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Applications and Case Studies

5th International Symposium, ISoLA 2012
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Preface

Welcome to ISoLA 2012, the 4th International Symposium on Leveraging Applications of Formal Methods, Verification and Validation, that was held in Heraklion, Crete (Greece) during October 14–18, 2012, endorsed by EASST, the European Association of Software Science and Technology.

This year's event followed the tradition of its forerunners held 2004 and 2006 in Cyprus, 2008 in Chalkidiki, and 2010 in Crete, and the series of ISoLA Workshops in Greenbelt (USA) in 2005, Poitiers (France) in 2007, Potsdam (Germany) in 2009, and in Vienna (Austria) in 2011.

As in the previous editions, ISoLA 2012 provided a forum for developers, users, and researchers to discuss issues related to the adoption and use of rigorous tools and methods for the specification, analysis, verification, certification, construction, test, and maintenance of systems from the point of view of their different application domains. Thus, since 2004 the ISoLA series of events serves the purpose of bridging the gap between designers and developers of rigorous tools on the one hand, and users in engineering and in other disciplines on the other hand. It fosters and exploits synergetic relationships among scientists, engineers, software developers, decision makers, and other critical thinkers in companies and organizations. By providing a specific, dialogue-oriented venue for the discussion of common problems, requirements, algorithms, methodologies, and practices, ISoLA aims in particular at supporting researchers in their quest to improve the usefulness, reliability, flexibility, and efficiency of tools for building systems, and users in their search for adequate solutions to their problems.

The program of the symposium consisted of a collection of special tracks devoted to the following hot and emerging topics

- Adaptable and Evolving Software for Eternal Systems (R. Hähnle, I. Schäfer)
- Approaches for Mastering Change (M. Leucker, M. Lochau, I. Schäfer)
- Bioscientific Data Processing and Modeling (J. Kok, A.-L. Lamprecht, F. Verbeek, M. Wilkinson)
- Formal Methods for the Development and Certification of X-by-Wire Control Systems (A. Fantechi, F. Flammini, S. Gnesi)
- Handling Heterogeneity in Formal Development of HW and SW Systems (Y. Ait-Ameur, D. Mery)
- Learning Techniques for Software Verification and Validation (E.M. Clarke, M. Gheorghiu Bobaru, C. Pasareanu, D. Song)
- Model-Based Testing and Model Inference (K. Meinke, N. Walkinshaw)
- Processes and Data Integration in the Networked Healthcare (A. Braun v. Reinersdorff, T. Margaria, C. Rasche)
- Process-Oriented Geoinformation Systems and Applications (H. Asche)
- Quantitative Modeling and Analysis (J.-P. Katoen, K.G. Larsen)
- Runtime Verification: The Application Perspective (Y. Falcone, L. Zuck)

- Software Aspects of Robotic Systems (J. Knoop, D. Schreiner)
- Timing Constraints: Theory Meets Practice (B. Lisper, J. Nordlander, P. Quinton)

and of the following four events

- LearnLib Tutorial: From Finite Automata to Register Interface Programs (F. Howar, M. Isberner, M. Merten, B. Steffen)
- The RERS Grey-Box Challenge 2012: Analysis of Event-Condition-Action Systems (F. Howar, M. Isberner, M. Merten, B. Steffen, D. Beyer)
- Linux Driver Verification Workshop (D. Beyer, A. Petrenko)
- ITSy Day 2012 (T. Margaria, B. Steffen)

The ISoLA Symposium was itself part of the ISoLA Week, which signaled the steady growth of the community and included the following four co-located events:

- STRESS 2012 — International School on Tool-Based Rigorous Engineering of Software Systems (P.Chalin, J. Hatcliff, Robby, T. Margaria, B. Steffen)
- SEW 2012 — 35th IEEE Software Engineering Workshop (M. Hinchey, J. Bowen, H. Zhu)
- Graduate/Postgraduate Course on Soft Skills for IT Professionals in Science and Engineering (B. Floyd)
- FRCSS 2012 — 2nd Future Research Challenges for Software and Services (T. Margaria)

We thank the track organizers, the members of the Program Committee and their subreferees for their effort in selecting the papers to be presented, the Local Organization Chair, Petros Stratis, and the Easyconference team for their continuous precious support during the week as well as during the entire two-year period preceding the events, and Springer for being, as usual, a very reliable partner in the proceedings production. Finally, we are grateful to Horst Voigt for his Web support, and to Maik Merten, Johannes Neubauer, and Stephan Windmüller for their help with the online conference service (OCS).

Special thanks are due to the following organization for their endorsement: EASST (European Association of Software Science and Technology), and our own institutions — the TU Dortmund, and the University of Potsdam.

October 2012

Tiziana Margaria
Bernhard Steffen

Organization

Committees

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Program Chair	Tiziana Margaria

Program Committee

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