

Daily Log

Monday October 28

I ran a tutorial in Visual Studio Code for the first time to make sure Keras and Tensorflow are working properly (they are). I'm still making sense of the documentation, but running the tutorial helped me figure out how to use different functions and what kinds of inputs to use.

Tuesday October 29

I updated the Hot 100 Song URI and title files on my computer (I do this once a week to stay up-to-date and so I can use them to get audio feature data). I also ran another Keras tutorial, going back to the documentation each time I didn't understand a function's meaning, so I can have a solid understanding of the ones I'm using in my CNN.

Thursday October 31

I wasn't at school this day.

Wednesday November 6

Took the time to find a few Medium tutorials on CNNs. These are especially helpful and because they explain how CNNs work and what sorts of libraries I can install to help make them as efficient as possible. I have some tutorials bookmarked in my Senior Research folder.

Thursday November 7

I'll need songs on my computer to calculate MFCCs, so I downloaded most of the current Hot 100 songs. It should've been easy, but for some reason I kept getting errors whenever I typed the command into my terminal, so I had to spend a lot of the class figuring out what the problem was. Finally, I changed one character in my command and it worked (go figure).

```
vicki — spotdl --list=billboard-hot-100.txt -f ~/Documents/Senior_Research/Ho...
3,526,337 Bytes [100.00%] received. Rate: [ 101 KB/s]. ETA: [0 secs]
INFO: Converting YoungBoy Never Broke Again - Lonely Child.m4a to mp3
INFO: Applying metadata

INFO: 65. DaBaby - Babysitter Ft Offset [Lyrics] (http://www.youtube.com/watch?v
=AwgVyTTKKIw)
2,587,734 Bytes [100.00%] received. Rate: [ 144 KB/s]. ETA: [0 secs]
INFO: Converting DaBaby - Baby Sitter (feat Offset).m4a to mp3
INFO: Applying metadata

INFO: 66. Brantley Gilbert, Lindsay Ell - What Happens In A Small Town (Lyric Vi
deo) (http://www.youtube.com/watch?v=bDGS1MLbxU4)
3,336,984 Bytes [100.00%] received. Rate: [ 100 KB/s]. ETA: [0 secs]
INFO: Converting Brantley Gilbert - What Happens In A Small Town.m4a to mp3
INFO: Applying metadata

INFO: 67. Dababy - VibeZ (Lyrics) (http://www.youtube.com/watch?v=n055gLbsMxc)
2,478,694 Bytes [100.00%] received. Rate: [ 101 KB/s]. ETA: [0 secs]
INFO: Converting DaBaby - VIBEZ.m4a to mp3
INFO: Applying metadata

INFO: 68. Ellie Goulding & Juice WRLD - Hate Me (Lyrics) (http://www.youtube.com
/watch?v=6NcivJ0xg34)
3,018,663 Bytes [100.00%] received. Rate: [ 179 KB/s]. ETA: [0 secs]
```

Figure 1: Downloading Billboard Hot 100 songs.

Timeline

Date	Goal	Met
10/14/19- 10/18/19	Learn how neural networks work	Yes, but I'll probably learn even more as the year progresses
10/21/19- 10/25/19	Start neural network	Yes, but I ended up deciding to switch to TensorFlow and Keras
10/28/19- 11/1/19	Continue work on convolutional neural network and download Hot 100 songs	Yes
11/04/19- 11/08/19	Continue work on CNN	In progress
11/11/19- 11/15/19	Continue work on CNN	In progress

Reflection

Now that I'm working towards my project's main goal, I'm realizing that I still have to break tasks down into smaller pieces in order to get things done. I kind of thought that wouldn't be the case since I'd finished setting up Spotify feature extraction and audio analysis, but I guess that's just how research projects go. I'm definitely emailing a CS researcher next week for a concrete explanation of MFCC, because I'm still fuzzy on that.