

Curriculum Vitae

Affiliation Associate Professor
School of Computer Science, Software and Societal Systems Department
Carnegie Mellon University

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S3D - TCS Hall 430
4665 Forbes Avenue
Pittsburgh, PA 15213, USA

Profile

Associate professor in the Software and Societal Systems Department at the School of Computer Science at Carnegie Mellon University interested in *limits of modularity* and *variability* in software systems, as well as open-source sustainability and software engineering for AI-enabled systems. Developing mechanisms, languages, and tools to implement variability in a disciplined way, to detect errors, to help with nonmodular changes, and to improve program comprehension in software systems, often focused on systems with a high amount of variability. Also interested in *open-source sustainability* and *software engineering for AI-enabled systems*.

Education

Apr. 2007 – May 2010 Doctoral degree in computer science (Doktor-Ingenieur),
University of Magdeburg, Germany,
Summa cum laude (with distinction)
Committee: Prof. Gunter Saake (University of Magdeburg), Prof. Don Batory (University of Texas at Austin), Prof. Krzysztof Czarnecki (University of Waterloo)

Oct. 2002 – Mar. 2007 Diploma degree in business information systems
(M.Sc. equivalent; Diplom-Wirtschaftsinformatiker),
University of Magdeburg, Germany,
Grade “1.0” (with distinction)

Academic Employment

since Sep. 2019 Director of the Software Engineering Ph.D. Program,
Carnegie Mellon University

since Jul. 2018 Associate Professor,
Carnegie Mellon University

Sep. 2012 – Jun. 2018 Assistant Professor,
Carnegie Mellon University

Jul. 2010 – Aug. 2012 Researcher (Post-Doc),
Host: Prof. Klaus Ostermann,
Philipps University Marburg, Germany

Apr. 2007 – Jun. 2010 Research Assistant,
Host: Prof. Gunter Saake,
University of Magdeburg, Germany

- Oct. 2006 – Mar. 2007 Visiting scholar,
Host: Prof. Don Batory
University of Texas at Austin, USA
- Oct. 2005 – Sep. 2006 Student Research Assistant,
Host: Prof. Gunter Saake,
University of Magdeburg, Germany

Awards and Honors

- Apr. 2026 Best Paper Award at the ACM CHI Conference on Human Factors in Computing Systems (CHI) 2026
- Apr. 2026 Distinguished-Paper Award at the International Conference on Mining Software Repositories (MSR) 2026
- Jun. 2025 Distinguished-Paper Award at the International Conference on the Foundations of Software Engineering (FSE) 2025
- May. 2025 Distinguished-Paper Award at the International Conference on Software Engineering (ICSE) 2025
- May. 2022 Two Distinguished-Paper Awards at the International Conference on Software Engineering (ICSE) 2022
- Oct. 2021 10-year Most Influential Paper of ICPC'12 for Measuring Programming Experience
- Oct. 2021 Distinguished Reviewer Award at the International Conference on Automated Software Engineering (ASE) 2021
- Oct. 2021 10-year Most Influential Paper of OOPSLA'11 for SugarJ: Library Based Syntactic Language Extensibility
- Nov. 2020 Distinguished Program Committee Member Award at the International Conference on Automated Software Engineering (ASE) 2020
- Sep. 2019 10-year Most Influential Paper Award at the International Conference on Software Product Lines (SPLC) 2019
- Nov. 2017 Distinguished Reviewer Award at the International Conference on Automated Software Engineering (ASE) 2017
- May. 2017 Distinguished Reviewer Award at the International Conference on Software Engineering (ICSE) 2017
- Nov. 2015 Distinguished Reviewer Award at the International Conference on Automated Software Engineering (ASE) 2015
- Oct. 2011 **GI-Dissertationspreis:** Best Dissertation Award of the German Computer Science Association, 2010
- Oct. 2011 Distinguished-Paper Award at the International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA) 2011
- Aug. 2011 Best-Research-Paper Award at the International Software Product Line Conference 2011
- Nov. 2010 Best-Dissertation Award of the School of Computer Science, University of Magdeburg, 2010
- Dec. 2009 Research Award of the School of Computer Science, University of Magdeburg for the Best Paper, 2009
- Sep. 2007 Software Engineering Award of the Denert Foundation for the Best Master's Thesis, 2007

- Oct. 2007 Best-Graduate Award of the School of Computer Science, University of Magdeburg, 2007
- Sep. 2006 Student Scholarship of the Germany Academic Exchange Service

Invited Talks

- Nov. 2025 A failed experiment on end-user explanations for ML-powered medical devices,
SMASH 2025: Symposium on Model Accountability, Sustainability and Healthcare, Montreal
- Sep. 2025 Testing AI-Powered Systems, Not Just Models,
Future Advanced Testing Technology Workshop
- Feb. 2025 From Models to Products: On the Role of Software Engineering for Machine Learning,
SEI, National AI Engineering Study Speaker Series
- Jan. 2025 From Models to Products: On the Role of Software Engineering for Machine Learning,
York University, AI+SE Seminar Series
- Jan. 2025 From Models to Products: On the Role of Software Engineering for Machine Learning,
University of Paderborn, Distinguished Lecture
- Apr. 2024 From Models to Products: On the Role of Software Engineering for Machine Learning,
CAIN 2024 Keynote
- May. 2022 From Models to Systems: Rethinking the Role of Software Engineering for Machine Learning,
Yale University
- Jul. 2022 From Models to Systems: Teaching Software Engineering to Data Scientists,
SEI SE Workshop for Educators 2022
- May. 2022 From Models to Systems: Rethinking the Role of Software Engineering for Machine Learning,
Keynote at 2022 Int'l Conf. Mining Software Repositories
- Mar. 2021 Toward a System-Wide and Interdisciplinary Perspective on ML System Performance,
Keynote at FastPath'21 Workshop
- Sep. 2020 Analyzing Tens of Terabytes of Public Trace Data & Open Source Sustainability,
State of the Source
- Jun. 2020 Engineering AI-Enabled Systems with Interdisciplinary Teams,
Software Engineering for Machine Learning Applications (SEMLA) International Symposium
- Apr. 2020 Software Engineering for ML-Enabled Systems,
Code and Supply Meetup
- Mar. 2020 Teaching Software Engineering for AI-Enabled Systems,
Dagstuhl Seminar 20091: SE4ML - Software Engineering for AI-ML-based Systems
- Sep. 2019 Performance Analysis for Highly-Configurable Systems,
Keynote for the 2019 System and Software Product Line Conference (SPLC)

- Sep. 2019 Granularity in Software Product Lines: 12 Years Later,
Most Influential Paper Award Talk at the 2019 System and Software Product Line Conference (SPLC)
- Sep. 2019 Efficiently Finding Higher-Order Mutants,
Saarland University
- Feb. 2019 How to Break an API: How Community Values Influence Practices,
University of South Carolina
- Jul. 2018 How to Break an API: How Community Values Influence Practices,
École Polytechnique de Montréal
- May. 2017 How to Break an API: How Community Values Influence Practices,
Speaker at jsconf.eu
- May. 2016 Quality Assurance for Highly-Configurable Systems,
Keynote Talk for the VACE Workshop at ICSE'16
- Nov. 2015 Starting an Academic Career – Reflecting on Habits that Worked for Me,
Keynote Talk for the ASE 2015 Doctoral Symposium
- Oct. 2015 Parsing Unpreprocessed C Code - The TypeChef Experience,
Keynote Talk for the Parsing@SLE Workshop at SPLASH'15
- Sep. 2015 Understanding Feature Interactions: From Bugs to Performance Surprises,
Keynote at Brazilian Symposium on Software Components, Architectures,
and Reuse (SBCARS)
- Jul. 2014 Feature Interactions in Software Systems An Implementation Perspective,
Dagstuhl Seminar 14281: Feature Interactions: The Next Generation
- Jun. 2014 Analyzing Highly-Configurable Software Systems,
University of Toronto – Workshop on the State of the Art in Automated
Software Engineering Research
- Apr. 2014 Quality Assurance for Highly-Configurable Systems,
University of Magdeburg, Germany
- Apr. 2014 Analysis of Software Product Lines,
Dagstuhl Seminar 14172: Unifying Product and Software Configuration
- Dec. 2013 Variability Mining,
University of Waterloo – Product Line Engineering Workshop
- Dec. 2013 Parsing and Type Checking all 2^{10000} Configurations of the Linux Kernel,
University of Nebraska at Lincoln, Lincoln, NE
- Aug. 2013 Analyzing Highly Configurable Systems: From Linux to Eclipse,
Technical University Darmstadt, Germany
- Aug. 2013 Accepting Change - Awareness instead of Stability Guarantees,
University of Passau, Germany
- Feb. 2013 Analyzing the #ifdef Hell with TypeChef – Or the Quest for Realistic Subjects in Product-Line Analysis,
Dagstuhl Seminar 13091: Analysis, Test and Verification in The Presence of Variability
- Dec. 2012 A Variability-Aware Module System,
Dagstuhl Seminar 12511: Divide and Conquer: the Quest for Compositional Design and Analysis
- Apr. 2012 Parsing and Type Checking all 2^{10000} Configurations of the Linux Kernel,
University of Passau, Germany

