Workshop on Petri Nets and Modeling 2018 (PeMod'2018)

In the context of Modellierung 2018 the PeMod'2018 (Petri Nets and Modeling 2018) workshop addressed trends in modeling, specifically for describing and analyzing complex and flexible systems, processes, and applications. Various fields in informatics developed proven solutions for modeling systems with these characteristics, though not necessarily in an integrated way. Petri nets on the other hand provide concepts for several of these characteristics.

The overall objective of this workshop is to facilitate the exchange between various fields of informatics regarding modeling of complex systems in general and Petri nets specifically, also in the context of more specific topics such as process mining, meta-modeling, self-adaption, simulation models, optimization, verification, validation, etc.

The two submitted and accepted papers are included within these proceedings:

- Hierarchical, Reconfigurable Petri Nets by Julia Padberg and Jan-Uriel Lorbeer
- Visualizing Regions with a new Split-Screen View for the Online Tool travis by Benjamin Meis and Robin Bergenthum

While Petri nets usually have a static system structure the paper of Padberg and Lorbeer propose a dynamic structural adaptation. Adaptation becomes possible by their introduced replacement of transitions by subnets, which are reconfigurable with a local set of rules, being embedded in a set of global rules. Teaching the mutual dependencies of behavioral and synthesized models is addressed by Meis and Bergenthum. The theory of regions is applied to synthesize a k-bounded Petri net model from a reachability graph and the other way around. Doing so they provide a tool that allows the concurrent visualization of states and markings in both models and their dependencies.

Discussions, invited talks and a panel discussion were commonly performed with the joined workshop AQEMO'2018 (2nd International Workshop on the Adequacy of Modeling Methods). The keynote by Bernhard Thalheim addressed foundations and future research challenges of model adequacy based on the the Kiel compendium of models, modeling activities and systematic modeling. Stefan Strecker's keynote related concepts of model evaluation and model quality cross-disciplinarily to linguistics, philosophy of language, and fundamental considerations in other branches of philosophy. The research talk by Mathias Uslar and Sebastian Hanna on a three-dimensional visualization approach for the RAMI 4.0 reference model for Industry 4.0 architectures for reducing efforts in requirements engineering of complex technical solutions complemented the talks of PeMod'2018. The joined workshops were concluded by a panel discussion on challenges and future research questions in the context of model adequacy led by Heinrich C. Mayr.

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