Preface

These are the proceedings of the International Workshop on Petri Nets and Software Engineering (PNSE’13) in Milano, Italy, June 24–25, 2013. It is a co-located event of Petri Nets 2013, the 34th international conference on Applications and Theory of Petri Nets and Concurrency.

More information about the workshop can be found at

http://www.informatik.uni-hamburg.de/TGI/events/pnse13/

For the successful realisation of complex systems of interacting and reactive software and hardware components the use of a precise language at different stages of the development process is of crucial importance. Petri nets are becoming increasingly popular in this area, as they provide a uniform language supporting the tasks of modelling, validation, and verification. Their popularity is due to the fact that Petri nets capture fundamental aspects of causality, concurrency and choice in a natural and mathematically precise way without compromising readability.

The use of Petri Nets (P/T-Nets, Coloured Petri Nets and extensions) in the formal process of software engineering, covering modelling, validation, and verification, will be presented as well as their application and tools supporting the disciplines mentioned above.

The program committee consists of:

- Wil van der Aalst (The Netherlands)
- Kamel Barkaoui (France)
- Didier Buchs (Switzerland)
- Lawrence Cabac (Germany)
- Piotr Chrzastowski-Wachtel (Poland)
- Gianfranco Ciardo (USA)
- José-Manuel Colom (Spain)
- Jörg Desel (Germany)
- Raymond Devillers (Belgium)
- Jorge C.A. de Figueiredo (Brasilia)
- Giuliana Franceschinis (Italy)
- Luís Gomes (Portugal)
- Stefan Haar (France)
- Serge Haddad (France)
- Xudong He (USA)
- Kees van Hee (The Netherlands)
- Thomas Hildebrandt (Danmark)
- Kunihiko Hiraishi (Japan)
- Vladimír Janonšek (Czech republic)
- Gabriel Juhás (Slovakia)
- Peter Kemper (USA)
- Astrid Kiehn (India)
There is one invited talk by Andrea Omicini and Stefano Mariani from Alma Mater Studiorum–Università di Bologna, Italy. We received 25 high-quality contributions. For each paper three to four reviews were made. The program committee has accepted six of them for full presentation. Furthermore the committee accepted six papers as short presentations and two short papers. Two more contributions were accepted as posters.

The international program committee was supported by the valued work of Edmundo López Bóbeda, Görkem Kilinc, Reng Zeng, Benoît Barbot, Alexis Marechal and Artur Meski as additional reviewers. Their work is highly appreciated.

Furthermore, we would like to thank our colleagues in the local organization team at the University of Milano Bicocca, Italy, for their support.

Without the enormous efforts of authors, reviewers, PC members and the organizational team this workshop wouldn’t provide such an interesting booklet.

Thank you,
Daniel Moldt and Heiko Rölke  
Hamburg, June 2013
Contents

PNSE’13 Proceedings

Part I PNSE’13: Invited Talk

Coordination for Situated MAS: Towards an Event-driven Architecture
Andrea Omicini and Stefano Mariani ........................................ 17

Part II PNSE’13: Long Presentations

A Canonical Contraction for Safe Petri Nets
Thomas Chatain and Stefan Haar ........................................... 25

Symbolic verification of ECA rules
Xiaoqing Jin, Yousra Lembachar and Gianfranco Ciardo ............. 41

Soundness of Workflow Nets with an Unbounded Resource is Decidable
Vladimir A. Bashkin and Irina A. Lomazova .............................. 61

Modeling Distributed Private Key Generation by Composing Petri Nets
Luca Bernardinello, Görkem Kilinc, Elisabetta Mangioni and Lucia Pomello ................................................................. 77

Integrating Web Services in Petri Net-based Agent Applications
Lawrence Cabac, Tobias Betz, Michael Duvigneau, Thomas Wagner and Matthias Wester-Ebbinghaus ........................................ 97

Petri Nets as a Means to Validate an Architecture for Time Aware Systems
Francesco Fiamberti, Daniela Micucci and Francesco Tisato ............ 117
Part III PNSE’13: Short Presentations

A Framework for Efficiently Deciding Language Inclusion for Sound Unlabelled WF-Nets
Dennis Schunselaar, Eric Verbeek, Wil van der Aalst and Hajo A. Reijers135

Introducing Catch Arcs to Java Reference Nets
Lawrence Cabac and Michael Simon .................. 155

A System Performance in Presence of Faults Modeling Framework Using AADL and GSPNs
Belhassen Mazigh and Kais Ben Fadhel ................ 169

Coloured Petri Nets Refinements
Christine Choppy, Laure Petrucci and Alfred Sanogo .......... 187

Petri Nets-Based Development of Dynamically Reconfigurable Embedded Systems
Tomáš Richta, Vladimír Janoušek and Radek Kočí ............ 203

Decomposing Replay Problems: A Case Study
Eric Verbeek and Wil van der Aalst ..................... 219

Part IV PNSE’13: Short Papers

Building Petri Nets Tools around Neco Compiler
Łukasz Fronc and Franck Pommereau .................. 239

RT-Studio: A Tool for Modular Design and Analysis of Realtime Systems Using Interpreted Time Petri Nets
Rachid Hadjidj and Hanifa Boucheneb .................... 247

Part V PNSE’13: Poster Abstracts

A Tool to Synthesize Intelligible State Machine Models from Choreography using Petri Nets
Toshiyuki Miyamoto and Hiroyuki Oimura .................. 257

Transforming Platform Independent CPN Models into Code for the TinyOS Platform: A Case Study of the RPL Protocol
Vegard Veiset and Lars Michael Kristensen .................. 259