- Apr. 2012 Parsing and Type Checking all 2¹⁰⁰⁰⁰ Configurations of the Linux Kernel,
Carnegie Mellon University, Pittsburgh, PA
- Apr. 2012 Parsing and Type Checking all 2¹⁰⁰⁰⁰ Configurations of the Linux Kernel,
University of Edinburgh, UK
- Mar. 2012 Parsing and Type Checking all 2¹⁰⁰⁰⁰ Configurations of the Linux Kernel,
Purdue University, West Lafayette, IN
- Dec. 2011 Parsing and Type Checking all 2¹⁰⁰⁰⁰ Configurations of the Linux Kernel,
Technical University Ilmenau, Germany
- Oct. 2011 Virtual Separation of Concerns,
Oregon State University, Corvallis, OR
- Oct. 2011 Modularity in Feature-Oriented Software Development,
University of Texas at Austin, TX
- Jun. 2011 Virtual Separation of Concerns: Toward Preprocessors 2.0,
Kolloquium zum GI Dissertationspreis 2010 at Dagstuhl 11222
- Jan. 2011 Variability-Aware Analysis: Type Checking entire Product Lines,
Dagstuhl Seminar 11021: Feature-Oriented Software Development
- Dec. 2010 Modularity – Current State and Challenges,
University of Waterloo, ON
- Dec. 2010 Variability Analysis of C Code in the Presence of Lexical Macros and Conditional Compilation,
IFIP WG 2.11 Meeting, Waterloo, ON
- Jul. 2010 From Aspectual Decomposition to Virtual Separation of Concerns,
Colloquium Honorary Doctorate Ernst Denert, University of Kaiserslautern
- May. 2010 Virtual Separation of Concerns: Toward Preprocessors 2.0,
Philipps University Marburg, Germany
- Apr. 2010 Virtual Separation of Concerns: Toward Preprocessors 2.0,
University of Namur (FUNDP), Belgium
- Mar. 2010 Virtual Separation of Concerns: Toward Preprocessors 2.0,
IFIP WG 2.11 Meeting, St. Andrews, UK
- Jul. 2008 Decomposing Berkeley DB: Granularity and Interactions,
Dagstuhl Seminar 08281: Software Engineering for Tailor-made Data Management

Teaching

Courses

- S21, S22, F22, S23, S24, F24, F25, S26 17-445/645/745 Machine Learning in Production / 11-695 AI Engineering
- F21, F23 17-214 Principles of Software Construction: Objects, Design, and Concurrency
- F19, S20, F20 17-445/645 Software Engineering for AI-Enabled Systems
- S18, S19, S20 17-654 Analysis of Software Artifacts
- F18 17-313 Foundations of Software Engineering

F13, F14, F15, F16, F17 15-313 Foundations of Software Engineering

S13, S14, S15, S17 15-214 Principles of Software Construction: Objects, Design, and Concurrency

F15 17-708 Software Product Lines: Concepts and Implementation

S12 Empirical Methods for Computer Scientists (in German)

S11 Software Product Lines: Concepts and Implementation (in German)

F10 Software Engineering (in German)

S08, S09, S10 Student Conference on Software Engineering and Database Systems

F08, F09 Product-Line Implementation for Tailor-Made Data Management (in German)

Exercise Classes, Seminars, and Others

PRG Paper Reading Group

S12 Empirical Methods for Computer Scientists (in German)

S11 Software Product Lines: Concepts and Implementation (in German)

F10 Software Product Lines (in German)

S07, S08, S09, S10 Concepts of Database Implementation (in German)

F07, F08, F09 Product-Line Implementation for Tailor-Made Data Management (in German)

S09 Specification Technologies (in German)

S07 Advanced Database Models

F04, F05 Cost Accounting (in German)

S04 Algorithms and Data Structures (in German)

Professional Service

Editorships

TOSEM Associate Editor, ACM Transactions on Software Engineering and Methodology (2019–2022)

Organization Committees

ICSE 2027 49th International Conference on Software Engineering – Shadow Program-Committee Chair

CAIN 2027 6th International Conference on AI Engineering - Software Engineering for AI – Program-Committee Co-Chair

ICSE 2026 48th International Conference on Software Engineering – Shadow Program-Committee Chair

ICSE 2022 44th International Conference on Software Engineering – Conference Chair

ASE 2018 33rd IEEE/ACM International Conference on Automated Software Engineering – Program-Committee Co-Chair

ASE 2017 32nd IEEE/ACM International Conference on Automated Software Engineering – Doctoral Symposium Co-Chair

GPCE 2015 14th ACM International Conference on Generative Programming and Component Engineering – General Chair

- FOSD 2014 6th International Workshop on Feature-Oriented Software Development – Organization-Committee Member
- GPCE 2014 13rd ACM International Conference on Generative Programming and Component Engineering – Steering-Committee Member
- GPCE 2013 12nd ACM International Conference on Generative Programming and Component Engineering – Program-Committee Chair
- FOSD 2013 5th International Workshop on Feature-Oriented Software Development – Organization-Committee Member
- FOSD 2012 4th International Workshop on Feature-Oriented Software Development – Organization-Committee Member
- ESCOT 2012 3rd International Workshop on Empirical Evaluation of Software Composition Techniques – Organization-Committee Member
- FOSD 2011 3rd International Workshop on Feature-Oriented Software Development – Organization-Committee Member
- FOSD 2010 2nd International Workshop on Feature-Oriented Software Development – Organization-Committee Member
- FOSD 2009 1st International Workshop on Feature-Oriented Software Development – Organization-Committee Member
- BTMM 2025-26 Beyond the Model Meeting (2025 Toronto, 2026 Montreal)
- FOSD-Me. 2009-21 Annual Meeting on Feature-Oriented Software Development (2009 Passau, 2010 Magdeburg, 2011 Dresden, 2012 Braunschweig, 2013 and 2014 Dagstuhl, 2015 Traunkirchen, 2016 Copenhagen, 2017 Darmstadt, 2018 Gothenburg, 2019 Weimar, 2021 Vienna)

Program Committees (Conferences)

- ICSE 2027 49th International Conference on Software Engineering
- ICSE 2026 48th International Conference on Software Engineering – Program-Committee Area Chair
- CAIN 2025 4th International Conference on AI Engineering - Software Engineering for AI
- OOPSLA 2025 40th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications
- FSE 2025 ACM SIGSOFT Symposium on the Foundations of Software Engineering
- ICSE 2024 46th International Conference on Software Engineering
- CAIN 2024 3rd International Conference on AI Engineering - Software Engineering for AI
- FSE 2024 ACM SIGSOFT Symposium on the Foundations of Software Engineering
- ICSE 2024 46th International Conference on Software Engineering
- CAIN 2023 2nd International Conference on AI Engineering - Software Engineering for AI
- ICSE 2022 44th International Conference on Software Engineering – Conference Chair, Program-Committee Member
- ASE 2021 36th IEEE/ACM International Conference on Automated Software Engineering
- ESEC/FSE 2021 European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering

