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Preface

This special issue contains a selection of the papers presented at the “Second International Workshop on Foundations of Coordination Languages and Software Architectures (FOCLASA’03)” held on September 2, 2003, in Marseille, France, as a satellite workshop of the “Fourteenth International Conference on Concurrency Theory (CONCUR’03)”.

The aim of the workshop was to offer a forum to researchers working on the foundations of component-based computing, coordination, and software architectures. The workshop call for papers attracted seventeen submissions, eleven of which were accepted for presentation at FOCLASA’03 and for inclusion in the ENTCS proceedings. The authors of the best five papers, according to the results of the anonymous peer reviews, were invited to submit an extended version of their papers to this special issue. The extended versions of these five papers went through a second round of anonymous peer reviews, and the revised versions of the four papers finally accepted are included in this special issue.

We believe that the papers included in this special issue provide interesting insights on different aspects of coordination and software architectures.

The paper by Arbab et al. introduces an operational model, based on “constraint automata”, to describe the behaviour of anonymous components and to allow their coordinated interaction. The proposed model is applied to Reo, a coordination language based on a calculus of channels that supports the compositional construction of component connectors. The authors show how the theory of constraint automata provides a firm basis for the formal verification of coordination mechanisms as well as for deploying and reasoning about component connectors.

The paper by Lopes and Fiadeiro proposes a new class of architectural connectors to support the incremental and compositional construction of mobile, location-aware software systems. The key feature of these distributed connectors is that they can be superposed over location-transparent models, thus featuring at the architectural level a separation of concerns between distribution, coordination, and coordination issues.

The paper by Brogi et al. features a formal analysis of adaptor specifications, and of their relevance to implement components-in-the-middle capable of overcoming behavioural mismatches between heterogeneous software components. A formal semantics of adaptor specifications is defined and used to characterise different aspects of software adaptation, including flexible sub-servicing, adaptation trading, and hard requirements.

The paper by Linden et al. presents a systematic study of the introduction of the notion of time in coordination models, featured by industrial coordination frameworks such as TSpaces or JavaSpaces. The authors analyse the expressive power obtained by introducing two notions of time (relative and absolute time) and different programming constructs (delay, deadlines, wait, time intervals) in Linda-like languages. The comparative study of those different extensions leads to identifying a most expressive language, the implementation of which is described.

Many people have contributed to realizing this special issue. Besides the authors of the papers, we would like to thank the other members of the Program Committee of the workshop: Farhad Arbab (CWI, The Netherlands), Manfred Broy (University of Munich, Germany), Paola Inverardi (University of L’Aquila, Italy), Joost Kok (University of Leiden, The Netherlands), Antonio Porto (New University of Lisbon, Portugal), Catalin Roman (Washington University, USA) and Pamela Zave (AT&T Labs Research, USA). Our thanks go also to the other anonymous reviewers who kindly accepted to help us with the selection of the papers.

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