laden gemeinsam zum

GASTVORTRAG

Bernhard Preim
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**"Perceptually Motivated 3D Visualization
of Medical Image Data"**

Abstract:

In this talk, I give an overview of perceptually motivated techniques for the visualization of medical image data. These techniques include physics-based lighting and illustrative rendering that incorporate spatial depth and shape cues. In addition, I discuss evaluations that were conducted in order to study the perceptual effects of these visualization techniques as compared to conventional techniques. These evaluations assessed depth and shape perception with depth judgment, orientation matching, and related tasks. This overview of existing techniques and their evaluation serves as a basis for defining the evaluation process of medical visualizations.

Biography:

Bernhard Preim was born in 1969 in Magdeburg, Germany. He received the diploma in computer science in 1994 (minor in mathematics) and a Ph.D. in 1998 from the Otto-von-Guericke University of Magdeburg. In 1999 he moved to Bremen where he joined the staff of MeVis. In close collaboration with radiologists and surgeons he directed the work on "computer-aided planning in liver surgery". In June 2002 he received the Habilitation degree (venia legendi) for computer science from the University of Bremen. Since Mars 2003 he is full professor for "Visualization" at the computer science department at the Otto-von-Guericke-University of Magdeburg, heading a research group which is focussed on medical visualization and applications in surgical education and surgery planning. He authored several textbooks: "Entwicklung interaktiver Systeme" (1999), "Visualization in Medicine" (Co-author Dirk Bartz, 2007), "Interaktive Systeme" (Co-author: R. Dachselt, 2010) and "Visual Computing in Medicine" (Co-author: C. Botha, 2013).

Bernhard Preim founded the working group Medical Visualization in the German Society for Computer Science and served as speaker from 2003-2012. He is currently president of the German Society for Computer- and Robot-Assisted Surgery (www.curac.org). He was Co-Chair and Co-Organizer of the first and second Eurographics Workshop on Visual Computing in Biology and Medicine (VCBM) and is now member of the steering committee of that workshop (www.vcbm.org). He is the chair of the scientific advisory board of ICCAS (International Competence Center on Computer-Assisted Surgery, since 2010), member of advisory board of Fraunhofer Heinrich-Hertz-Institute (since 2008) and member of the advisory board of ISTT (Institute for Surgical Training and Technology) Leipzig (since 2012). He is also regularly a Visiting Professor at the University of Bremen where he closely collaborates with Fraunhofer MEVIS.

Datum: 13. Mai 2016, 10:30 Uhr s.t.
Ort: TU Wien, Favoritenstr. 9, Stiege 1, 5. Stock, Seminarraum E186