

Term Project Proposal
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Project Description:

For our project we will analyze the Fourier transforms of various animal sounds to compare their differences and see if we can predict the animal from a nameless sound file based on the frequencies output by the Fourier transform.

For this project, we will need to collect the data, calculate their Fourier transforms, and analyze them for similarities between types of animals.

How it will be divided:

We will each be responsible for collecting x audio files and uploading them. We will each obtain the Fourier transforms for the files we uploaded and check each other's work. We will work together to analyze the similarities between different sounds and how to use Mathematica to better compare them.

Analysis:

We will gather multiple samples of audio files for different animals and plug them into Mathematica's Fourier Transform functions. With the coefficients from the Fourier transforms we can compare different sounds and see if we can predict on new sound files. We'll investigate Mathematica's functions to look for smarter ways to compare Fourier transforms to determine their similarity.

Potential challenges or pitfalls:

We may find that there is no apparent way to compare animal sounds, or no connection between different animal sounds. If this is the problem we may investigate a different group of related sounds such as instruments, or narrow it down to a more specific group (ie. stringed instruments, or groups of animals such as birds vs. rodents, etc.).

Another challenge may be using Mathematica to compare the Fourier transforms. Part of the project is investigating that so we can figure out other ways to use Mathematica.