engineering, 2020–2022 ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2017–2023 IEEE/ACM Int'l Conference on Automated Software Engineering (ASE), 2016–2022

### **Organization Committees**

27th ACM Joint European Software Engineering Conference and
Symposium on the Foundations of Software Engineering (ESEC/FSE'19), Program Chair
31st IEEE/ACM Int'l Conference on Automated Software Engineering (ASE'16), Program Chair
Dagstuhl Seminar on Feature Interactions: The Next Generation, 2014
10th Int'l Conference on Software Composition (SC'11), Program Chair
Dagstuhl Seminar on Feature-Oriented Software Development, 2011
Dagstuhl Seminar on Software Engineering for Tailor-made Data Management, 2008

### Editorships

Empirical Software Engineering, Member of Editorial Board, 2015–2023 IEEE Software, Member of Editorial Board, 2015–2023 IEEE Transactions on Software Engineering, Member of Editorial Board, 2017–2021

### **Program Committees**

ACM/IEEE Int'l Conference on Software Engineering (ICSE), 2014–2017, 2019–2020, 2024 ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2013, 2018–2021, 2024 IEEE/ACM Int'l Conference on Automated Software Engineering (ASE), 2009–2011, 2013–2018, 2020–2022, 2025 (Area Chair)

European Conference on Object-Oriented Programming (ECOOP), 2011, 2014, 2016

### Award Committees

SPEC Kaivalya Dixit Distinguished Dissertation Award Committee, 2022 ACM SIGSOFT Outstanding Dissertation Award Committee, 2018 Test of Time Award Committee, ESEC/FSE, 2018–2020 Dissertation Award Committee of the German Computer Science Society, 2017–2025

### **Departmental Service**

Director of the Saarbrücken Graduate School of Computer Science, since 2025 Member of the Faculty Council, since 2022 Member of the Board of Examiners for Doctoral Awards, since 2022 Member of the University's IT and Digitalization Board, since 2022 Member of Student Admission Committee for the Bachelor Program in Computer Science, since 2023 Vice Chair of the Board of Examiners for Doctoral Awards, 2016–2019 Member of the Board of Examiners for Computer Science, 2013–2019 Head of the Master Program in Computer Science, 2013–2015 Member of the Accreditation Committee for Computer Science, 2014

# Invited Talks, Lectures, and Interviews (selected)

AI4SE: Adventures in the Promised Land Keynote at the Int'l Conference on Evaluation and Assessment in Software Engineering (EASE), Istanbul, Turkey, 2025

Are You Trapped in the Configuration Abyss? Interview in IEEE Software (vol. 41), 2024

Brains on Code: Towards a Neuroscientific Foundation of Program Comprehension Keynote at the Int'l Conference on Fundamental Approaches to Software Engineering (FASE), Paris, France, 2023

Software Performance Modelling in Spacetime Keynote at the ACM/SPEC Int'l Conference on Performance Engineering (ICPE), virtual event, 2021

Publishing your Research: Strategies, Prospects, and Pitfalls Invited Lecture at the New Faculty Symposium of the Int'l Conference on Software Engineering, Gothenburg, Sweden, 2018

Understanding Organizational Evolution of Software Projects **Keynote** at the Annual German Software Engineering Conference, Ulm, Germany, 2018

The New Feature Interaction Challenge, Keynote at the Int'l Workshop on Variability Modelling of Software-intensive Systems, Eindhoven, The Netherlands, 2017

From Crosscutting Concerns to Feature Interactions: A Tale of Misunderstandings and Enlightenments, Keynote at the Int'l Conference on Modularity, Malaga, Spain, 2016

Conquering the Combinatorial Explosion: Analyzing Variable Software, Keynote at the Brazilian Conference on Software: Theory and Practice, Maceió, Brazil, 2014

Language-Independent and Automated Software Composition: The FeatureHouse Experience, **Keynote** at the Int'l Conference on Software Composition, Budapest, Hungary, 2013

## **Supervision of Students**

Ph.D. Students (graduated)

