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# ASE'16

Proceedings of the 31st IEEE/ACM International Conference on

## **Automated Software Engineering**

*Edited by:*

**David Lo, Sven Apel, and Sarfraz Khurshid**

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## Message from the Chairs

It is our great pleasure and honor to welcome everyone to the *31st IEEE/ACM International Conference on Automated Software Engineering* (ASE 2016). The ASE conference series is the premier research forum for automated software engineering. Each year it brings together researchers and practitioners from academia and industry to discuss foundations, techniques, and tools for automated analysis, design, implementation, testing, and maintenance of software systems. This publication contains the proceedings of the conference, which was held between September 3–7, 2016 in Singapore. The first two days of the conference were allocated to workshops, tutorials, and a doctoral symposium, while the last three days were for the presentations of keynotes, technical papers, and tool demo papers.

Entering its fourth decade after its inception, the ASE conference is getting even more relevant today. More and more individuals, businesses, and governments are relying on software systems, ranging from small apps that run on handheld devices to large mission critical systems that run on the cloud. ASE tools and techniques help in the construction and evolution of such systems to improve system reliability and developer productivity.

ASE 2016 was held in the beautiful downtown campus of Singapore Management University. We are excited to bring ASE for the first time to Singapore and the second time to Asia. Singapore is a green island/city-state in Southeast Asia with a population of over 5 million people. It is a global transportation hub and leading IT, commerce, and financial center. Thousands of information and communication (infocomm) companies are located in Singapore, with tens of thousands of people working in this sector.

As a major highlight, ASE 2016 was able to attract 3 internationally renowned keynote speakers:

- Markus Püschel (ETH Zurich): “Program Generation for Performance”
- Wolfram Schulte (Microsoft): “Changing Microsoft's Build: Revolution or Evolution”
- David S. Rosenblum (National U. of Singapore): “The Power of Probabilistic Thinking”

For the technical research track, we received 353 paper submissions – a record for the ASE conference series! 20 submissions were desk rejected without review, because they failed to follow the instructions given in the call for papers or were clearly out of scope. The remaining 333 submissions – 284 technical papers, 14 experience papers, and 35 new idea papers – were reviewed by the members of the Program Committee and the Expert Review Panel, with each paper receiving, at least, 3 reviews. For the first time, ASE pursued a lightweight double-blind review process. While our initial impression is positive, we are still in the process of analyzing the data we collected. A report on double-blind reviewing is in the process of making. We would like to thank our review process chairs, Yuriy Brun and Claire Le Goues, for their help with the double-blind reviewing process. We had a very active online discussion phase, with many long and detailed discussions among the members of the Program Committee (PC) and the Expert Review Panel. During a two-day physical PC meeting held at the University of Passau on July 12, 2016, the members of the Program Committee compiled the final selection of papers to be presented at ASE 2016. This careful and thorough review process resulted in the selection of 53 technical research papers, 4 experience papers, and 14 new ideas papers (some of these were re-categorized). Our sincere thanks go to members of the Program Committee and the Expert Review Panel, and the authors for their hard work and contributions!

Beside presentations of technical papers, the program of ASE 2016 also includes the presentations and demonstrations of 20 tool papers. These papers were selected from 44 submissions. We thank our tool

demonstration chairs Yuanfang Cai and Yang Liu along with tool paper authors to make this track possible!

Furthermore, prior to the conference, 4 workshops were held on Sept 3, 2016 thanks to the hard work of the workshop chairs Leonardo Mariani and Zhenchang Xing as well as the workshop organizers and authors:

- Workshop on Specification, Comprehension, Testing and Debugging of Concurrent Programs. Organizers: Zijiang Yang, Ting Liu, and Daniel Xiapu Luo.
- First International Workshop on Software Refactoring. Organizers: Ali Ouni, Marouane Kessentini, and Mel Ó Cinnéide.
- Fifth International Workshop on Software Mining. Organizers: Ming Li, Xiaoyin Wang, and Lucia.
- Workshop on Formal Methods for Analysis of Business System. Organizers: Ravindra Naik, Raveendra Kumar Medicherla, and Ansuman Banerjee.

