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CS Senior Project Progress Report 2

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 in python in the past week in learning the various scipy library functions for fourier analysis. In Collaboratory I have created a document for notes on using the scipy library for analyzing musical notes and chords. So far, I have used the text and code blocks to document and demonstrate how to generate audio signals from sine functions and then how to analyze those audio signals using fourier transforms.

3. Next Steps

I have two goals for this next week. First, I would like to add to my colab notes fourier analysis of real audio signals, specifically ones from my computer's microphone. Second, I'd like to start looking into papers and online examples detailing the pattern matching/ signal filtering of the fourier transform's output. From there I would want to start developing a system which can match frequencies to specific patterns.