Announcing the Final Examination of Samuel Cosgrove for the degree of Master of Science

Time & Location: June 24, 2020 at 3:00 PM in Zoom Virtual Meeting https://ucf.zoom.us/j/8499719821
Title: Navigating Immersive and Interactive VR Environments with Connected 360° Panoramas

Emerging research is expanding the idea of using 360-degree spherical panoramas of real-world environments for use in “360 VR” experiences beyond video and image viewing. However, most of these experiences are strictly guided, with few opportunities for interaction or exploration. There is a desire to develop experiences with cohesive virtual environments created with 360 VR that allow for choice in navigation, versus more fully scripted experiences with limited interaction. Unlike standard VR with the freedom of synthetic graphics, there are challenges in designing appropriate user interfaces (UIs) for 360 VR navigation within the limitations of fixed assets.

We designed a novel software system called RealNodes that presents an interactive and explorable 360 VR environment. We developed four visual guidance UIs for 360 VR navigation. A comparative study was performed on these UIs in an interactive and explorable 360 VR scenario presented in the RealNodes application. The results determined that choice of UI had a significant effect on task completion times, showing one of the methods, Arrow, was best. This same visual guidance UI also exhibited positive but non-significant trends in average measures with preference, user engagement, and simulator-sickness.

The development of RealNodes and the comparative study contribute a set of possible visual guidance UI elements for navigating 360 VR and preliminary results that inspire future investigation of how to design effective visual guidance UI metaphors for navigation in applications using novel 360 VR environments.

Major: Computer Science

Educational Career:
Bachelor's of Computer Science, BS, 2014, University of Central Florida

Committee in Charge:
Joseph J. LaViola II, Chair, Computer Science
Charles E. Hughes, UCF Computer Science Department
Hassan Foroosh, UCF Computer Science Department

Approved for distribution by Joseph J. LaViola II, Committee Chair, on June 5, 2020.

The public is welcome to attend.