5-31-2014

Visualization Support for Cognitive Sciences

Matt J. Marangoni  
_Wright State University - Main Campus, marangoni.2@wright.edu_

Thomas Wischgoll  
_Wright State University - Main Campus, thomas.wischgoll@wright.edu_

Yue Zhou

Leslie M. Blaha

Ross Smith

_See next page for additional authors_

Follow this and additional works at: https://corescholar.libraries.wright.edu/cse

Part of the Computer Sciences Commons, and the Engineering Commons

Repository Citation

https://corescholar.libraries.wright.edu/cse/363

This Presentation is brought to you for free and open access by Wright State University’s CORE Scholar. It has been accepted for inclusion in Computer Science and Engineering Faculty Publications by an authorized administrator of CORE Scholar. For more information, please contact corescholar@www.libraries.wright.edu, library-corescholar@wright.edu.
The science of computer graphics and visualization is intertwined in many ways with Cognitive Sciences. On the one hand, computer graphics can lead to virtual environments in which a person is exposed to a virtual scenario. Typically, 3D-capable display technology combined with tracking systems, which are capable of identifying where the person is located at, are deployed to achieve maximal immersion in that the person’s point of view is recreated in the virtual scenario. As a result, an impressive experience is created such that that person is navigating the virtual scenario as if it was real. On the other hand, visualization techniques can be utilized to present the results from a cognitive science experiment to the user such that it provides easier access to the data. This could range from simple plots to more sophisticated approaches, such as parallel coordinates.

In addition, results from cognitive sciences can feed back into the visualization to make the visualization more user-friendly. For example, more intuitive input devices, such as cyber gloves which track the position of a user’s fingers, could be used to intuitively make selections or view modifications.

The Appenzeller Visualization Laboratory at Wright State University is in a perfect position to enable research in all of these areas mentioned above. Sophisticated display systems are available which provide full immersion, ranging from single screens and head-mounted displays to full-size CAVE-type displays. Input devices can be fully tracked, such that orientation and position is known at all times, to enable a highly interactive visualization environment that is very intuitive to use. As input devices, standard gamepads can be used but also data gloves or even tablet computers.

Visualization Support for Cognitive Sciences
Matthew Marangoni (Wright State University) , Thomas Wischgoll (Wright State University) , Yue Zhou (Wright State University) , Leslie Blaha (711 HPW/RHCV) , Ross Smith (Engility) , Rhonda Vickery (Engility)