Lab Journal

Contains a summary of each day (tasks completed and immediate/long term goals)

Monday, April 3, 2023

Summary: Today I went over the Fourier Series and the Fourier Transform. Watched a couple of videos on the conceptual details and mathematical formalism. Followed along with some function approximations with Fourier Series code.

Goals for tomorrow: Finish reviewing the mathematical formalism behind Fourier Transforms. Review the Discrete Fourier Transform and the Fast Fourier Transform.

Tuesday, April 4, 2023

Summary: I went over some mathematical details behind the Discrete Fourier Transform and Fast Fourier Transform. I’m not completely solid on the details yet so I collected questions for Tim. I also picked out a Birdsong JC paper and started to read that.

Goals for tomorrow: Implement the FFT algorithm on an audio dataset of phone numbers. Try to filter out the noise. Read through spectrograms and the Gabor filter and try to create a spectrogram of the phone numbers dataset.

Wednesday, April 5, 2023

Summary: Today I worked on using the FFT on the phone numbers dataset. I was able to find frequencies that correspond to different phone numbers. I also played around with silencing certain phone numbers by setting the power of higher frequencies to 0. Once I did the inverse FFT and got a sound representation, the higher order phone tones were silenced. I then played around with a spectrogram representation of the phone tones. In the spectrogram we get a time vs frequency representation (as opposed to a frequency vs power representation in the Fourier plot)

Chart

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