

# Medin Seminar Series



Named in recognition of former director Dr. Medin's contribution to IST, UCF and Modeling and Simulation, this series of seminars features authorities on the theory and practice of M&S, with special emphasis on topics that show how to bring theory into practice. Speakers are experts from throughout the simulation community, including academia, government and industry. Seminars at IST are free and open to the public.

February 24, 2015

10:00 AM

PIII, Room 233

Seminars are held at:

Central Florida Research Park  
IST's Partnership II & III Buildings  
3100 Technology Parkway  
Orlando, FL 32826



GUEST SPEAKER

**Dr. Cristian Luciano**

## Virtual and Augmented Reality in Surgical Simulation and Training

Emerging technology of virtual and augmented reality has proved to be efficient in providing outstanding results in healthcare education and performance assessment. This presentation will focus on the latest algorithms for 3D volumetric rendering of medical imagery, collision detection and haptic feedback, physics-based dynamics simulation, human motion tracking, and real-time tissue deformation. These are seamlessly integrated on the versatile multi-sensory simulation platforms known as *ImmersiveTouch*® and *MicrovisTouch*™, which make possible to simulate a plethora of patient-specific open, percutaneous, and microsurgical procedures in diverse specialties. Surgical simulations developed in a multidisciplinary collaboration between the Colleges of Engineering and Medicine at the University of Illinois at Chicago are currently used by surgical training institutions, universities, hospitals, and medical simulation centers in the US and around the world. Finally, the next generation of mixed reality technology to be introduced to the field of healthcare simulation and training will be presented.

**Dr. Cristian Luciano** is a Research Assistant Professor in the Departments of Mechanical and Industrial Engineering, Bioengineering, and Medical Education at the University of Illinois at Chicago, and the Vice-President of Innovation and Product Development at ImmersiveTouch, Inc. His research interest focuses on virtual and augmented reality, medical and scientific visualization, 3D computer graphics, haptics, and image processing. He conducts research, design, development, and commercialization of the patented surgical simulators for medical residency training and pre-operative planning. Dr. Luciano received a Master's in Computer Science, a Master's in Industrial Engineering, and a Ph.D. in Industrial Engineering and Operations Research degrees from the University of Illinois at Chicago.