

# Keynote Speaker

## Virtual Reality: Current Uses in Medical Simulation and Future Opportunities & Medical Technologies that VR can Exploit in Education and Training

---

Richard Satava

University of Washington Medical Center, USA



### ABSTRACT

Virtual reality has gone from research to educational tool to indispensable clinical application in patient care. A brief review of the current status of the use of VR in medicine will provide the springboard for the current gaps that provide future opportunities in simulation as well as an introduction to new advanced technologies that are revolutionizing medicine and which will require VR for educational and training support and clinical applications. Some topics for discussion are virtual patients, cadavers and autopsies, surgical rehearsal, robotic surgery, suspended animation, regeneration and tissue engineering. The challenge: how creatively can VR support these incredible new technologies? The grand challenge ñ how will 3-D stereolithography revolutionize the practice of medicine? Have you bought your Makerbot yet?

### BIO

Richard Satava, MD, FACS, is Professor Emeritus of Surgery at the University of Washington Medical Center

Prior academic positions include Professor of Surgery at Yale University and a military appointment as Professor of Surgery (USUHS) in the Army Medical Corps assigned to General Surgery at Walter Reed Army Medical Center. Government positions included Program Manager of Advanced Biomedical Technology at the Defense Advanced Research Projects Agency (DARPA) and Senior Science Advisor at the US Army Medical Research and Materiel Command in Ft. Detrick, Maryland.

His undergraduate training was at Johns Hopkins University, Medical School at Hahnemann University of Philadelphia, Internship at the Cleveland Clinic, Surgical Residency at the Mayo Clinic, and a Fellowship with a Master of Surgical Research at Mayo Clinic.

He has served on the White House Office of Science and Technology Policy (OSTP) Committee on Health, Food and Safety. He has been a member of numerous committees of the American College of Surgeons (ACS), currently serving on the Committee on Emerging Surgical Technologies and Education (CESTE) and ACS-Accredited Education Institutes (ACS-AEI) and Alliance of Surgical

Specialties for Education and Training (ASSET). He is a past president of the Society of American Gastrointestinal Endoscopic Surgeons (SAGES), the Society of Laparoendoscopic Surgeons (SLS) and the Society of Medical Innovation and Therapy (SMIT). He was on the Board of Governors of the National Board of Medical Examiners (NBME) and is currently on Board of a many surgical societies and on the editorial board of numerous surgical and scientific journals, and active in a number of surgical and engineering societies.

Dr. Satava has been continuously active in surgical education and surgical research, with more than 200 publications and book chapters in diverse areas of advanced surgical technology, including Surgery in the Space Environment, Video and 3-D imaging, Telepresence Surgery, Virtual Reality Surgical Simulation, and Objective Assessment of Surgical Competence and Training and the Moral and Ethical Impact of Advanced Medical Technologies.

During his 23 years of military surgery he has been an active flight surgeon, an Army astronaut candidate, MASH surgeon for the Grenada Invasion, and a hospital commander during Desert Storm, all the while continuing clinical surgical practice. Current research is focused on advanced technologies to formulate the architecture for the next generation of clinical Medicine, education and training.