Title: Experimental Game Design with the Oculus Rift

Abstract:

Over the course of 16 weeks four graduate students at Carnegie Mellon University worked together to conduct 14 experiments and create 6 prototypes for the Oculus Rift Developers Kit. Their goal was to make experiences that would change how people would perceive virtual reality games. This tutorial is a look at how to approach the Oculus Rift in general, and what you should do if you want to push the boundaries of virtual reality game design.

Speakers:
Tushar Arora
Frank Hamilton

Description:

An introduction to Project Spearhead, who we are, what we did, and why it mattered. (20m). This will catch the audience up on the research and experimentation our team performed on the Oculus Rift over 4 months at Carnegie Mellon. Our next portion of the tutorial will focus on the various tests we performed on the Oculus Rift (1h 40m). We will introduce and break down each of the four categories of tests we performed; Motion Tests, Art Tests, Gesture Tests, and Controls Tests. Each group of tests was focused on experimenting with a certain aspect of the Oculus Rift or an idea of something we wanted to do with the device, but always in regards to the user's experience. For instance, the gesture tests were meant to test the nature of using the

Oculus Rift as a gesture controller and we tested this in one way by having users perform a gesture repeatedly in order to detect whether they could do so accurately and whether or not fatigue would set in. Each of our tests followed that mandate regarding user experience and our conclusions will be given largely in context of the users' reactions to our tests. We will provide this data to the audience and discuss the goals we had going into the tests. Lastly we will go over that data we collected and break down the conclusions we came to and how that affected our perception of the device. The second half of our tutorial will focus on our efforts in experimental design for the Oculus Rift (2 hours). We created several prototypes that aimed to use the Oculus in ways that it's original creators did not intend in order to explore the potential of the device. Mainly our focus was the avoid utilizing the device as a First Person Camera. Our tutorial will delve into each of our prototypes, what our goal was at the beginning of the development, how that goal changed, and what went well/what went poorly for each prototype. Project Spearhead was an attempt to take a virtual reality device made to do 'x' and make it do 'y', and in a more general sense it was an attempt to discover the flexibility of virtual reality as a whole. Our final conclusion will feature the project team discussing these concepts and what we found during our development period to be true regarding the Oculus and virtual reality.

Instructors' Bios:

Tushar Arora (tushar22.arora@gmail.com)

Tushar Arora is a graduate student from the Entertainment Technology Center at Carnegie Mellon University. The design of games and virtual worlds is something that always amazed him. The need to understand how to make such experiences, drove him to the ETC. Having studied computer science from India, programming is his main area of focus.

At ETC, he worked on a number of project in teams of various sizes. One of the projects, KITES was a semester long educational games project where he was the programmer. During the course of the project, he worked on the elapsed time games where elementary and middle school kids learnt how to read analog clocks properly. He was also involved in the design aspects of the other educational games made during that project.

In the oculus rift experiment project he was a programmer and helped with design decisions. Currently, he is doing his co-op at Google/Motorola's ATAP team. He is working on designing and prototyping experiences for their tech, apart from writing APIs and integrating it with Unity.

Frank Hamilton (Fhamilt1@gmail.com)

Frank Hamilton is a graduate student at the Entertainment Technology Center of Carnegie Mellon University. Frank is focusing his studies on game design and gameplay programming.

His last project was MonetizingInc.com, where he was the lead programmer. MonitizingInc.com was an interactive music video for the band AntiFlag, which merged Facebook, recorded video, and a 2D side scrolling platformer into a personalized experience for each viewer.

Currently he is working on a rapid prototyping project for the Oculus Rift. The goal of project is to explore the possibilities of the mobile head mounted display. The project isn't based on delivering typical uses for the Oculus Rift, but instead searching for ways to utilize the many features of the system to give the user a new way to interact with virtual worlds.

Hamilton is an alumnus of West Virginia University with a degree in computer engineering and a degree in electrical engineering. He hopes to use his engineering background and his game developing experience to create video games that engage players.