

## **CSE 190 Final Project**

### **Summer 2020**

#### **Prompt**

Given a collection of MIDI or audio files of a single genre, can you create a model which generates music similar to the genre?

This project is meant to allow you to explore generative models in music, learn something new, and create a cool composition! Please feel free to work with data and models that you find interesting, fun, and manageable to your level of familiarity with machine learning.

Your project will be composed of two components: a proposal & a presentation. During the last week of class, we will enjoy each others' creations, perhaps listening to the next Super Mario melody, Beatles track, or Beethoven's 10th Symphony.

You may work independently or in groups of up to 4 students. It is ok to make use of standard libraries, implementations, and other published resources, but please be clear when crediting others' work in your citations.

## Proposal

By 7/19 11:00 AM, please submit a project proposal to Gradescope that includes the following:

- A list of group members
- Selected Genre
- Data Source
  - Where will you find your MIDI or audio files?
  - What qualities will your sound files have? (i.e. Monophonic/Polyphonic, Single/Multiple Instrument, etc.)
- How you propose to represent the music as input to your training network
  - This should include discussion on which musical elements will be included, and which may be left out. For example, will your network work only with melodic sequences, rhythms, or both? Will it make use of harmony or multiple instruments?
- What network architecture you will use (e.g. LSTM, GAN, RNN, HMM, Other)
- If your network architecture is based on a research paper, please include a reference section.

## Presentation

By 7/26 11:59 PM, please submit a PDF of your slides to Gradescope, and prepare to present as a group during the final week. Your presentation should include:

- Overview of your process
  - Essentially a recap of your project proposal, along with any changes made or challenges along the way.
  - Cite any libraries, implementations, or references used.
- Visualization of model architecture
- Output demonstrations:
  - Two side-by-side examples of similarity:
    - Audio and/or visual demonstrating a few seconds that are very similar to examples from training data. Please include both your network output and the similar training data so we can clearly see and/or hear the similarity.
  - Two examples of dissimilarity
    - Audio and/or visual demonstrating a few seconds that are very dissimilar to the training data (or are complete noise).
  - One complete (and creatively-titled) MIDI track, at least 30 seconds in length, using output generated by your model.