- Dr. Thomas Bock, 2024
- Dr. Florian Sattler, 2024
- Prof. Dr. Gustavo Do Vale, 2024
- Dr. Christian Kaltenecker, 2024
- Dr. Norman Peitek, 2022, Dissertation Award @ TU Chemnitz (co-advised with Prof. J. Siegmund)
- Dr. Andreas Stahlbauer, 2020
- Dr. Sergiy Kolesnikov, 2019
- Dr. Mitchell Joblin, 2017, Dissertation Award @ University of Passau
- Dr. Alexander von Rhein, 2016, Dissertation Award @ University of Passau
- Dr. Jörg Liebig, 2015, Software-Engineering Award of the Ernst-Denert Foundation

### Teaching Portfolio (selected)

#### Lectures

Software Engineering Software Product Line Engineering Empirical Software Engineering Research Generic and Generative Software Design Types and Programming Languages Introduction to Computer Science Modern Programming Paradigms Preparatory course in Informatics

#### Lab Exercises

Software Engineering Lab

### Publications (selected)

Electronic versions of all publications are available on the Web: https://www.se.cs.uni-saarland.de/apel/.

#### Dissertation

1. Sven Apel. *The Role of Features and Aspects in Software Development*. PhD thesis, School of Computer Science, University of Magdeburg, March 2007. **Software-Engineering Award of the Ernst-Denert Foundation**.

#### Books

1. Sven Apel, Don Batory, Christian Kästner, and Gunter Saake. *Feature-Oriented Software Product Lines: Concepts and Implementation*. Springer, October 2013. 315 pages.

#### Refereed Journal Articles (selected)

- 43. Roman Haas, Michael Sailer, Mitchell Joblin, Elmar Jürgens, and Sven Apel. Prioritizing Test Gaps by Risk in Industrial Practice: An Automated Approach and Multi-Method Study. *IEEE Transactions on Software Engineering (TSE)*, 2025. To appear.
- 42. Roman Haas, Raphael Nömmer, Elmar Jürgens, and Sven Apel. Optimization of Automated and Manual Software Tests in Industrial Practice: A Survey and Historical Analysis. *IEEE Transactions on Software Engineering (TSE)*, 50(8):2005–2020, August 2024.
- 41. Clemens Dubslaff, Kallistos Weis, Christel Baier, and Sven Apel. Feature Causality. *Journal of Systems and Software (JSS)*, 209(3):111915, March 2024.
- 40. Thomas Bock, Nils Alznauer, Mitchell Joblin, and Sven Apel. Automatic Core-Developer Identification on GitHub: A Validation Study. *ACM Transactions on Software Engineering and Methodology* (*TOSEM*), 32(6):138, November 2023.
- 39. Florian Sattler, Sebastian Böhm, Philipp Schubert, Norbert Siegmund, and Sven Apel. SEAL: Integrating Program Analysis and Repository Mining. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 32(5):121, September 2023.
- 38. Mitchell Joblin, Barbara Eckl, Thomas Bock, Angelika Schmid, Janet Siegmund, and Sven Apel. Hierarchical and Hybrid Organizational Structures in Open-Source Software Projects. *ACM Transactions* on Software Engineering and Methodology (TOSEM), 32(4):86, July 2023.
- 37. Johannes Dorn, Sven Apel, and Norbert Siegmund. Mastering Uncertainty in Performance Estimations of Configurable Software Systems. *Empirical Software Engineering (EMSE)*, 28(2):33, January 2023.
- 36. Gustavo do Vale, Claus Hunsen, Eduardo Figueiredo, and Sven Apel. Challenges of Resolving Merge Conflicts: A Mining and Survey Study. *IEEE Transactions on Software Engineering (TSE)*, 48(12):4964–4985, December 2022.
- 35. Georg Seibt, Florian Heck, Guilherme Cavalcanti, Paulo Borba, and Sven Apel. Leveraging Structure in Software Merge: An Empirical Study. *IEEE Transactions on Software Engineering (TSE)*, 48(11):4590–4610, November 2022.
- 34. Wolfgang Mauerer, Mitchell Joblin, Damian Tamburri, Carlos Paradis, Rick Kazman, and Sven Apel. In Search of Socio-Technical Congruence: A Large-Scale Longitudinal Study. *IEEE Transactions on Software Engineering (TSE)*, 48(8):3159–3184, August 2022.
- 33. Mitchell Joblin and Sven Apel. How Do Successful and Failed Projects Differ? A Socio-Technical Analysis. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 31(4):67, July 2022.
- 32. Sven Apel, Christian Kästner, and Eunsuk Kang. Feature Interactions on Steroids: On the Composition of ML Models. *IEEE Software*, 39(3):120–124, May 2022.
- 31. Thomas Bock, Angelika Schmid, and Sven Apel. Measuring and Modeling Group Dynamics in Open-Source Software Development: A Tensor Decomposition Approach. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 31(2):19, April 2022.
- 30. Norbert Siegmund, Johannes Dorn, Max Weber, Christian Kaltenecker, and Sven Apel. Green Configuration: Can Al Help in Reducing Energy Consumption of Configurable Software Systems? *IEEE Computer*, 55(3):74–81, March 2022.

