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Walden, Marina

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NWPT 2017 - Special issue

March 31, 2019

Guest Editor's Foreword

This special issue of the Journal of Logic and Algebraic Methods in Programming (JLAMP) is devoted to revised full versions of selected papers from the 29th Nordic Workshop on Programming Theory (NWPT 2017). The workshop took place in Turku, Finland, during 1-3 November 2017.

The NWPT series of annual workshops is a forum bringing together researchers in programming theory from the Nordic and Baltic countries, but also from elsewhere, in order to improve mutual contacts and co-operation. Since 1997 each workshop in the series has been followed by a special issue of a journal, and since 2006 the special issues have appeared in JLAMP.

NWPT 2017 attracted 32 participants from Denmark, Norway, Sweden, Estonia and Finland. The scientific programme of the workshop consisted of three invited talks by Professor John Hughes, Professor Marieke Huisman and Professor Marjan Sirjani, as well as of 21 contributed papers. This special issue includes eight articles representing the contributed papers of the workshop. The selection reflects the range of topics presented at NWPT 2017.

Two articles deal with testing issues. In one of them a technique to improve model-based testing by model-level fault injections and simulations is presented, while the other paper explores how a suite of test cases can be generated automatically using a formal Coloured Petri Net model for the test cases to cover normal operation of the protocol, as well as failure injection. Petri-nets are also in the focus in another article where improved versions of partial and structural order reduction techniques are suggested for reachability analysis of Petri-nets. How to make the model checking and synthesis problem for weighted CTL decidable is also investigated by some of the authors. One of the articles proposes a technique for estimating the computational time of programs in an actor model. Furthermore, the expressiveness

of Featured Transition Systems is combined with the compositionality of semantic refinement and parallel composition in Modal Transition Systems for modelling and analysing behavioural variability in another paper. Factors such as expressiveness, efficiency, as well as syntactic and semantic complexity of the future mechanism for distributed systems are evaluated to design and prove the systems correctly. A weak memory model using operational semantics to prove that data-race free programs behave in a sequentially consistent manner is also presented.

We would like to thank all the authors of the articles in this special issue for their commitment and for publishing their research in this forum. Moreover, we are very grateful to all the reviewers for their hard work in ensuring the quality of this special issue. We would like to thank the *Åbo Akademi University Foundation* and the *City of Turku* that sponsored NWPT 2017. We are also grateful to the technical and administrative support provided by the Department of Information Technologies at *Åbo Akademi University* and by *Turku Centre for Computer Science (TUCS)* in organizing the event.

Marina Waldén
Department of Information Technologies
Åbo Akademi University
Finland
E-mail address: *marina.walden@abo.fi*