Joshua Churchin

AME 196

Final Project

Space Journey

Our project, “a Space Journey” was designed to make sounds like you are traveling in space, creating a relaxing atmosphere. We came up with our theme because we both enjoy EDM and electronic music and thought that space is somewhere we could incorporate those sounds in a slower tempo to build a smooth sounding project. Our project consists of a combination of ChucK, HTML, and JavaScript. The tools we used to make the effects of our project were a leap motion sensor and Launchpad, which together are not used often to create music. The files are run separately, but are meant to be played together. We came up with this idea because Scott had his own Launchpad and I enjoyed using the leap motion.

First, we created some loops with Ableton that were similar but had different effects inside. We started out originally having the loops running on the Launchpad. Once we produced the loops, we added in drums from the Launchpad to enhance the effects. We then had the leap motion recognize how many fingers were out and programmed each finger to play a different effect that were also developed in Ableton. Next, we intended to add space features using the leap motion. When testing our sounds and effects, they didn’t match up well and we decided to simplify our project. Next, we moved the loops from the Launchpad onto the leap motion. We left the drums on the Launchpad and now had a well sounding project. We practiced the beats and loops and further developed what we will perform in our final piece. We now have a very enjoyable sounding space journey.

Running the project is not difficult. We have to run there project in parallel because we couldn’t combine ChucK with HTML. Running the Launchpad is fairly easy since it is run with ChucK. The ChucK program is similar to what we did all year, where in you start the machine and then start the shred. Next, all you need to do is play the buttons programmed and you can now play the drums. Scott has a solid beat to our loops and it sounds good, but any user can just enjoy and learn to play. The HTML is running as a simple HTML but the panning feature doesn’t work unless running on GitHub. Once you open the webpage, on GitHub, and have the leap motion connected, you can then move your hand and see visuals as the hand moves. Playing music with the leap motion is done with your fingers. It is programmed to recognize up to five fingers. Each number plays a different loop. Then I added some more features to make the program more interesting. You can control the volume of the loop by going up and down with your hand. I also added a panning feature that allows the player to go left and right and control panning.

I portion that I contributed to the project is the HTML and JavaScript for the leap motion. I created the entire leap motion interaction. It was at first a challenge to find what language I was going to program in since we couldn’t in ChucK for the leap motion. I decided on HTML because it is simple and I saw that HTML and leap had a connection with JavaScript. I wanted to start out very basic and just see what I could recognize. I first had it recognize fingers and then hands that would represent a number on the webpage. Next, I added to the code for a sound to be played instead of writing on the webpage. Then, I realized I could play multiple sounds at once which didn’t sound good. To remedy that, I added catches so you could only play one sound at a time.

Then I wanted to stop the music if possible. I had the program recognize two hands and that caused the program to stop the music which was successful. The assignment also said it would be good to add visual aspects to the project. I did this by drawing my hand motion during the show. I have the program add random coloring and drawing to when you move your hands. I added a sliding effect that moves it down as time goes on. Next, I added the ability to control volume with the height of your hand. I grasped the y-value from the leap and assigned it to the volume, but had to convert to 0-1 since that is how value is assigned. Lastly, I wanted to pan the music. HTML made this very difficult and took me over a week to finally get this function working. I had to use a web audio API to get the panning feature to work, but only when running on GitHub.

The first instrument I have ever played was an accordion flute in elementary school. It was a long time ago but something I enjoyed and found very fun. I then went on to music class in middle school and played the piano in 7th and 8th grade. I was playing a few times a week throughout school and became a decent player. I could play simple songs with two hands and that was the farthest I made it playing an instrument. I haven’t played anything since then which is over 7 years ago. It has been a big learning curve coming into this class and learning to read music and create my own replication of songs on the computer. I am excited to get on stage for my performance and play an electronic instrument for the first time ever in my life in front of an audience.

My experience as a composer is less than my experience as a musician. I have never composed any piece of music in my life until this course started this semester. I feel like it is a real ability to write good sounding music. It makes it very hard for me because I consider myself a perfectionist and if it doesn’t sound good, then I wouldn’t want to play it. I have made one piece so far for the midterm which I enjoyed the sound I played and now I am happy with my second piece that Scott and I have created.