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# Fundamentals of Software Engineering

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Revised Selected Papers

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# Preface

The increasing complexity of software and hardware systems and their ever more central role in society poses many challenges concerning their reliability, safety, correctness, and robustness. Based on a variety of fundamental concepts from theoretical computer science to formal methods techniques aimed at making a significant contribution to better quality systems. The development and use of formal methods aspire to mathematically sound methods and tools for system analysis and verification.

The present volume contains the post-proceedings of the 8th IPM International Conference on Fundamentals of Software Engineering (FSEN 2019), which was held in Tehran, Iran, during May 1–3, 2019. This two-yearly event is organized by the School of Computer Science at the Institute for Research in Fundamental Sciences (IPM) in Iran. The topics of interest in FSEN span over all aspects of formal methods, especially those related to advancing the application of formal methods in the software industry and promoting their integration with practical engineering techniques.

The Program Committee of FSEN 2019 consisted of 44 top researchers from 17 countries. In this edition of FSEN, 47 submissions were received from 19 countries. Each submission was reviewed by at least three independent referees, for its quality, originality, contribution, clarity of presentation, and its relevance to the conference topics. After thorough discussions on each individual paper, the referees selected 14 full papers and 3 short papers for inclusion in the present post-proceedings after a further review of their revised versions.

Many people contributed to making FSEN 2019 a success. First of all, we would like to thank all authors that submitted high-quality papers. Special thanks also go to the Institute for Research in Fundamental Sciences (IPM) in Tehran, Iran, for their financial support and for hosting FSEN 2019. We thank the distinguished keynote speakers for their excellent presentations: Rocco De Nicola, Giovanna Di Marzo Serugendo, and Martin Wirsing. We also thank the members of the Program Committee for their excellent contributions, making FSEN a high-quality international conference. Special thanks also go to the general chairs, Farhad Arbab and Hamid Sarbaziazad, and to the Steering Committee, in particular Marjan Sirjani, for their valuable support during all phases of the organization. We also thank the publicity chair Maurice ter Beek for the efficient publicity, the local organization chair Hamidreza Shahrabi and his wonderful team for their fantastic hospitality, as well as EasyChair and Springer for their facilities that greatly helped us run the review process and prepare the proceedings. Finally, we are indebted to all conference attendees for their active and lively participation, also through the presentation of more than 15 posters, ultimately contributing to the success of this special conference series.

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