ASE 2016 also offered a wide range of tutorials to conference attendees. The tutorials covered a broad range of topics, such as model checking, product lines, program analysis, testing, search-based software engineering, human computer interaction, and software mining. We thank our tutorial chairs Tien N. Nguyen and Rui Abreu as well as the tutorial lecturers to make ASE 2016 attendees be spoiled for choice.

Furthermore, we would like to thank our doctoral symposium chairs Massimiliano Di Penta and Tien N. Nguyen for organizing the annual ASE doctoral symposium on Sept 4. Many doctoral students benefitted from advice given by a panel of experts and the keynote speaker Andrian Marcus.

Numerous organizing committee members have helped in various ways to make the event a success. We would like to thank Lingxiao Jiang for serving as local arrangement/finance chair; Siau-Cheng Khoo for serving as sponsorship chair; Jun Sun for serving as proceedings chair; Christian Kästner, Shahar Maoz, and Xin Xia for serving as publicity co-chairs; Lingming Zhang and Lucia for serving as social media co-chairs; Jin Song Dong and Steven Miller for serving as members of the local advisory committee; Pavneet Singh Kochhar and Ferdian Thung for serving as webmasters. Additionally, we would also like to thank various members of the administrative team of the School of Information Systems (SIS) and Living Analytics Research Center (LARC), and members of the Software Analytics Research (SOAR) group, who have contributed much in managing the finance and local arrangements.

Last but not least, we would like to thank our sponsors – please refer to the conference website (<http://ase2016.org/sponsors.html>) for a full list – for providing various kinds of support.

David Lo, ASE 2016 General Chair

Sven Apel and Sarfraz Khurshid, ASE 2016 PC Chairs



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# Contents

## Frontmatter

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<b>Message from the Chairs</b> . . . . .	iii
<b>ASE 2016 Organization</b> . . . . .	v
<b>Sponsors</b> . . . . .	xi

## Keynotes

---

<b>Program Generation for Performance</b> Markus Püschel — <i>ETH Zurich, Switzerland</i> . . . . .	1
<b>Changing Microsoft’s Build: Revolution or Evolution</b> Wolfram Schulte — <i>Microsoft, USA</i> . . . . .	2
<b>The Power of Probabilistic Thinking</b> David S. Rosenblum — <i>National University of Singapore, Singapore</i> . . . . .	3

## Main Research Papers

---

### Test Evaluation

<b>An Empirical Investigation into the Nature of Test Smells</b> Michele Tufano, Fabio Palomba, Gabriele Bavota, Massimiliano Di Penta, Rocco Oliveto, Andrea De Lucia, and Denys Poshyvanyk — <i>College of William and Mary, USA; University of Salerno, Italy; University of Lugano, Switzerland; University of Sannio, Italy; University of Molise, Italy</i> . . . . .	4
<b>Evaluating Non-adequate Test-Case Reduction</b> Mohammad Amin Alipour, August Shi, Rahul Gopinath, Darko Marinov, and Alex Groce — <i>Oregon State University, USA; University of Illinois at Urbana-Champaign, USA</i> . . . . .	16
<b>Optimizing Customized Program Coverage</b> Peter Ohmann, David Bingham Brown, Naveen Neelakandan, Jeff Lindereth, and Ben Liblit — <i>University of Wisconsin-Madison, USA</i> . . . . .	27
<b>What Makes Killing a Mutant Hard</b> Willem Visser — <i>Stellenbosch University, South Africa</i> . . . . .	39
<b>Test Case Permutation to Improve Execution Time</b> Panagiotis Stratis and Ajitha Rajan — <i>University of Edinburgh, UK</i> . . . . .	45

