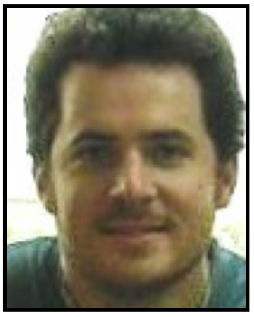

CCT Colloquium Series

Interactive Visualization and Manipulation of OCT Acquired Volumetric In-Vivo Retinal Images

Alfred R. Fuller, University of California, Davis

Ph.D. Candidate

Johnston Hall 338
February 13, 2009 - 11:30 am

Abstract:
We present methods for the efficient visualization and manipulation of volumetric data sets. We focus on the challenges presented by in-vivo retinal images acquired through optical coherence tomography (OCT). These challenges include the low learning curve user interface need to satisfy clinicians, the limited time available in a clinical setting and the quality of tools needed to make accurate diagnoses both clinically and in ophthalmology research. We present a support vector machine (SVM) segmentation approach to quickly and intuitively isolate areas of interest and extract useful metrics. We also present several volumetric annotation techniques that allow the user to add context to the visualization and help bridge the gap between old and new acquisition and visualization techniques. Since OCT acquisition occurs in a curvilinear coordinate system while most volume visualization techniques are restricted to rectilinear coordinates, we have developed additional rendering techniques to provide physically accurate visualizations that preserve data integrity. To increase the conveyance of relevant information about a given data set and improve diagnosis, we have added several important visual cues to our visualization specifically targeted to the needs of in-vivo retinal images in a clinical setting. We have also constructed a volume visualization framework that is extremely scalable to meet the hardware limitations of most clinical or research computers.

Speaker's Bio:
I am a Ph.D. candidate at the University of California, Davis specializing in Computer Visualization and Algorithms. I've received a Masters in Computer Science and a Bachelors in both Computational Physics and Computer Science and Engineering from the University of California, Davis.

Refreshments will be served.
This lecture has a reception.

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