

10-335 ART AND MACHINE LEARNING

KANYE-GEN

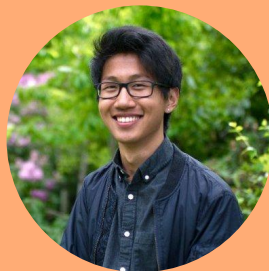


TEAM 3
KAZI JAWAD
RICHARD ZHOU
MICHAEL KIM



KAZI JAWAD

-
THIRD YEAR STAT/ML
UX Engineer
Knowledgeable about ML



RICHARD ZHOU

-
THIRD YEAR DESIGN
Designer + creative developer
Some ML knowledge



MICHAEL KIM

-
THIRD YEAR DESIGN
3D artist
I'm beginning to learn ML

KANYE-GEN

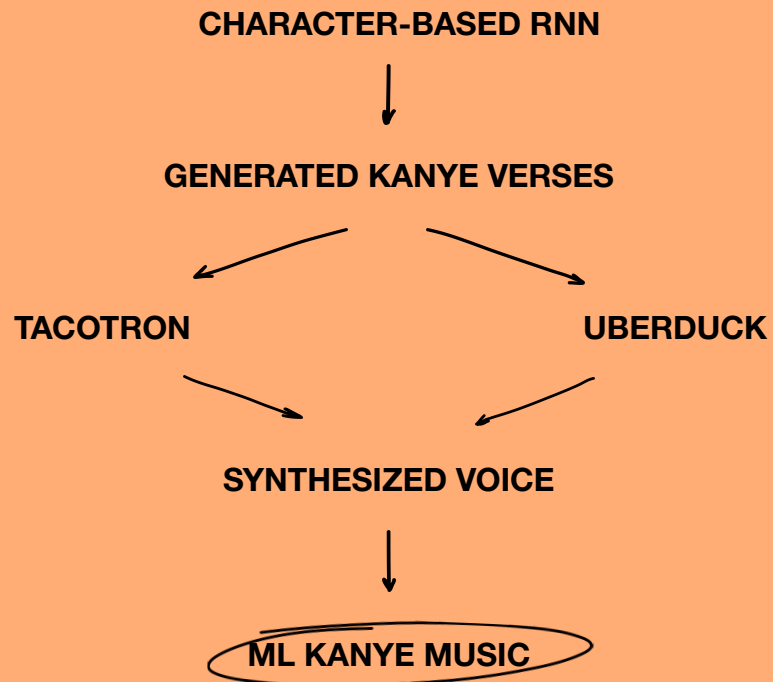
WHAT IS THIS?

A KANYE RAP GENERATOR

KANYE-GEN is an exploration of a machine learning system that is trained to create new Kanye rap verses based on his existing catalog of lyrics and songs.

The ML system is composed of a lyric generation model that pipes into a voice generation model.

PROCESS



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Kanye West Rap Verses

364 Rap Verses Compiled From 243 Songs

[Data](#)
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About Dataset

Context: Kanye West Rap Verses (243 Songs, 364 Verses)
 Content: All verses are separated by empty lines. The data has been cleaned to remove any unnecessary words or characters not part of the actual verses.
 Acknowledgements: The lyrics are owned by Kanye West and his label, but the dataset was compiled by myself using Rap Genius.
 Past Research: Ran the data through a RNN to try to generate new verses that sounded similar to Kanye's existing verses.
 Inspiration: It'll be interesting to see what analysis people can do on this dataset. Although it's pretty small, it definitely seems like a fun dataset to mess around with.

Note: Below is a list of all the songs used for verse extraction. Songs labeled with (N) were excluded due to either not containing rap verses (only choruses), or me not being able to locate the actual lyrics.

Mercy
 Niggas in Paris
 Clique
 Bound 2
 No Church in the Wild
 Father Stretch My Hand Pt. 1
 New Slaves
 Blood on the Leaves

Usability

7.50

License

CC0: Public Domain

Expected update frequency

Not specified

[View Active Events](#)

