

2025 ANNUAL MODELING AND SIMULATION CONFERENCE (ANNSIM) - annsim.org

May 26-29, 2025 Complutense University of Madrid, Spain

MODELING AND SIMULATION IN MEDICINE WORKSHOP

Chairs: Prof. Michel Audette, Old Dominion University
Prof. Jerzy Rozenblit, University of Arizona

The past two decades have brought about a dramatic increase in the deployment of simulation-based techniques in medicine, healthcare and human performance models. Simulation scenarios are used extensively for training of medical personnel, students, first responders, and emergency response coordinators. Rapid advances in computer technologies, biomedical engineering, and systems engineering drive the development of cyber-physical systems that serve as simulation-based training platforms. Discrete-event and agent-based models are applied to representing population-based scenarios ranging from clinics to geographical epidemiology scenarios and asking what-if questions for improved outcomes. Physiological processes are modeled and discretized through coupled equations, both in isolation and in integrative physiology contexts. Increasingly, there is also an interest in modeling these processes at several scales, spanning the molecular, to cellular, to tissue and organ-wide scales. However, it is clear that methodological and theoretical foundations need to be strengthened to provide integrated, connected, and cross-cutting solutions for modeling and simulation in medicine, healthcare and human performance optimization. Thus, this meeting will attempt to “connect” researchers, developers, and medical practitioners to define unifying themes conducive to such solutions.

Dates

Paper submission	Jan 19, 2025
Acceptance notification (papers)	March 7, 2025
Camera-ready version	March 26, 2025
Conference Program Announced	April 9, 2025

Topics

The conference will focus on (but is not limited to) the following topical areas:

- Modeling and simulation in medicine: fundamental research
- Training and education
- Care delivery, outcomes, and patient’s safety
- Robotics and its applications in training and “in vivo”
- Life-critical systems
- Systems integration: “connected health”
- Cybersecurity and healthcare
- Human performance and ergonomics models
- Discrete-event and agent-based approaches to healthcare
- Physiological modeling, from single-system to integrative approaches
- Multi-scale modeling and simulation in medicine
- Descriptive anatomical modeling for medical simulation

Papers are solicited to address the above and related areas with focus on both the underlying methodological and theoretical foundations and practical applications.