

MSCIAAS'17

M&S of Complexity in Intelligent, Adaptive and Autonomous Systems Symposium

www.duniptech.com/conf/msciaas/

Spring Simulation Multi-conference 2017

APRIL 23 - 26, 2017

Virginia Beach, VA

Organizing Committee

General Chair: **Saurabh Mittal**, smittal@mitre.org

General Co-Chair: **Jose Luis Risco Martin**, jlrisco@ucm.es

Steering and Advisory Committee

Tuncer Ören, Univ. of Ottawa, Canada

Bernard P. Zeigler, University of Arizona, USA

Andreas Tolk, MITRE, USA

Gabriel Wainer, Carleton University, Canada

Heterogeneous systems are the norm today. A system deployed in a netcentric environment eventually becomes a part of a system of systems (SoS). This makes design, analysis and testing for the system-at-hand a complex endeavor in itself. Testing in isolation is not the same as a real-system operation, since the system's behavior is also determined by the input, which evolves from the environment. This exact factor is difficult to predict, due to an ever-increasing level of autonomy. Advanced Modeling and Simulation (M&S) frameworks are required in order to facilitate SoS design, development, testing, and integration. In more particular, these frameworks have to provide methods to deal with intelligent, emergent, and adaptive behavior as well as autonomy.

The subject of emergent behavior and M&S of emergent behaviors takes the center-stage in such systems as it is unknown how a particular system responds in the face of emergent behavior arising out of interactions with other systems. Intelligent behavior is also defined as an emergent property in some complex systems. Consequently, systems that respond and adapt to such behaviors may be called intelligent systems as well.

Complexity is a multi-level phenomenon that exists at structural, behavioral and knowledge levels in such SoS. Emergent behavior is an outcome of this complexity. This track aims to focus on M&S of these aspects of complex SoS engineering and aims to bring researchers, developers and industry practitioners working in the areas of complex, adaptive and autonomous SoS engineering that may incorporate human as an integral part of SoS operations.

Topics

- The cutting edge research is invited in the following topical areas but not limited to:
- Complexity in Structure: network, hierarchical, small-world, flat, etc.
- Complexity in Behavior: Micro and macro behaviors, local and global behaviors, teleologic and epistemological behaviors
- Complexity in Knowledge: ontology design, ontology-driven modeling, ontology-evaluation, ontology transformation, etc.
- Complexity in Human-in-the-loop: artificial agents, cognitive agents, multi-agents, man-in-loop, human-computer-interaction
- Complexity in intelligence-based systems: Situated behavior, knowledge-based behavior,

CALL FOR PAPERS



- memoic behavior, resource-constrained systems, energy-aware systems
- Complexity in adaptation and autonomy
- Complexity in architecture: Flat, full-mesh, hierarchical, adaptive, swarm, transformative
- Complexity in awareness: Self-* (organization, explanation, configuration)
- Complexity in interactions: collaboration, negotiation, greedy, rule-based, environment-based, etc.
- Complexity in Live, Virtual and Constructive environment
- Complexity in Artificial Systems, Social systems, techno-economic-social systems
- Complexity in Model Engineering of complex SoS
- Complexity in Model Specification using modeling languages and architecture frameworks such as UML, PetriNets, SysML, DoDAF, MoDAF, etc.
- Complexity in Simulation environment engineering: distributed simulation, parallel simulation, cloud simulation, netcentric parallel distributed environments
- Complexity in Testing and Evaluation tools for SoS engineering
- Complexity in Heterogeneity: Hardware/Software Co-design, Hardware in the Loop, Cyber Physical Systems, the Internet of Things
- Metrics for Complexity design and evaluation
- Verification, validation and accreditation of Complexity in SoS
- Application of Complexity aspects in domain engineering: Financial, Power, Robotics, Swarm, Economic, Policy, etc.
- SoS Failure due to Complexity

Submission Guidelines

Contributed papers are maximum of 12 pages long, with a minimum of 6 pages, with single column format. If accepted and presented at the conference papers will be submitted to the ACM Digital Library. Papers must not have appeared before or be pending in a journal or conference with published proceedings, nor may they be under review or submitted to another forum during SpringSim'17 review process. A submission may be rejected for paper presentation, but it may be suggested for submission and presentation as a work in progress or poster. At least one author must register and present the paper/WIP/poster at the symposium. All submissions will be peer reviewed and feedback will be provided.

Please use the paper template provided in the conference website (<http://www.scs.org/springsim>). The use of the template will facilitate the prompt proceedings compilation and submission to the ACM Digital Library.

Important Dates

Workshop Proposal: September 30, 2016
Abstract Submission: October 15, 2016
Abstract Feedback: October 30, 2016
Full paper Submission: December 15, 2016
Notification of Acceptance: January 31, 2017
Camera-ready Paper: February 20, 2017