<sup>&</sup>lt;sup>1</sup>The h-index has been computed by Google Scholar.

- 29. Thiago Castro, Leopoldo Teixeira, Vander Alves, Sven Apel, Maxime Cordy, and Rohit Gheyi. A Formal Framework of Software Product Line Analyses. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 30(3):34, April 2021.
- 28. Janet Siegmund, Norman Peitek, Sven Apel, and Norbert Siegmund. Mastering Variation in Human Studies: The Role of Aggregation. ACM Transactions on Software Engineering and Methodology (TO-SEM), 30(1):2, January 2021.
- 27. Leonardo Passos, Rodrigo Queiroz, Mukelabai Mukelabai, Thorsten Berger, Sven Apel, Krzysztof Czarnecki, and Jesus Alejandro Padilla. A Study of Feature Scattering in the Linux Kernel. *IEEE Transactions on Software Engineering (TSE)*, 47(1):146–164, January 2021.
- 26. Vivek Nair, Zhe Yu, Tim Menzies, Norbert Siegmund, and Sven Apel. Finding Faster Configurations using FLASH. *IEEE Transactions on Software Engineering (TSE)*, 46(7):794–811, July 2020.
- 25. Christian Kaltenecker, Alexander Grebhahn, Norbert Siegmund, and Sven Apel. The Interplay of Sampling and Machine Learning for Software Performance Prediction. *IEEE Software*, 37(4):58–66, July 2020.
- 24. Janet Siegmund, Norman Peitek, André Brechmann, Chris Parnin, and Sven Apel. Studying Programming in the Neuroage: Just a Crazy Idea? *Communications of the ACM*, 63(6):30–34, June 2020.
- 23. Norman Peitek, Janet Siegmund, Sven Apel, Christian Kästner, Chris Parnin, Anja Bethmann, Thomas Leich, Gunter Saake, and André Brechmann. A Look into Programmers' Heads. *IEEE Transactions on Software Engineering (TSE)*, 46(4):442–462, April 2020.
- 22. Roman Haas, Rainer Niedermayr, Tobias Roehm, and Sven Apel. Is Static Analysis Able to Identify Unnecessary Source Code? *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 29(1):6, March 2020.
- 21. Andreas Simbürger, Sven Apel, Armin Größlinger, and Christian Lengauer. PolyJIT: Polyhedral Optimization Just in Time. *International Journal of Parallel Programming (IJPP)*, 47(5):874–906, December 2019.
- Flávio Medeiros, Gabriel Lima, Guilherme Amaral, Sven Apel, Christian Kästner, Márcio Ribeiro, and Rohit Gheyi. An Investigation of Misunderstanding Code Patterns in C Open-Source Software Projects. *Empirical Software Engineering (EMSE)*, 24(4):1693–1726, August 2019.
- 19. Stefan Ganser, Armin Größlinger, Norbert Siegmund, Sven Apel, and Christian Lengauer. Speeding up Iterative Polyhedral Schedule Optimization with Surrogate Performance Models. *ACM Transactions on Architecture and Code Optimization (TACO)*, 15(4):56, January 2019.
- Marvin Hanisch, Carolin Haeussler, Stefan Berreiter, and Sven Apel. Developers' Progression from Periphery to Core in the Linux Kernel Development Project. *Academy of Management Proceedings*, 2018(1):14263, 2018. Selected for inclusion into the Best Paper Proceedings of the Academy of Management Conference 2018.
- 17. Alexander von Rhein, Jörg Liebig, Andreas Janker, Christian Kästner, and Sven Apel. Variability-Aware Static Analysis at Scale: An Empirical Study. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 27(4):18, November 2018.
- 16. Jianmei Guo, Dingyu Yang, Norbert Siegmund, Sven Apel, Atrisha Sarkar, Pavel Valov, Krzysztof Czarnecki, Andrzej Wasowski, and Huiqun Yu. Data-Efficient Performance Learning for Configurable Systems. *Empirical Software Engineering (EMSE)*, 23(3):1826–1867, June 2018.
- 15. Claire Le Goues, Yuriy Brun, Sven Apel, Emery Berger, Sarfrad Khurshid, and Yannis Smaragdakis. Effectiveness of Anonymization in Double-Blind Review. *Communications of the ACM*, 61(6):30–33, May 2018.
- 14. Flavio Medeiros, Marcio Ribeiro, Rohit Gheyi, Sven Apel, Christian Kästner, Bruno Ferreira, Luiz Carvalho, and Baldoino Fonseca. Discipline Matters: Refactoring of Preprocessor Directives in the #ifdef Hell. *IEEE Transactions on Software Engineering (TSE)*, 44(5):453–469, May 2018.
- 13. Stefan Ganser, Armin Größlinger, Norbert Siegmund, Sven Apel, and Christian Lengauer. Iterative Schedule Optimization for Parallelization in the Polyhedron Model. *ACM Transactions on Architecture and Code Optimization (TACO)*, 14(3):23, September 2017.
- 12. Mitchell Joblin, Sven Apel, and Wolfgang Mauerer. Evolutionary Trends of Developer Coordination: A Network Approach. *Empirical Software Engineering (EMSE)*, 22(4):2050–2094, August 2017.
- 11. Jörg Liebig, Sven Apel, Andreas Janker, Florian Garbe, and Sebastian Oster. Handling Static Configurability in Refactoring Engines. *IEEE Computer*, 50(7):44–53, July 2017.

