Announcing the Final Examination of Kevin Pfeil for the degree of Master of Science

Time & Location: June 26, 2013 at 11:00 AM in HEC 101
Title: An Exploration of Unmanned Aerial Vehicle Direct Manipulation through 3D Spatial Interaction

An exploration is presented that surveys the strengths and weaknesses of two input devices that enable the use of 3D spatial interaction, in the context of directly manipulating an Unmanned Aerial Vehicle (UAV). Particularly, a study of touch- and device-free interfaces in this domain is provided; 3D spatial interaction can be achieved using hand-held motion control devices such as the Nintendo Wiimote, but computer vision systems offer a different and perhaps more natural avenue. In general, 3D user interfaces (3DUI) enable a user to interact with a system on a more robust and potentially more meaningful scale. Methods for developing 3D interaction techniques using commercially obtainable equipment are discussed, including an exploration of the effects that these techniques have on the overall user experience in the UAV domain. Specific qualities of the user experience are targeted, including the perceived intuition, ease of use, comfort, and others. A complete user study for upper-body gestures is discussed, and preliminary reactions towards 3DUI using hand-and-finger gestures are also covered. The results provide evidence that supports the use of certain styles of techniques over others, and reasoning for why these certain styles of interaction outperform others is provided.

Major: Computer Science

Educational Career:
Bachelor’s of Information Technology, BS, 2010, University of Central Florida

Committee in Charge:
Joseph LaViola, Chair, EECS
Gita Sukthankar, EECS
Charlie Hughes, EECS

Approved for distribution by Joseph LaViola, Committee Chair, on June 11, 2013.

The public is welcome to attend.