Contents

The Pragmatic Dimension of Formal Methods: Towards Building a Sound Synthesiser ................................................................. 1
Alexandre Mota

Formal Design of Cloud Computing Systems in Maude .......................... 5
José Meseguer

Source Code Analysis with a Temporal Extension of First-Order Logic ....... 20
David Come, Julien Brunel, and David Doose

A Type-Directed Algorithm to Generate Well-Typed Featherweight Java Programs ........................................................................... 39
Samuel S. Feitosa, Rodrigo Geraldo Ribeiro, and Andre Rauber Du Bois

Programming Language Foundations in Agda ...................................... 56
Philip Wadler

Formal Verification of n-bit ALU Using Theorem Proving ......................... 74
Sumayya Shiraz and Osman Hasan

The Scallina Grammar: Towards a Scala Extraction for Coq ....................... 90
Youssef El Bakouny and Dani Mezher

VDM at Large: Modelling the EMV® 2nd Generation Kernel ................... 109
Leo Freitas

Constraint Reusing and \textit{k}-Induction for Three-Valued Bounded Model Checking ................................................................. 126
Nils Timm, Stefan Gruner, and Matthias Harvey

TeSSLa: Temporal Stream-Based Specification Language .......................... 144
Lukas Convent, Sebastian Hungerecker, Martin Leucker, Torben Scheffel, Malte Schmitz, and Daniel Thoma

Automatic Test Case Generation for Concurrent Features from Natural Language Descriptions .................................................. 163
Rafaela Almeida, Sidney Nogueira, and Augusto Sampaio

A Methodology for Protocol Verification Applied to EMV® 1 .................. 180
Leo Freitas, Paolo Modesti, and Martin Emms
Contents

Analysing RoboChart with Probabilities .................................................. 198
   M. S. Conserva Filho, R. Marinho, A. Mota, and J. Woodcock

Timed Scenarios: Consistency, Equivalence and Optimization .................... 215
   Neda Saeedloei and Feliks Kluzniak

Safe and Constructive Design with UML Components ............................... 234
   Flávia Falcão, Lucas Lima, and Augusto Sampaio

Formal Modelling of Environment Restrictions
from Natural-Language Requirements ....................................................... 252
   Tainã Santos, Gustavo Carvalho, and Augusto Sampaio

Author Index ................................................................................................. 271