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Preface by Editor-in-Chief

This is the first volume in a new Journal entitled "LNCS Transactions on Petri Nets and Other Models of Concurrency (ToPNoC)". The volume contains revised and extended versions a selection of the best papers from the workshops at the "28th International Conference on Application and Theory of Petri Nets and Other Models of Concurrency", which took place in Siedlce, Poland, June 25–29, 2007.

As Editor-in-Chief of ToPNoC, I would like to thank the two editors of this special issue: Wil van der Aalst and Jonathan Billington. Moreover, I would like to thank all authors, reviewers, and the organizers of the workshops that served as a basis for this first ToPNoC volume.

August 2008

Kurt Jensen
Editor-in-Chief
LNCS Transactions on Petri Nets and Other Models of Concurrency (ToPNoC)

LNCS Transactions on Petri Nets and Other Models of Concurrency: Aims and Scope

ToPNoC aims to publish papers from all areas of Petri nets and other models of concurrency ranging from theoretical work to tool support and industrial applications.

The foundation of Petri nets was laid by the pioneering work of Carl Adam Petri and his colleagues in the early 1960s. Since then, an enormous amount of material has been developed and published in journals and books and presented at workshops and conferences.

The annual International Conference on Application and Theory of Petri Nets and Other Models of Concurrency started in 1980. The International Petri Net Bibliography maintained by the Petri Net Newsletter contains close to 10,000 different entries, and the International Petri Net Mailing List has 1,500 subscribers. For more information on the International Petri Net community, see: http://www.informatik.uni-hamburg.de/TGI/PetriNets/

All issues of ToPNoC are LNCS volumes. Hence they appear in all large libraries and are also accessible in LNCS Online (electronically). Simultaneously the ToPNoC volumes form a Journal, and it is possible to subscribe to ToPNoC without subscribing to the rest of LNCS.

ToPNoC contains:

- Revised versions of a selection of the best papers from workshops and tutorials at the annual Petri net conferences
- Special sections/issues within particular subareas (similar to those published in the *Advances in Petri Nets* series)
- Other papers invited for publication in ToPNoC
- Papers submitted directly to ToPNoC by their authors

Like all other journals, ToPNoC has an Editorial Board, which is responsible for the quality of the journal. The members of the board assist in the reviewing of papers submitted or invited for publication in ToPNoC. Moreover, they may make recommendations concerning collections of papers proposed for inclusion in ToPNoC as special sections/issues. The Editorial Board consists of prominent researchers within the Petri net community and in related fields.

Topics

System design and verification using nets; analysis and synthesis, structure and behavior of nets; relationships between net theory and other approaches; causality/partial order theory of concurrency; net-based semantical, logical and algebraic calculi; symbolic net representation (graphical or textual); computer tools

for nets; experience with using nets, case studies; educational issues related to nets; higher level net models; timed and stochastic nets; and standardization of nets.

Applications of nets to different kinds of systems and application fields, e.g.: flexible manufacturing systems, real-time systems, embedded systems, defence systems, biological systems, health and medical systems, environmental systems, hardware structures, telecommunications, railway networks, office automation, workflows, supervisory control, protocols and networks, the Internet, e-commerce and trading, programming languages, performance evaluation, and operations research.

For more information about ToPNoC, please see: www.springer.com/lncs/topnoc

Submission of Manuscripts

Manuscripts should follow LNCS formatting guidelines, and should be submitted as PDF or zipped PostScript files to ToPNoC@cs.au.dk. All queries should be addressed to the same e-mail address.

LNCS Transactions on Petri Nets and Other Models of Concurrency: Editorial Board

Preface by Guest Editors

This inaugural issue of ToPNoC contains revised and extended versions of a selection of the best papers from the workshops held at the 28th International Conference on Application and Theory of Petri Nets and Other Models of Concurrency, which took place in Siedlce, Poland, June 25–29, 2007. The best papers were selected in close cooperation with the chairs of the workshops, and their authors were invited to submit improved and extended versions. After a rigorous review process we selected the 13 papers in this first issue.

We are indebted to the Program Committees of the workshops and in particular the workshop chairs. Without their competent and enthusiastic work this volume would not have been possible. Many members of the PCs participated in reviewing the revised and extended papers considered for this issue.

Papers from the following workshops were considered when selecting the best papers:

- The Workshop on Teaching Concurrency (TeaConc'2007) organized by Luis Gomes (Portugal) and Søren Christensen (Denmark).
- The International Workshop on Petri Nets and Software Engineering (PNSE'07) organized by Daniel Moldt (Germany), Fabrice Kordon (France), Kees van Hee (The Netherlands), José-Manuel Colom (Spain), and Rémi Bastide (France).
- The Workshop on Petri Net Standards 2007 organized by Ekkart Kindler (Denmark) and Laure Petrucci (Paris).
- The International Workshop on Formal Approaches to Business Processes and Web Services (FABPWS'07) organized by Kees van Hee, Wolfgang Reisig, and Karsten Wolf.
- The Workshop on Unfolding and Partial Order Techniques (UFO'07) organized by Eric Fabre (France) and Victor Khomenko (UK).

