

KEYNOTE TALK
Wednesday, December 2, 2009
1:30PM – 2:30PM / Ballroom 4-5

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Advance Imaging and Visualization for Computer Assisted Interventions: motivation, state-of-art and future challenges

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Abstract

In this talk, I will focus on the problem of design and development of advance imaging and visualization solutions for computer assisted interventions. One major scientific challenge is the recovery and modeling of surgical workflow. The second one is the analysis of large amount of heterogeneous data and their intelligent real-time fusion. The third one is the advanced visualization of such data during focused, high-intensity surgical procedures. In particular, I review the state of art in Medical Augmented Reality, and discuss challenges faced by scientific community in the upcoming years. Throughout this presentation, I use clinical applications and our recent results, obtained in our real-world laboratories within several clinics in Munich, to demonstrate the issues and to provide exemplary paths towards possible solutions. Such examples include real-time Ultrasound/CT registration, Free-Hand SPECT reconstruction, Camera-Augmented Mobile C-arm (CAMC) and HMD based AR for intra-operative visualization and medical training.



Speaker Bio-Sketch: Nassir Navab is a full professor and director of the institute for Computer Aided Medical Procedures (CAMP: <http://campar.in.tum.de>) at Technical University of Munich (TUM) with a secondary faculty appointment at its Medical School. In 2001, while acting as distinguished member of technical staff at Siemens Corporate Research (SCR) in Princeton, he received the prestigious Siemens Inventor of the Year Award for the body of his work in interventional imaging. He had received his PhD from INRIA and University of Paris XI in France and enjoyed two years postdoctoral fellowship at MIT Media Laboratory before joining SCR in 1994. In November 2006, he was elected as a member of board of directors of MICCAI society. He has been serving on the Steering Committee of the IEEE Symposium on Mixed and Augmented Reality since 2001. He is the author of hundreds of peer reviewed scientific papers and over 40 US and international patents. He is proud of his PhD students who have received many prestigious awards including MICCAI young investigator awards (2007 and 2009), best paper awards at ISMAR 2005, VOEC-ICCV 2009, and IPMI Erbsmann award 2007.