

694L: Data and Information Visualization

Instructor: Raghu Machiraju, Department of Computer Science and Engineering, The Ohio State University

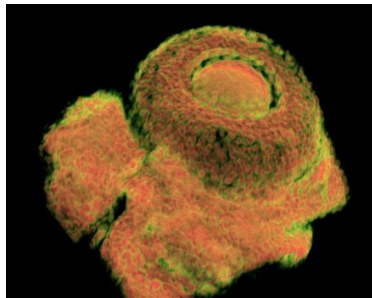
Details: Quarter: *Spring 2009*. Call No. - *21941-0 L*. Time - *T R 0900-1018A*, Venue: *SO 0245 (Campus of The Ohio State University)*. The course will be offered via distance learning technology including live and streaming video and Internet class materials. Students from institutions other than OSU should work with the faculty advisor for the Ralph Regula School to arrange to receive the video.

This course offered under the auspices of the Department of Computer Science and Engineering, and The Ohio State University and the Ralph Regula School of Computational Science, The Ohio Supercomputer Center.

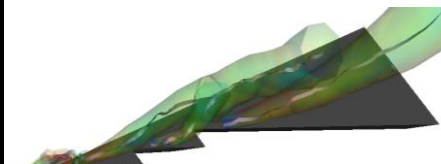
Content: This course will provide a basic introduction to the science and the underlying technology of visualization. The following topics will be studied – the role of perception in visualization, the importance of good design practices, the construction of interactive tools for data and information visualization, and the application of visualization techniques on measured data from the medical and biological sciences and simulated data from the physical sciences and engineering. Scalar and vector data visualization techniques along methods for visualizing trees, clusters, and interconnection networks will be studied. Case studies and examples will be considered giving the course an application-focus. Hands-on programming experience and the design of interfaces will be stressed throughout the class and thereby providing the students a practical emphasis.

Prerequisites: The students will be best served if they possess some basic programming experience. Prior knowledge of C++, or Java, or MATLAB will help the students to gain much from the lectures and examples.

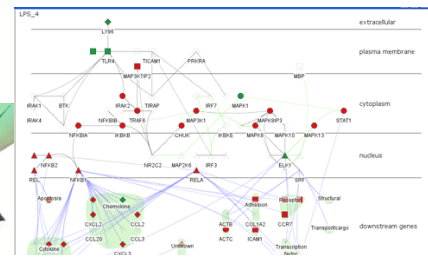
Texts: *Primary* – (i) *Visualizing Data* - Ben Fry, O'Reilly Press, 2007. *Secondary* – (i) *Information Visualization: Perception for Design*, Colin Ware, Morgan Kaufmann, 2005. (ii) Will Schroeder, Ken Martin, Bill Lorensen - *The Visualization Toolkit, An Object-Oriented Approach To 3D Graphics*, Kitware, Inc. 2003.



Confocal Image of the eye of a zebra fish at the cellular level



Vortical structures around a prototypical wing



A typical molecular interaction network (source: Barsky et al., *Bioinformatics* 23(8):1040-2).