ASE 2020 35th IEEE/ACM International Conference on Automated Software Engineering

SPLC 2020 24th International Software Product Line Conference

ICSE 2020 42nd International Conference on Software Engineering – Program-Committee Member, Student Mentoring Program Co-Chair

ESEC/FSE 2019 European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering – Program-Committee Member, Journal First Co-Chair

ASE 2019 34th IEEE/ACM International Conference on Automated Software Engineering

SPLC 2019 23rd International Software Product Line Conference

OOPSLA 2019 34th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications – External-Review-Committee Member

ICSE-NIER 2019 ICSE New Ideas and Emerging Results (NIER)

ICSE 2018 40th International Conference on Software Engineering

SE 2018 Software Engineering Conference of the Gesellschaft für Informatik (GI)

ECOOP 2017 31st European Conference on Object-Oriented Programming

ASE 2017 32nd IEEE/ACM International Conference on Automated Software Engineering – Program-Committee Member, Doctoral Symposium Co-Chair

ICSE 2017 39th International Conference on Software Engineering

ESEC/FSE 2017 European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering

ASE 2016 31st IEEE/ACM International Conference on Automated Software Engineering – External-Review-Committee Member

ECOOP 2016 30th European Conference on Object-Oriented Programming – External-Review-Committee Member

SPLC 2016 20th International Software Product Line Conference

MV 2016 MODULARITY 2016 - Modularity Visions Track

ASE 2015 30th IEEE/ACM International Conference on Automated Software Engineering

SBCARS 2015 Brazilian Symposium on Software Components, Architectures and Reuse

SPLC 2015 19th International Software Product Line Conference

SPLC 2014 18th International Software Product Line Conference

ASE 2014 29th IEEE/ACM International Conference on Automated Software Engineering

ECOOP 2014 28th European Conference on Object-Oriented Programming – External-Review-Committee Member

MV 2014 MODULARITY 2014 - Modularity Visions Track

OOPSLA 2013 28th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications

SE 2013 SE 13 – GI Konferenz Software Engineering

GPCE 2012 11st ACM International Conference on Generative Programming and Component Engineering

SC 2011 10th International Conference on Software Composition

GPCE 2011 10th ACM International Conference on Generative Programming and Component Engineering

Program Committees (Workshops and Other)

SQA4AI 2025	Workshop on Software Quality Assurance for Artificial Intelligence
VaMoS 2023	17th Int'l Workshop on Variability Modelling of Software-Intensive Systems
VaMoS 2021	15th Int'l Workshop on Variability Modelling of Software-Intensive Systems
VaMoS 2020	14th Int'l Workshop on Variability Modelling of Software-Intensive Systems
VaMoS 2019	13rd Int'l Workshop on Variability Modelling of Software-Intensive Systems
SPLTea 2018	Third International Workshop on Software Product Line Teaching
VaMoS 2018	12nd Int'l Workshop on Variability Modelling of Software-Intensive Systems
WAPI 2017	ICSE Workshop on API Usage and Evolution
VaMoS 2017	11st Int'l Workshop on Variability Modelling of Software-Intensive Systems
RELENG 2016	4th International Workshop on Release Engineering
VaMoS 2016	10th Int'l Workshop on Variability Modelling of Software-Intensive Systems
VaMoS 2015	9th Int'l Workshop on Variability Modelling of Software-Intensive Systems
SPLTea 2015	Second International Workshop on Software Product Line Teaching
ICSE-D 2015	International Conference on Software Engineering – Demonstrations Committee
MultiPLE 2014	SPLC Workshop on Multi Product Line Engineering
SPLat 2014	Software Product Line Analysis Tools 2014
SPLTea 2014	First International Workshop on Software Product Line Teaching
REVE 2014	2nd Workshop on Reverse Variability Engineering
ICSE-TB 2014	ICSE 2014 - Tutorial and Technical Briefings Track
VaMoS 2014	8th Int'l Workshop on Variability Modelling of Software-Intensive Systems
SCORE 2013	Student Contest on Software Engineering at ICSE
MPLE 2013	SPLC Workshop on Multi Product Line Engineering
VaMoS 2013	7th Int'l Workshop on Variability Modelling of Software-Intensive Systems
REVE 2013	1st Workshop on Reverse Variability Engineering
SLE-DS 2012	International Conference on Software Language Engineering - Doctoral Symposium
SPLC-TD 2012	16th International Software Product Line Conference - Tools and Demonstrations Track
NFPinDSML 2012	4th Workshop on Non-functional System Properties and Domain Specific Modeling Languages
RAM-SE 2012	10th Workshop on Reflection, AOP and Meta-Data for Software Evolution
MISS 2012	2nd Workshop on Modularity in Systems Software
PEPM 2012	21st ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation

VaMoS 2012 6th Int'l Workshop on Variability Modelling of Software-Intensive Systems
 FREECO 2011 ECOOP Workshop on Free Composition
 ASE-TD 2010 25th International Conference on Automated Software Engineering – Tool
 Demonstration Committee
 PLEERPS 2010 Workshop on Product-Line Engineering for Enterprise Resource Planning
 Systems

Reviewing

TSE 2024 IEEE Transactions on Software Engineering
 IEEE S&P 2024 IEEE Security & Privacy
 TSE 2023 IEEE Transactions on Software Engineering
 JSS 2023 Journal of Systems and Software
 ESEM 2023 17th International Symposium on Empirical Software Engineering and Mea-
 surement
 ESEM 2022 16th International Symposium on Empirical Software Engineering and Mea-
 surement
 TSE 2021 IEEE Transactions on Software Engineering
 TOSEM 2021 ACM Transactions on Software Engineering and Methodology
 SCP 2021 Science of Computer Programming
 TSE 2020 IEEE Transactions on Software Engineering
 AUSE 2020 Automated Software Engineering – An International Journal
 EMSE 2020 Empirical Software Engineering
 TOSEM 2019 ACM Transactions on Software Engineering and Methodology
 TSE 2019 IEEE Transactions on Software Engineering
 TOSEM 2018 ACM Transactions on Software Engineering and Methodology
 IST 2018 Information and Software Technology
 AUSE 2018 Automated Software Engineering – An International Journal
 TSE 2018 IEEE Transactions on Software Engineering
 EMSE 2017 Empirical Software Engineering
 TSE 2017 IEEE Transactions on Software Engineering
 TSE 2016 IEEE Transactions on Software Engineering
 SOSYM 2016 International Journal on Software and Systems Modeling
 COMLAN 2016 Journal of Computer Languages, Systems & Structures
 TSE 2015 IEEE Transactions on Software Engineering
 SPE 2015 Software: Practice and Experience
 SCP 2014 Science of Computer Programming
 JOSER 2014 Journal of Software Engineering in Robotics
 TSE 2014 IEEE Transactions on Software Engineering
 TOPLAS 2012 ACM Transactions on Programming Languages and Systems

EMSE 2012 Empirical Software Engineering

JSEP 2012 Journal of Software: Evolution and Process

HOSC 2012 Higher-Order and Symbolic Computation

AI 2012 Acta Informatica

SPE 2012 Software: Practice and Experience

SCP 2012 Science of Computer Programming

TOSEM 2011 ACM Transactions on Software Engineering and Methodology

JSS 2012 Journal of Systems and Software

IST 2011 Information and Software Technology

STTT 2011 Software Tools for Technology Transfer

SCP 2011 Science of Computer Programming

IST 2010 Information and Software Technology

TSE 2010 IEEE Transactions on Software Engineering

SCP 2010 Science of Computer Programming

IS 2009 IEEE Software

Blog posts, video, and other media

Jan. 2025 From Models to Products: On the Role of Software Engineering for Machine Learning | CAIN'24 Keynote, Talk, <https://www.youtube.com/watch?v=G-N1iBYXVo>