### Learning

<b>Predicting Semantically Linkable Knowledge in Developer Online Forums via Convolutional Neural Network</b> Bowen Xu, Deheng Ye, Zhenchang Xing, Xin Xia, Guibin Chen, and Shanping Li — <i>Zhejiang University, China; Nanyang Technological University, Singapore</i> . . . . .	51
<b>Testing Advanced Driver Assistance Systems using Multi-objective Search and Neural Networks</b> Raja Ben Abdesslem, Shiva Nejati, Lionel C. Briand, and Thomas Stifter — <i>University of Luxembourg, Luxembourg; IEE, Luxembourg</i> . . . . .	63
<b>Privacy Preserving via Interval Covering Based Subclass Division and Manifold Learning Based Bi-directional Obfuscation for Effort Estimation</b> Fumin Qi, Xiao-Yuan Jing, Xiaoke Zhu, Fei Wu, and Li Cheng — <i>Wuhan University, China</i> . . . . .	75
<b>Deep Learning Code Fragments for Code Clone Detection</b> Martin White, Michele Tufano, Christopher Vendome, and Denys Poshyvanyk — <i>College of William and Mary, USA</i> . . . . .	87

## Recommendation and Automation

<b>Automatically Recommending Code Reviewers Based on Their Expertise: An Empirical Comparison</b> Christoph Hannebauer, Michael Patalas, Sebastian Stünkel, and Volker Gruhn — <i>University of Duisburg-Essen, Germany</i>	99
<b>Evaluating the Evaluations of Code Recommender Systems: A Reality Check</b> Sebastian Proksch, Sven Amann, Sarah Nadi, and Mira Mezini — <i>TU Darmstadt, Germany</i>	111
<b>Too Much Automation? The Bellwether Effect and Its Implications for Transfer Learning</b> Rahul Krishna, Tim Menzies, and Wei Fu — <i>North Carolina State University, USA</i>	122
<b>Automatic Microbenchmark Generation to Prevent Dead Code Elimination and Constant Folding</b> Marcelino Rodriguez-Cancio, Benoit Combemale, and Benoit Baudry — <i>University of Rennes 1, France; INRIA, France</i>	132

## Model-Based Testing and Oracles

<b>Visualization of Combinatorial Models and Test Plans</b> Rachel Tzoref-Brill, Paul Wojciak, and Shahar Maoz — <i>Tel Aviv University, Israel; IBM, USA</i>	144
<b>Finding Access Control Bugs in Web Applications with CanCheck</b> Ivan Bocić and Tefvik Bultan — <i>University of California at Santa Barbara, USA</i>	155
<b>SOFIA: An Automated Security Oracle for Black-Box Testing of SQL-Injection Vulnerabilities</b> Mariano Ceccato, Cu D. Nguyen, Dennis Appelt, and Lionel C. Briand — <i>Fondazione Bruno Kessler, Italy; University of Luxembourg, Luxembourg</i>	167
<b>Supporting Oracle Construction via Static Analysis</b> Junjie Chen, Yanwei Bai, Dan Hao, Lingming Zhang, Lu Zhang, Bing Xie, and Hong Mei — <i>Peking University, China; University of Texas at Dallas, USA</i>	178

## Crowdsourcing

<b>Local-Based Active Classification of Test Report to Assist Crowdsourced Testing</b> Junjie Wang, Song Wang, Qiang Cui, and Qing Wang — <i>Institute of Software at Chinese Academy of Sciences, China; University of Waterloo, Canada</i>	190
<b>Multi-objective Test Report Prioritization using Image Understanding</b> Yang Feng, James A. Jones, Zhenyu Chen, and Chunrong Fang — <i>University of California at Irvine, USA; Nanjing University, China</i>	202
<b>CrowdService: Serving the Individuals through Mobile Crowdsourcing and Service Composition</b> Xin Peng, Jingxiao Gu, Tian Huat Tan, Jun Sun, Yijun Yu, Bashar Nuseibeh, and Wenyun Zhao — <i>Fudan University, China; Singapore University of Technology and Design, Singapore; Open University, UK; Open University, Ireland</i>	214
<b>QUICKAR: Automatic Query Reformulation for Concept Location using Crowdsourced Knowledge</b> Mohammad Masudur Rahman and Chanchal K. Roy — <i>University of Saskatchewan, Canada</i>	220

