High-Level Koutny Net

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Abstract

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This issue is dedicated to Professor Maciej Koutny for celebrating his 60th birthday. We celebrate Maciej not only for his 60th birthday, but also as an excellent researcher and a very good friend. There are five contributions written by his friends and collaborators. Each contribution has been carefully read through by at least two reviewers, and this improved the already high-quality articles.

Many thanks to all of them, authors and reviewers!

Maciej Koutny is a Professor of Computing Science in the School of Computing at Newcastle University. He received his MSc and PhD in Applied Mathematics from the Warsaw University of Technology. Then Maciej joined the Computing Laboratory of the Newcastle University in UK, where he is now the director of research in the School of Computing.

Professor Maciej Koutny is a very active member of the Petri Net community, being currently the chair of the International Petri Net Steering Committee. He has investigated various semantics of Petri nets (causality semantics, step traces), synthesis and verification of Petri nets, model checking based on net unfoldings. Some of his work is devoted to the unification of Petri nets and process algebras, to the relationship between temporal logics and process algebras, as well as to modelling mobile and dynamic systems. He is also involved in scientific communities related to membrane computing and reaction systems representing novel models of computation inspired by the functioning of the living cells. He has been working on their

development by combining Petri nets semantics with the special features of membrane and reaction systems.

As a recognition of his research activity, Maciej is the editor-in-chief of the LNCS Transactions on Petri Nets and Other Models of Concurrency, and a member of the editorial boards of Scientific Annals of Computer Science, Natural Computing and Le Matematiche. He was the Programme Committee chairman for many conferences including ICATPN'01, ACSD'08, CHINA'08, MeCBIC'10 and CONCUR'12. He is also a member of EATCS and IFIP Working Group on Description of Programming Concepts. Maciej Koutny was invited as a visiting professor in many universities: Pascal Chair at Leiden University, Xidian University (China), University of Evry, University Paris 12, and Nicolaus Copernicus University in Torun (Poland).

Maciej Koutny is widely regarded as an excellent researcher, publishing an impressive number of articles (over 200 papers), and having a large number of citations. He has a great number of international collaborators, and a high visibility.

The articles of this issue are on subjects related to Maciej's technical contributions on topics like distributed and concurrent systems (in particular Petri nets), semantics of concurrent systems (causality semantics, step traces), synthesis of concurrent systems (Petri nets). They include both theoretical aspects and applications.

In the first article, Hanna Klaudel together with her co-authors Clément Bertrand, Frédéric Peschanski and Matthieu Latapy present a new timed automaton with finite memory. It is also presented a recognition algorithm that uses structures similar to tokens in high-level Petri nets and includes nondeterminism and concurrency.

The authors of the second contribution are Eike Best, Raymond Devillers, Uli Schlachter and Harro Wimmel. They describe the theory behind some algorithms solving the simultaneous synthesis problem for choice-free Petri nets.

In the third article, Ryszard Janicki, Jetty Kleijn and Łukasz Mikulski propose a new classication of the step alphabets, and provide a precise characterization of step traces and their concurrent histories.

The authors of the forth article, namely Wojciech Penczek together with Artur Niewiadomski, Piotr Switalski and Teofil Sidoruk compare seven SMT-solvers to encode and solve two NP-complete problems (bounded Post correspondence problem, and extended string-to-string correction problem), as well as the towers of Hanoi puzzle.

In the final contribution, Walter Vogler and Ayleen Schinko present fault-free refinements for interface automata. Interface automata represent an abstract model which describes how a system component performs input actions, locally controlled outputs and internal actions.

I had the privilege of working with Maciej, enjoyed several inspiring conversations and intensive weeks of investigating some ideas. It was a pleasure to collaborate scientifically with Maciej. He has deep knowledge of his field and a strong will to discover something new, to solve the problems and bring them to a result. He is a very gifted researcher and also efficient and reliable. I appreciate Maciej's friendship very much, and I am grateful for all the knowledge and good times we have shared. All my best wishes, and many brilliant ideas and scientific results for the years to come!