Aug. 2023 Secure Software Supply Chain Center, Website, <https://s3c2.org/>

May. 2022 From Models to Systems: Rethinking the Role of Software Engineering for Machine Learning | MSR'22 Keynote, Talk, https://www.youtube.com/watch?v=_m-m90S_4Gg

Mar. 2021 Toward a System-Wide and Interdisciplinary Perspective on ML System Performance | FastPath'21 Workshop Keynote, Talk, <https://www.youtube.com/watch?v=SGJogMirKWU>

Mar. 2021 Rediscovering Unit Testing: Testing Capabilities of ML Models, Blog post, <https://ckaestne.medium.com/rediscovering-unit-testing-testing-capabilities-of->

Jan. 2021 Why Robustness is not Enough for Safety and Security in Machine Learning, Blog post, <https://ckaestne.medium.com/why-robustness-is-not-enough-for-safety>

Nov. 2020 On the Process for Building Software with ML Components, Blog post, <https://ckaestne.medium.com/on-the-process-for-building-software-with-ml-components>

Oct. 2020 The World and the Machine and Responsible Machine Learning, Blog post, <https://ckaestne.medium.com/the-world-and-the-machine-and-responsible-machine-learning>

Sep. 2020 State of the Source 2020: Analyzing Tens of Terabytes of Public Trace Data & Open Source Sustainability, Talk with B. Vasilescu, <https://www.youtube.com/watch?v=y4cpIaN3tFc>

Sep. 2020 What the Fork? Shurui Zhou on Forking in Open Source | Sustain Podcast, Podcast by S. Zhou, <https://podcast.sustainoss.org/53>

Aug. 2020 Complete Lecture Recordings: Software Engineering for AI-Enabled Systems, Lecture, <https://www.youtube.com/playlist?list=PLDS2JMJnJzdkQPdkhcuwcbJpjB8>

Jun. 2020 Infographic: Donations in Open Source, Infographic by C. Overney, <https://cmustrudel.github.io/announcement/donations>

- Jun. 2020 Engineering AI-Enabled Systems with Interdisciplinary Teams | SEMLA'20, Talk, <https://www.youtube.com/watch?v=CHMJBlJyfZk>
- Jun. 2020 A Software Testing View on Machine Learning Model Quality, Blog post, <https://ckaestne.medium.com/a-software-testing-view-on-machine-learning-model->
- Jun. 2020 Teaching Software Engineering for AI-Enabled Systems | ICSE SEET'20, Talk, <https://www.youtube.com/watch?v=Nk0Sy6Sx3IY>
- Apr. 2020 Software Engineering for ML-Enabled Systems | Code & Supply, Talk, https://www.youtube.com/watch?v=9_xeTHaTcCQ
- Mar. 2020 Machine Learning is Requirements Engineering, Blog post, <https://medium.com/ckaestne/machine-learning-is-requirements-engineering-8957aee55ef4>
- Jan. 2020 Software Engineering for AI/ML – An Annotated Bibliography, Website, <https://github.com/ckaestne/seaibib>
- May. 2019 Feature Flags vs Configuration Options — Same Difference?, Blog post, <https://ckaestne.medium.com/feature-flags-vs-configuration-options-same-difference>
- Mar. 2018 Infographic: npm badges, Infographic with A. Trockman, B. Vasilescu, <https://cmustrudel.github.io/announcement/badges>
- May. 2017 How to Break an API: How Community Values Influence Practices | JS-Conf EU 2017, Talk, <https://www.youtube.com/watch?v=xJHeHCZtmAU>
- May. 2017 How to break an API?, Website with C. Bogart, <http://breakingapis.org/>
- Mar. 2015 On Paper Titles (Bad Ideas, Rejected Ideas, and Final Titles), Blog post, <https://ckaestne.medium.com/on-paper-titles-bad-ideas-rejected-ideas-and-final->
- Jul. 2014 Teaching Software Construction with Travis CI, Blog post, <https://ckaestne.medium.com/teaching-software-construction-with-travis-ci-3d3d5428d10a>

Publications

total: 260; h-index: 78

Key publications are highlighted with ★. PDF versions available online: <http://www.cs.cmu.edu/~ckaestne/>.

Books

- ★ 1. Christian Kästner. Machine Learning in Production: From Models to Products. Cambridge, MA: The MIT Press, April 2025.
- ★ 2. Sven Apel, Don Batory, Christian Kästner, and Gunter Saake. Feature-Oriented Software Product Lines: Concepts and Implementation. Berlin/Heidelberg: Springer-Verlag, 2013. 308 pages, ISBN 978-3-642-37520-0.

Refereed Journal Articles

- ★ 3. Hao He, Bogdan Vasilescu, and Christian Kästner. Pinning Is Futile: You Need More Than Local Dependency Versioning to Defend Against Supply Chain Attacks. *Proceedings of the ACM on Software Engineering (FSE)*, 2(FSE):266–289, June 2025. **Distinguished Paper Award.**
- ★ 4. Christian Kästner, Eunsuk Kang, and Sven Apel. Feature Interactions on Steroids: On the Composition of ML Models. *IEEE Software (IEEE-Sw)*, 39(3):120–124, May 2022.
- ★ 5. Christopher Bogart, Christian Kästner, James Herbsleb, and Ferdian Thung. When and how to make breaking changes: Policies and practices in 18 open source software ecosystems. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 30(4):Article No.: 42, pp 1–56, October 2021.

6. Miguel Velez, Pooyan Jamshidi, Florian Sattler, Norbert Siegmund, Sven Apel, and Christian Kästner. ConfigCrusher: Towards White-Box Performance Analysis for Configurable Systems. *Automated Software Engineering – An International Journal (AUSE)*, 27:265–300, 2020.
7. Sergiy S. Kolesnikov, Norbert Siegmund, Christian Kästner, and Sven Apel. On the Relation of Control-flow and Performance Feature Interactions: A Case Study. *Empirical Software Engineering (EMSE)*, (24):2410–2437, 2019.
8. Jonathan Aldrich, Joydeep Biswas, Javier Cámara, David Garlan, Arjun Guha, Jarrett Holtz, Pooyan Jamshidi, Christian Kästner, Claire Le Goues, Anahita Mohseni-Kabir, Ivan Ruchkin, Selva Samuel, Bradley Schmerl, Christopher Timperley, Manuela Veloso, and Ian Voysey. Model-based Adaptation for Robotics Software. *IEEE Software (IEEE-Sw)*, 36(2):83–90, 2019.
9. 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.
10. Hung Viet Nguyen, Hung Dang Phan, Christian Kästner, and Tien N. Nguyen. Exploring Output-Based Coverage for Testing PHP Web Applications. *Automated Software Engineering – An International Journal (AUSE)*, 26(1):59–85, March 2019.
- ★ 11. 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):Article No. 18, 2018.
- ★ 12. Chu-Pan Wong, Jens Meinicke, Lukas Lazarek, and Christian Kästner. Faster Variational Execution with Transparent Bytecode Transformation. *Proceedings of the ACM on Programming Languages, Issue OOPSLA (OOPSLA)*, 2:117:1–117:30, 2018.
13. 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 2018.
14. Sergiy S. Kolesnikov, Norbert Siegmund, Christian Kästner, Alexander Grebhahn, and Sven Apel. Tradeoffs in Modeling Performance of Highly-Configurable Software Systems. *International Journal on Software and Systems Modeling (SOSYM)*, 18(3):2265–2283, 2019.
15. Olaf Leßenich, Janet Siegmund, Sven Apel, Christian Kästner, and Claus Hunsen. Indicators for Merge Conflicts in the Wild: Survey and Empirical Study. *Automated Software Engineering – An International Journal (AUSE)*, 25(2):279–313, 2018.
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- ★ 42. Hao He, Courtney Miller, Shyam Agarwal, Christian Kästner, and Bogdan Vasilescu. Speed at the Cost of Quality: How Cursor AI Increases Short-Term Velocity and Long-Term Complexity in Open-Source Projects. In *Proceedings of the 24th International Conference on Mining Software Repositories (MSR)*, New York, NY: ACM Press, April 2026.
- ★ 43. Nadia Nahar, Chenyang Yang, Yanxin Chen, Wesley Hanwen Deng, Ken Holstein, Motahhare Eslami, and Christian Kästner. "I Don't Think RAI Applies to My Model" – Engaging Non-champions with Sticky Stories for Responsible AI Work. In *Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI)*, Article No. 1373, pp. 1–23, New York, NY: ACM Press, April 2026. **Best Paper Award.**
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- ★ 45. Hao He, Haoqin Yang, Philipp Burckhardt, Alexandros Kapravelos, Bogdan Vasilescu, and Christian Kästner. Six Million (Suspected) Fake Stars on

