

Call For Papers

Journal of Defense Modeling and Simulation: Applications, Methodology, Technology (JDMS)

Special Issue: The Art and Science of Using Live-Virtual-Constructive Simulations for Analysis and Test

Introduction

Distributed environments composed of live, virtual, and constructive (LVC) simulations have been used by the training and experimentation communities for 10+ years. The use of LVC simulation environments is being increasingly examined for potential analytical use, particularly in test and evaluation, because they can increase the density and diversity of represented assets, which improves robustness.

This interconnection of simulated entities, often represented by different levels of realism and fidelity, presents unique and interesting research challenges for both the analyst attempting to leverage this capability and secondly by the simulation architect attempting to produce creditable data from a potentially complex distributed real-time software system.

The analyst is often challenged with practical experimental design issues including a limited set of runs (i.e., small sample sizes) due to, for example, limited availability of pilots and operators (i.e., human subjects) and potential issues with unwanted noise and/or variance being introduced by including too much realism. The simulation architect is challenged with fundamental data consistency issues that arise when the desire to execute in real-time conflicts with the desire to interconnect geographically separated simulations. Additional cross-cutting challenges arise when the desire to reuse existing models and simulations often designed for different purposes are interconnected within the same simulated environment---from the analyst's perspective of "will this affect the experiment?" to the simulation engineer's perspective of "are the models interoperable?"

This special issue seeks papers that advance the use of LVC simulations for analytical purposes beyond traditional uses such as training and strategy evaluation (i.e., CONOPS development). Contributions can include but are not limited to:

- Lessons learned from applying LVC simulation technology for analytical purpose beyond traditional use
- Novel experimental design methods appropriate for LVC simulations that maximize the information obtained from small sample sizes
- LVC simulation architectural issues including interoperability (e.g., DIS, HLA and TENA) and data consistency
- LVC simulation interoperability issues including how to better address the meaning (i.e., semantic) of shared state data between different models and live systems
- Novel approaches to "engineering the simulated environment" by leveraging reusable simulation frameworks
- Systems engineering processes, methods and/or tools that define a framework for the design of LVC experiments

Papers submitted should not be concurrently under review at another conference, journal or similar venue.

Instructions for Manuscript Preparation

For manuscript formatting and other guidelines, please visit the Author Guidelines for JDMS.

Note: Manuscripts must not have been previously published or be submitted for publication elsewhere. Each submitted manuscript must include title, names, authors' affiliations, postal and e-mail addresses, and a list of keywords. For multiple author submission, please identify the corresponding author.

Due Dates

Full papers due: October 31, 2012

Reviews returned to authors: December 31, 2012

Revised papers due: February 28, 2013

Notification of acceptance: April 30, 2013

Submission of final (revised) papers: May 31, 2013

Expected date of publication: Spring 2014

Submissions for full paper review

All manuscripts must be submitted electronically through the paper submission system to the JDMS Manuscript Submission System. Manuscripts must be formatted in single-column pdf format, double-spaced, and use 12pt fonts. In the title page, author(s) must specifically mark that the paper is intended for this special issue as follows: "The Art and Science of Using Live-Virtual-Constructive Simulations for Analysis".

Final paper submissions

Each final submission must be prepared based on the Simulation journal requirements (see the Author Guidelines for JDMS page).

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