

Call for Papers
IEEE Transactions on Human-Machine Systems

Special Issue on “Systematic Approaches to Human-Machine Interface: Improving Resilience, Robustness, and Stability”

Remote mission management, unmanned aircraft systems, NextGen operations in the U.S. and its Sesar counterparts in Europe, and other similarly integrated systems of systems include complex human-machine systems with high levels of autonomy and team dynamics that are difficult to understand and analyze. It is important to develop techniques that facilitate a better characterization of the behaviors and performance of these complex systems, first in the lab, and then in the field. Techniques including formal verification, cognitive modeling, and task analysis are being explored in several disciplines. These efforts strive to quantify resilience, robustness, stability, and other properties of these complex systems. This special issue solicits interdisciplinary works that cross the various communities studying these important and complex human-machine interactions. The issue aims to explore key research areas that impact the properties of these systems which rely on varied degrees of human and machine interactions.

Topics of interest include but not limited to:

- Model classes, methodologies, and constructs for modeling human-machine activities in a way that is amenable to formal verification
- Model abstractions for systematic analysis
- Managing authority between humans, autonomy, and model-based reasoning
- Design for explicit reasoning models in the human-machine interaction loop
- Model checking human-machine systems
- Ethical considerations in using verified models to allocate responsibility and authority between humans and machines
- Organizational structures for human-machine collaborative work
- Methods for dynamic model evolution in the presence of learning agents
- Modeling and guaranteeing performance in human-robot interaction

Important Dates:

Paper submission due date	May 1, 2014
Completion of first round of reviews	August 1, 2014
Revised manuscript due date	September 15, 2014
Final decision notification	November 1, 2014
Final version of the manuscript due	December 15, 2014

Papers should be submitted to <http://mc.manuscriptcentral.com/thms> with a cover letter including the statement “This manuscript is submitted for the special issue on Systematic Approaches to HMI improving Resilience, Robustness, and Stability”. For detailed submission information, please refer to “Information for Authors” at <http://www.ieee-smc.org/publications/thms-info-for-authors.pdf>

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