

CSE 190 B00 Summer 2020 Final Project Proposal

I. Group Members

Danlin Jiang, Zirui Wang, Yiming Zhao

II. Selected Genre

8-bit game music

III. Data Source

<https://bitmidi.com/>

We mainly choose MIDI files that came from games (chiptune music) because of the limited time for completing this project. These MIDI files don't contain too complicated structures (rhythm, multiple tracks, etc) so they could be easily trained without using multiple models and connections between models.

IV. Input Form

MIDI files contain instruments, melody and chords and rhythm, and we'll try to extract melody, chords as major components (this also depends on if some selected packages support rhythm/instrument analysis).

V. Model Architecture

C-RNN-GAN (Continuous recurrent neural networks with adversarial training). Our model will be mainly based on a research paper published in 2016: C-RNN-GAN: Continuous recurrent neural networks with adversarial training (<https://arxiv.org/pdf/1611.09904>), as well as this presentation describing this paper (http://cseweb.ucsd.edu/classes/wi19/cse291-g/student_presentations/GANs_for_Seqs_prakhar.pdf). We'll use either PyTorch or TensorFlow framework to implement this model, or we'll use existing models on Github and add some customizations that better suit our input MIDI files.