



Understanding My Music Taste

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ART & ML Project 3



Background

- Solo Project
- Senior in BXA
- First ML class/ Project 2 only ML background



Summary

- As a classical piano performance major, curious if there are parallels between my favorite rap and rnb songs to my favorite in classical pieces
- Use ML tools to uncover similarities in instrumentation, musical patterns, or motifs between very different genres of music
- Personal project where I dig into my own data and listening habits



Process

Spotify API (song extraction) -->

Vocal & Instrumental Separation -->

Audio Style Transfer on instrumental file -->

Super Piano 3 **OR**

Music Generation w/Transformer **OR**

Fine Tune GPT-2 Lyric Generation



Process

Website Tool (YouTube to mp3) -->

"Spleeter" ML Model for music stem separation -->

Audio Style Transfer on instrumental file -->

~~Super Mario 3~~ **OR**

Music Generation transformer **OR**

Fine Tune GPT-2 Lyric Generation



Process

- Spleeter: offered 2, 4, or 5-stem separation functions
- Audio Style Transfer: Processing every content/style pair took a long time
 - Adjusted the ALPHA, learning rate, and # of iterations parameters
- Fine Tune GPT-2: Trained with provided Charles Dickens text briefly
 - used my rap and rnb song lyrics as prompts for the conditional sample generation



Results

Original: Sweet/I Thought You Wanted To Dance by Tyler, The Creator 

Separated Vocals: 

Separated Instrumental: 

Classical Style Reference: 

Transferred Result: 

Lyric Generation:



```
It was 3:45am chugging into another room when I could be heard cracking issue on my windowsill.  
She now clumsily lies down with the new boyfriend,  
who looks a little more than the usual man Frank head on in at his old place.  
(I am the Duke), enjoying the wind of a kind sun behind his ears,  
his best dexterity in providing retriever to anything strung Half-P –  
basically anything suitable to outbear those unfortunate life and brother,  
but is a coin-flip for...|
```

Results

Original: No Child Left Behind by Kanye West 

Separated Vocals: 

Separated Instrumental: 

Classical Style Reference: 

Transfer Result: 

Lyric Generation:



I can do anything on him
Now, don't talk, it's not you, c'mon, let's go, listen.
My brother was always the doe of those who knew Him.
This is something to his heart Cre city.
I am his brother.
My brother was always the doe of those who knew Him.
She will not.
We will save him.
You'll save him until you beat it.
Now, I say if you work rickshaw.
Don't do anything on him Now, don't talk, it's not you, c'mon, let's go, listen.
My brother was always the doe of those who knew Him.
This is something to his heart Cre city.
I am his brother.
I am his brother.
Now, don't think about it, now.
I know you touch it here.
You know that I touched it on the bank, that I touch it here.
All that surface gr̄bund, all that oil there, is a yellow mark on it O your god, nothing.
Take a little tearaway, I know you're dead.
You know what makes that matter.
Now, as I said Don't talk, it's not you, c'mon, let's go, listen.
And this is something to your heart Cre city.
Leave it to that pig that came and wrecked yours with his 'tough doors'.
The bad doors.
What does that matter?

Results

Original: The Incredible True Story by Logic 

Separated Vocals: 

Separated Instrumentals: 

Classical Style Reference: 

Transfer Result: 

Lyric Generation:

Nobody's out there likea who's been here three years
It would take yo business baciirin' out of shopswire for ya
Every needleon in a band ain't better than niggers holdin a peg
Every man in his town gota on all his hats Knole ear ain't gone
Dang let it ride an fife but
Sent me a party time They forgot one barmfinn of my bill Not personally not
Had any money he had Made a thing however Govell there was no wealthy man wantses in England,
for a man can faine some man
That ain't at all rich
Buggier sayin here are the best saves best lids
As the music have come out of Surrey Bewhelmed and babbithformed outyearning one night
And for a cause I do love this and it's it best
So, stop looking, stop showing, Mama, stop showing beholding teens Bully increased impressin' divin',
Let's all show with that Never ever toured before but
Suffice to say it was a resleoped set wi're been puffin' for a thousand miles
Wall Shower nr trufdrd by two people blind
In this wee heap sendin back your hatHo wigklug lovin' yehn';
And thatru part dead perhipin'd
in the grave a hill he-and-bighigh duh brother HAT rattled with a good sprot
Flatlight recovery folk did and made a ghastly cause
They were early set,
Turnin stompin' for kin
Tcho hostin rollin, Polish passenger, came up the hill
Shattered together like the shot on a drum.

Reflection

- More proficient in using audio-related packages and tools, ffmpeg, PyAudio, soundfile, librosa, etc.
- Spend more time improving the results of Audio Style Transfer
 - Audio files used should have less contrast, so their style is less ambiguous
- Didn't get too many satisfactory results as I hoped, but explored many different models this time
- Dive deeper into the Music Generation models

