

Preface

Large software systems are becoming more and more distributed, collaborative, and communication-centered systems. Services in terms of functional and autonomous building blocks and the interactions between them have been established as fundamental concepts to design, implement, and deploy complex systems. Yet, independent of platforms and programming languages, formal methods play a key role in research on complex, service-based systems. They can help us to define unambiguous semantics for the languages that underpin existing infrastructures, facilitate consistency checking of interactions, empower dynamic discovery, and drive the analysis of security and performance properties of applications.

This volume contains the joint proceedings of two initiatives that have been devoted to the formal foundations of complex systems: the WS-FM:FASOCC 2014 and WS-FM/BEAT 2015 workshops.

The 11th International Workshop on Web Services and Formal Methods: Formal Aspects of Service-Oriented and Cloud Computing (WS-FM:FASOCC 2014) brought together researchers working on service-oriented computing, cloud computing, and formal methods in order to catalyze fruitful collaboration. It was part of the WS-FM workshop series that has a strong tradition of attracting submissions on formal approaches to enterprise systems modelling in general, and business process modelling in particular. Previous editions of the WS-FM workshop series took place in Pisa (2004), Versailles (2005), Vienna (2006), Brisbane (2007), Milan (2008), Bologna (2009), Hoboken (2010), Clermont-Ferrand (2011), Tallinn (2012), and Beijing (2013). WS-FM:FASOCC 2014 was planned to be held in Haifa, Israel, co-located with the 12th International Conference on Business Process Management (BPM 2014). However, the continuous uncertainty regarding the situation in southern Israel and Gaza led to a relocation of BPM 2014 and WS-FM:FASOCC 2014, so that the workshop took place September 11–12, 2014, in Eindhoven, The Netherlands.

In 2015, the WS-FM workshop and the International Workshop on Behavioural Types (BEAT) joined forces, resulting in the International Symposium on Web Services, Formal Methods and Behavioural Types (WS-FM/BEAT 2015). Both, WS-FM and BEAT, target the same research setting, i.e., large-scale behavioral software systems. The aim of this joint workshop event was to bring together researchers and practitioners in all aspects of behavioral software systems and their applications, in order to share results, consolidate the community, and discover opportunities for new collaborations and future directions. Previous editions of the BEAT workshop series took place in Lisbon (2011), Rome (2012 and 2014), and Madrid (2013). The first joint edition of the WS-FM and BEAT workshop series, WS-FM/BEAT 2015, took place September 4–5, 2015, in Madrid, Spain. It was part of the “MADRID MEET 2015 Meeting”, which comprised a one-week scientific event with conferences and workshops in the areas of formal and quantitative analysis of systems, performance engineering, computer safety, and industrial critical applications. The program of the

second day of the symposium was shared with that of the 14th International Workshop on Foundations of Coordination Languages and Self-Adaptive Systems (FOCLASA).

The WS-FM:FASOCC 2014 program included keynotes by Giuseppe De Giacomo from the Sapienza Università di Roma, Italy, and Fabrizio Montesi from the University of Southern Denmark, and two sessions with research paper presentations. The WS-FM:FASOCC 2014 workshop attracted a total of 10 submissions, which were each reviewed by at least three members of the Program Committee. Eventually, the committee decided to accept four papers. Further, two of the best papers of the closely related 6th Central European Workshop on Services and Their Composition (ZEUS 2015) were invited to submit extended and revised versions for inclusion in the proceedings. After a review process with the WS-FM:FASOCC 2014 Program Committee, one of these papers was accepted.

The WS-FM/BEAT 2015 program featured keynotes by Cosimo Laneve from the Università di Bologna, Italy, and Javier Esparza from the Technische Universität München, Germany, and four sessions with research paper presentations (including four presentations selected from the submissions to WS-FM/BEAT). The WS-FM/BEAT 2015 workshop attracted a total of six submissions, which were each reviewed by at least three members of the Program Committee. Eventually, the committee decided to accept three papers to include in this volume.

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