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- ★ 49. Nadia Nahar, Christian Kästner, Jenna Butler, Chris Parnin, Thomas Zimmermann, and Christian Bird. Beyond the Comfort Zone: Emerging Solutions to Overcome Challenges in Integrating LLMs into Software Products. In *Proceedings of the Proc. International Conference on Software Engineering – Software Engineering in Practice Track (ICSE-SEIP)*, pages 516–527, April 2025.
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- ★ 56. Nadia Nahar, Jenny Rowlett, Matthew Bray, Zahra Abba Omar, Xenophon Papademetris, Menon Alka, and Christian Kästner. Regulating Explainability in Machine Learning Applications – Observations from a Policy Design Experiment. In *Proceedings of the Conference on Fairness, Accountability, and Transparency (FAccT)*, pages 2101–2112, June 2024.

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- ★101. Asher Trockman, Shurui Zhou, Christian Kästner, and Bogdan Vasilescu. Adding Sparkle to Social Coding: An Empirical Study of Repository Badges in the npm Ecosystem. In *Proceedings of the 40th International Conference on Software Engineering (ICSE)*, pages 511–522, New York, NY: ACM Press, May 2018. Acceptance rate: 21 % (105/502).
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- ★104. Pooyan Jamshidi, Norbert Siegmund, Miguel Velez, Christian Kästner, Akshay Patel, and Yuvraj Agarwal. Transfer Learning for Performance Modeling of Configurable Systems: An Exploratory Analysis. In *Proceedings of the 32nd IEEE/ACM International Conference on Automated Software Engineering (ASE)*, pages 497–508, Los Alamitos, CA: IEEE Computer Society, November 2017. Acceptance rate: 23 % (88/388).
105. 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 32nd IEEE/ACM International Conference on Automated Software Engineering (ASE)*, pages 543–553, Los Alamitos, CA: IEEE Computer Society, November 2017. Acceptance rate: 23 % (88/388).
106. 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 ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)*, pages 140–150, New York, NY: ACM Press, September 2017.
107. Pooyan Jamshidi, Miguel Velez, Christian Kästner, Norbert Siegmund, and Prasad Kawthekar. Transfer Learning for Improving Model Predictions in Highly Configurable Software. In *Proceedings of the 12th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS)*, pages 31–41, Los Alamitos, CA: IEEE Computer Society, May 2017. Acceptance rate: 23 % (14/61).
- ★108. Jens Meinicke, Chu-Pan Wong, Christian Kästner, Thomas Thüm, and Gunter Saake. On Essential Configuration Complexity: Measuring Interactions In Highly-Configurable Systems. In *Proceedings of the 31st IEEE/ACM International Conference on Automated Software Engineering (ASE)*, pages 483–494, New York, NY: ACM Press, September 2016. Acceptance rate: 19 % (57/298).
- ★109. Christopher Bogart, Christian Kästner, James Herbsleb, and Ferdian

- Thung. How to Break an API: Cost Negotiation and Community Values in Three Software Ecosystems. In *Proceedings of the ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE)*, pages 109–120, New York, NY: ACM Press, November 2016. Acceptance rate: 27 % (74/273).
110. Gabriel Ferreira, Momin Malik, Christian Kästner, Juergen Pfeffer, and Sven Apel. Do #ifdefs Influence the Occurrence of Vulnerabilities? An Empirical Study of the Linux Kernel. In *Proceedings of the 20th International Software Product Line Conference (SPLC)*, pages 65–744, New York, NY: ACM Press, September 2016. Acceptance rate: 39 % (17/44).
 111. Waqar Ahmad, Christian Kästner, Joshua Sunshine, and Jonathan Aldrich. Inter-app Communication in Android: Developer Challenges. In *Proceedings of the 14th International Conference on Mining Software Repositories (MSR)*, pages 177–188, New York, NY: ACM Press, May 2016. Acceptance rate: 27 % (36/133).
 - ★112. Flávio Medeiros, Christian Kästner, Márcio Ribeiro, Rohit Gheyi, and Sven Apel. A Comparison of 10 Sampling Algorithms for Configurable Systems. In *Proceedings of the 38th International Conference on Software Engineering (ICSE)*, pages 643–654, New York, NY: ACM Press, May 2016. Acceptance rate: 19 % (101/530).
 113. Hung Viet Nguyen, My Huu Nguyen, Son Cuu Dang, Christian Kästner, and Tien N. Nguyen. Detecting Semantic Merge Conflicts With Variability-Aware Execution. In *Proceedings of the International Symposium on Foundations of Software Engineering – New Ideas Track (ESEC/FSE-NIER)*, pages 926–929, New York, NY: ACM Press, August 2015.
 - ★114. Norbert Siegmund, Alexander Grebhahn, Christian Kästner, and Sven Apel. Performance-Influence Models for Highly Configurable Systems. In *Proceedings of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)*, pages 284–294, New York, NY: ACM Press, August 2015. Acceptance rate: 25 % (74/291).
 - ★115. Hung Viet Nguyen, Christian Kästner, and Tien N. Nguyen. Cross-language Program Slicing for Dynamic Web Applications. In *Proceedings of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)*, pages 369–380, New York, NY: ACM Press, August 2015. Acceptance rate: 25 % (74/291).
 - ★116. Flávio Medeiros, Christian Kästner, Márcio Ribeiro, Sarah Nadi, and Rohit Gheyi. The Love/Hate Relationship with The C Preprocessor: An Interview Study. In *Proceedings of the 29th European Conference on Object-Oriented Programming (ECOOP)*, volume 37 of *Leibniz International Proceedings in Informatics*, pages 495–518, Dagstuhl, Germany: Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik, 2015.
 117. Hung Viet Nguyen, Christian Kästner, and Tien N. Nguyen. Varis: IDE Support for Embedded Client Code in PHP Web Applications. In *Proceedings of the 37th International Conference on Software Engineering (Volume 2) (ICSE)*, pages 693–696, May 2015. Formal Demonstration paper, **Best Demonstration Award**.
 118. Max Lillack, Christian Kästner, and Eric Bodden. Tracking Load-time Configuration Options. In *Proceedings of the 29th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, pages 445–456, Los Alamitos, CA: IEEE Computer Society, September 2014. Acceptance rate: 20 % (55/276).
 - ★119. Hung Viet Nguyen, Christian Kästner, and Tien N. Nguyen. Building Call Graphs for Embedded Client-Side Code in Dynamic Web Applications. In *Proceedings of the ACM SIGSOFT Symposium on the Foundations of*

Software Engineering (FSE), pages 518–529, New York, NY: ACM Press, November 2014. Acceptance rate: 22 % (61/273).

