9th IEEE Workshop on Model-Based Development for Computer-Based Systems

Discussion/Workshop Conclusion
Participants

- Jonathan Sprinkle, University of Arizona
- Yessine HadjKacem, CES Lab, Tunisia
- Bernhard Schätz, fortiss GmbH
- George Hwang, University of Arizona
- Menad Četić, University of Novi Sad
- Sean Whitsitt, University of Arizona
- Michael Valenzuela, University of Arizona
- Constanța Bodea, Academy of Economic Studies, Bucharest
- Andrea Leitner, Graz Univ. of Technology
- Matthias Riebisch, University of Hamburg
- Branislav Átlagic, University of Novi Sad
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
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<tbody>
<tr>
<td>11:00</td>
<td>Welcome and introductions</td>
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<tr>
<td></td>
<td><strong>Full Papers</strong></td>
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</tbody>
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| 11:10  | "Model-based approach to development of SCADA application"  
        | Branislav Atlagic                                                    |
| 11:40  | "Using MDE and Priority Time Petri Nets for the schedulability analysis of  
        | Embedded Systems modeled by UML activity diagrams"  
        | Yessine Hadj Kacem, Amina Magdich, Adel Mahfoudhi, Walid Karamti and Chokri Mraidha. |
|        | **Position Papers**                                                   |
| 12:10  | "The challenges of a model transformation language"  
        | Péter Fehér and László Lengyel.                                     |
| 12:40  | "Extending the optimized domain model representation from the problem space to the solution space"  
        | Andrea Leitner, Christian Kreiner and Weiss Reinhold                 |
| 13:10  | Discussion                                                            |
| 13:30  | Conclusion of Workshop                                               |
Specific questions/ideas raised during questions/discussion

• From Paper 1
  – How are system dynamics handled? With MATLAB code (if necessary), but normally considered as a “digital world”.
  – Could be interesting to couple dynamics of the digital I/O, to enable the system to be simulated as cyber-physical
  – Simulation engine does not guarantee “correctness” in dynamics, but is used to inject faults, and determine failure responsiveness

• From Paper 2
  – How rich must the MARTE model (activity model) be in order to ensure the availability of all information to the Timed Petri Net model? According to the MARTE profile is enough, additional information can be inferred.
  – The major contribution is the analysis of timing information, which can be gathered even from the (very) informal activity model

• From Paper 4
  – Addresses fundamental tradeoff in cohesion, vs. ease of specification in desired axis/functionality
  – Overall goal of understanding how to unify feature models and domain-specific models: an interesting one, but perhaps ambitious for PhD work
    • Can benefit from restrictions in the domain space to examine feasibility
Discussion

- Paper 2
- Heterogeneous Models
- Resource Management
- Simulations
- Composition
- Transformations
- Paper 1
- Paper 4
• The layout of intersecting topics is a decomposition as well
  – Decomposition makes individual problems easier to solve, but without composition rules for reassembly, it is not truly an advantage to solve the problems in their decomposed states
• Model heterogeneity is addressed in a few other areas, including
  – The Multi-Paradigm Modeling series of workshops (see for example, http://avalon.aut.bme.hu/mpm10/)
  – Check out Metamodel/Language composition (Ledeczi et al., IEEE Computer 2001)
Next steps

- Please consider continuing discussions with participants
- Look for IEEE MBD of ECBS next year @ ECBS 2013!
- Thanks again to all involved!!