LMU | LA
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yung gan

World's First AI Music Producer

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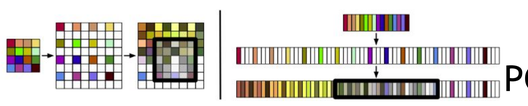
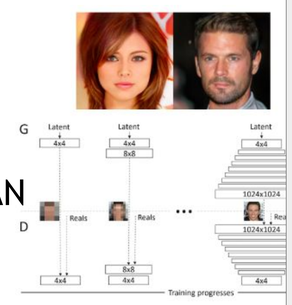
Description

"GAN" stands for "Generative Adversarial Network", which is a new and transformative field within Artificial Intelligence. We are creating web app that will output a newly generated music instrumental beat on-click, by processing random noise through our generator network. The network is a combo of **WaveGAN** and **PGGAN** to achieve short slices of high quality audio. Uses sliced Soundcloud songs at a consistent tempo.

WaveGAN



PGGAN

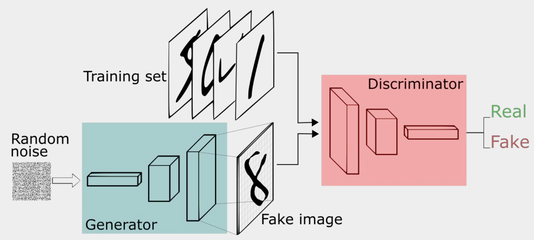


Technologies

Keras TensorFlow React

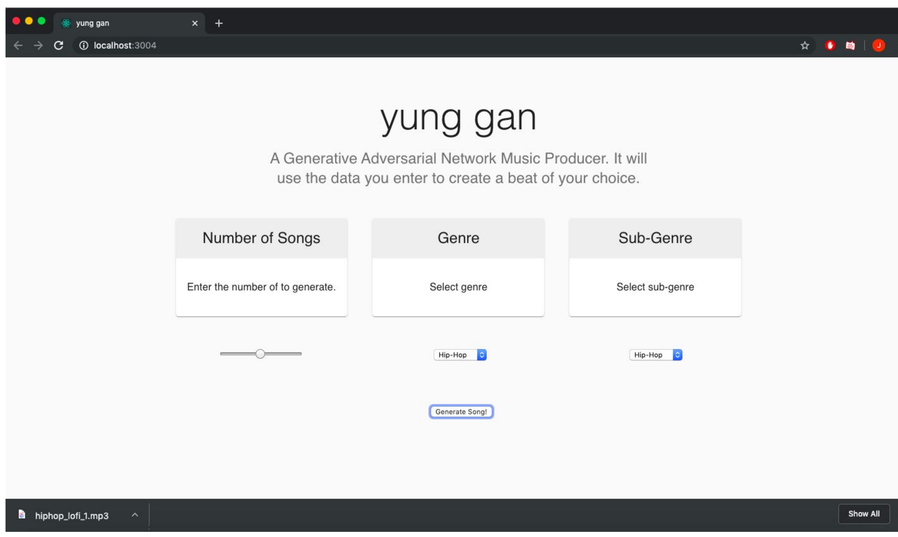
SOUNDCLOUD YouTube aws GitHub

How It Works



A vector of random noise is given as the only input to a deep network, known as the **generator**, where it funnels information through both recurrent and convolutional layers to create a computer generated beat in an attempt to fool another deep network, known as the **discriminator**. We will curate a playlist of real human-made beats from sources: Soundcloud, Youtube, and our own music. Those files will be preprocessed and stored in an SQL database along with its pertinent information. When training, those songs feed into the discriminator in batches that are combined with fake beats the generator has constructed. Over many **epochs**, the generator and discriminator loss should converge, indicating the **training** has finished. If our neural architecture is well constructed, the generator should produce beats that sound authentic to both the discriminator and to **the human ear.**

User Interface



3 main parameters as of now: **# of songs, Genre and Sub-Genre.** We hosted the python program on a GPU Powered EC2 Virtual Machine. By having Amazon APIGW point to http endpoints on our EC2, our React code can send fetch calls to the EC2 our program is stored in. We also need *nginx* within the EC2, that converts URLs into executable code on the EC2 server.

Future Plans

-Successfully link our python program to our front end using AWS components, once we have generated new models.
-Implement a Database to better organize our real samples.
-Online marketplace to buy AI generated beats (Possibly a subscription service).
-Produce longer segments and higher quality snippets.