- ★120. Eric Walkingshaw, Christian Kästner, Martin Erwig, Sven Apel, and Eric Bodden. Variational Data Structures: Exploring Tradeoffs in Computing with Variability. In *Proceedings of the 13rd SIGPLAN Symposium on New Ideas in Programming and Reflections on Software at SPLASH (Onward!)*, pages 213–226, New York, NY: ACM Press, 2014.
- ★121. Janet Siegmund, Christian Kästner, Sven Apel, Chris Parnin, Anja Bethmann, Thomas Leich, Gunter Saake, and André Brechmann. Understanding Understanding Source Code with Functional Magnetic Resonance Imaging. In *Proceedings of the 36th International Conference on Software Engineering (ICSE)*, pages 378–389, June 2014. Acceptance rate: 20 % (99/495).
- ★122. Hung Viet Nguyen, Christian Kästner, and Tien N. Nguyen. Exploring Variability-Aware Execution for Testing Plugin-Based Web Applications. In *Proceedings of the 36th International Conference on Software Engineering (ICSE)*, pages 907–918, June 2014. Acceptance rate: 20 % (99/495).
- ★123. Sarah Nadi, Thorsten Berger, Christian Kästner, and Krzysztof Czarnecki. Mining Configuration Constraints: Static Analyses and Empirical Results. In *Proceedings of the 36th International Conference on Software Engineering (ICSE)*, pages 140–151, June 2014. Acceptance rate: 20 % (99/495).
- ★124. Márcio Ribeiro, Paulo Borba, and Christian Kästner. Feature Maintenance with Emergent Interfaces. In *Proceedings of the 36th International Conference on Software Engineering (ICSE)*, pages 989–1000, June 2014. Acceptance rate: 20 % (99/495).
- 125. Jörg Liebig, Alexander von Rhein, Christian Kästner, Sven Apel, Jens Dörre, and Christian Lengauer. Scalable Analysis of Variable Software. In *Proceedings of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)*, pages 81–91, New York, NY: ACM Press, August 2013. Acceptance rate: 20 % (51/251).
- 126. Janet Siegmund, Christian Kästner, Sven Apel, André Brechmann, and Gunter Saake. Experience from Measuring Program Comprehension – Toward a General Framework. In *Proceedings of the Software Engineering 2013 – Fachtagung des GI-Fachbereichs Softwaretechnik (SE)*, volume P-213 of *Lecture Notes in Informatics*, pages 239–257, Bonn, Germany: Gesellschaft für Informatik (GI), February 2013.
- 127. Paolo G. Giarrusso, Klaus Ostermann, Michael Eichberg, Ralf Mitschke, Tillmann Rendel, and Christian Kästner. Reify Your Collection Queries for Modularity and Speed! In *Proceedings of the 12th ACM International Conference on Aspect-Oriented Software Development (AOSD)*, pages 1–12, New York, NY: ACM Press, March 2013. Acceptance rate: 24 % (17/72).
- 128. Janet Siegmund, André Brechmann, Sven Apel, Christian Kästner, Jörg Liebig, Thomas Leich, and Gunter Saake. Toward Measuring Program Comprehension with Functional Magnetic Resonance Imaging. In *Proceedings of the 20th International Symposium on Foundations of Software Engineering – New Ideas Track (FSE-NIER)*, pages 24:1–24:4, November 2012. Acceptance rate: 20 % (12/59).
- 129. Sebastian Erdweg, Tillmann Rendel, Christian Kästner, and Klaus Ostermann. Layout-Sensitive Generalized Parsing. In *Proceedings of the International Conference on Software Language Engineering (SLE)*, ISBN 978-3-642-36088-6, pages 244–263, Berlin/Heidelberg: Springer-Verlag, September 2012. Acceptance rate: 32 % (20/62).
- ★130. Christian Kästner, Klaus Ostermann, and Sebastian Erdweg. A Variability-Aware Module System. In *Proceedings of the 27th Annual*

ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), pages 773–792, New York, NY: ACM Press, October 2012. Acceptance rate: 25 % (57/228).

- ★131. Norbert Siegmund, Sergiy S. Kolesnikov, Christian Kästner, Sven Apel, Don Batory, Marko Rosenmüller, and Gunter Saake. Predicting Performance via Automated Feature-Interaction Detection. In *Proceedings of the 34th International Conference on Software Engineering (ICSE)*, ISBN 978-1-4673-1067-3, pages 167–177, Los Alamitos, CA: IEEE Computer Society, 2012. Acceptance rate: 21 % (87/408).
- 132. Sebastian Erdweg, Lennart C.L. Kats, Tillmann Rendel, Christian Kästner, Klaus Ostermann, and Eelco Visser. Growing a Language Environment with Editor Libraries. In *Proceedings of the 10th ACM International Conference on Generative Programming and Component Engineering (GPCE)*, ISBN 978-1-4503-0689-8, pages 167–176, New York, NY: ACM Press, October 2011. Acceptance rate: 31 % (18/58).
- ★133. Christian Kästner, Paolo G. Giarrusso, Tillmann Rendel, Sebastian Erdweg, Klaus Ostermann, and Thorsten Berger. Variability-Aware Parsing in the Presence of Lexical Macros and Conditional Compilation. In *Proceedings of the 26th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, ISBN 978-1-4503-0940-0, pages 805–824, New York, NY: ACM Press, October 2011. Acceptance rate: 37 % (61/166).
- 134. Sebastian Erdweg, Tillmann Rendel, Christian Kästner, and Klaus Ostermann. SugarJ: Library-based Syntactic Language Extensibility. In *Proceedings of the 26th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, ISBN 978-1-4503-0940-0, pages 391–406, New York, NY: ACM Press, October 2011. Acceptance rate: 37 % (61/166). **Distinguished Paper Award in 2011 and Most Influential Paper Award in 2021.**
- 135. Sven Apel, Jörg Liebig, Benjamin Brandl, Christian Lengauer, and Christian Kästner. Semistructured Merge: Rethinking Merge in Revision Control Systems. In *Proceedings of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)*, pages 190–200, New York, NY: ACM Press, September 2011. Acceptance rate: 17 % (34/203).
- 136. Janet Feigenspan, Sven Apel, Jörg Liebig, and Christian Kästner. Exploring Software Measures to Assess Program Comprehension. In *Proceedings of the 5th International Symposium on Empirical Software Engineering and Measurement (ESEM)*, pages 1–10, paper 3, Los Alamitos, CA: IEEE Computer Society, September 2011. Acceptance rate: 31 % (33/105).
- 137. Thomas Thüm, Christian Kästner, Sebastian Erdweg, and Norbert Siegmund. Abstract Features in Feature Modeling. In *Proceedings of the 15th International Software Product Line Conference (SPLC)*, pages 191–200, Los Alamitos, CA: IEEE Computer Society, August 2011. Acceptance rate: 29 % (20/69).
- 138. Norbert Siegmund, Marko Rosenmüller, Christian Kästner, Paolo G. Giarrusso, Sven Apel, and Sergiy S. Kolesnikov. Scalable Prediction of Non-functional Properties in Software Product Lines. In *Proceedings of the 15th International Software Product Line Conference (SPLC)*, pages 160–169, Los Alamitos, CA: IEEE Computer Society, August 2011. Acceptance rate: 29 % (20/69). **Best Paper Award.**
- 139. Sven Apel, Florian Heidenreich, Christian Kästner, and Marko Rosenmüller. Third International Workshop on Feature-Oriented Software Development (FOSD 2011). In *Proceedings of the 15th International Software Product Line Conference (SPLC)*, pages 337–338, Los Alamitos, CA: IEEE Computer Society, August 2011.

