Lecture Notes in Computer Science 12723

More information about this subseries at http://www.springer.com/series/7407

Jinyun Xue · Fumiko Nagoya · Shaoying Liu ·
Zhenhua Duan (Eds.)

Structured Object-Oriented Formal Language and Method

10th International Workshop, SOFL+MSVL 2020
Singapore, March 1, 2021
Revised Selected Papers

Springer

Editors
Jinyun Xue
Jiangxi Normal University
Nanchang, China

Fumiko Nagoya
Nihon University
Tokyo, Japan

Shaoying Liu
Hiroshima University
Hiroshima, Japan

Zhenhua Duan
Xidian University
Xi'an, China

ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISBN 978-3-030-77473-8 ISBN 978-3-030-77474-5 (eBook)
https://doi.org/10.1007/978-3-030-77474-5

LNCS Sublibrary: SL1 – Theoretical Computer Science and General Issues

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

The Structured Object-Oriented Formal Language (SOFL) has been developed to address the challenge of how to transform formal methods principles and techniques into practice by providing a comprehensible specification language, a practical modeling method, various verification and validation techniques, and tool support through effective integration of formal methods with conventional software engineering techniques. SOFL integrates Data Flow Diagrams, Petri Nets; and VDM-SL to offer a visualized and formal notation for specification construction; a three-step approach to requirements acquisition and system design; specification-based inspection and testing methods for detecting errors in both specifications and programs; and a set of tools to support modeling and verification. The Modeling, Simulation and Verification Language (MSVL) is a parallel programming language. Its supporting toolkit, MSV, has been developed to enable us to model, simulate, and verify a system in a formal manner. Following the success of previous SOFL+MSVL workshops, this workshop aimed to continuously promote the development and combination of the SOFL formal engineering method and the MSVL formal method, as well as the applications of their fundamental principles and specific techniques for developing other formal engineering techniques.

The workshop attracted 24 submissions on formal modeling, formal verification, model checking, metamorphic testing, natural language processing, and geometric modeling. Each submission was rigorously reviewed by two or more Program Committee members on the basis of technical quality, relevance, significance, and clarity, and 13 papers were accepted for publication in the workshop proceedings. The acceptance rate was 54%.

We would like to thank ICFEM 2020 for supporting the organization of the virtual meeting and all of the Program Committee members for their great efforts and cooperation in reviewing and selecting the papers. We would also like to thank all the participants for attending presentation sessions and actively joining discussions at the workshop. Finally, our gratitude goes to the editors, Anna Kramer and Guido Zosimo-Landolfo at Springer, for their continuous support in publishing the workshop proceedings.

March 2021

Jinyun Xue
Fumiko Nagoya
Shaoying Liu
Zhenhua Duan

Organization

General Chairs

Shaoying Liu	Hiroshima University, Japan
Zhenhua Duan	Xidian University, China

Program Co-chairs

Fumiko Nagoya	Nihon University, Japan
Jinyun Xue	Jiangxi Normal University, China

Program Committee

Busalire Emeka	Hosei University, Japan
Colin Fidge	Queensland University of Technology, Australia
Huaikou Miao	Shanghai University, China
Kazuhiro Ogata	JAIST, Japan
Shengchao Qin	Teesside University, UK
Shin Nakajima	National Institute of Informatics, Japan
Wuwei Shen	Western Michigan University, USA
Xinfeng Shu	Xi'an University of Posts and Telecommunications, China
Yuting Chen	Shanghai Jiao Tong University, China
Zhen You	Jiangxi Normal University, China
Zhuo Cheng	Jiangxi Normal University, China

Contents