**EE 541 – Computational Introduction to Deep Learning**

# Project Proposal

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**Project Title:** Musical Instrument Chord Classification

**Topic summary:** There are various answers about what is music. Music is a song made by instruments. Music is the expression of feelings. Music is singing. However, there is a more general definition. Music is a set of sounds that harmonize with each other. Mostly, it’s hard to tell the notes inside a chord just by our ears, especially for more than one instrument. In this project, we propose to use different data processing methods to extract the frequency components, then train several models to predict whether a tune is major or minor for piano and guitar, maybe other instruments.

A picture containing text, music

Description automatically generated

Figure 1: Notes and Chores.

**Dataset description:**

https://www.kaggle.com/datasets/deepcontractor/musical-instrument-chord-classification

The dataset contains audio files from two instruments, guitar and piano. The data is scraped form various sources. Music is all about patterns. Once you know those “rules” and patterns, you can figure out pretty much anything on your own. Most of the time, when all else is held constant, music in a major key is judged as happy while minor key music is heard as sad.

The original data are 142MB, stored in two folders named ”major” and ”minor”. ”major” folder contains 502 major chords in wav format. ”minor” folder contains 357 minor chords in wav format.

We will measure the model performance just using the accuracy of the prediction.

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**Architecture Investigation Plan:**

**Estimated Compute Needs:**

**Primary References and Codebase:**