

## Curriculum Vitae

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

**Contact** +1 412 268 5254 (Office)  
kaestner@cs.cmu.edu

**Mailing Address** Christian Kaestner  
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

- 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

- 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  $2^{10000}$  Configurations of the Linux Kernel,  
Carnegie Mellon University, Pittsburgh, PA
- Apr. 2012 Parsing and Type Checking all  $2^{10000}$  Configurations of the Linux Kernel,  
University of Edinburgh, UK
- Mar. 2012 Parsing and Type Checking all  $2^{10000}$  Configurations of the Linux Kernel,  
Purdue University, West Lafayette, IN
- Dec. 2011 Parsing and Type Checking all  $2^{10000}$  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 Man-  
agement

## Teaching

### Courses

- F21, F23 17-214 Principles of Software Construction: Objects, Design, and Concurrency
- S21, S22, S23 17-445/645 Machine Learning in Production / 11-695 AI Engineering
- F22 17-445/645 Machine Learning in Production
- 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)

## Memberships

IFIP Working Group 2.11 (Program Generation)

Association for Computing Machinery (ACM)

Deutscher Hochschulverband

## Professional Service

### Editorships

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

### Organization Committees

- ICSE-SEET 2027 ICSE Software Engineering Education and Training Track – Program-Committee Co-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
- 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)**

- 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)**

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 2023 IEEE Transactions on Software Engineering  
 JSS 2023 Journal of Systems and Software  
 ESEM 2023 17th International Symposium on Empirical Software Engineering and Measurement  
 ESEM 2022 16th International Symposium on Empirical Software Engineering and Measurement  
 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**

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](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-1>
- 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=PLDS2JMnJzdkQPdkhcuwcbJpjB8>
- 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-1>
- 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](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-1>
- 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-1>
- Jul. 2014 Teaching Software Construction with Travis CI, Blog post, <https://ckaestne.medium.com/teaching-software-construction-with-travis-ci-3d3d5428d10a>

## Publications

total: 239; h-index: 61

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

## Books

- ★ 1. 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

- ★ 2. 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.

- ★ 3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
- ★ 9. 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.
- ★ 10. 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.
11. 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.
12. 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.
13. 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.
- ★ 14. Max Lillack, Christian Kästner, and Eric Bodden. Tracking Load-time Configuration Options. *IEEE Transactions on Software Engineering (TSE)*, 44(12):1269–1291, 2018.
15. Raman Goyal, Gabriel Ferreira, Christian Kästner, and James Herbsleb. Identifying Unusual Commits on GitHub. *Journal of Software: Evolution and Process (JSEP)*, 30(1):, January 2018.

- ★ 16. Flávio Medeiros, Márcio Ribeiro, Rohit Gheyi, Sven Apel, Christian Kästner, Bruno Ferreira, Luiz Carvalho, and Balduino Fonseca. Discipline Matters: Refactoring of Preprocessor Directives in the #ifdef Hell. *IEEE Transactions on Software Engineering (TSE)*, 44(5):453–469, May 2018.
- 17. James Herbsleb, Christian Kästner, and Christopher Bogart. Intelligently Transparent Software Ecosystems. *IEEE Software (IEEE-Sw)*, 33(1):89–96, 2015.
- ★ 18. Sarah Nadi, Thorsten Berger, Christian Kästner, and Krzysztof Czarnecki. Where do Configuration Constraints Stem From? An Extraction Approach and an Empirical Study. *IEEE Transactions on Software Engineering (TSE)*, 41(8):820–841, 2015.
- 19. Claus Hunsen, Janet Siegmund, Olaf Leßenich, Sven Apel, Bo Zhang, Christian Kästner, and Martin Becker. Preprocessor-Based Variability in Open-Source and Industrial Software Systems: An Empirical Study. *Empirical Software Engineering (EMSE), Special Issue on Empirical Evidence on Software Product Line Engineering*, 1–34, 2015.
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40. Lina Boughton, Courtney Miller, Yasemin Acar, Dominik Wermke, and Christian Kästner. Decomposing and Measuring Trust in Open-Source Software Supply Chains. In *Proceedings of the Proc. International Conference on Software Engineering – New Ideas Track (ICSE-NIER)*, April 2024.
- ★ 41. Chenyang Yang, Rishabh Rustogi, Rachel A Brower-Sinning, Grace Lewis, Christian Kästner, and Tongshuang Wu. Beyond Testers’ Biases: Guiding Model Testing with Knowledge Bases using LLMs. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing – Findings (EMNLP)*, December 2023.
- ★ 42. Courtney Miller, Christian Kästner, and Bogdan Vasilescu. "We Feel Like

We're Winging It:" A Study on Navigating Open-Source Dependency Abandonment. In *Proceedings of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)*, New York, NY: ACM Press, December 2023.