- ★140. Klaus Ostermann, Paolo G. Giarrusso, Christian Kästner, and Tillmann Rendel. Revisiting Information Hiding: Reflections on Classical and Non-classical Modularity. In *Proceedings of the 25th European Conference on Object-Oriented Programming (ECOOP)*, volume 6813 of *Lecture Notes in Computer Science*, pages 155–178, Berlin/Heidelberg: Springer-Verlag, 2011. Acceptance rate: 26 % (26/100).
- 141. Janet Feigenspan, Michael Schulze, Maria Papendieck, Christian Kästner, Raimund Dachzelt, Veit Köppen, and Mathias Frisch. Using Background Colors to Support Program Comprehension in Software Product Lines. In *Proceedings of the 15th International Conference on Evaluation and Assessment in Software Engineering (EASE)*, pages 66–75, Institution of Engineering and Technology, 2011. Acceptance rate: 40 % (20/50).
- 142. Michael Stengel, Janet Feigenspan, Mathias Frisch, Christian Kästner, Sven Apel, and Raimund Dachzelt. View Infinity: A Zoomable Interface for Feature-Oriented Software Development. In *Proceedings of the 33rd International Conference on Software Engineering (Demonstration Track) (ICSE)*, ISBN 978-1-4503-0445-0, pages 1031–1033, New York, NY: ACM Press, 2011. Acceptance rate: 37 % (22/60).
- 143. Mario Pukall, Alexander Grebhahn, Reimar Schröter, Christian Kästner, Walter Cazzola, and Sebastian Götz. JavaAdaptor: Unrestricted Dynamic Software Updates for Java. In *Proceedings of the 33rd International Conference on Software Engineering (Demonstration Track) (ICSE)*, ISBN 978-1-4503-0445-0, pages 989–991, New York, NY: ACM Press, 2011. Acceptance rate: 37 % (22/60).
- ★144. Jörg Liebig, Christian Kästner, and Sven Apel. Analyzing the Discipline of Preprocessor Annotations in 30 Million Lines of C Code. In *Proceedings of the 10th ACM International Conference on Aspect-Oriented Software Development (AOSD)*, pages 191–202, New York, NY: ACM Press, March 2011. Acceptance rate: 23 % (21/92).
- 145. Sven Apel, Wolfgang Scholz, Christian Lengauer, and Christian Kästner. Dependences and Interactions in Feature-Oriented Design. In *Proceedings of the 21st IEEE International Symposium on Software Reliability Engineering (ISSRE)*, pages 161–170, Los Alamitos, CA: IEEE Computer Society, October 2010. Acceptance rate: 31 % (40/130).
- 146. Sandro Schulze, Sven Apel, and Christian Kästner. Code Clones in Feature-Oriented Software Product Lines. In *Proceedings of the 9th ACM International Conference on Generative Programming and Component Engineering (GPCE)*, pages 103–112, New York, NY: ACM Press, October 2010. Acceptance rate: 31 % (18/59).
- ★147. Jörg Liebig, Sven Apel, Christian Lengauer, Christian Kästner, and Michael Schulze. An Analysis of the Variability in Forty Preprocessor-Based Software Product Lines. In *Proceedings of the 32nd International Conference on Software Engineering (ICSE)*, pages 105–114, New York, NY: ACM Press, May 2010. Acceptance rate: 14 % (52/380).
- 148. Christian Kästner, Sven Apel, and Gunter Saake. Virtuelle Trennung von Belangen (Präprozessor 2.0). In *Proceedings of the Software Engineering 2010 – Fachtagung des GI-Fachbereichs Softwaretechnik (SE)*, volume P-159 of *Lecture Notes in Informatics*, pages 165–176, Bonn, Germany: Gesellschaft für Informatik (GI), February 2010. Acceptance rate: 36 % (17/47).
- ★149. Christian Kästner, Sven Apel, and Martin Kuhlemann. A Model of Refactoring Physically and Virtually Separated Features. In *Proceedings of the 8th ACM International Conference on Generative Programming and Component Engineering (GPCE)*, ISBN 978-1-60558-828-5, pages 157–166, New York, NY: ACM Press, October 2009. Acceptance rate: 31 % (19/62).

150. Martin Kuhlemann, Don Batory, and Christian Kästner. Safe Composition of Non-Monotonic Features. In *Proceedings of the 8th ACM International Conference on Generative Programming and Component Engineering (GPCE)*, ISBN 978-1-60558-828-5, pages 177–185, New York, NY: ACM Press, October 2009. Acceptance rate: 31 % (19/62).
151. Christian Kästner, Sven Apel, Syed Saif ur Rahman, Marko Rosenmüller, Don Batory, and Gunter Saake. On the Impact of the Optional Feature Problem: Analysis and Case Studies. In *Proceedings of the 13rd International Software Product Line Conference (SPLC)*, ISBN 978-0-9786956-2-0, pages 181–190, Pittsburgh, PA: SEI, August 2009. Acceptance rate: 36 % (30/83).
152. Sven Apel, Florian Janda, Salvador Trujillo, and Christian Kästner. Model Superimposition in Software Product Lines. In *Proceedings of the 2nd International Conference on Model Transformation (ICMT)*, ISBN 978-3-642-02407-8, pages 4–19, Berlin/Heidelberg: Springer-Verlag, June 2009. Acceptance rate: 21 % (14/67).
153. Sven Apel, Christian Kästner, Armin Größlinger, and Christian Lengauer. Feature (De)composition in Functional Programming. In *Proceedings of the 8th International Conference on Software Composition (SC) (SC)*, ISBN 978-3-642-02654-6, pages 9–26, Berlin/Heidelberg: Springer-Verlag, July 2009. Acceptance rate: 33 % (10/30).
154. Stefan Boxleitner, Sven Apel, and Christian Kästner. Language-Independent Quantification and Weaving for Feature Composition. In *Proceedings of the 8th International Conference on Software Composition (SC) (SC)*, ISBN 978-3-642-02654-6, pages 45–54, Berlin/Heidelberg: Springer-Verlag, July 2009. Acceptance rate: 33 % (10/30). Short Paper.
155. Christian Kästner, Sven Apel, Salvador Trujillo, Martin Kuhlemann, and Don Batory. Guaranteeing Syntactic Correctness for all Product Line Variants: A Language-Independent Approach. In *Proceedings of the 47th International Conference Objects, Models, Components, Patterns (TOOLS EUROPE)*, volume 33 of *Lecture Notes in Business Information Processing*, pages 175–194, Berlin/Heidelberg: Springer-Verlag, June 2009. Acceptance rate: 28 % (19/67).
156. Christian Kästner, Thomas Thüm, Gunter Saake, Janet Feigenspan, Thomas Leich, Fabian Wielgorz, and Sven Apel. FeatureIDE: Tool Framework for Feature-Oriented Software Development. In *Proceedings of the 31st International Conference on Software Engineering (ICSE)*, ISBN 978-1-4244-3452-7, pages 611–614, Los Alamitos, CA: IEEE Computer Society, May 2009. Acceptance rate: 33 % (24/72). Formal Demonstration paper.
157. Marko Rosenmüller, Christian Kästner, Norbert Siegmund, Sagar Sunkle, Sven Apel, Thomas Leich, and Gunter Saake. SQL à la Carte – Toward Tailor-made Data Management. In *Proceedings of the 13. GI-Fachtagung Datenbanksysteme für Business, Technologie und Web (BTW)*, ISBN 978-3-88579-238-3, pages 117–136, Bonn, Germany: Gesellschaft für Informatik (GI), March 2009.
158. Norbert Siegmund, Christian Kästner, Marko Rosenmüller, Florian Heidenreich, Sven Apel, and Gunter Saake. Bridging the Gap between Variability in Client Application and Database Schema. In *Proceedings of the 13. GI-Fachtagung Datenbanksysteme für Business, Technologie und Web (BTW)*, ISBN 978-3-88579-238-3, pages 297–306, Bonn, Germany: Gesellschaft für Informatik (GI), March 2009.
159. Sven Apel, Christian Kästner, and Christian Lengauer. Vergleich und Integration von Komposition und Annotation zur Implementierung von Produktlinien. In *Proceedings of the Software Engineering 2009 – Fachtagung des GI-Fachbereichs Softwaretechnik (SE)*, volume P-143 of *Lecture Notes in Informatics*, pages 101–112, Bonn, Germany: Gesellschaft für Informatik (GI), March 2009.

