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Making music with GANs

# Context

I hope to create a generative adversarial network to generate music samples or audio samples from an artist's music. For instance, generating new Billy Joel songs by using old songs or combining artists to generate new music such as combining Queen and 21 Savage to create some hybrid type.

# Language/Tools

Languages

* Python
* JavaScript (if I make a web interface)

Tools

* GAN and NN tools
  + Keras and TensorFlow

### **HyperGAN**

### **GAN Lab**

### **Imaginaire**

* [Working with audio data](https://medium.com/codex/7-useful-python-audio-libraries-you-should-use-in-your-next-project-4bfe21ef0583)
  + PyAudioAnalysis
  + Pydub
  + Librosa

# Technical Source

* <https://www.analyticsvidhya.com/blog/2020/01/how-to-perform-automatic-music-generation/>
* <https://medium.com/@stevehiehn/how-to-generate-music-with-python-the-basics-62e8ea9b99a5>

# Full disclosure

I haven’t done any work around this topic. I have used Keras to create neural networks, but I’ve never created a GAN or used audio data before

# Plan

Week 1 - Learn about GANs and creating them in Keras or with other tools

Week 2 - Find music data and label it by genre and artist

Week 3 - Train the NN model on the music data

Week 4 - Continue troubleshooting and fixing the model

Week 5 - Create a web interface / interactive element so it can easily be used

Week 6 - Finish the project and create a paper or “flash” presentation

# Proposed evaluation

Mostly qualitative evaluation - determining the quality of the music output based on the inputted songs.