- ★ 43. Nadia Nahar, Haoran Zhang, Grace Lewis, Shurui Zhou, and Christian Kästner. A Meta-Summary of Challenges in Building Products with ML Components – Collecting Experiences from 4758+ Practitioners. In *Proceedings of the International Conference on AI Engineering - Software Engineering for AI (CAIN)*, May 2023.
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- 45. Katherine R. Maffey, Kyle Dotterer, Jennifer Niemann, Iain Cruickshank, Grace Lewis, and Christian Kästner. MLTEing Models: Negotiating, Evaluating, and Documenting Model and System Qualities. In *Proceedings of the Proc. International Conference on Software Engineering – New Ideas Track (ICSE-NIER)*, May 2023.
- ★ 46. Chenyang Yang, Rachel A Brower-Sinning, Grace Lewis, and Christian Kästner. Data Leakage in Notebooks: Static Detection and Better Processes. In *Proceedings of the 37th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, Article No.: 30, New York, NY: ACM Press, October 2022. Acceptance rate: 22 % (116/527).
- 47. Yuan Jiang, Christian Kästner, and Shurui Zhou. Elevating Jupyter Notebook Maintenance Tooling by Identifying and Extracting Notebook Structures. In *Proceedings of the 38th International Conference on Software Maintenance and Evolution (ICSME)*, pages 399–403, October 2022. Acceptance rate: 44 % (17/39).
- 48. Kimberly Truong, Courtney Miller, Bogdan Vasilescu, and Christian Kästner. The Unsolvable Problem or the Unheard Answer? A Dataset of 24,669 Open-Source Software Conference Talks. In *Proceedings of the 20th International Conference on Mining Software Repositories (MSR)*, New York, NY: ACM Press, May 2022.
- 49. Huilian Sophie Qiu, Bogdan Vasilescu, Christian Kästner, Carolyn Egelman, Ciera Jaspán, and Emerson Murphy-Hill. Detecting Interpersonal Conflict in Issues and Code Review: Cross Pollinating Open- and Closed-Source Approaches. In *Proceedings of the Proc. International Conference on Software Engineering – Software Engineering in Society Track (ICSE-SEIS)*, pages 41–55, New York, NY: ACM Press, May 2022. Acceptance rate: 44 % (17/39).
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- ★ 51. Courtney Miller, Sophie Cohen, Daniel Klug, Bogdan Vasilescu, and Christian Kästner. "Did You Miss My Comment or What?" Understanding Toxicity in Open Source Discussions. In *Proceedings of the 44th International Conference on Software Engineering (ICSE)*, pages 710–722, New York, NY: ACM Press, May 2022. Acceptance rate: 26 % (197/751). **Distinguished Paper Award.**
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- ★ 65. Jens Meinicke, Chu-Pan Wong, Bogdan Vasilescu, and Christian Kästner. Exploring Differences and Commonalities between Feature Flags and Configuration Options. In *Proceedings of the Proc. International Conference on Software Engineering – Software Engineering in Practice Track (ICSE-SEIP)*, pages 233–242, May 2020.
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- ★106. 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).
- 107. 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).
- 108. 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.
- 109. 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).
- 110. 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).
- 111. Sebastian Erdweg, Tillmann Rendel, Christian Kästner, and Klaus Ostermann. Layout-Sensitive Generalized Parsing. In *Proceedings of the International Conference on Software Language Engineering (SLE)*, pages 244–263, Berlin/Heidelberg: Springer-Verlag, September 2012. Acceptance rate: 32 % (20/62).
- ★112. 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).
- ★113. 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)*, pages 167–177, Los Alamitos, CA: IEEE Computer Society, 2012. Acceptance rate: 21 % (87/408).
- 114. 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)*, pages 167–176, New York, NY: ACM Press, October 2011. Acceptance rate: 31 % (18/58).

- ★115. 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)*, pages 805–824, New York, NY: ACM Press, October 2011. Acceptance rate: 37 % (61/166).
- 116. 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)*, pages 391–406, New York, NY: ACM Press, October 2011. Acceptance rate: 37 % (61/166). **Distinguished Paper Award and Most Influential Paper Award in 2021.**
- 117. 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).
- 118. 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).
- 119. 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).
- 120. 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.**
- 121. 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.
- ★122. 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).
- 123. Janet Feigenspan, Michael Schulze, Maria Papendieck, Christian Kästner, Raimund Dachsel, 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).
- 124. Michael Stengel, Janet Feigenspan, Mathias Frisch, Christian Kästner, Sven Apel, and Raimund Dachsel. View Infinity: A Zoomable Interface for Feature-Oriented Software Development. In *Proceedings of the 33rd*

*International Conference on Software Engineering (Demonstration Track) (ICSE)*, pages 1031–1033, New York, NY: ACM Press, 2011. Acceptance rate: 37 % (22/60).

