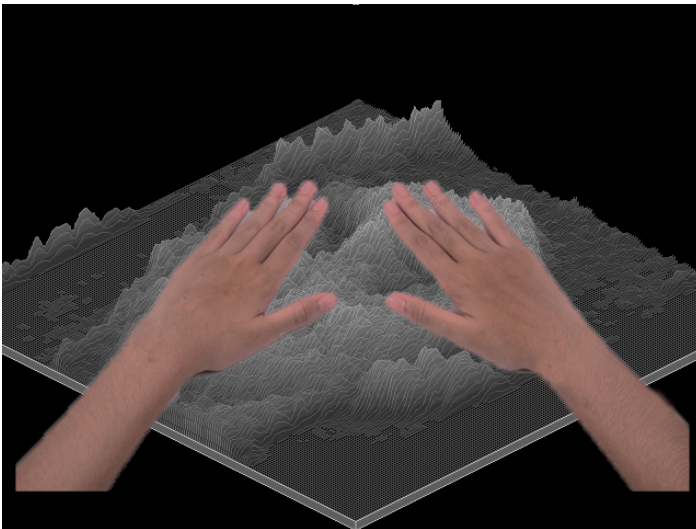# Proposal: Touch Activated Spectrogram

Touch Activated Spectrogram Concept: two hands placed on a 3D spectral analysis of an audio signal

I propose a device that allows someone to explore sound through physical touch. The object is a three dimensional spectrogram made up of an array of pins, similar to a pin art toy. The pins are motorized and can take the form of any sound file used as an input, creating a 'landscape' representing the sound's frequencies over time. Like a plasma ball, the user interacts with the surface by touching it -- Capacitive sensors in the pins allow for touch detection across the surface.
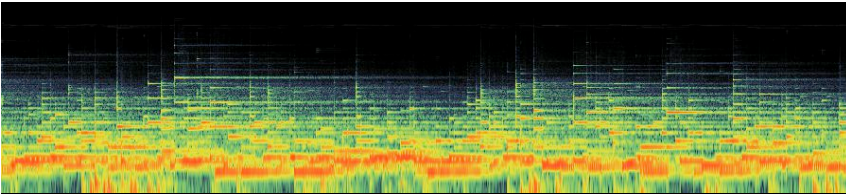

Pin art toy   *Plasma ball*

When the user places their hands on the surface, they will hear the frequencies that their hands are touching/covering. By moving their hands around and feeling different areas they can listen to different subdivisions of the sound, and feel the peaks and valleys of the sonic energy. In doing so they can learn about

how sound is represented and broken down into its component frequencies. This effect is often limited to a 2d visual representation and is commonly manipulated through software — I want to provide an alternative experience that is experienced through direct contact.

2d Spectrogram

Artist Statement

I aim to create educational and playful experiences that allow both seasoned musicians and people who have never worked with sound to make or learn about music in unique ways.

With this project one of my goals is to create something that can be experienced without seeing or hearing. Without hearing, the user can still learn by touching the surface and reading about the sound they are feeling. And while seeing the surface would provide visual clues as to which frequencies are the loudest, it is not necessary for the interaction. In fact, the device could be presented like a "touch and guess" game where the user cannot see the device as they interact with it, allowing them to focus on the tactile feedback.

"Touch and Guess" game

Bio

Elias Jarzombek is an artist working with code and music. Through his work he aims to produce new ways of interfacing with and learning about sound and technology. He often uses web technologies and public APIs to expose how data is interconnected in both logical and illogical ways.