



Sun

Researchers Receive NSF Grant to Develop System that will Redefine Minimally Invasive Surgery

Tampa, Fla. (October 13, 2010) – Assistant Professor in Computer Science and Engineering Yu Sun and Electrical Engineering Research Assistant Professor Adam Anderson, PI and Co-PI, respectively, have received a three-year \$499,000 NSF grant to develop a cyber-physical system capable of displaying the in vivo surgical area directly onto patients' skin in real-time, high definition.

This research has the potential to revolutionize laparoscopic surgery by giving surgeons virtually transparent skin. The system will display the inside of a patient on the skin through a 3D projector-array and a micro camera cluster, giving the appearance of "transparent skin" and enabling single incision surgery with the visual benefits of open cavity surgery.

"The major difficulty in minimally invasive surgery is the loss of natural visual perception and hand-eye coordination, which results in a higher skill requirement, longer training and actual surgery time. This system will give surgeons an "X-ray" vision experience, since they see directly through the skin, and remove a spatial bottleneck and additional scarring caused by laparoscopes," said Sun.

The broad challenges being addressed in this project are reducing the skill requirements to successfully perform an MIS (minimally invasive surgery); reducing the invasiveness, cost, and duration of MIS; and improving the efficiency of surgery training. The expected outcomes of this research project will be improved dexterity for MIS surgeons and significant economic growth in MIS and other healthcare-related fields with numerous benefits for the nation-at-large.

The University of South Florida is one of the nation's top 63 public research universities and one of only 25 public research universities nationwide with very high research activity that is designated as community engaged by the Carnegie Foundation for the Advancement of Teaching. USF was awarded \$380.4 million in research contracts and grants in FY 2008/2009. The university offers 232 degree programs at the undergraduate, graduate, specialist and doctoral levels, including the doctor of medicine. The USF System has a \$1.8 billion annual budget, an annual economic impact of \$3.2 billion, and serves more than 47,000 students on institutions/campuses in Tampa, St. Petersburg, Sarasota-Manatee and Lakeland. USF is a member of the Big East Athletic Conference.

– USF –

Janet Gillis
Communications & Marketing Officer
USF College of Engineering
813-974-3485
janetgillis@usf.edu