125. 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)*, pages 989–991, New York, NY: ACM Press, 2011. Acceptance rate: 37 % (22/60).
- ★126. 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).
127. 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).
128. 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).
- ★129. 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).
130. 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).
- ★131. 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)*, pages 157–166, New York, NY: ACM Press, October 2009. Acceptance rate: 31 % (19/62).
132. 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)*, pages 177–185, New York, NY: ACM Press, October 2009. Acceptance rate: 31 % (19/62).
133. 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)*, pages 181–190, Pittsburgh, PA: SEI, August 2009. Acceptance rate: 36 % (30/83).
134. 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)*, volume 5563 of *Lecture Notes in Computer Science*, pages 4–19, Berlin/Heidelberg: Springer-Verlag, June 2009. Acceptance rate: 21 % (14/67).

135. 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)*, volume 5634 of *Lecture Notes in Computer Science*, pages 9–26, Berlin/Heidelberg: Springer-Verlag, July 2009. Acceptance rate: 33 % (10/30).
136. 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)*, volume 5634 of *Lecture Notes in Computer Science*, pages 45–54, Berlin/Heidelberg: Springer-Verlag, July 2009. Acceptance rate: 33 % (10/30). Short Paper.
137. 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).
138. 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)*, pages 611–614, Los Alamitos, CA: IEEE Computer Society, May 2009. Acceptance rate: 33 % (24/72). Formal Demonstration paper.
139. 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)*, volume P-144 of *Lecture Notes in Informatics*, pages 117–136, Bonn, Germany: Gesellschaft für Informatik (GI), March 2009.
140. 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)*, volume P-144 of *Lecture Notes in Informatics*, pages 297–306, Bonn, Germany: Gesellschaft für Informatik (GI), March 2009.
141. 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.
- ★142. Thomas Thüm, Don Batory, and Christian Kästner. Reasoning about Edits to Feature Models. In *Proceedings of the 31st International Conference on Software Engineering (ICSE)*, pages 254–264, Los Alamitos, CA: IEEE Computer Society, May 2009. Acceptance rate: 12 % (50/405).
143. Sven Apel, Christian Kästner, and Christian Lengauer. FeatureHouse: Language-Independent, Automated Software Composition. In *Proceedings of the 31st International Conference on Software Engineering (ICSE)*, pages 221–231, Los Alamitos, CA: IEEE Computer Society, May 2009. Acceptance rate: 12 % (50/405).
144. 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)*, pages 187–194, Los Alamitos, CA: IEEE Computer Society, December 2008. Acceptance rate: 30 % (66/221).



145. 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)*, pages 85–92, Los Alamitos, CA: IEEE Computer Society, December 2008. Acceptance rate: 30 % (66/221).
146. 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)*, pages 101–112, New York, NY: ACM Press, August 2008. Acceptance rate: 29 % (16/55).
147. 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)*, pages 161–170, New York, NY: ACM Press, August 2008. Acceptance rate: 29 % (16/55).
148. 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)*, pages 23–34, New York, NY: ACM Press, August 2008. Acceptance rate: 29 % (16/55).
149. 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)*, pages 258–267, Los Alamitos, CA: IEEE Computer Society, September 2008. Acceptance rate: 11 % (30/280).
150. 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).
- ★151. Christian Kästner, Sven Apel, and Martin Kuhlemann. Granularity in Software Product Lines. In *Proceedings of the 30th International Conference on Software Engineering (ICSE)*, pages 311–320, New York, NY: ACM Press, May 2008. Acceptance rate: 15 % (56/371). **Most Influential Paper Award at SPLC'19.**
152. Christian Kästner. CIDE: Decomposing Legacy Applications into Features. In *Proceedings of the 11st International Software Product Line Conference, second volume (Demonstration) (SPLC)*, pages 149–150, 2007.
- ★153. 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

154. Christian Kästner. Virtual Separation of Concerns: Toward Preprocessors 2.0. *Information Technology (it)*, 54(1):42–46, 2012.
155. Christian Kästner. Virtuelle Trennung von Belangen. In *Ausgezeichnete Informatikdissertationen 2010*, volume D-11 of *Lecture Notes in Informatics*, pages 121–130, Bonn, Germany: Gesellschaft für Informatik (GI), 2011. Invited paper.
156. 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.

