Rochester Joint Chapter of the IEEE Computer and Computational Intelligence Societies

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presents

Real-World Gaze Manipulation for Training Applications

by

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Date: Wednesday, April 17, 2013
Time: 5:30 p.m. to 6:30 p.m.
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Computer Society announcements and venue information:
   http://ewh.ieee.org/r1/rochester/computer
Cost: Free. Open to IEEE members and non-members.
Note: This event is part of the Joint Chapters Meeting (JCM), which does have a fee associated with the **optional** dinner (reservations required) and keynote address.
   JCM Flyer with complete technical speaker list (pdf, 138 KB)

Abstract

The ability to direct a viewer's attention has important applications in computer graphics, data visualization, image analysis, and training. Existing computer-based gaze manipulation techniques, which direct a viewer's attention about a display, have been shown to be effective for spatial learning, search task completion, and medical training applications. In this presentation we describe our efforts to extend the concept of gaze manipulation from static digital imagery to controlled, real-world environments. We address two main challenges in guiding attention to real-world objects: determining what object the viewer is currently paying attention to, and providing (projecting) a visual cue on a different part of the scene in order to draw the viewer's attention there. Our system consists of a pair of eye-tracking glasses with a video camera (to determine the viewer's gaze location) and a projector to create the visual cue in the physical environment. The results of our user study show that we can effectively direct the viewer's gaze in the real-world scene.

Speaker's Biography

Reynold Bailey is an Assistant Professor in the Department of Computer Science at Rochester Institute of Technology. He received his Masters and Ph.D. from Washington University in St. Louis. His research interests are in the field of computer graphics and include non-photorealistic rendering and applied perception in graphics and visualization. Reynold's publications have appeared in the leading journals on computer graphics as well as several international conferences. Reynold has several ongoing collaborations with other faculty in the Computer Science Department to explore the use of eye-tracking technology for content-based image retreival and visualization of large multidimensional data sets. Reynold teaches a variety of courses ranging from introductory computer science to graduate courses in computer graphics. In addition to these academic pursuits, Reynold is actively involved in recruiting and mentoring underrepresented students at both the graduate and undergraduate levels.