First Call — Call for Model proposal

3rd MODEL CHECKING CONTEST @ PETRI NETS 2013

June 2013
Milano, Italy

http://mcc.lip6.fr

General Chairs:
D. Buchs - *Univ. Geneva, Switzerland*
F. Kordon - *UPMC, France*

Technical Chairs:
A. Linard - *Univ. Geneva, Switzerland*
F. Pommereau - *Univ. Evry, France*

Technical Experts:
PNML: L. Hillah - *UPMC, France*

Contest Committee:
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M. Colange - *UPMC, France*
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C. Rohr - *Univ. Cottbus, Germany*
Y. Thierry-Mieg - *UPMC, France*
K. Wolf - *Univ. Rostock, Germany*

Important Dates:
Call for Models:
November 15, 2012

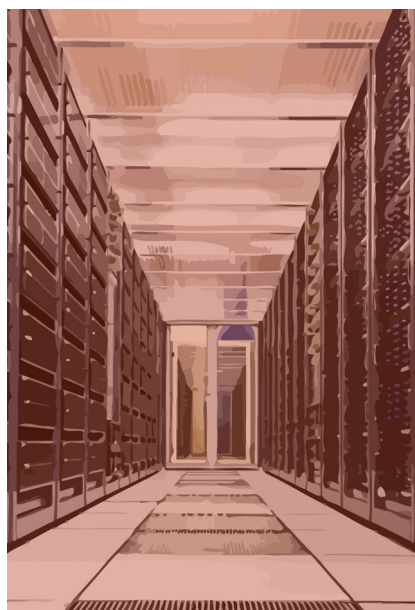**Detailed Procedure and publication of models**:
February 1st, 2013

Tool Submission:
May 1st, 2013

Announcement of results:
June 25, 2013

Objectives. When modeling a system with formal methods, such as Petri Nets, one may have several questions such as: *"To verify highly concurrent systems, should we use a symmetry-based or a partial order-based model checker?"* or *"For models with large variable domains, should we use decision diagram-based, or a symmetry-based model checker?"*
Results that help to answer these questions are spread among numerous papers in numerous conferences. Moreover, as benchmarks are executed over several platforms and composed of different models, conclusions are not easy.
The objective of the Model Checking Contest is to compare the efficiency of techniques according to characteristics of models. To do so, the Model Checking Contest compares tools on several classes of models with scaling capabilities (e.g. values that set up the "size" of the associated state space).
Through the feedback on tools efficiency according to the selected benchmarks, we aim at identifying the techniques that can tackle a given type of problem identified by means of for a given class of problem (e.g. state space generation, deadlock detection, reachability analysis, causal analysis).

Types of Models. Several classes of models will be provided:

- Known models: P/T Nets (1-bounded, k-bounded), and colored Nets (1 and k-bounded per color, with and without non-equal guards on transitions, with and without cartesian product on colors, with and without successor/predecessor functions),

- "Surprise" P/T Nets hat aims at testing tools with their default settings (or "push-button" mode).

All models will be provided as PNML files. The two types of models will be provided with a detailed set of characteristics that tools can exploit when possible. For colored Nets, an equivalent P/T net will be provided.
Important: A first step of the contest consists in a submission of models by the community, following the instructions provided below in this call.

Examinations. Several examinations are proposed:

- State Space Generation: tools will have to generate the state space and provide data on its size,

- Evaluation of properties: tools will have to process satisfiable and unsatisfiable properties. So far, four classes are foreseen: structural (with subclasses such as deadlock, bounds, etc.), reachability, CTL and LTL.

Each examination will be processed for all the scaling values of benchmark models. CPU and memory consumption will be measured, sampled and reported. Formulæ will be provided in a dedicated language for which a BNF in ANTLR format, as well as an XML metamodel is be provided (see the MCC web site).
Tools will have to provide results as well as an identification of the techniques activated during their execution.

First Step – Call for Models. The first step of the Model Checking Contest is a call for model. The community (and not only tool developers) may propose models belonging to one of the categories mentioned above. To do so, please respect the following procedure.

- download the model submission kit at http://mcc.lip6.fr/archives/modelForm.zip and read instructions ;

- fill the DescModel.tex file to provide information on the model, you may (if it has a meaning), provide a picture as a pdf in the model-image.pdf file ;

- Elaborate, for each scaling parameter of your model, the following description files: PNML[a] for the corresponding P/T model (mandatory), PNML for the colored model (if possible), non mandatory properties files for each instance (typically, invariant and bounds) using the format defined in the model description form (you also have to respect the naming convention presented in the instructions) ;

- put all files in a folder, zip it, and send it as an attached document to mcc-contest-committee@systeme.lip6.fr.

Models will be evaluated and selected for the second step (publication of the procedure). The models provided for the 2011 and 2012 editions of the Model Checking Contest will also be used for this edition.

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[a]If help is needed, please contact our PNML technical expert: lom-messan.hillah@lip6.fr