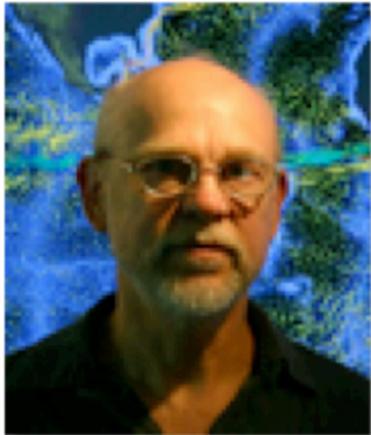


Applied Computer Science Colloquium



Colin Ware
Center for Coastal and Ocean Mapping, University of New Hampshire

Visual Thinking for Data Visualization: Perceptual and Cognitive issues

Tuesday, October 7, 2014

10:00 - 11:00 AM

TA-3, Bldg. 0200, Room 116 (ACL Conference Room)

Abstract: Thinking about data with visualizations is a creative process where some of the action occurs in the brain and some in a computer, with an interactive visual display providing main channel of communication. This talk will introduce key issues relating to the design of perceptually and cognitively efficient systems, including the following: The representation of data so that important patterns can be seen (vector fields will be used as an example). Visual queries, these are aspects of a problem that have been cognitively transformed so progress towards a solution can be accomplished by means of a visual pattern search. I will show how the efficiency of visual queries is strongly constrained by visual working memory capacity. Epistemic actions are activities like eye movements, or mouse selections designed to gain more information. Examples of visual thinking will be given relating to visualizing vector fields, the trajectories of humpback whales, and multi-scale pattern comparisons.

Biography: Ware has a special interest in applying theories of perception to the design of geospatial data interfaces. He has advanced degrees in both computer science (MMath, Waterloo) and in the psychology of perception (PhD, Toronto). He has published over 150 articles ranging from rigorously scientific contributions to the Journal of Physiology, Behavior and Vision Research to applications oriented articles in the fields of data visualization and human-computer interaction. His book Information Visualization: Perception for Design is now in its third edition. His book, Visual Thinking for Design, appeared in 2008. Ware also likes to build practical visualization systems. Fledermaus, a commercial 3D geospatial visualization system widely used in oceanography, was developed from his initial prototypes. His trackPlot software is being used by marine mammal scientists and his flowVis2D software is serving images on NOAA websites. Colin Ware is Director of the Data Visualization Research Lab which is part of the Center for Coastal and Ocean Mapping at the University of New Hampshire.

For more information contact the technical host David Rogers, dhr@lanl.gov, 695-6488.

Hosted by the Applied Computer Science Group (CCS-7)