Call For Papers


Special Issue: Modeling and Simulation Technologies to Enhance and Optimize the DoD’s Medical Readiness and Response Capabilities

Introduction

Modeling and Simulation (M&S) technologies have long been used to assist in the testing and evaluation of systems, digitally, before their development takes place, and in the development of training systems to satisfy a range of performance needs. While M&S tools have had considerable success in other domains, their application to medical challenges has been limited. The high operations tempo that the US Military has experienced over the past decade has placed significant demand on the military medical community, from the enlisted ‘medics’ who provide point of injury care to the officer-level nurses, physicians, surgeons, and physicians assistants. These growing demands are seen through increased training and certification requirements, deployment of more complex and sensitive diagnostic and treatment equipment, and the need to assimilate greater amounts of information at the patient care, as well as the strategic planning, level. While modeling and simulation could provide solutions to these challenges, precisely how M&S technologies could do so is still a matter of significant discussion. To help advance this conversation, this special issue of the Journal of Defense Modeling and Simulation is seeking research-based, theory-based, or policy-based manuscripts that focus on one or more of the following aspects of applying Modeling and Simulation tools to medical challenges:

- **Medical Training and Learning Technologies:** Developing and maintaining skills among the personnel of the Military Health System is crucial. This includes both pre-deployment training, certification, and post deployment re-integration training, for both Enlisted and Officer-grade medical practitioners. Modeling and Simulation (M & S)-based training technologies, which include Advanced distributed learning, digital tutoring systems, and virtual reality, should enable health-care personnel to plan, respond, and manage the future medical missions, and should assist medical professionals to maintain clinical knowledge, skills, and certifications.

- **Health Surveillance and Planning Tools:** The US Military continues to expand its efforts into non-kinetic operations to include Stabilization, Security, Transition, and Reconstruction Operations (SSTRO) and Humanitarian Aid / Disaster Relief Operations, while maintaining its traditional combat capabilities. The development and surveillance
of the healthcare landscape of a region of interest forms a cornerstone of the strategy
developed to support these actions. M & S tools can provide a significant increase in the
ability to forecast potential medical risks in a given area, the impact on medical force
readiness, and potential courses of action to mitigate significant, adverse consequences.

- **Healthcare Informatics and Decision Support Systems:** The field of combat
  medicine is dynamic, changing in response to the evolving challenges to which our
  Warfighters are exposed. There is a critical need to optimize the acquisition, storage,
  retrieval, and use of healthcare related information for each patient to ensure consistent
  and timely care. Additionally, the increasingly large data sets that represent an individual
  patient’s health status coupled with the handoffs to different practitioners assisting in
  the treatment, requires M & S tools that facilitate rapid and accurate pattern
  classification and hypothesis testing.

- **Medical Technology Design Tools:** Technology improvements combined with the
  growing range of US Military missions have led to increasingly complex medical
  technology requirements. The complexity of balancing platform performance against
  cost continues to challenge developers and acquisition decision-makers as they struggle
to deliver improved performance against a backdrop of finite resources and increasing
  life-cycle costs. Yet, traditional approaches of design-build-test-redesign are too costly
  and time-consuming to support the short design cycles required. M & S technologies can
  provide a means for rapidly prototyping new technologies as they are designed. These
  technologies would also allow for integration with other types of models (e.g. materiel
  and environmental models) to predict their effects on a proposed medical technology
design.

- **Total Ownership Cost-based Assessment Tools:** Regardless of the M & S capability
developed, the complexity of balancing system performance against cost continues to
challenge developers and acquisition decision-makers as they struggle to deliver
improved performance against a backdrop of finite resources and increasing life-cycle
  costs. M & S tools can help account for costs associated with a platform throughout its
  lifecycle, completing these valuations early in the lifecycle, while managing the risk
  associated with estimating certain cost and performance targets.

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**Instructions for Manuscript Submission**

For manuscript formatting and other guidelines, please visit the [Author Guidelines for JDMS](#) page.

**Submissions for Full Paper Review**
Manuscripts should be prepared and submitted online at the SCS Manuscript Management System. Please note in your online cover letter that your submission is intended for the "Special Issue: Modeling and Simulation Technologies to Enhance and Optimize the DoD’s Medical Readiness and Response Capabilities."

**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, an extended paper, and a list of keywords. For multiple author submission, please identify the corresponding author.

**Due Dates**

- Full papers due: November 30, 2015
- Reviews returned to authors: February 28, 2016
- Revised papers due: April 30, 2016
- Notification of acceptance: July 31, 2016
- Submission of final (revised) papers: August 31, 2016
- Expected date of publication: Winter 2016

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