Thanks to the support of the workshops chairs and their PC members, we were able to select a set of high-quality papers. Moreover, we also invited a paper based on the tutorial "Elasticity and Petri nets" given in Siedlce.

All invited papers were reviewed by three or four referees. We followed the principle of also asking for "fresh" reviews of the revised papers, i.e., from referees who had not been involved initially in reviewing the papers. Some papers were accepted or rejected after the first round of reviewing while the authors of others were asked to make a major revision which was then accepted or rejected after a second round of reviewing. We thank the reviewers and authors for doing an outstanding job.

In the end 13 papers were accepted out of the 17 initially considered as best papers. (Note that the workshops accepted about 50 papers in total and that the number of submissions to these workshops was considerably higher.)

The first four papers of this issue originated from the Workshop on Teaching Concurrency. "Constructive Alignment for Teaching Model-Based Design for Concurrency" by Claus Brabrand, "Teaching Modelling and Validation of Concurrent Systems using Coloured Petri Nets" by Lars Kristensen and Kurt Jensen, and "Teaching Concurrency Concepts to Freshmen" by Holger Hermanns and Christian Eisentraut provide interesting views on teaching concurrency-related topics and show that more research into the way that we teach concurrency is justified. In "TAPAs: a Tool for the Analysis of Process Algebras", Francesco Calzolai et al. present a tool for the analysis of concurrent systems and report their experiences with using this tool in teaching.

The next six papers were originally presented at the PNSE workshop. Kristian Lassen and Boudewijn van Dongen report on a new form of process discovery where explicit causalities in the form of Message Sequence Charts are taken into account in "Translating Message Sequence Charts to Other Process Languages Using Process Mining". The paper "Net Components for the Integration of Process Mining into Agent-Oriented Software Engineering", by Lawrence Cabac and Nicolas Denz, uses an original combination of two Petri-net-based tools, Renew and ProM, to link agents and mining.

Dahmani Djaouida et al. present a Petri-net variant incorporating time, give formal semantics, and propose an analysis technique in their paper "Time Recursive Petri Nets".

In "Designing Case Handling Systems" Kees van Hee et al. combine Petri nets, XML, and the relational data model to describe and enact case handling processes. Isaac Corro Ramos and his co-authors focus on testing systems with a known process structure in "Model-Driven Testing Based on Test History". They investigate both exhaustive testing and a statistical release procedure.

The paper "Assessing State Spaces Using Petri-Net Synthesis and Attribute-Based Visualization" by Eric Verbeek et al. focuses on the visualization of state spaces which are too large to show as a classical graph. Moreover, regions are used to extract the labeling structure needed for this visualization.

The next two papers were originally presented at the UFO workshop. Motivated by automated planning problems, Blai Bonet et al. present an analysis approach that combines Petri net unfolding with artificial intelligence heuristics to improve the performance of searching for a goal state in "Directed Unfolding of Petri Nets". In their paper, "McMillan's Complete Prefix for Contextual Nets", Paolo Baldan et al. present a new algorithm that allows for unfolding a larger class of contextual nets (i.e., Petri nets with test arcs) where the unfolding is again a contextual net.

Finally, "Elasticity and Petri Nets" by Jordi Cortadella et al. describes methods for modelling, performance analysis, and optimization of elastic systems using (extended) marked graphs.

The above 13 papers cover a wide range of concurrency-related topics ranging from process mining and performance analysis to verification and model checking in application domains that include the design of hardware systems and business process management. Insight is also gained into how concurrency topics can be

taught at tertiary level. Therefore, this volume provides a useful blend of theory, practice and tools related to concurrency research.

August 2008

Wil van der Aalst
Jonathan Billington
Guest Editors, Inaugural Issue of ToPNoC

Organization of This Issue

Guest Editors

Wil van der Aalst, The Netherlands
Jonathan Billington, Australia

Co-chairs of the Workshops

Luis Gomes (Portugal)
Søren Christensen (Denmark)
Daniel Moldt (Germany)
Fabrice Kordon (France)
Kees van Hee (The Netherlands)
José-Manuel Colom (Spain)
Rémi Bastide (France)
Ekkart Kindler (Denmark)
Laure Petrucci (Paris)
Wolfgang Reisig (Germany)
Karsten Wolf (Germany)
Eric Fabre (France)
Victor Khomenko (UK)

Referees

Joao Paulo Barros
Remi Bastide
Carmen Bratosin
Didier Buchs
Piotr Chrzastowski -Wachtel
Gianfranco Ciardo
José-Manuel Colom
Philippe Darondeau
Jörg Desel
Boudewijn van Dongen
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