## Android

<b>Taming Android Fragmentation: Characterizing and Detecting Compatibility Issues for Android Apps</b> Lili Wei, Yepang Liu, and Shing-Chi Cheung — <i>Hong Kong University of Science and Technology, China</i>	226
<b>Automated Model-Based Android GUI Testing using Multi-level GUI Comparison Criteria</b> Young-Min Baek and Doo-Hwan Bae — <i>KAIST, South Korea</i>	238
<b>Hybridroid: Static Analysis Framework for Android Hybrid Applications</b> Sungho Lee, Julian Dolby, and Sukyoung Ryu — <i>KAIST, South Korea; IBM Research, USA</i>	250

## Faults

<b>Locus: Locating Bugs from Software Changes</b> Ming Wen, Rongxin Wu, and Shing-Chi Cheung — <i>Hong Kong University of Science and Technology, China</i>	262
<b>Fine-Tuning Spectrum Based Fault Localisation with Frequent Method Item Sets</b> Gulsher Laghari, Alessandro Murgia, and Serge Demeyer — <i>University of Antwerp, Belgium</i>	274

<b>Recommending Relevant Classes for Bug Reports using Multi-objective Search</b>	
Rafi Almhana, Wiem Mkaouer, Marouane Kessentini, and Ali Ouni — <i>University of Michigan, USA; Osaka University, Japan</i> . . . . .	286
<b>An Empirical Study on Dependence Clusters for Effort-Aware Fault-Proneness Prediction</b>	
Yibiao Yang, Mark Harman, Jens Krinke, Syed Islam, David Binkley, Yuming Zhou, and Baowen Xu — <i>Nanjing University, China; University College London, UK; University of East London, UK; Loyola University Maryland, USA</i> . . . . .	296
<b>Program Analysis</b>	
<b>StraightTaint: Decoupled Offline Symbolic Taint Analysis</b>	
Jiang Ming, Dinghao Wu, Jun Wang, Gaoyao Xiao, and Peng Liu — <i>Pennsylvania State University, USA</i> . . . . .	308
<b>IncA: A DSL for the Definition of Incremental Program Analyses</b>	
Tamás Szabó, Sebastian Erdweg, and Markus Voelter — <i>itemis, Netherlands; Delft University of Technology, Netherlands; itemis, Germany</i> . . . . .	320
<b>What Developers Want and Need from Program Analysis: An Empirical Study</b>	
Maria Christakis and Christian Bird — <i>Microsoft Research, USA</i> . . . . .	332
<b>DistIA: A Cost-Effective Dynamic Impact Analysis for Distributed Programs</b>	
Haipeng Cai and Douglas Thain — <i>Washington State University, USA; University of Notre Dame, USA</i> . . . . .	344
<b>Locks and Races</b>	
<b>Radius Aware Probabilistic Testing of Deadlocks with Guarantees</b>	
Yan Cai and Zijiang Yang — <i>Institute of Software at Chinese Academy of Sciences, China; Western Michigan University, USA</i> . . . . .	356
<b>LockPeeker: Detecting Latent Locks in Java APIs</b>	
Ziyi Lin, Hao Zhong, Yuting Chen, and Jianjun Zhao — <i>Shanghai Jiao Tong University, China; Kyushu University, Japan</i> . . . . .	368
<b>Sound Static Deadlock Analysis for C/Pthreads</b>	
Daniel Kroening, Daniel Poetzl, Peter Schrammel, and Björn Wachter — <i>University of Oxford, UK; University of Sussex, UK; SSW-Trading, Germany</i> . . . . .	379
<b>Static Race Detection for Device Drivers: The Goblint Approach</b>	
Vesal Vojdani, Kalmer Apinis, Vootele Rõtov, Helmut Seidl, Varmo Vene, and Ralf Vogler — <i>University of Tartu, Estonia; TU Munich, Germany</i> . . . . .	391
<b>Empirical Studies and New Ideas</b>	
<b>An Empirical Evaluation of Two User Interfaces of an Interactive Program Verifier</b>	
Martin Hentschel, Reiner Hähnle, and Richard Bubel — <i>TU Darmstadt, Germany</i> . . . . .	403
<b>Traceability Maintenance: Factors and Guidelines</b>	
Salome Maro, Anthony Anjorin, Rebekka Wohlrab, and Jan-Philipp Steghöfer — <i>Chalmers University of Technology, Sweden; University of Paderborn, Germany</i> . . . . .	414
<b>Usage, Costs, and Benefits of Continuous Integration in Open-Source Projects</b>	
Michael Hilton, Timothy Tunnell, Kai Huang, Darko Marinov, and Danny Dig — <i>Oregon State University, USA; University of Illinois, USA</i> . . . . .	426
<b>DSL-Maps: From Requirements to Design of Domain-Specific Languages</b>	
Ana Pescador and Juan de Lara — <i>Autonomous University of Madrid, Spain</i> . . . . .	438
<b>The IDE as a Scriptable Information System</b>	
Dimitar Asenov, Peter Müller, and Lukas Vogel — <i>ETH Zurich, Switzerland; Ergon Informatik, Switzerland</i> . . . . .	444
<b>Inference</b>	
<b>Inferring Annotations for Device Drivers from Verification Histories</b>	
Zvonimir Pavlinovic, Akash Lal, and Rahul Sharma — <i>New York University, USA; Microsoft Research, India; Stanford University, USA</i> . . . . .	450

