

Contents

Invited Contributions

| | |
|---|----|
| Can Formal Methods Improve the Efficiency of Code Reviews? | 3 |
| <i>Martin Hentschel, Reiner Hähnle, and Richard Bubel</i> | |
| Symbolic Computation and Automated Reasoning for Program Analysis | 20 |
| <i>Laura Kovács</i> | |
| Perspectives of Model Transformation Reuse | 28 |
| <i>Marsha Chechik, Michalis Famelis, Rick Salay, and Daniel Strüßer</i> | |

Program Verification

| | |
|--|----|
| On Type Checking Delta-Oriented Product Lines | 47 |
| <i>Ferruccio Damiani and Michael Lienhardt</i> | |
| Modelling and Verifying a Priority Scheduler for an SCJ Runtime Environment. | 63 |
| <i>Leo Freitas, James Baxter, Ana Cavalcanti, and Andy Wellings</i> | |
| Why Just Boogie?: Translating Between Intermediate Verification Languages | 79 |
| <i>Michael Ameri and Carlo A. Furia</i> | |

Probabilistic Systems

| | |
|--|-----|
| Statistical Approximation of Optimal Schedulers for Probabilistic Timed Automata | 99 |
| <i>Pedro R. D'Argenio, Arnd Hartmanns, Axel Legay, and Sean Sedwards</i> | |
| Probabilistic Formal Analysis of App Usage to Inform Redesign. | 115 |
| <i>Oana Andrei, Muffy Calder, Matthew Chalmers, Alistair Morrison, and Mattias Rost</i> | |
| Extension of PRISM by Synthesis of Optimal Timeouts in Fixed-Delay CTMC. | 130 |
| <i>Luboš Korenčíak, Vojtěch Řehák, and Adrian Farmadin</i> | |

Concurrency

| | |
|--|-----|
| Monitoring Multi-threaded Component-Based Systems | 141 |
| <i>Hosein Nazarpour, Yliès Falcone, Saddek Bensalem, Marius Bozga, and Jacques Combaz</i> | |
| A Generalised Theory of Interface Automata, Component Compatibility and Error | 160 |
| <i>Sascha Fendrich and Gerald Lüttgen</i> | |
| On Implementing a Monitor-Oriented Programming Framework for Actor Systems | 176 |
| <i>Ian Cassar and Adrian Francalanza</i> | |
| Towards a Thread-Local Proof Technique for Starvation Freedom. | 193 |
| <i>Gerhard Schellhorn, Oleg Travkin, and Heike Wehrheim</i> | |
| Reasoning About Inheritance and Unrestricted Reuse in Object-Oriented Concurrent Systems. | 210 |
| <i>Olaf Owe</i> | |
| A Formal Model of the Safety-Critical Java Level 2 Paradigm | 226 |
| <i>Matt Luckcuck, Ana Cavalcanti, and Andy Wellings</i> | |

Safety and Liveness

| | |
|--|-----|
| Deciding Monadic Second Order Logic over ω -Words by Specialized Finite Automata | 245 |
| <i>Stephan Barth</i> | |
| Property Preservation for Extension Patterns of State Transition Diagrams . . . | 260 |
| <i>Christian Prehofer</i> | |
| Symbolic Reachability Analysis of B Through ProB and LTSmin | 275 |
| <i>Jens Bendisposto, Philipp Körner, Michael Leuschel, Jeroen Meijer, Jaco van de Pol, Helen Treharne, and Jorden Whitefield</i> | |

Model Learning

| | |
|--|-----|
| Enhancing Automata Learning by Log-Based Metrics | 295 |
| <i>Petra van den Bos, Rick Smetsers, and Frits Vaandrager</i> | |
| Refactoring of Legacy Software Using Model Learning and Equivalence Checking: An Industrial Experience Report | 311 |
| <i>Mathijs Schuts, Jozef Hooman, and Frits Vaandrager</i> | |

| | |
|--|-----|
| On Robust Malware Classifiers by Verifying Unwanted Behaviours | 326 |
| <i>Wei Chen, David Aspinall, Andrew D. Gordon, Charles Sutton, and Igor Muttik</i> | |

SAT and SMT Solving

| | |
|---|-----|
| Efficient Deadlock-Freedom Checking Using Local Analysis and SAT Solving | 345 |
| <i>Pedro Antonino, Thomas Gibson-Robinson, and A.W. Roscoe</i> | |
| SMT Solvers for Validation of B and Event-B Models | 361 |
| <i>Sebastian Krings and Michael Leuschel</i> | |
| Avoiding Medication Conflicts for Patients with Multimorbidities | 376 |
| <i>Andrii Kovalov and Juliana Küster Filipe Bowles</i> | |

Testing

| | |
|--|-----|
| Temporal Random Testing for Spark Streaming | 393 |
| <i>Adrián Riesco and Juan Rodríguez-Hortala</i> | |
| Combining Static Analysis and Testing for Deadlock Detection | 409 |
| <i>Elvira Albert, Miguel Gómez-Zamalloa, and Miguel Isabel</i> | |
| Fuzzing JavaScript Engine APIs | 425 |
| <i>Renáta Hodován and Ákos Kiss</i> | |

Theorem Proving and Constraint Satisfaction

| | |
|--|-----|
| A Component-Based Approach to Hybrid Systems Safety Verification. | 441 |
| <i>Andreas Müller, Stefan Mitsch, Werner Retschitzegger, Wieland Schwinger, and André Platzer</i> | |
| Verifying Pointer Programs Using Separation Logic and Invariant Based Programming in Isabelle | 457 |
| <i>Viorel Preoteasa</i> | |
| A Constraint Satisfaction Method for Configuring Non-local Service Interfaces | 474 |
| <i>Pavel Zaichenkov, Olga Tveretina, and Alex Shafarenko</i> | |

Case Studies

| | |
|--|-----|
| Rule-Based Consistency Checking of Railway Infrastructure Designs. | 491 |
| <i>Bjørnar Luteberget, Christian Johansen, and Martin Steffen</i> | |

| | |
|--|-----|
| Formal Verification of Safety PLC Based Control Software | 508 |
| <i>Dániel Darvas, István Majzik, and Enrique Blanco Viñuela</i> | |
| CloudSDV Enabling Static Driver Verifier Using Microsoft Azure | 523 |
| <i>Rahul Kumar, Thomas Ball, Jakob Lichtenberg, Nate Deisinger, Apoorv Upreti, and Chetan Bansal</i> | |
| Author Index | 537 |

Integrated Formal Methods

12th International Conference, IFM 2016, Reykjavik,

Iceland, June 1-5, 2016, Proceedings

Ábrahám, E.; Huisman, M. (Eds.)

2016, XIV, 538 p. 145 illus., Softcover

ISBN: 978-3-319-33692-3