

Zhenhua Duan · Luke Ong (Eds.)

Formal Methods and Software Engineering

19th International Conference
on Formal Engineering Methods, ICFEM 2017
Xi'an, China, November 13–17, 2017
Proceedings

Contents

Invited Talk

Towards Customizable CPS: Composability, Efficiency and Predictability . . .	3
<i>Wang Yi</i>	

Contributed Papers

Modularization of Refinement Steps for Agile Formal Methods	19
<i>Fabian Benduhn, Thomas Thüm, Ina Schaefer, and Gunter Saake</i>	
Model Checking Pushdown Epistemic Game Structures	36
<i>Taolue Chen, Fu Song, and Zhilin Wu</i>	
Transforming Timing Requirements into CCSL Constraints to Verify Cyber-Physical Systems	54
<i>Xiaohong Chen, Ling Yin, Yijun Yu, and Zhi Jin</i>	
A Framework for Multi-view Reconciliation and for Medical Devices Personalization	71
<i>Yihai Chen, Bofang Zhang, Ridha Khedri, and Huaikou Miao</i>	
Compiling Parameterized X86-TSO Concurrent Programs to Cubicle- $\mathcal{W}$	88
<i>Sylvain Conchon, David Declerck, and Fatiha Zaidi</i>	
Improving the Scalability of Automatic Linearizability Checking in SPIN . . .	105
<i>Patrick Doolan, Graeme Smith, Chenyi Zhang, and Padmanabhan Krishnan</i>	
Verifying Temporal Properties of C Programs via Lazy Abstraction	122
<i>Zhao Duan, Cong Tian, and Zhenhua Duan</i>	
Combining Event-B and CSP: An Institution Theoretic Approach to Interoperability	140
<i>Marie Farrell, Rosemary Monahan, and James F. Power</i>	
Refinement-Based Modelling and Verification of Design Patterns for Self-adaptive Systems	157
<i>Thomas Göthel, Nils Jähnig, and Simon Seif</i>	
Assertion Generation Through Active Learning	174
<i>Long H. Pham, Ly Ly Tran Thi, and Jun Sun</i>	

Detecting Energy Bugs in Android Apps Using Static Analysis	192
<i>Hao Jiang, Hongli Yang, Shengchao Qin, Zhendong Su, Jian Zhang, and Jun Yan</i>	
A Flexible Approach for Finding Optimal Paths with Minimal Conflicts	209
<i>Juliana K.F. Bowles and Marco B. Caminati</i>	
A Certified Decision Procedure for Tree Shares	226
<i>Xuan-Bach Le, Thanh-Toan Nguyen, Wei-Ngan Chin, and Aquinas Hobor</i>	
Classification-Based Parameter Synthesis for Parametric Timed Automata . . .	243
<i>Jiaying Li, Jun Sun, Bo Gao, and Étienne André</i>	
A Verification Framework for Stateful Security Protocols.	262
<i>Li Li, Naipeng Dong, Jun Pang, Jun Sun, Guangdong Bai, Yang Liu, and Jin Song Dong</i>	
A Sliding-Window Algorithm for On-The-Fly Interprocedural Program Analysis	281
<i>Xin Li and Mizuhito Ogawa</i>	
Exploring Design Alternatives for RAMP Transactions Through Statistical Model Checking	298
<i>Si Liu, Peter Csaba Ólveczky, Jatin Ganhotra, Indranil Gupta, and José Meseguer</i>	
An Improved Android Collusion Attack Detection Method Based on Program Slicing	315
<i>Yunhao Liu, Xiaohong Li, Zhiyong Feng, and Jianye Hao</i>	
Parameterized Complexity of Resilience Decision for Database Debugging.	332
<i>Dongjing Miao and Zhipeng Cai</i>	
Formal Analysis of Linear Control Systems Using Theorem Proving.	345
<i>Adnan Rashid and Osman Hasan</i>	
Policy Dependent and Independent Information Flow Analyses.	362
<i>Manuel Töws and Heike Wehrheim</i>	
Improving Probability Estimation Through Active Probabilistic Model Learning	379
<i>Jingyi Wang, Xiaohong Chen, Jun Sun, and Shengchao Qin</i>	
Nested Timed Automata with Diagonal Constraints.	396
<i>Yuwei Wang, Yunqing Wen, Guoqiang Li, and Shoji Yuen</i>	

Integration of Metamorphic Testing with Program Repair Methods Based on Adaptive Search Strategies and Program Equivalence	413
<i>Tingting Wu, Yunwei Dong, Tsong Yueh Chen, Mingyue Jiang, Man Lau, Fei-Ching Kuo, and Sebastian Ng</i>	
Learning Types for Binaries	430
<i>Zhiwu Xu, Cheng Wen, and Shengchao Qin</i>	
Inconsistency Analysis of Time-Based Security Policy and Firewall Policy	447
<i>Yi Yin, Yuichiro Tateiwa, Yun Wang, Yoshiaki Katayama, and Naohisa Takahashi</i>	
An Algebraic Approach to Automatic Reasoning for NetKAT Based on Its Operational Semantics	464
<i>Yuxin Deng, Min Zhang, and Guoqing Lei</i>	
Pareto Optimal Reachability Analysis for Simple Priced Timed Automata . . .	481
<i>Zhengkui Zhang, Brian Nielsen, Kim Guldstrand Larsen, Gilles Nies, Marvin Stenger, and Holger Hermanns</i>	
Author Index	497