

Foreword

Mohammad Reza Mousavi^a, Antonio Ravara^b

^a*Center for Research on Embedded Systems (CERES), Halmstad University, Sweden*

^b*Department of Informatics, Faculty of Sciences and Technology,
New University of Lisbon, Portugal*

Welcome to this special issue dedicated to selected papers from FOCLASA 2011, the 10th International Workshop on the Foundations of Coordination Languages and Software Architectures. FOCLASA 2011 was held in Aachen, Germany on September 10th, 2011 as a satellite event of CONCUR 2011, the 22nd International Conference on Concurrency Theory.

The workshop provides a venue where researchers and practitioners could meet, exchange ideas, identify common problems, determine some of the key and fundamental issues related to coordination languages and software architectures, and explore together and disseminate solutions. Indeed, a number of hot research topics are currently sharing the common problem of combining concurrent, distributed, mobile and heterogeneous components, trying to harness the intrinsic complexity of the resulting systems. These include coordination, peer-to-peer systems, grid computing, web services, multi-agent systems, and component-based systems. Coordination languages and software architectures are recognized as fundamental approaches to tackle these issues, improving software productivity, enhancing maintainability, advocating modularity, promoting reusability, and leading to systems more tractable and more amenable to verification and global analysis.

In the 2010 edition, we received 10 submissions involving 33 authors from 12 different countries. Papers underwent a rigorous review process, and all accepted papers received 4 review reports. After the review process, the international Program Committee of FOCLASA 2011 decided to select 5 papers for presentation during the workshop and inclusion in these proceedings. After the workshop, 4 papers were invited to the special issues and underwent (several rounds of) rigorous reviews by 3 experts. The papers were revised substantially according to the review reports provided by the expert reviewers and what you have before you is the special issue comprising 3 excellent contributions that successfully concluded this process and were

recommended in the present form by the reviewers. These papers tackle different issues that are currently central to our community, specification and reasoning frameworks parallel and concurrent systems, systems with linked data, resource-constrained and timed systems and data-flow coordination models. Below, we give a brief overview of these interesting papers and their contributions:

- Ross Horne and Vladimiro Sassone introduce a verified algebra for read-write linked data. Since its use in the World-Wide Web, linked data has gained immense popularity and importance and this calls for a fundamental study of the programs for processing and manipulating it. This paper proposes a formalization of such programs in terms of a calculus with an operational semantics and an equational theory for reasoning about them. For algebraic reasoning a notion of contextual equivalence is introduced and is shown to be reducible to a notion of bisimulation.
- Simon Ware and Robi Malik study an algorithm for deciding a notion of contextual pre-order that relates processes based on their “conflict” with common contexts. A “conflict” of a process with a context is the possibility of deadlock or livelock. Both theoretical complexity bounds and experimental performance of the algorithm are analyzed in the paper.
- Arni Hermann Reynisson, Marjan Sirjani, Luca Aceto, Matteo Cimini, Ali Jafari, Anna Ingolfsdottir, and Steinar Hugi Sigurdarson present Timed Rebeca, which is a timed extension of the actor-based language Rebeca. They give a formal semantics for the introduced timed language and specify several examples in it to show its expressiveness. Moreover, they give an implementation in Erlang and show how simulation of the Erlang implementation can be used to determine the parameters of the Timed Rebeca explanation.

We would like to thank all the members of the program committee for their great work during the review process, the external reviewers for providing insightful review reports, the authors for submitting papers to the workshop, and the participants for attending the workshop in Aachen. All these people contribute to the success of the 2011 edition of FOCLASA.