- Leonardo Passos, Leopoldo Teixeira, Nicolas Dintzner, Sven Apel, Andrzej Wasowski, Krzysztof Czarnecki, Paulo Borba, and Jianmei Guo. Coevolution of Variability Models and Related Software Artifacts: A Fresh Look at Evolution Patterns in the Linux Kernel. *Empirical Software Engineering (EMSE)*, 21(4):1744–1793, August 2016.
- 9. Claus Hunsen, Bo Zhang, Janet Siegmund, Christian Kästner, Olaf Lessenich, Martin Becker, and Sven Apel. Preprocessor-Based Variability in Open-Source and Industrial Software Systems: An Empirical Study. *Empirical Software Engineering (EMSE)*, 21(2):449–482, April 2016.
- 8. Janet Siegmund, Christian Kästner, Jörg Liebig, Sven Apel, and Stefan Hanenberg. Measuring and Modeling Programming Experience. *Empirical Software Engineering (EMSE)*, 19(5):1299–1334, October 2014. ICPC Most Influential Paper Award 2022.
- 7. Thomas Thüm, Sven Apel, Christian Kästner, Ina Schaefer, and Gunter Saake. A Classification and Survey of Analysis Strategies for Software Product Lines. *ACM Computing Surveys*, 47(1):6, June 2014.
- 6. Janet Feigenspan, Christian Kästner, Sven Apel, Jörg Liebig, Michael Schulze, Raimund Dachselt, Maria Papendieck, Thomas Leich, and Gunter Saake. Do Background Colors Improve Program Comprehension in the #ifdef Hell? *Empirical Software Engineering (EMSE)*, 18(4):699–745, July 2013.
- Sven Apel, Christian Kästner, and Christian Lengauer. Language-Independent and Automated Software Composition: The FeatureHouse Experience. *IEEE Transactions on Software Engineering (TSE)*, 39(1):63–79, January 2013.
- 4. Christian Kästner, Sven Apel, Thomas Thüm, and Gunter Saake. Type Checking Annotation-Based Product Lines. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 21(3):14, June 2012.
- 3. Friedrich Steimann, Thomas Pawlitzki, Sven Apel, and Christian Kästner. Types and Modularity for Implicit Invocation with Implicit Announcement. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 20(1):1, June 2010.
- 2. Sven Apel and DeLesley Hutchins. A Calculus for Uniform Feature Composition. ACM Transactions on Programming Languages and Systems (TOPLAS), 32(5):19, May 2010.
- 1. Sven Apel, Thomas Leich, and Gunter Saake. Aspectual Feature Modules. *IEEE Transactions on Software Engineering (TSE)*, 34(2):162–180, April 2008.