- ★160. Thomas Thüm, Don Batory, and Christian Kästner. Reasoning about Edits to Feature Models. In *Proceedings of the 31st International Conference on Software Engineering (ICSE)*, ISBN 978-1-4244-3452-7, pages 254–264, Los Alamitos, CA: IEEE Computer Society, May 2009. Acceptance rate: 12 % (50/405).
- 161. Sven Apel, Christian Kästner, and Christian Lengauer. FeatureHouse: Language-Independent, Automated Software Composition. In *Proceedings of the 31st International Conference on Software Engineering (ICSE)*, ISBN 978-1-4244-3452-7, pages 221–231, Los Alamitos, CA: IEEE Computer Society, May 2009. Acceptance rate: 12 % (50/405).
- 162. Norbert Siegmund, Marko Rosenmüller, Martin Kuhlemann, Christian Kästner, and Gunter Saake. Measuring Non-functional Properties in Software Product Lines for Product Derivation. In *Proceedings of the 15th Asia-Pacific Software Engineering Conference (APSEC)*, ISBN 978-0-7695-3446-6, pages 187–194, Los Alamitos, CA: IEEE Computer Society, December 2008. Acceptance rate: 30 % (66/221).
- 163. Mario Pukall, Christian Kästner, and Gunter Saake. Towards Unanticipated Runtime Adaptation of Java Applications. In *Proceedings of the 15th Asia-Pacific Software Engineering Conference (APSEC)*, ISBN 978-0-7695-3446-6, pages 85–92, Los Alamitos, CA: IEEE Computer Society, December 2008. Acceptance rate: 30 % (66/221).
- 164. Sven Apel, Christian Kästner, and Christian Lengauer. Feature Featherweight Java: A Calculus for Feature-Oriented Programming and Stepwise Refinement. In *Proceedings of the 7th ACM International Conference on Generative Programming and Component Engineering (GPCE)*, ISBN 978-1-60558-267-2, pages 101–112, New York, NY: ACM Press, August 2008. Acceptance rate: 29 % (16/55).
- 165. Sven Apel, Christian Kästner, and Don Batory. Program Refactoring using Functional Aspects. In *Proceedings of the 7th ACM International Conference on Generative Programming and Component Engineering (GPCE)*, ISBN 978-1-60558-267-2, pages 161–170, New York, NY: ACM Press, August 2008. Acceptance rate: 29 % (16/55).
- 166. Chang Hwan Peter Kim, Christian Kästner, and Don Batory. On the Modularity of Feature Interactions. In *Proceedings of the 7th ACM International Conference on Generative Programming and Component Engineering (GPCE)*, ISBN 978-1-60558-267-2, pages 23–34, New York, NY: ACM Press, August 2008. Acceptance rate: 29 % (16/55).
- 167. Christian Kästner, and Sven Apel. Type-checking Software Product Lines – A Formal Approach. In *Proceedings of the 23rd IEEE / ACM International Conference on Automated Software Engineering (ASE)*, ISBN 978-1-4244-2187-9, pages 258–267, Los Alamitos, CA: IEEE Computer Society, September 2008. Acceptance rate: 11 % (30/280).
- 168. Sven Apel, Christian Lengauer, Bernhard Möller, and Christian Kästner. An Algebra for Features and Feature Composition. In *Proceedings of the 12th International Conference on Algebraic Methodology and Software Technology (AMAST)*, volume 5140 of *Lecture Notes in Computer Science*, pages 36–50, Berlin/Heidelberg: Springer-Verlag, July 2008. Acceptance rate: 47 % (27/58).
- ★169. Christian Kästner, Sven Apel, and Martin Kuhlemann. Granularity in Software Product Lines. In *Proceedings of the 30th International Conference on Software Engineering (ICSE)*, ISBN 978-1-60558-079-1, pages 311–320, New York, NY: ACM Press, May 2008. Acceptance rate: 15 % (56/371). **Most Influential Paper Award at SPLC’19.**
- 170. Christian Kästner. CIDE: Decomposing Legacy Applications into Features. In *Proceedings of the 11st International Software Product Line Conference*,

second volume (*Demonstration*) (*SPLC*), ISBN 978-4-7649-0342-5, pages 149–150, 2007.

- ★171. Christian Kästner, Sven Apel, and Don Batory. A Case Study Implementing Features Using AspectJ. In *Proceedings of the 11st International Software Product Line Conference (SPLC)*, pages 223–232, Los Alamitos, CA: IEEE Computer Society, September 2007. Acceptance rate: 35 % (28/80).

Invited Papers

- 172. Christian Kästner. Virtual Separation of Concerns: Toward Preprocessors 2.0. *Information Technology (it)*, 54(1):42–46, 2012.
- 173. Christian Kästner. Virtuelle Trennung von Belangen. In *Ausgezeichnete Informatikdissertationen 2010*, ISBN 9783885794158, pages 121–130, Bonn, Germany: Gesellschaft für Informatik (GI), 2011. Invited paper.
- 174. Christian Kästner, and Sven Apel. Virtual Separation of Concerns – A Second Chance for Preprocessors. *Journal of Object Technology (JOT)*, 8(6):59–78, September 2009. Refereed Column.
- ★175. Sven Apel, and Christian Kästner. An Overview of Feature-Oriented Software Development. *Journal of Object Technology (JOT)*, 8(5):49–84, July/August 2009. Refereed Column.

Refereed Workshop Papers, Posters, and Tool Demos

- 176. Jacob Tjaden. The Balancing Act of Policies in Developing Machine Learning Explanations. In *Proceedings of the International Conference on Software Engineering (Companion) (ICSE-SRC)*, pages 237–238, New York, NY: ACM Press, 2025. ICSE student research competition, first place.
- 177. Haesue Baik, Chenyang Yang, Vasudev Vikram, Pooyan Jamshidi, Rohan Padhye, and Christian Kästner. Differential Performance Fuzzing of Configuration Options. In *Proceedings of the International Workshop on Search-Based and Fuzz Testing (SBFT)*, pages 31–34, Los Alamitos, CA: IEEE Computer Society, April 2025.
- 178. Emily Nguyen. Do All Software Projects Die When Not Maintained? Analyzing Developer Maintenance to Predict OSS Usage. In *Proceedings of the Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (FSE-SRC)*, pages 2195–2197, New York, NY: ACM Press, 2023. FSE student research competition.
- 179. Katrina Wilson. Clearing the Trail: Motivations for Maintenance Work in Open Source. In *Proceedings of the International Conference on Systems, Programming, Languages, and Applications: Software for Humanity (Companion) (SPLASH-SRC)*, pages 34–36, New York, NY: ACM Press, 2023. SPLASH student research competition.
- 180. Chenyang Yang, Rachel A Brower-Sinning, Grace Lewis, Christian Kästner, and Tongshuang Wu. Capabilities for Better ML Engineering. In *Proceedings of the AAAI-23 Workshop on Artificial Intelligence Safety (SafeAI)*, pages 1–8, February 2023.
- 181. Philip Gray. To Disengage or Not to Disengage: A Look at Contributor Disengagement in Open Source Software. In *Proceedings of the International Conference on Software Engineering (Companion) (ICSE-SRC)*, pages 328–330, New York, NY: ACM Press, 2022. ICSE student research competition.
- 182. Kimberly Truong. Let’s Talk Open-Source — An Analysis of Conference Talks and Community Dynamics. In *Proceedings of the International Conference on Software Engineering (Companion) (ICSE-SRC)*, pages 322–324, New York, NY: ACM Press, 2022. ICSE student research competition, first place.

183. Helen Dong, Shurui Zhou, Jin L.C. Guo, and Christian Kästner. Splitting, Renaming, Removing: A Study of Common Cleaning Activities in Jupyter Notebooks. In *Proceedings of the 9th International Workshop on Realizing Artificial Intelligence Synergies in Software Engineering (RAISE)*, pages 114–119, Los Alamitos, CA: IEEE Computer Society, November 2021.
184. Sophie Cohen. Contextualizing Toxicity in Open Source: A Qualitative Study. In *Proceedings of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE-SRC)*, pages 1669–1671, New York, NY: ACM Press, 2021. ESEC/FSE Student Research Competition.
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