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Preface

This volume contains the papers presented at FMICS 2011, the 16th International Workshop on Formal Methods for Industrial Critical Systems, taking place August 29–30, 2011, in Trento, Italy. Previous workshops of the ERCIM Working Group on Formal Methods for Industrial Critical Systems were held in Oxford (March 1996), Cesena (July 1997), Amsterdam (May 1998), Trento (July 1999), Berlin (April 2000), Paris (July 2001), Malaga (July 2002), Trondheim (June 2003), Linz (September 2004), Lisbon (September 2005), Bonn (August 2006), Berlin (July 2007), L'Aquila (September 2008), Eindhoven (November 2009), and Antwerp (September 2010). The FMICS 2011 workshop was co-located with the 19th IEEE International Requirements Engineering Conference (RE 2011).

The aim of the FMICS workshop series is to provide a forum for researchers who are interested in the development and application of formal methods in industry. In particular, these workshops bring together scientists and engineers who are active in the area of formal methods and are interested in exchanging their experiences in the industrial usage of these methods. These workshops also strive to promote research and development for the improvement of formal methods and tools for industrial applications.

Thus, topics of interest for FMICS 2011 include, but are not limited to:

- Design, specification, code generation and testing based on formal methods
- Methods, techniques and tools to support automated analysis, certification, debugging, learning, optimization and transformation of complex, distributed, real-time systems and embedded systems
- Verification and validation methods that address shortcomings of existing methods with respect to their industrial applicability (e.g., scalability and usability issues)
- Tools for the development of formal design descriptions
- Case studies and experience reports on industrial applications of formal methods, focusing on lessons learned or identification of new research directions
- Impact of the adoption of formal methods on the development process and associated costs
- Application of formal methods in standardization and industrial forums

This year, we received 39 submissions. Papers underwent a rigorous review process, and received three or four review reports. After the review process, the international Program Committee of FMICS 2011 decided to select 16 papers for presentation during the workshop and inclusion in these proceedings. The workshop featured two invited talks by Leonardo de Moura (Microsoft Research, USA) and Joost-Pieter Katoen (RWTH Aachen University, Germany); this volume includes two extended abstracts written by our invited speakers.

Following a tradition established over the past few years, the European Association of Software Science and Technology (EASST) offered an award to the best FMICS paper. This year, the reviewers selected the contribution by Thomas Reinbacher, Joerg Brauer, Martin Horauer, Andreas Steininger and Stefan Kowalewski on "Past Time LTL Runtime Verification for Microcontroller Binary Code." Further information about the FMICS working group and the next FMICS workshop can be found at: http://www.inrialpes.fr/vasy/fmics.

We would like to thank the local organizers Anna Perini and Angelo Susi (Fondazione Bruno Kessler - IRST, Trento, Italy) for taking care of all the local arrangements to host FMICS in Trento, the ERCIM FMICS working group Coordinator Alessandro Fantechi (Univ. degli Studi di Firenze and ISTI-CNR, Italy) for guiding us when necessary, Jan Olaf Blech (fortiss GmbH, Germany) for acting as Publicity Chair and coordinating the publication process, EasyChair for supporting the review process, Springer for taking over the publication, all the members of the Program Committee for their great work during the review process, the external reviewers for their participation during the review process of the submissions, all the authors for submitting papers to the workshop, and the authors who participate in the workshop in Trento. All these people contributed to the success of the 2011 edition of FMICS.

August 2011

Bernhard Schätz
Gwen Salaün

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