KANYE WEST RAP VERSES DATASET

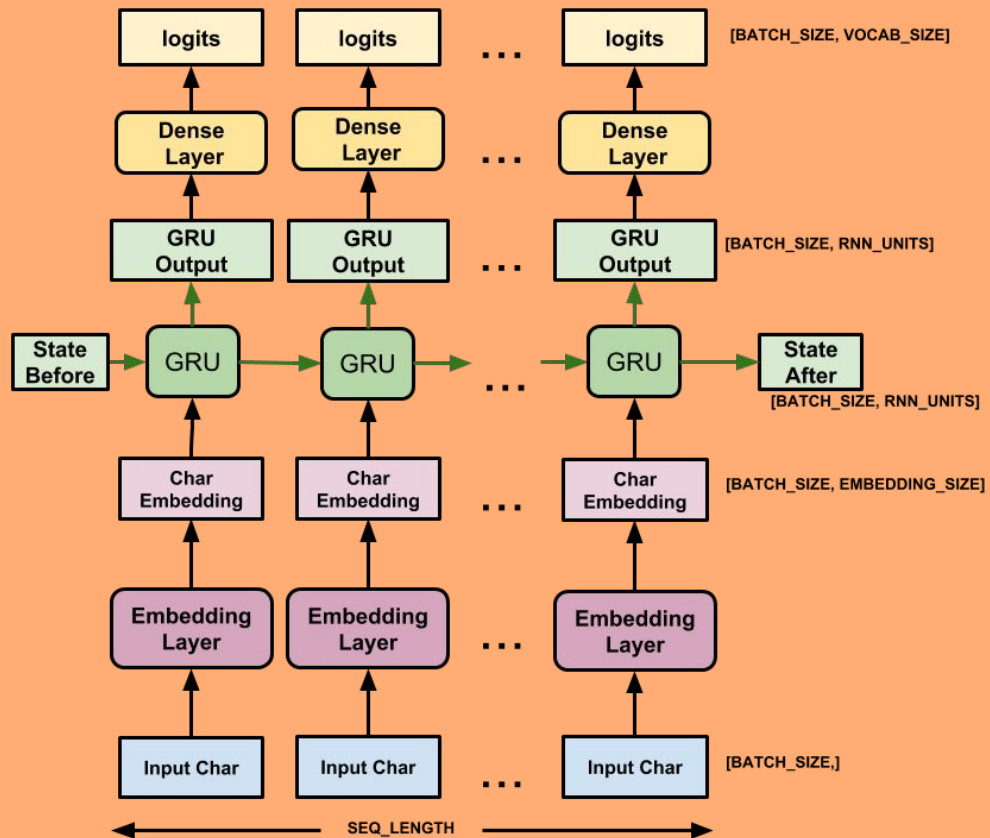
A Kaggle dataset with 364 verses compiled from 243 Kanye West songs. The dataset was sourced from Rap Genius.

CHARACTER-BASED RNN

Input: Character-Level Tokenized Lyrics

Output: Character Sequences

The final lyric generation looped through the prediction of characters to generate a complete set of lyrics.



Reference: Text generation with an RNN


```

Karyeraps.txt - Notepad
File Edit Format View Help
20 EPOCHS (Loss 0.1128)
We'll just all of that
Syam you don't pay me, I wish I impoge too
Just kied on everything, Justally deal with his extre fores
Thes need you wake niggas and could I use

Dow Mard know when Call? TJay, Tabsly
Houseey snow my head a Fanglers, ever had a new sitres
Throw your cossing like call her my kell is like "Do
Talkin' this Ainttee Ring Million
Right now, it's fly fick, I throw
I am shit that Cenatinus
And loving all that sustin'
And I'm on a neck to the class is extraiest
She feeling with seen a king
Big I'm about aftrroll some?
You know that I am a mean?
So I gotta remember with a heller. spars
Cause you ever said hella wake that is how the for clothes? Oh, right and I can do
I must do worse we could gave me sings
It's so bisted, I'm just take a sounday
Wanfire, led ey sune, These Cockmans
I'm the ewest Chris, Rich Jentley', huh? We believe in a KSopa
We cinger that think I don't need some hele
Naw why I'd bless the streets
Bresnaem "Yeezy big spit it up
On that mad buttion got pis

Traye, so bang, some sips I'll keep you
Now Baine good life musucked over the haart like Carcholma
Mayin' ain't preachin' famous the hoods kille's
Something on the wordor, he so don't a amborent
I'm drives just know it up, you just get just beinia
Huh?..?
The get they shite up arretted like? The NoAd, Joggas? Coss, could you can Kaves not a
I swear this is my wants but now she had is
I'm just take it up with Shrowes
She sould with me hadds hoppid, Buhz!
Ri--rades, we ricid it
I don't night rull right nox
Bary peature of her gaad bitch

I seer when I'm like feotobe
Seaces, get capee a million watry swagga
And you said "Pow word, hell niggas appicateded
I'm gonna ad a look lik Soumo's is my family humba Bazy
It's future leant face boys
The P.R., esteped my eans
All he bad with 7520 question willy, one just skeet, your since If your wops
The best make a pant please, bitching did
I met in the out planing off your drunk you
And my joke you ever heard, huh?
You sop that I'm all

I'm 'bout another like #nest; Stuck for as lights ain't gime cause they ambreaththe
Okera clocks want browm the inspirations all remember?
I can see you should you inside of the doors
From beow every club, still have his famous
My favorite every block Mase feeling with an all I need emony off this
Tryain that yap party-like Par Po
Wo be all this screezu, yo, no Karybor? Tome my famly like things
What's a rolamie, Badrican, smoke, I love on TV

Massine down, chain, said let me takn rud to K name
Micha gotha get their wlate uses my close!
I don't leave her to Mr. West the sight just like me
I cas the best wait"
People is just the ramis they w'isn eveery y'all
I've been up and think you could go
Nevem check she drive wrote in Mlth
Damn, is I popped it
I'm prefilet you like "Wey Kyre niggas from Thi, as habi