<b>Array Length Inference for C Library Bindings</b>	
Alisa J. Maas, Henrique Nazaré, and Ben Liblit — <i>University of Wisconsin-Madison, USA; Federal University of Minas Gerais, Brazil</i> . . . . .	461
<b>APEx: Automated Inference of Error Specifications for C APIs</b>	
Yuan Kang, Baishakhi Ray, and Suman Jana — <i>Columbia University, USA; University of Virginia, USA</i> . . . . .	472
<b>Interactions, Deltas, Goals</b>	
<b>On Essential Configuration Complexity: Measuring Interactions in Highly-Configurable Systems</b>	
Jens Meinicke, Chu-Pan Wong, Christian Kästner, Thomas Thüm, and Gunter Saake — <i>University of Magdeburg, Germany; Carnegie Mellon University, USA; TU Braunschweig, Germany</i> . . . . .	483
<b>Precise Semantic History Slicing through Dynamic Delta Refinement</b>	
Yi Li, Chenguang Zhu, Julia Rubin, and Marsha Chechik — <i>University of Toronto, Canada; Massachusetts Institute of Technology, USA</i> . . . . .	495
<b>Goal-Conflict Detection Based on Temporal Satisfiability Checking</b>	
Renzo Degiovanni, Nicolas Ricci, Dalal Alrajeh, Pablo Castro, and Nazareno Aguirre — <i>Universidad Nacional de Río Cuarto, Argentina; Imperial College London, UK</i> . . . . .	507
<b>Symbolic Execution</b>	
<b>Symbolic Execution of Stored Procedures in Database Management Systems</b>	
Muhammad Suleman Mahmood, Maryam Abdul Ghafoor, and Junaid Haroon Siddiqui — <i>Lahore University of Management Sciences, Pakistan</i> . . . . .	519
<b>Conc-iSE: Incremental Symbolic Execution of Concurrent Software</b>	
Shengjian Guo, Markus Kusano, and Chao Wang — <i>Virginia Tech, USA; University of Southern California, USA</i> . . . . .	531
<b>Model-Based Whitebox Fuzzing for Program Binaries</b>	
Van-Thuan Pham, Marcel Böhme, and Abhik Roychoudhury — <i>National University of Singapore, Singapore</i> . . . . .	543
<b>Symbolic Execution of Complex Program Driven by Machine Learning Based Constraint Solving</b>	
Xin Li, Yongjuan Liang, Hong Qian, Yi-Qi Hu, Lei Bu, Yang Yu, Xin Chen, and Xuandong Li — <i>Nanjing University, China</i> . . . . .	554
<b>Towards Bounded Model Checking using Nonlinear Programming Solver</b>	
Masataka Nishi — <i>Hitachi, Japan</i> . . . . .	560
<b>Design and Specs</b>	
<b>Identifying Domain Elements from Textual Specifications</b>	
Jitendra Singh Thakur and Atul Gupta — <i>IITDM Jabalpur, India</i> . . . . .	566
<b>Continuous Detection of Design Flaws in Evolving Object-Oriented Programs using Incremental Multi-pattern Matching</b>	
Sven Peldszus, Géza Kulcsár, Malte Lochau, and Sandro Schulze — <i>University of Koblenz-Landau, Germany; TU Darmstadt, Germany; TU Hamburg, Germany</i> . . . . .	578
<b>Efficient Detection of Inconsistencies in a Multi-developer Engineering Environment</b>	
Andreas Demuth, Markus Riedl-Ehrenleitner, and Alexander Egyed — <i>JKU Linz, Austria</i> . . . . .	590
<b>How Good Are the Specs? A Study of the Bug-Finding Effectiveness of Existing Java API Specifications</b>	
Owolabi Legunsen, Wajih Ul Hassan, Xinyue Xu, Grigore Roşu, and Darko Marinov — <i>University of Illinois at Urbana-Champaign, USA</i> . . . . .	602
<b>Test Generation</b>	
<b>Greedy Combinatorial Test Case Generation using Unsatisfiable Cores</b>	
Akihisa Yamada, Armin Biere, Cyrille Artho, Takashi Kitamura, and Eun-Hye Choi — <i>University of Innsbruck, Austria; JKU Linz, Austria; AIST, Japan</i> . . . . .	614
<b>Towards Automatically Generating Descriptive Names for Unit Tests</b>	
Benwen Zhang, Emily Hill, and James Clause — <i>University of Delaware, USA; Drew University, USA</i> . . . . .	625

