Call for Papers

Editors

Eugene Syriani
syriani@iro.umontreal.ca
University of Montreal, Canada

Manuel Wimmer
manuel.wimmer@jku.at
Johannes Kepler University Linz,
Austria

Editors-in-Chief
Jeff Gray
University of Alabama

Bernhard Rumpe
RWTH Aachen University

Important Dates

Intent to submit	15 Dec 2019
Paper submission	28 Feb 2020
Notification	1 May 2020

Software and Systems Modeling

Theme Issue:
Multi-Paradigm Modeling for Cyber-Physical Systems

We are currently facing a dramatically increasing complexity in software and systems engineering with the emergence of Cyber-Physical Systems (CPS). Comprehensive and systematic views on all aspects of systems (e.g., mechanics, electronics, software, and network aspects) during complete life-cycle are required. In addition, managing inter-disciplinary engineering processes to ensure the construction, delivery, operation, and evolution of high-quality CPS is a must in all industrial domains such as automotive, aerospace, railway, energy and manufacturing to name just a few examples.

Multi-Paradigm Modeling (MPM) offers the foundational infrastructure for gluing the several engineering disciplines together in a consistent way. The inherent complexity of CPS is broken down into different levels of abstraction and views, each expressed in appropriate modeling formalisms. MPM offers processes and tools that can combine, couple, and integrate each of the views that compose a system. MPM encompasses many research topics: from engineering domain-specific languages (including their (visual) syntax and semantics), to processes that support multi-view and multi-abstraction modeling, simulation for system analysis, and efficient deployment. The added complexity of CPS compared to embedded and software-intensive systems requires research on how we can apply or adapt MPM techniques to these new applications, tying together multiple domains.

The *Journal of Software and Systems Modeling* (SoSyM) invites original, high-quality submissions for its theme issue on "Multi-Paradigm Modeling for Cyber-Physical Systems (MPM4CPS)" focusing on topics related to MPM4CPS, including:

- **Heterogeneous models:** multi-domain and multi-physics modeling, multi-view modeling, multi-abstraction modeling.

- **Heterogeneity in modeling languages:** "blended" textual or visual modeling; modular design of modeling languages; modeling, analysis, simulation, or synthesis of user interfaces.

- **MPM techniques:** model transformation; model composition and integration; modeling cross-domain interactions; inconsistency management; (co-)simulation; machine learning in an MPM context.

- **Applications of MPM:** with a focus on CPS in domains such as, but not limited to, automotive, aviation, railway, energy, and manufacturing.

General Author Information

- Papers must be written in a scientifically rigorous manner with adequate references to related work.
- Submitted papers must not be simultaneously submitted in an extended form or in a shortened form to other journals or conferences. It is however possible to submit extended versions of previously published work if less than 75% of the content already appeared in a non-journal publication, or less than 40% in a journal publication. Please see the SoSyM Policy Statement on Plagiarism for further conditions.
- Submitted papers do not need to adhere to a particular format or page limit, but should be prepared using font "Times New Roman" with a font size no smaller than 11 pt, and with 1.5 line spacing. Please consult the SoSyM author information for submitting papers.
- At least three reviewers will review each paper.

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Making a submission

- Communicate your intent to submit a paper by emailing the theme issue editors the following information before the Intent to Submit deadline: Title, Authors, and an Abstract.
- Possible submission formats are:
  - o Word (.doc, without macros)
  - o Rich Text Format (.rtf)
  - o PostScript (.ps, special fonts must be embedded)
  - o PDF (saved as readable in version 5.0 or earlier)
- Submit your work using the online submission system manuscript central:
  - o In step 1, select "Theme Section Paper" as the manuscript type.
  - o In step 4, add "Eugene Syriani and Manuel Wimmer" as editor. Please make sure that the "Recommended" radio button is checked and that you enter "Special Section Editors" into the "Reason" text box before pressing "Add Selected Editor(s)".
  - o In step 5, make sure field "Cover Letter" includes the line: "Submission for Theme Issue on MPM4CPS".

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Further information

If you have any questions or require additional information about this theme issue, please contact the editors.