```

SAMPLE VERSE #1
20 EPOCHS (LOSS 0.1128)

We'll just all of that
Syan you don't pay me, I wish I impoge too
Just kied on everything, Justally deel with his
extre fores

SAMPLE VERSE #2
20 EPOCHS (LOSS 0.1128)

I'm just take it up with Shrowes
She sould with me hadds hoppid, Buhz!
Ri--rades, we riciod it
I don't night rull right nox

SAMPLE VERSE #3
60 EPOCHS (LOSS 0.0610)

*Never had money so I can save face
And have a reason to cover my face
I even made you a plate, soul food, know I scould than you got time
To spend with 'em*

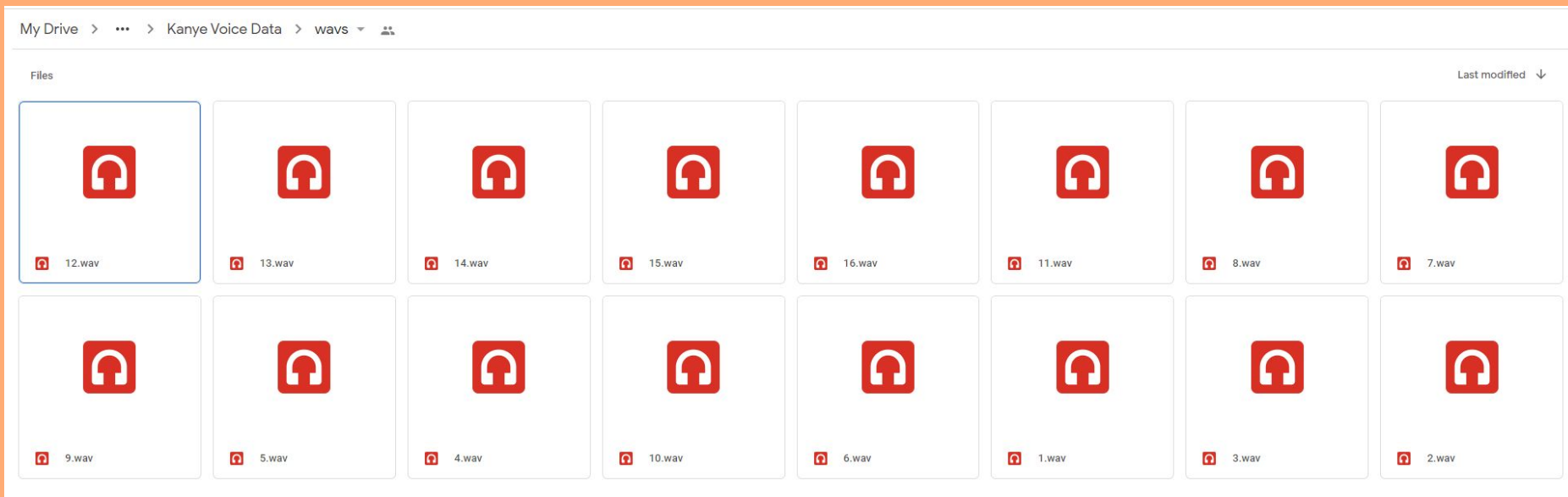
SAMPLE VERSE #4
60 EPOCHS (LOSS 0.0610)

*Look, God, it's the same money in the bank
And she be standin' there like you famous
And you gon' call out all these girls just testing me
Uh an mouth up what helped me write*

TACOTRON

Tacotron generates spectrograms from labeled and transcribed voice samples that is used with a WaveNet model as a vocoder to create speech from arbitrary text.

We trained our model on Kanye's rapping voice from two songs with isolated vocals.

