SCS Keynote Speaker

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Presentation Title: Enhancing Patients' Safety through Simulation Modeling, High Technology, and Human Skills

Presentation Abstract: Healthcare is changing at a very rapid pace. So does its attendant complexity and ever-increasing reliance on high technology support. Simulation in healthcare, where sophisticated, technology-based methods are used in education of healthcare professionals and in treatment of patients, is becoming a recognized branch of knowledge and practice. Such methods require a new generation of engineers, scientists, systems designers, modelers, and physicians to integrate medical and technical domains. This talk will provide an overview of modeling and simulation technologies as applied to healthcare. A historical perspective will be given, followed by the discussion of how simulation helps in gaining professional competency and how it helps improve healthcare outcomes. Systems for support of medical training and clinical practice will be discussed from both engineering and clinical perspectives. Challenges and opportunities for further development of complex simulation-based medical trainers will be presented as well. Examples in the use of simulation and augmented reality to assist in minimally invasive surgical training will be presented. An illustrative design of a surgical training and assessment system that provides sensing and reasoning capabilities in laparoscopy

education will also be shown along with the vision for future use of this technology as a surgical assistant system in the operating room.

Biography: Dr. Jerzy Rozenblit is a University Distinguished Professor and Raymond J. Oglethorpe Endowed Chair in the Electrical and Computer Engineering at The University of Arizona. He also holds a joint appointment in the Dept. of Surgery in the College of Medicine. During his tenure, he has established the Model Based Design Laboratory with major projects in design and analysis of complex, computer based systems, software engineering, and symbolic visualization, and computer guided, minimally invasive surgical training. The projects have been funded by the National Science Foundation, US Army, Siemens, Infineon Technologies, NASA and other entities. Currently, jointly with the Arizona Surgical Technology and Education Center, he is developing computer guided surgical training methods and systems. He has established the Life Critical Computing Systems Initiative intended to improve the reliability and safety of technology in life critical applications. He is a Fellow of the Society for Computer Simulation International.