<b>Applying Combinatorial Test Data Generation to Big Data Applications</b>	
Nan Li, Yu Lei, Haider Riaz Khan, Jingshu Liu, and Yun Guo — <i>Medidata Solutions, USA; University of Texas at Arlington, USA; George Mason University, USA</i> . . . . .	637
<b>Generating Test Cases to Expose Concurrency Bugs in Android Applications</b>	
Hongyin Tang, Guoquan Wu, Jun Wei, and Hua Zhong — <i>Institute of Software at Chinese Academy of Sciences, China</i>	648
<b>Automatic Test Image Generation using Procedural Noise</b>	
Matthew Patrick, Matthew D. Castle, Richard O. J. H. Stutt, and Christopher A. Gilligan — <i>University of Cambridge, UK</i>	654
<b>Code Comparison and Transformation</b>	
<b>Move-Optimized Source Code Tree Differencing</b>	
Georg Dotzler and Michael Philippsen — <i>University of Erlangen-Nuremberg, Germany</i> . . . . .	660
<b>Migrating Cascading Style Sheets to Preprocessors by Introducing Mixins</b>	
Davood Mazinianian and Nikolaos Tsantalis — <i>Concordia University, Canada</i> . . . . .	672
<b>Automatic Runtime Recovery via Error Handler Synthesis</b>	
Tianxiao Gu, Chengnian Sun, Xiaoxing Ma, Jian Lü, and Zhendong Su — <i>Nanjing University, China; University of California at Davis, USA</i> . . . . .	684
<b>Mining Revision Histories to Detect Cross-Language Clones without Intermediates</b>	
Xiao Cheng, Zhiming Peng, Lingxiao Jiang, Hao Zhong, Haibo Yu, and Jianjun Zhao — <i>Shanghai Jiao Tong University, China; Singapore Management University, Singapore; Kyushu University, Japan</i> . . . . .	696
<b>Battery-Aware Transformations in Mobile Applications</b>	
Jürgen Cito, Julia Rubin, Phillip Stanley-Marbell, and Martin Rinard — <i>University of Zurich, Switzerland; Massachusetts Institute of Technology, USA</i> . . . . .	702
<b>Language</b>	
<b>Bugram: Bug Detection with N-gram Language Models</b>	
Song Wang, Devin Chollak, Dana Movshovitz-Attias, and Lin Tan — <i>University of Waterloo, Canada; Carnegie Mellon University, USA</i> . . . . .	708
<b>Mining Input Grammars from Dynamic Taints</b>	
Matthias Hörschle and Andreas Zeller — <i>Saarland University, Germany</i> . . . . .	720
<b>Phrase-Based Extraction of User Opinions in Mobile App Reviews</b>	
Phong Minh Vu, Hung Viet Pham, Tam The Nguyen, and Tung Thanh Nguyen — <i>Utah State University, USA</i> . . . . .	726
<b>Mining and Retrieval</b>	
<b>Practical Guidelines for Change Recommendation using Association Rule Mining</b>	
Leon Moonen, Stefano Di Alesio, David Binkley, and Thomas Rølfesnes — <i>Simula Research Laboratory, Norway; Loyola University Maryland, USA</i> . . . . .	732
<b>Learning a Dual-Language Vector Space for Domain-Specific Cross-Lingual Question Retrieval</b>	
Guibin Chen, Chunyang Chen, Zhenchang Xing, and Bowen Xu — <i>Nanyang Technological University, Singapore; Zhejiang University, China</i> . . . . .	744
<b>Demonstrations</b>	
<hr/>	
<b>Mobile and Security</b>	
<b>Reflection-Aware Static Analysis of Android Apps</b>	
Li Li, Tegawendé F. Bissyandé, Damien Ocateau, and Jacques Klein — <i>University of Luxembourg, Luxembourg; Pennsylvania State University, USA</i> . . . . .	756
<b>Relda2: An Effective Static Analysis Tool for Resource Leak Detection in Android Apps</b>	
Tianyong Wu, Jierui Liu, Xi Deng, Jun Yan, and Jian Zhang — <i>Institute of Software at Chinese Academy of Sciences, China</i> . . . . .	762



