# Contents

## Part I Historic Account

**ProCoS: How It All Began – as Seen from Denmark**  
Dines Bjørner  

## Part II Hybrid Systems

**Constraint-Solving Techniques for the Analysis of Stochastic Hybrid Systems**  
Martin Fränzle, Yang Gao and Sebastian Gerwinn  

**MARS: A Toolchain for Modelling, Analysis and Verification of Hybrid Systems**  
Mingshuai Chen, Xiao Han, Tao Tang, Shuling Wang, Mengfei Yang, Naijun Zhan, Hengjun Zhao and Liang Zou  

## Part III Correctness of Concurrent Algorithms

**A Proof Method for Linearizability on TSO Architectures**  
John Derrick, Graeme Smith, Lindsay Groves and Brijesh Dongol  

## Part IV Interfaces and Linking

**Linking Discrete and Continuous Models, Applied to Traffic Manoeuvres**  
Ernst-Rüdiger Olderog, Anders P. Ravn and Rafael Wisniewski  

**Towards Interface-Driven Design of Evolving Component-Based Architectures**  
Xin Chen and Zhiming Liu
Part V Automatic Verification

Computing Verified Machine Address Bounds During Symbolic Exploration of Code ........................................... 151
J Strother Moore

Engineering a Formal, Executable x86 ISA Simulator for Software Verification ................................................. 173
Shilpi Goel, Warren A. Hunt Jr. and Matt Kaufmann

Advances in Connection-Based Automated Theorem Proving ........ 211
Jens Otten and Wolfgang Bibel

Part VI Run-Time Assertion Checking

Run-Time Deadlock Detection ................................................................. 245
Frank S. de Boer and Stijn de Gouw

In-Circuit Assertions and Exceptions for Reconfigurable Hardware Design ......................................................... 265
Tim Todman and Wayne Luk

Part VII Formal and Semi-formal Methods

From ProCoS to Space and Mental Models—A Survey of Combining Formal and Semi-formal Methods .................. 285
Bettina Buth

Part VIII Web-Supported Communities in Science

Provably Correct Systems: Community, Connections, and Citations ................................................................. 313
Jonathan P. Bowen

Erratum to: ProCoS: How It All Began – as Seen from Denmark ................................................................. E1
Dines Bjørner
Provably Correct Systems
Hinchey, M.; Bowen, J.P.; Olderog, E.-R. (Eds.)
2017, XV, 328 p. 84 illus., 48 illus. in color., Hardcover
ISBN: 978-3-319-48627-7