

## Call for Contributions

**1. Inform the Chair:** with the Title of your Contribution

**2. Submission URL:**

<https://www.ariasubmit.org/conferences/submit/newcontribution.php?event=SIMUL+2021+Special>

Please select Track Preference as **HMSIM**

**3. Note:** *For 2021, all events will be held in a hybrid mode: on site or virtual choices (live, prerecorded videos, voiced presentation slides, and .pdf slides). We hope for better times allowing us to return to the traditional on site scientific events. However, we are ready to adapt any which way the conditions dictate.*

Special track

## **HMSIM: Healthcare and Medical Simulation**

**Chair**

Prof. Dr. Michel A. Audette, Old Dominion University - Norfolk, USA

[maudette@odu.edu](mailto:maudette@odu.edu)

**SIMUL 2021:** The Thirteenth International Conference on Advances in System Simulation

<https://www.aria.org/conferences2021/SIMUL21.html>

October 03 - 07, 2021 - Barcelona, Spain

Medical and healthcare simulation span a variety of areas where medicine converges with Modeling and Simulation (M&S). Computer-based medical simulation emphasizes the application of computers to synthesizing the response of tissues to therapy, which represents a trade-off between fidelity to real tissue response and computational efficiency. High-fidelity medical/surgical simulation is typically used to provide experienced clinicians, including surgeons, with insight on how to optimize treatment of the patient, while high-efficiency simulation emphasizes real-time interactivity for haptics, typically used in conjunction with Virtual Reality (VR) visualization for skill acquisition and training. In both cases, a computer visualization of the anatomy is needed, however in the interactive case based on VR, this visualization must be also responsive in real-time, which presupposes highly efficient therapy models (e.g., cutting models) as well as relatively sparse anatomical models and collision models, where the latter determines where the therapy takes place, in conjunction with the pose of the haptic device. A related research area is the segmentation of medical images that map intensities to tissues and discretization (meshing) that converts tissues to elements.

Healthcare simulation is used to denote two areas that complement the above-described medical simulation. One the one hand, it is used to designate mannequin-based training systems and part-trainers, whose physical implementation is intended to develop proprioceptive understanding of therapies. On the other, this term also represents medical processes at a large scale, such as emergency rooms, and hospitals, to formulate an understanding of bottlenecks in patient treatment and improve efficiencies.

**This track is open to contributions in the following areas in particular, although this is not necessarily an exhaustive list:**

- Simulation for healthcare systems
- Simulation of medical processes
- Simulation for care learning
- Simulation for elderly
- Sensing-based patient simulation
- Haptics-driven interactive simulation
- Predictive simulation

- Simulation training methods
- Age-based healthcare simulation
- Patient surgery simulation
- Therapy simulation
- Simulation patient safety
- Simulation of emergency situations
- Calibration of healthcare simulation tools
- Integrating simulation tools
- Interactive simulation tools

### **Contribution Types**

- Regular papers [in the proceedings, digital library]
- Short papers (work in progress) [in the proceedings, digital library]
- Posters: two pages [in the proceedings, digital library]
- Posters: slide only [slide-deck posted on [www.iaia.org](http://www.iaia.org)]
- Presentations: slide only [slide-deck posted on [www.iaia.org](http://www.iaia.org)]
- Demos: two pages [posted on [www.iaia.org](http://www.iaia.org)]

### **Important Datelines**

Inform the Chair or Coordinator: As soon as you decide to contribute

Submission: August 12, 2021

Notification: August 28, 2021

Registration: September 10, 2021

Camera ready: September 10, 2021

*Note: The submission deadline is somewhat flexible, providing arrangements are made ahead of time with the chair.*

### **Paper Format**

- See: <http://www.iaia.org/format.html>
- Before submission, please check and comply with the editorial rules: <http://www.iaia.org/editorialrules.html>

### **Publications**

- Extended versions of selected papers will be published in IARIA Journals: <http://www.iaiajournals.org>
- Print proceedings will be available via Curran Associates, Inc.: <http://www.proceedings.com/9769.html>
- Articles will be archived in the free access ThinkMind Digital Library: <http://www.thinkmind.org>

### **Paper Submission**

<https://www.iaiasubmit.org/conferences/submit/newcontribution.php?event=SIMUL+2021+Special>

Please select Track Preference as **HMSIM**

### **Registration**

- Each accepted paper needs at least one full registration, before the camera-ready manuscript can be included in the proceedings.
- Registration fees are available at <http://www.iaia.org/registration.html>

### **Contact**

Chair: Michel A. Audette, [maudette@odu.edu](mailto:maudette@odu.edu)

Logistics: [steve@iaia.org](mailto:steve@iaia.org)