<b>An End-User Oriented Tool Suite for Development of Mobile Applications</b>	
Zhongyi Zhai, Bo Cheng, Meng Niu, Zhaoning Wang, Yimeng Feng, and Junliang Chen — <i>Beijing University of Posts and Telecommunications, China</i> . . . . .	768
<b>Model Driven Design of Heterogeneous Synchronous Embedded Systems</b>	
Huafeng Zhang, Yu Jiang, Han Liu, Hehua Zhang, Ming Gu, and Jiaguang Sun — <i>Tsinghua University, China; University of Illinois at Urbana-Champaign, USA</i> . . . . .	774
<b>MACKE: Compositional Analysis of Low-Level Vulnerabilities with Symbolic Execution</b>	
Saahil Ognawala, Martín Ochoa, Alexander Pretschner, and Tobias Limmer — <i>TU Munich, Germany; Singapore University of Technology and Design, Singapore; Siemens, Germany</i> . . . . .	780
<b>BovInspector: Automatic Inspection and Repair of Buffer Overflow Vulnerabilities</b>	
Fengjuan Gao, Linzhang Wang, and Xuandong Li — <i>Nanjing University, China</i> . . . . .	786
<b>Performance, Recommendation, and Analysis</b>	
<b>CORRECT: Code Reviewer Recommendation at GitHub for Vendasta Technologies</b>	
Mohammad Masudur Rahman, Chanchal K. Roy, Jesse Redl, and Jason A. Collins — <i>University of Saskatchewan, Canada; Vendasta Technologies, Canada; Google, USA</i> . . . . .	792
<b>ProcessPAIR: A Tool for Automated Performance Analysis and Improvement Recommendation in Software Development</b>	
Mushtaq Raza and João Pascoal Faria — <i>University of Porto, Portugal</i> . . . . .	798
<b>CVExplorer: Identifying Candidate Developers by Mining and Exploring Their Open Source Contributions</b>	
Gillian J. Greene and Bernd Fischer — <i>Stellenbosch University, South Africa</i> . . . . .	804
<b>Lightweight Collection and Storage of Software Repository Data with DataRover</b>	
Thomas Kowark, Christoph Matthies, Matthias Uflacker, and Hasso Plattner — <i>HPI, Germany</i> . . . . .	810
<b>Visual Contract Extractor: A Tool for Reverse Engineering Visual Contracts using Dynamic Analysis</b>	
Abdullah Alshantqi, Reiko Heckel, and Timo Kehrer — <i>University of Leicester, UK; Politecnico di Milano, Italy</i> . . . . .	816
<b>SuperMod: Tool Support for Collaborative Filtered Model-Driven Software Product Line Engineering</b>	
Felix Schwägerl and Bernhard Westfechtel — <i>University of Bayreuth, Germany</i> . . . . .	822
<b>AnModeler: A Tool for Generating Domain Models from Textual Specifications</b>	
Jitendra Singh Thakur and Atul Gupta — <i>IIITDM Jabalpur, India</i> . . . . .	828
<b>SimilarTech: Automatically Recommend Analogical Libraries across Different Programming Languages</b>	
