Matthew Lad

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CS Senior Project Progress Report

1. Project Goal

The goal of this project is to create a program that builds visual representations of audio signals. The program would be fed an audio signal (specifically music) as input and would display a visual representation of the signal as output. I intend on using fourier analysis for the signal processing portion of the project as I am working with fourier analysis in my mathematics senior project.

2. Progress Made

I have done work with python in the past two weeks in creating a program that can generate musical files from sine functions. This is a first step for my project as it is helping me to understand how audio signals are represented in computers and specifically python. So far I have code that can generate different musical notes and chords and stores them in a .wav file on my computer. From this I have started to learn the basics of python file management and audio/signal file manipulation.

3. Next Steps

In the next week I will be diving into the mathematics of fourier analysis while at the same time learning how to use various python fourier libraries. There are a lot of resources

already out there and although I won't be reinventing the wheel, I plan on trying to understand

fourier analysis as best I can for this project's scope.

3. Background Information

Fourier analysis is a mathematical process which can take complex signals, such as those

in music, speech, telecommunications, etc., and break them down into different "pieces" which

can each be analyzed to better understand the signal. Specific to this project, an audio signal can

be broken down into the different frequencies and notes that make up the sound.