#### Refereed Conference Papers (selected)

- 50. Max Weber, Alina Mailach, Sven Apel, Janet Siegmund, Raimund Dachselt, and Norbert Siegmund. Understanding Debugging as Episodes: A Case Study on Performance Bugs in Configurable Software Systems. In *Proceedings of the ACM International Conference on the Foundations of Software Engineering (FSE)*. ACM, June 2025. To appear.
- 49. Ruchit Rawal, Victor-Alexandru Pădurean, Sven Apel, Adish Singla, and Mariya Toneva. Hints Help Finding and Fixing Bugs Differently in Python and Text-based Program Representations. In *Proceedings of the International Conference on Software Engineering (ICSE)*. IEEE, April 2025. Acceptance rate: 21% (245 / 1150); to appear.
- 48. Christof Tinnes, Alisa Welter, and Sven Apel. Software Model Evolution with Large Language Models: Experiments on Simulated, Public, and Industrial Datasets. In *Proceedings of the International Conference on Software Engineering (ICSE)*. IEEE, April 2025. Acceptance rate: 21% (245 / 1150); to appear.
- 47. Kallistos Weis, Leopoldo Motta Teixeira, Clemens Dubslaff, and Sven Apel. Blackbox Observability of Features and Feature Interactions. In *Proceedings of the International Conference on Automated Software Engineering (ASE)*, pages 1120–1132. ACM, October 2024. Acceptance rate: 27% (155 / 568).
- 46. Stefan Mühlbauer, Florian Sattler, Christian Kaltenecker, Johannes Dorn, Sven Apel, and Norbert Siegmund. Analyzing the Impact of Workloads on Modeling the Performance of Configurable Software Systems. In *Proceedings of the International Conference on Software Engineering (ICSE)*, pages 2085–2097. IEEE, May 2023. Acceptance rate: 26% (209 / 796).
- 45. Max Weber, Christian Kaltenecker, Florian Sattler, Sven Apel, and Norbert Siegmund. Twins or False Friends? A Study on Energy Consumption and Performance of Configurable Software. In *Proceedings of the International Conference on Software Engineering (ICSE)*, pages 2098–2110. IEEE, May 2023. Acceptance rate: 26% (209 / 796).
- 44. Norman Peitek, Annabelle Bergum, Maurice Rekrut, Jonas Mucke, Matthias Nadig, Chris Parnin, Janet Siegmund, and Sven Apel. Correlates of Programmer Efficacy and their Link to Experience: A

Combined EEG and Eye-Tracking Study. In *Proceedings of the ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)*, pages 120–131. ACM, November 2022. Acceptance rate: 22% (99 / 449).