Chunyang Chen and Zhenchang Xing — <i>Nanyang Technological University, Singapore</i> . . . . .	834
<b>Testing, Validation, and Verification</b>	
<b>TeeVML: Tool Support for Semi-automatic Integration Testing Environment Emulation</b>	
Jian Liu, John Grundy, Iman Avazpour, and Mohamed Abdelrazek — <i>Swinburne University of Technology, Australia; Deakin University, Australia</i> . . . . .	840
<b>The Interactive Verification Debugger: Effective Understanding of Interactive Proof Attempts</b>	
Martin Hentschel, Reiner Hähnle, and Richard Bubel — <i>TU Darmstadt, Germany</i> . . . . .	846
<b>Verifying Simulink Stateflow Model: Timed Automata Approach</b>	
Yixiao Yang, Yu Jiang, Ming Gu, and Jiaguang Sun — <i>Tsinghua University, China; University of Illinois at Urbana-Champaign, China</i> . . . . .	852
<b>GUICat: GUI Testing as a Service</b>	
Lin Cheng, Jialiang Chang, Zijiang Yang, and Chao Wang — <i>Western Michigan University, USA; University of Southern California, USA</i> . . . . .	858
<b>An Automated Collaborative Requirements Engineering Tool for Better Validation of Requirements</b>	
Nor Aiza Moketar, Massila Kamalrudin, Safiah Sidek, Mark Robinson, and John Grundy — <i>Technical University of Malaysia Malacca, Malaysia; Fulgent, USA; Deakin University, Australia</i> . . . . .	864
<b>An Extensible Framework for Variable-Precision Data-Flow Analyses in MPS</b>	
Tamás Szabó, Simon Alperovich, Markus Voelter, and Sebastian Erdweg — <i>itemis, Netherlands; JetBrains, Czechia; itemis, Germany; Delft University of Technology, Netherlands</i> . . . . .	870

# Doctoral Symposium

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<b>Towards Efficient and Effective Automatic Program Repair</b> Xuan-Bach D. Le — <i>Singapore Management University, Singapore</i> . . . . .	876
<b>Automated Testing and Notification of Mobile App Privacy Leak-Cause Behaviours</b> Joseph Chan Joo Keng — <i>Singapore Management University, Singapore</i> . . . . .	880
<b>Factoring Requirement Dependencies in Software Requirement Selection using Graphs and Integer Programming</b> Davoud Mougouei — <i>Flinders University, Australia</i> . . . . .	884
<b>Statistical Analysis of Large Sets of Models</b> Önder Babur — <i>Eindhoven University of Technology, Netherlands</i> . . . . .	888
<b>Developer Targeted Analytics: Supporting Software Development Decisions with Runtime Information</b> Jürgen Cito — <i>University of Zurich, Switzerland</i> . . . . .	892
<b>API Recommendation System for Software Development</b> Ferdian Thung — <i>Singapore Management University, Singapore</i> . . . . .	896
<b>Author Index</b> . . . . .	900