KEYNOTE TALK
Wednesday, Nov 8, 2006
9AM-10AM

ISVC 2006: International Symposium on Visual Computing
Lake Tahoe, November 6-8 2006

Visualization in Clinical Practice: Techniques and Challenges

Karel J. Zuiderveld
Vital Images, Inc.

Abstract

Improvements in speed and resolution of CT (Computed Tomography) scanners are currently transforming the practice of medicine. The high-resolution volumetric datasets generated by modern 64-slice CT scanners are not only providing radiologists with better images, but are gradually displacing invasive imaging techniques like coronary angiography and used in new applications like managing trauma patients. The huge datasets generated by CT scanners represent huge challenges to clinical users; the old paradigm of looking at each slice separately simply is not viable anymore. Clinical software optimized for specific applications (like cardiac analysis and virtual colonoscopy) is therefore rapidly gaining popularity because their optimized workflows translate into higher productivity. To develop such applications, a good knowledge of clinical workflow –to understand *which* information clinicians use *when* for *what* purpose– is crucial. My presentation will explain several clinical workflows (notably cardiac analysis) and should help to understand –or rediscover– the sheer magnitude of visualization problems that clinicians are encountering on a daily basis.

Speaker Bio-Sketch: Karel Zuiderveld is Director of Technology Research at Vital Images in Minnetonka, MN. His main research interests are medical imaging, computer graphics, high-performance computing, and software architecture. For more than a decade, Karel occupied offices in the Radiology department of Utrecht University Hospital (NL) where he became passionate about introducing new technologies into clinical routine. After completing his Ph.D. thesis on multi-modality volume visualization, Karel left academia for Vital Images, then a small medical imaging company. Karel developed significant parts of Vital Images' rendering technologies and is nowadays responsible for its technology strategy. Karel holds several US patents and (co)authored over 30 technical articles on topics ranging from Picture Archiving and Communication Systems, 2D image registration, volume rendering and software architecture. Karel is a member of IEEE, RSNA, ECR, ACM, Eurographics as well as several associated societies.