- ★157. 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

- 158. 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. SPLASH student research competition.
- 159. 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.
- 160. 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.
- 161. 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.
- 162. 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.
- 163. 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.
- 164. 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.
- 165. Helen Dong. A Qualitative Study of Cleaning in Jupyter Notebooks. In *Proceedings of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE-SRC)*, pages 1663–1665, New York, NY: ACM Press, 2021. ESEC/FSE Student Research Competition.
- 166. Asher Trockman. 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-SRC)*, pages 524–526, New York, NY: ACM Press, 2017. ICSE Student research competition, first place.
- 167. Lukas Lazarek. How to Efficiently Process 2<sup>100</sup> List Variations. In *Proceedings of the 2017 ACM SIGPLAN Conference on Systems, Programming, Languages, and Applications: Software for Humanity (SPLASH-SRC)*, pages 36–38, New York, NY: ACM Press, 2017. SPLASH Student research competition, first place.
- 168. Luyao Ren, Shurui Zhou, and Christian Kästner. Poster: Forks Insight: Providing an Overview of GitHub Forks. In *Proceedings of the International*

*Conference on Software Engineering (ICSE)*, pages 179–180, New York, NY: ACM Press, 2018. Poster.

169. Larissa Rocha Soares, Jens Meinicke, Sarah Nadi, Christian Kästner, and Eduardo Santana de Almeida. VarXplorer: Lightweight Process for Dynamic Inspection of Feature Interactions. In *Proceedings of the 12nd Int'l Workshop on Variability Modelling of Software-Intensive Systems (VaMoS)*, pages 59–66, 2018.
170. Meng Meng, Jens Meinicke, Chu-Pan Wong, Eric Walkingshaw, and Christian Kästner. A Choice of Variational Stacks: Exploring Variational Data Structures. In *Proceedings of the 11st Int'l Workshop on Variability Modelling of Software-Intensive Systems (VaMoS)*, pages 28–35, 2017.
171. Jafar Al-Kofahi, Tien N. Nguyen, and Christian Kästner. Escaping AutoHell: A Vision For Automated Analysis and Migration of Autotools Build Systems. In *Proceedings of the 4rd International Workshop on Release Engineering (Releng)*, pages 12–15, New York, NY: ACM Press, November 2016.
172. Prasad Kawthekar, and Christian Kästner. Sensitivity Analysis For Building Evolving & Adaptive Robotic Software. In *Proceedings of the IJCAI Workshop on Autonomous Mobile Service Robots (WSR)*, , July 2016.
173. Christopher Bogart, Christian Kästner, and James Herbsleb. When it Breaks, it Breaks: How Ecosystem Developers Reason About the Stability of Dependencies. In *Proceedings of the ASE Workshop on Software Support for Collaborative and Global Software Engineering (SCGSE)*, pages 86–89, November 2015.
174. Waqar Ahmad, Joshua Sunshine, Christian Kästner, and Adam Wynne. Enforcing Fine-Grained Security and Privacy Policies in an Ecosystem within an Ecosystem. In *Proceedings of the 3rd International Workshop on Mobile Development Lifecycle (MobileDeLi)*, pages 28–34, October 2015.
175. Shurui Zhou, Jafar Al-Kofahi, Tien N. Nguyen, Christian Kästner, and Sarah Nadi. Extracting Configuration Knowledge from Build Files with Symbolic Analysis. In *Proceedings of the 3rd International Workshop on Release Engineering (Releng)*, pages 20–23, New York, NY: ACM Press, May 2015.
176. Sven Apel, Sergiy S. Kolesnikov, Norbert Siegmund, Christian Kästner, and Brady Garvin. Exploring Feature Interactions in the Wild: The New Feature-Interaction Challenge. In *Proceedings of the 5th International Workshop on Feature-Oriented Software Development (FOSD)*, pages 1–8, New York, NY: ACM Press, October 2013. Acceptance rate: 75 % (6/8).
177. Leonardo Passos, Krzysztof Czarnecki, Sven Apel, Andrzej Wąsowski, Christian Kästner, and Jianmei Guo. Feature Oriented Software Evolution. In *Proceedings of the 7th Int'l Workshop on Variability Modelling of Software-Intensive Systems (VaMoS)*, pages 17:1–17:8, New York, NY: ACM Press, January 2013. Acceptance rate: 42 % (19/45).
178. Sergiy S. Kolesnikov, Sven Apel, Norbert Siegmund, Stefan Sobernig, Christian Kästner, and Semah Senkaya. Predicting Quality Attributes of Software Product Lines Using Software and Network Measures and Feature Sampling. In *Proceedings of the 7th Int'l Workshop on Variability Modelling of Software-Intensive Systems (VaMoS)*, pages 6:1–6:5, New York, NY: ACM Press, January 2013. Acceptance rate: 42 % (19/45).
179. Alexander von Rhein, Sven Apel, Christian Kästner, Thomas Thüm, and Ina Schaefer. The PLA Model: On the Combination of Product-Line Analyses. In *Proceedings of the 7th Int'l Workshop on Variability Modelling of Software-Intensive Systems (VaMoS)*, pages 14:1–14:8, New York, NY: ACM Press, January 2013. Acceptance rate: 42 % (19/45).

