2015 Annual Simulation (ANSS'15) Symposium

GeneralChair:**Andreas Tolk**, Andreas.Tolk@SimISInc.com
GeneralCo-Chair:**ShafaghJafer**, jafers@erau.edu
Program Chair:**Jose J. Padilla**, jpadilla@odu.edu

The **Annual Simulation Symposium**is the oldest continuously operating simulation symposium within the Society for Modeling and Simulation (SCS). 2015 marks the 47th ANSS anniversary. Since the first ANSS was conducted in 1968, this event has been a forum to exchange ideas, research results, and methods, techniques, and applications among simulation practitioners from industry, government, and academia.

ANSS'15will continue the tradition of presenting state-of-the-art papers, panels, and tutorials high-lightening topics of interest for simulation practitioners and users. The topic list is therefore neither complete nor exclusive, but provides authors a guideline on topics of particular interest identified so far. The program committee welcomes additional ideas and invites everybody to engage our audience with new topics of general interest. We also welcome recommendations on panel topics as well as high-level invited speakers that can address these issues in an engaging style. We want to continue to be the hub for new ideas and applications thereof.

Topics

Traditionally, the guiding topics of **ANSS** come from the domains of System Simulation, Military Simulation, and Emerging Applications. Those guiding topics are:

- Big Data and Simulation
- Social Network Modeling
- Critical Infrastructure Simulation Application
- Healthcare and Medical Simulation
- Simulation in Engineering, Education, Science, and Philosophy
- Simulation for Military Training, Acquisition and Experimentation
- Simulation for Non-military/Reconstruction/Humanitarian Applications
- Conceptual Modeling and Simulation Design
- Model Composition and Simulation Interoperation
- Simulation for Decision Support
- M&S Standardization
- Business and Industry Simulation Applications
- M&S in Avionics

Special Interest Tracks

System Simulation
Emerging Applications
Military Simulation
Hybrid Simulation(Track Chair: Navonil Mustafee) solicits papers that have ventured into applying multiple Simulation techniques (including Operations Research methods) to a particular problem context, wherein the benefits gained from implementing thecombined approach are clearly elucidated. Submissions are encouraged under the following categories:

- Methodology Papers (e.g., frameworks for integration of multiple Simulation/Operations Research techniques).

- Practitioner Papers: (e.g., papers on Simulation practices with case studies that have applied combined approach to problem solving).
- Technology Papers: (e.g., development of integration technologies that enable automation of Simulation/OR techniques).

Unmanned Systems*(Track Chair: Yiannis Papelis):*The utilization of unmanned systems beyond traditional tasks associated with the military has steadily increased to the point that unmanned systems are commonplace. At the same time, the use of aerial, ground and marine unmanned systems in the civilian sector is rapidly increasing and the FAA's impending integration plan of UAS into the national airspace is expected to dramatically increase unmanned aerial system operations. Because of the diversity of these systems as well as the dynamic operational environment, modeling and simulation is critical in testing new ideas, advanced technologies, operational concepts and system effects. This session aims to showcase modeling and simulation driven research that supports aerial, ground and marine unmanned systems.   Authors are encouraged to submit papers on fundamental research as well as application-specific developments. The following is a recommended but not exclusive list of topics:

- Simulation-based design and validation of vehicle control architectures
- Modeling and simulation of UAS integration into the National Airspace
- Using M&S for blending autonomy with operator control
- Simulation of individual and group level guidance and control of unmanned systems
- Using unmanned systems for asset protection – validation through simulation
- Modeling and simulation for Miniature aerial vehicle developments
- Simulation environments for aerial, ground and marine applications
- Transitioning unmanned systems military technology to civilian sectors
- Modeling unmanned system reliability and risk assessment strategies
- Scaling strategies for subscale vehicle performance to full scale environments

Special Interest Group on Practical Visualization (*Track chairs: Andrew Collins and D'an Ball*) Simulation equates to 3D animated graphics to many Modeling and Simulation (M&S) novices, be it a hurricanes path or a combat simulation. However, expert-users rarely focus on these visualizations for analytical insight into their simulation. The current trend is to quantify the simulation results through excessive batch runs that are manipulated into statistical outputs. This approach works fine when you know what you are looking for but what if you don't know? One of the benefits of simulation is the potential discovery of emergent behavior, which is, discovering consequences of micro-level rules at the macro-level. If only quantifiable measures are used to investigate these emergent behaviors then only the emergent behaviors that are apparent within these measures will be seen. Current statistical measures lead to an incredible loss of information about the simulation system, for example see the Anscombe's Quartet (http://en.wikipedia.org/wiki/Anscombe's_quartet). Visual representations can also be manipulated, both intentionally and unintentionally, to overlook some of the flaws of a simulation. This special interest group is interested in research relating these described issues and other practical issues relating to M&S visualization.

Submission Guidelines

Contributed papers are 8-10 pages long. They will be peer reviewed and – if accepted and presented at the conference - submitted to the ACM Digital Library. **Work in Progress papers**are up to 5 pages long. Theywill be peer reviewed and presented at the conference. They are included in the proceedings, but they will not be archived.**Posters** will be peer reviewed and feedback will be provided. If accepted, they will be presented in the poster session of SpringSim'15. Poster authors are required to submit a 300-500 word extended abstract for inclusion in the proceedings, but they will not be submitted to an indexed archive.