Performing Mixed Reality Project Development

Ian Stewart, 2020

Synthesizing principles of theater and computer science, I spent this summer developing projects for a new course, tentatively titled Performing Mixed Reality, that will be offered in the fall of 2019. Using a variety of hardware and software, I created several projects focused around image, narrative, interactivity, games, and virtual reality. I started the summer working with the Java based program Processing, which I connected to a depth sensing Xbox Kinect camera. Using the depth camera, I could isolate figures and create pieces by drawing within a certain range of the field.

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tion as well as live recording. The program takes four photos like a normal photo booth, but each photo allows the user to make motions and noises to change how the photo looks (in terms of color, outline, and more). At the end, Isadora displays not only the photos taken but also videos of the user making motions to manipulate the frame imposed over each corresponding photo (example output shown below).

In addition to using the built-in camera and microphone to manipulate basic video, I used other equipment to create games and other pieces. Using Wii remotes and a series of actors configured to detect collisions between shapes, I created several games that make use of the controller's ability to send signals with each button and with rotation. Below is a photo of one game where two players compete to try and hit each other first while trying to avoid getting hit.

Finally, I worked with SketchUp to create 3D models and import them into Unity to use with an Oculus Rift. Using an existing exterior model of Memorial Hall and the ground plan for Pickard Theater, I recreated the house and stage in Pickard. I then imported it to Unity and set it up so I could walk around in the space and pick up objects as if I was actually there (as shown in the photo below). The virtual reality environment allows for a low cost and realistic perspective of stages, sets, and props, and in addition to being an artistic form of interactive media has a practical application for set designers.

With both artistic and practical applications, my projects can be used for the upcoming class and show some of the possibilities of mixing technology and performance.

Graphs/images/figures
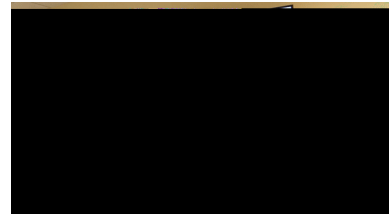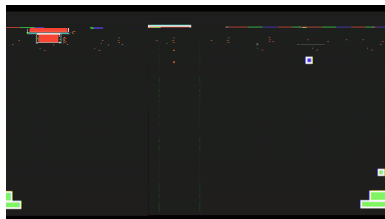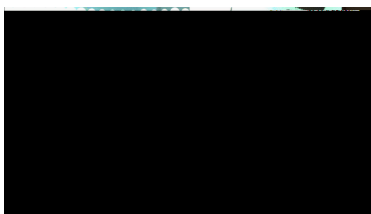
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