- 43. Clemens Dubslaff, Kallistos Weis, Christel Baier, and Sven Apel. Causality in Configurable Software Systems. In *Proceedings of the International Conference on Software Engineering (ICSE)*, pages 325–337. ACM, May 2022. Acceptance rate: 26% (197 / 751).
- 42. Miguel Velez, Pooyan Jamshidi, Norbert Siegmund, Sven Apel, and Christian Kästner. On Debugging the Performance of Configurable Software Systems: Developer Needs and Tailored Tool Support. In *Proceedings of the International Conference on Software Engineering (ICSE)*, pages 1571–1583. ACM, May 2022. Acceptance rate: 26% (197 / 751).
- Christof Tinnes, Timo Kehrer, Mitchell Joblin, Uwe Hohenstein, Andreas Biesdorf, and Sven Apel. Learning Domain-Specific Edit Operations from Model Repositories with Frequent Subgraph Mining. In *Proceedings of the International Conference on Automated Software Engineering (ASE)*, pages 930– 942. IEEE, November 2021. Acceptance rate: 20% (82 / 414).
- Norman Peitek, Sven Apel, Chris Parnin, André Brechmann, and Janet Siegmund. Program Comprehension and Code Complexity Metrics: An fMRI Study. In *Proceedings of the International Conference on Software Engineering (ICSE)*, pages 524–536. IEEE, May 2021. Acceptance rate: 23% (138 / 602). ACM SIGSOFT Distinguished Paper Award.
- 39. Max Weber, Sven Apel, and Norbert Siegmund. White-Box Performance-Influence Models: A Profiling and Learning Approach. In *Proceedings of the International Conference on Software Engineering (ICSE)*, pages 1059–1071. IEEE, May 2021. Acceptance rate: 23% (138 / 602).
- 38. Miguel Velez, Pooyan Jamshidi, Norbert Siegmund, Sven Apel, and Christian Kästner. White-Box Analysis over Machine Learning: Modeling Performance of Configurable Systems. In *Proceedings of the International Conference on Software Engineering (ICSE)*, pages 1072–1084. IEEE, May 2021. Acceptance rate: 23% (138 / 602).
- 37. Johannes Dorn, Sven Apel, and Norbert Siegmund. Mastering Uncertainty in Performance Estimations of Configurable Software Systems. In *Proceedings of the International Conference on Automated Software Engineering (ASE)*, pages 684–696. ACM, September 2020. Acceptance rate: 23% (93 / 408).
- 36. Stefan Mühlbauer, Sven Apel, and Norbert Siegmund. Identifying Software Performance Changes Across Variants and Versions. In *Proceedings of the International Conference on Automated Software Engineering (ASE)*, pages 611–622. ACM, September 2020. Acceptance rate: 23% (93 / 408).
- 35. Dan Gopstein, Anne-Laure Fayard, Sven Apel, and Justin Cappos. Thinking Aloud About Confusing Code: A Qualitative Investigation of Program Comprehension and Atoms of Confusion. In Proceedings of the ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), pages 605–616. ACM, November 2020. Acceptance rate: 28% (101 / 360).
- Guilherme Cavalcanti, Paulo Borba, Georg Seibt, and Sven Apel. The Impact of Structure on Software Merging: Semistructured versus Structured Merge. In *Proceedings of the International Conference on Automated Software Engineering (ASE)*, pages 1002–1013. IEEE, November 2019. Acceptance rate: 25% (93 / 373).
- 33. Stefan Mühlbauer, Sven Apel, and Norbert Siegmund. Accurate Modeling of Performance Histories for Evolving Software Systems. In *Proceedings of the International Conference on Automated Software Engineering (ASE)*, pages 640–652. IEEE, November 2019. Acceptance rate: 25% (93 / 373).
- Christian Kaltenecker, Alexander Grebhahn, Norbert Siegmund, Jianmei Guo, and Sven Apel. Distance-Based Sampling of Software Configuration Spaces. In *Proceedings of the International Conference on Software Engineering (ICSE)*, pages 1084–1094. IEEE, May 2019. Acceptance rate: 21% (109 / 529).
- Olaf Leßenich, Sven Apel, Christian Kästner, Georg Seibt, and Janet Siegmund. Renaming and Shifted Code in Structured Merging: Looking Ahead for Precision and Performance. In *Proceedings of the International Conference on Automated Software Engineering (ASE)*, pages 543–553. IEEE, November 2017. Acceptance rate: 21% (67 / 322).
- Norbert Siegmund, Stefan Sobernig, and Sven Apel. Attributed Variability Models: Outside the Comfort Zone. In Proceedings of the European Software Engineering Conference and the ACM SIGSOFT International Symposium on the Foundations of Software Engineering (ESEC/FSE), pages 268–278. ACM, September 2017. Acceptance rate: 24% (72 / 295).
- 29. Vivek Nair, Tim Menzies, Norbert Siegmund, and Sven Apel. Using Bad Learners to find Good Configurations. In *Proceedings of the European Software Engineering Conference and the ACM SIGSOFT*

International Symposium on the Foundations of Software Engineering (ESEC/FSE), pages 257–267. ACM, September 2017. Acceptance rate: 24% (72 / 295).

- Janet Siegmund, Norman Peitek, Chris Parnin, Sven Apel, Johannes Hofmeister, Christian Kästner, Andrew Begel, Anja Bethmann, and André Brechmann. Measuring Neural Efficiency of Program Comprehension. In Proceedings of the European Software Engineering Conference and the ACM SIGS-OFT International Symposium on the Foundations of Software Engineering (ESEC/FSE), pages 140– 150. ACM, September 2017. Acceptance rate: 24% (72 / 295).
- 27. Mitchell Joblin, Sven Apel, Claus Hunsen, and Wolfgang Mauerer. Classifying Developers into Core and Peripheral: An Empirical Study on Count and Network Metrics. In *Proceedings of the International Conference on Software Engineering (ICSE)*, pages 164–174. IEEE, May 2017. Acceptance rate: 16% (68 / 415).
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