16 SAMPLES TAKEN FROM "I LOVE KANYE" AND "OTIS"

```
list.txt
1 wavs/1.wav|I miss the old Kanye, straight from the go Kanye.
2 wavs/2.wav|Chop up the soul Kanye, set on his goals Kanye.
3 wavs/3.wav|I hate the new Kanye, the bad mood Kanye.
4 wavs/4.wav|The always rude Kanye, spaz in the news Kanye.
5 wavs/5.wav|I miss the sweet Kanye, chop up the beats Kanye.
6 wavs/6.wav|I gotta to say at that time I'd like to meet Kanye.
7 wavs/7.wav|See I invented Kanye, it wasn't any Kanyes.
8 wavs/8.wav|And now I look and look around and there's so many Kanyes! I use
9 wavs/9.wav|I used to love Kanye. I even had the pink polo, I thought I was
10 wavs/10.wav|What if Kanye made a song about Kanye called "I Miss The Old Ka
11 wavs/11.wav|That's all it was Kanye, we still love Kanye. And I love you li
12 wavs/12.wav|Where the hell ya been? Niggas talking real reckless, stuntmen.
   I'm 'bout to make them tuck they whole summer in.
13 wavs/13.wav|They say I'm crazy, well, I'm 'bout to go dumb again. They ain'
   week, I was in my other, other Benz. Throw your diamonds up!
14 wavs/14.wav|I made "Jesus Walks," I'm never going to hell. Couture-level fl
15 wavs/15.wav|Luxury rap, the Hermès of verses. Sophisticated ignorance, writ
16 wavs/16.wav|I get it custom, you a customer. You ain't customed to going th
   all the ladies in the house, got 'em showing off.
```



```
1 #!/usr/bin/env python3
2 # Ese es para los datasets personalizados! Crear los espectrogramas de mel.
3 import sys, pathlib, os
4 import numpy as np
5 import scipy.io.wavfile as wavfile
6 from glob import glob
7 from tqdm import tqdm
8 from data_utils import TextMelLoader
9 from hparams import create_hparams
10 def make_mel(path):
11     pathlib.Path("tmbogus").touch()
12     loader = TextMelLoader("tmbogus", create_hparams())
13     print("Converting {} to numpy melspec".format(path))
14     os.chdir(path)
15     for wav in tqdm(glob("*.wav")):
16         # for wav in glob("*.wav"):
17             _, data = wavfile.read(wav)
18             if data.dtype != np.int16:
19                 print("{} doesn't seem like s16le (ndarray.dtype=={})".format(
20                     wav, data.dtype))
21             data = mel.cpu().numpy()
22             # print(data)
23             np.save(wav.replace(".wav", ".npy"), data)
24     print("Remember to update wav paths to npy")
25 if __name__ == "__main__":
26     path = sys.argv[1] if len(sys.argv) >= 2 else "wavs/"
27     make_mel(path)
```


UBERDUCK VOICE GENERATION

Uberduck hosts many pre-trained text-to-speech models. We used a FastPitch model of Kanye West's rapping voice.

FastPitch is a text-to-speech model based on FastSpeech that allows finer control over pace, pitch, and inflection.

Adobe Audition

Waveform Multitrack

Files Favorites

Name ↑ Status Duration

- > ++ audio (1) 48000 1.wav 0:14.512
- > ++ audio (2) 48000 1.wav 0:09.845
- > ++ audio (3) 48000 1.wav 0:16.300
- > ++ audio (6) 48000 1.wav 0:10.959
- > ++ audio 48000 1.wav 0:14.210
- > ++ sandbeat 48000 1.wav 4:50.017
- ++ yeezy.sesx 4:57.723

Media Browser Effects Rack Markers

Clip Effects Track Effects

Presets: (Custom)

Track: Track 6

- 1 Automatic Pitch Correction
- 2
- 3

History Video

Open

0 Undo

Multitrack Session Backup save completed in 0.00 seconds

Editor: yeezy.sesx Mixer

hms 0:30 0:40 0:50 1:00 1:10

Track 1 M S R I

audio (1) 48000 1

Default Stereo Input

Mix

Read

Track 2 M S R I

audio 48000 1

Default Stereo Input

Mix

Read

Track 3 M S R I

audio (1) 48000 1

Default Stereo Input

Mix

Read

Track 4 M S R I

Default Stereo Input

Mix

Read

2:46.490

Levels

dB -57 -54 -51 -48 -45 -42 -39 -36 -33 -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0

Selection/View

	Start	End
Selection	2:22.183	2:36.582
View	0:24.327	1:14.631

48000 Hz • 32-bit Mixing 109.03 MB 4:57.723 123.65 GB free

RESULTS

FINAL OUTPUTS

- Curated 10 pages of notebook outputs down to 7 sample “verses”
- 7 sample verses synthesised into speech
- Samples of verses with melodies

SAMPLE VERSE #1

*When I get my Bentley, they gon' call out all these
Bitches knowin' damn well they gon' call my space and
Then I got my deal I was back in the ring
I know I got it, I don't know what she got the spit if I ain't say nothin'
Imagine if I didn't have the ends
Cop a prada spot, right?*

*And keep your face to the risin' sun
But I need that, in the sauna
In the bathroom, at your mama's*



CONCLUSION

CONCLUSION

- Machine learning for audio can be as or even more unpredictable than working with images
- Difficult to make audio that actually sound appealing to listen to vs. sounds that are just “generated”.
- Linguistics is another entire study that would have been nice to explore with more time.

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