180. Christian Kästner, Alexander von Rhein, Sebastian Erdweg, Jonas Pusch, Sven Apel, Tillmann Rendel, and Klaus Ostermann. Toward Variability-Aware Testing. In *Proceedings of the 4th International Workshop on Feature-Oriented Software Development (FOSD)*, pages 1–8, New York, NY: ACM Press, September 2012. Acceptance rate: 57 % (8/14).
181. Janet Siegmund, Christian Kästner, Jörg Liebig, and Sven Apel. Comparing Program Comprehension of Physically and Virtually Separated Concerns. In *Proceedings of the 4th International Workshop on Feature-Oriented Software Development (FOSD)*, pages 17–24, New York, NY: ACM Press, September 2012. Acceptance rate: 57 % (8/14).
182. Paolo G. Giarrusso, Klaus Ostermann, Michael Eichberg, Tillmann Rendel, and Christian Kästner. Reifying and Optimizing Collection Queries for Modularity. In *Proceedings of the 26th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, pages 77–78, New York, NY: ACM Press, 2012. Poster.
183. Janet Feigenspan, Christian Kästner, Jörg Liebig, Sven Apel, and Stefan Hanenberg. Measuring Programming Experience. In *Proceedings of the 20th International Conference on Program Comprehension (ICPC)*, pages 73–82, Los Alamitos, CA: IEEE Computer Society, 2012. Acceptance rate: 41 % (21/51). **Most Influential Paper Award at ICPC'22.**
- ★184. Christian Kästner, Sven Apel, and Klaus Ostermann. The Road to Feature Modularity? In *Proceedings of the 3rd International Workshop on Feature-Oriented Software Development (FOSD)*, pages 5:1–5:8, New York, NY: ACM Press, September 2011.
185. Janet Feigenspan, Maria Papendieck, Christian Kästner, Mathias Frisch, and Raimund Dachse. FeatureCommander: Colorful #ifdef World. In *Proceedings of the 15th International Software Product Line Conference (SPLC), second volume (Demonstration) (SPLC)*, pages 48:1–48:2, New York, NY: ACM Press, September 2011.
186. Sebastian Erdweg, Lennart C.L. Kats, Tillmann Rendel, Christian Kästner, Klaus Ostermann, and Eelco Visser. SugarJ: Library-Based Language Extensibility. In *Proceedings of the 26th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, pages 187–188, New York, NY: ACM Press, 2011. Poster.
187. Sebastian Erdweg, Lennart C.L. Kats, Tillmann Rendel, Christian Kästner, Klaus Ostermann, Lennart C.L. Kats, and Eelco Visser. Library-Based Model-Driven Software Development with SugarJ. In *Proceedings of the 26th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, pages 17–18, New York, NY: ACM Press, 2011. Demonstration paper.
188. Ateeq Khan, Christian Kästner, Veit Köppen, and Gunter Saake. Service Variability Patterns. In *Proceedings of the ER Workshop on Software Variability Management (Variability@ER)*, volume 6999 of *Lecture Notes in Computer Science*, pages 130–140, Berlin/Heidelberg: Springer-Verlag, 2011.
189. Christian Kästner, Paolo G. Giarrusso, and Klaus Ostermann. Partial Pre-processing C Code for Variability Analysis. In *Proceedings of the 5th Int'l Workshop on Variability Modelling of Software-Intensive Systems (VaMoS)*, pages 137–140, New York, NY: ACM Press, January 2011. Acceptance rate: 55 % (21/38).
190. Andy Kenner, Christian Kästner, Steffen Haase, and Thomas Leich. TypeChef: Toward Type Checking #ifdef Variability in C. In *Proceedings of the 2nd International Workshop on Feature-Oriented Software Development (FOSD)*, pages 25–32, New York, NY: ACM Press, October 2010. Acceptance rate: 55 % (11/20).

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