Research Evidence
Cart 353
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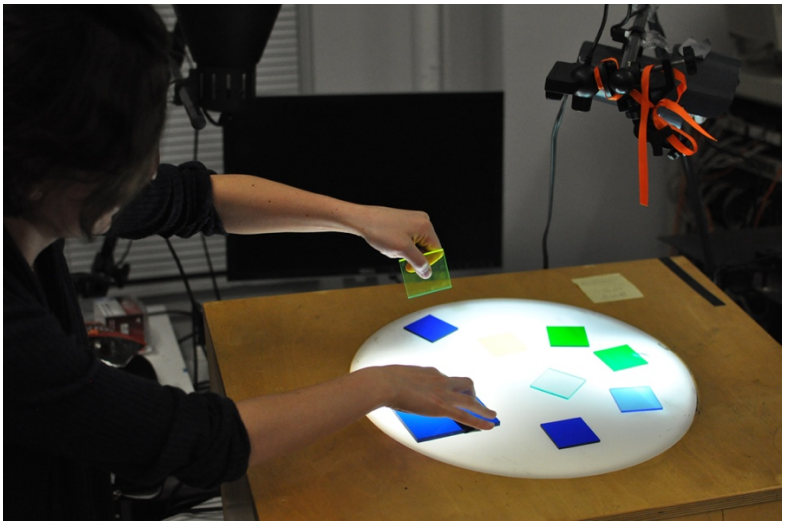
Concept

As a musician, I often find interaction with instruments and machines highly influential on creative output. Being able to see and touch things is a process that embodies one with music. Although many instruments have incredible interfaces, most software and hardware sequencers lack this fundamental quality. Most sequencers still use the same 16 step with LEDs to indicate activity. The visual music maker is my proposal for a solution. It will be a visual sequencer that breaks away from the linear 16 step led layout. It will be organized in a series of 3 rings in descending size, much like our solar system. One complete rotation of this ring is one completed bar, much like one rotation of our planer around the sun is a completed year. I picked the shape of the ring because it resembles an endless loop, much like how a sequencer behaves when we use one. An endless cycle of a 16 step bar. The rings will have stationary notches that indicate step divisions, 1,5,9,13 (which is the first beat of each ¼ bar). The sound source that will be sequenced will be a collection of pre recorded samples consisting of drum loops, synthesized bass notes and synthesized chord pads. These sounds will be represented by shapes falling randomly from each corner of the screen floating towards the origin of the rings. These shapes and colors will be randomized in order to attract interaction and avoid repetition. To audition a sample, you will simply click a shape, to sequence it you will drag it and place it on a ring. The intent is to engage the user to try different combinations by interacting with the shapes, hopefully creating a fun jam environment.

Research & Similar Works

My research stems from my inspirations, in particular installations by Ryan Raffa, Andy Wallace and one hardware device, The Future Retro Orb Sequencer. Ryan Raffa's installation, *The Tangible Color Music Instrument* is an instrument that is highly interactive. It works by users placing transparent-like color objects on a lit background that is being captured by a camera connected to a computer, then processed using open frameworks. The colors are scanned in a circular fashion much like a radar system. The color is than processed by the program and it produces a sound according to that color. For video documentation please visit the link below the image.



http://www.ryanraffa.com/parsons/thesis/308/7-tangible-color-music-instrument/

Andy Wallace's installation *Bleep Space*, is a game that engages the user to touch and tap to create a noisy beat. The beat will then be represented by a geometric shape and then

animated. The shapes can be placed anywhere along a 16 beat step in order to sequence the sounds. For video documentation, please click the link below the image.

http://andymakes.com/presskits/sheet.php?p=bleep_space

The Orb by Future Retro is a hardware based sequencer that has similar functionality as most hardware sequencers available today. What separates it from the rest is its unique circular interface. Future Retro's decision to make a circular sequence is rooted in the idea that a circular object portrays the principles of time and music accurately. The idea that time is a cycle which never ends. It has always been represented by a circular motion much like how the rotation of planets around the sun influences our perception of time.

http://www.future-retro.com/products.html#!/Orb-Sequencer/

These inspirations narrowed my research in order to help achieve my concept of the visual music maker. I will be using processing with two libraries. The Sound library that processing has created and Minim which is now included in processing 3's add on libraries. These two libraries will provide me with the objects and methods I need in order to create the sequencer and sampled based instruments. The shapes will be created using Processing. I am at this point still unsure if the objects will be 3D or not. For further reference on both libraries, please visit,

http://code.compartmental.net/minim/

https://processing.org/tutorials/sound/

Project Scope

Originally I intended to make this a visual music instrument, but the lack of time to implement and design an instrument forced me to use samples as a sound source. By creating pre-recorded samples in my studio and limiting each instrument to 3-5 sample variations, I believe this project is feasible in the allotted time frame.

Model

The current model to implement this idea is based around 3 super classes, the sequencer class, the instrument class and the shape class. The sequencer and instrument class will have 3 sub classes for drums, bass and pads. The shape class will have 4 sub classes, which include the instruments and the rings that will represent the sequencer. The UML class diagram illustrates the structure and general functional plan.