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Osman Hasan · Frédéric Mallet (Eds.)

Formal Techniques for Safety-Critical Systems

7th International Workshop, FTSCS 2019
Shenzhen, China, November 9, 2019
Revised Selected Papers

Springer

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Preface

This volume contains the proceedings of the 7th International Workshop on Formal Techniques for Safety-Critical Systems (FTSCS 2019), held in Shenzhen, China, on November 9, 2019, as a satellite event of the ICFEM conference.

The aim of this workshop is to bring together researchers and engineers who are interested in the application of formal and semi-formal methods to improve the quality of safety-critical computer systems. FTSCS strives to promote research and development of formal methods and tools for industrial applications, and is particularly interested in industrial applications of formal methods. Specific topics include, but are not limited to:

- Case studies and experience reports on the use of formal methods for analyzing safety-critical systems, including avionics, automotive, medical, and other kinds of safety-critical and QoS-critical systems
- Methods, techniques, and tools to support automated analysis, certification, debugging, etc., of complex safety/QoS-critical systems
- Analysis methods that address the limitations of formal methods in industry (usability, scalability, etc.)
- Formal analysis support for modeling languages used in industry, such as AADL, Ptolemy, SysML, SCADE, Modelica, etc.
- Code generation from validated models

The workshop received 16 regular and 1 tool paper submissions. Based on the reviews and extensive discussions, the Program Committee selected 6 regular papers, 1 tool paper, and 1 work-in-progress paper for presentation at the workshop and inclusion in this volume. Another highlight of the workshop was an invited talk by Sofiène Tahar on "Formal Verification of Cyber-Physical Systems." We organized the discussion into three sessions. One specifically on avionic and spacecraft domain. The second one on a wider range of application domains including transportation, circuits, and medical applications. The last one included work-in-progress and tool papers.

Many colleagues and friends have contributed to FTSCS 2019. We thank Sofiène Tahar for giving an excellent invited talk and the authors who submitted their work to FTSCS 2019 and who, through their contributions, made this workshop an interesting event. We are particularly grateful that so many well-known researchers agreed to serve on the Program Committee, and that they provided timely, insightful, and detailed reviews. We also thank the editors of *Communications in Computer and Information Science* for agreeing to publish the proceedings of FTSCS 2019 as a volume in their series, and Shengchao Qin and Lijun Zhang for their help with the local arrangements.

March 2020

Osman Hasan
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Contents