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Annabelle McIver · Andras Horvath (Eds.)

Quantitative Evaluation of Systems

15th International Conference, QEST 2018
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Proceedings

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Preface

This volume contains the papers presented at QEST 2018: 15th International Conference on Quantitative Evaluation of Systems held during September 4–7, 2018, in Beijing.

QEST is a leading forum on quantitative evaluation and verification of computer systems and networks, through stochastic models and measurements. This year's QEST was part of the CONFESTA event, which brought together the Conference on Concurrency Theory (CONCUR), the International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS), the Symposium on Dependable Software Engineering Theories, Tools and Applications (SETTA), as well as QEST. CONFESTA also included workshops and tutorials before and after these major conferences.

As one of the premier fora for research on quantitative system evaluation and verification of computer systems and networks, QEST covers topics including classic measures involving performance and reliability, as well as quantification of properties that are classically qualitative, such as safety, correctness, and security. QEST welcomes measurement-based studies as well as analytic studies, diversity in the model formalisms and methodologies employed, as well as development of new formalisms and methodologies. QEST also has a tradition in presenting case studies, highlighting the role of quantitative evaluation in the design of systems, where the notion of system is broad. Systems of interest include computer hardware and software architectures, communication systems, embedded systems, infrastructural systems, and biological systems. Moreover, tools for supporting the practical application of research results in all of the aforementioned areas are also of interest to QEST. In short, QEST aims to encourage all aspects of work centered around creating a sound methodological basis for assessing and designing systems using quantitative means.

This year's edition of QEST emphasized two frontier topics in research: quantitative information flow for security and industrial formal methods. Each topic was represented by two outstanding keynote speakers. Kostas Chatzikokolakis (École Polytechnique, France) gave a talk on "Quantifying Leakage and the Science of Quantitative Information Flow" and Mark Wallace (Monash University, Australia) spoke on "Constraints and the 4th Industrial Revolution." A special tutorial session providing an overview of machine learning was given by Mark Dras (Macquarie University, Australia). The program also included a joint keynote talk by Moshe Vardi (Rice University, USA).

The Program Committee (PC) consisted of 38 experts and we received a total of 51 submissions. Each submission was reviewed by several reviewers, either PC members or external reviewers. Based on the reviews and the PC discussion phase, 24 full papers were selected for the conference program.

Our thanks go to the QEST community for making this an interesting and lively event; in particular, we acknowledge the hard work of the PC members and the

additional reviewers for sharing their valued expertise with the rest of the community. The collection and selection of papers was organized through the EasyChair Conference System. We are also indebted to Alfred Hofmann and Anna Kramer for their help in the preparation of this LNCS volume, and we thank Springer for kindly sponsoring the prize for the best paper award.

Also, thanks to the local organization team, especially Lijun Zhang, for his dedication and excellent work. Finally, we would like to thank Jane Hillston, chair of the QEST Steering Committee, for her guidance throughout the past year, as well as the members of the QEST Steering Committee.

We hope that you find the conference proceedings rewarding and will consider submitting papers to QEST 2019.

July 2018

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