



## Daily Log

### Monday November 18

I kept working on formatting my input data with the Pandas library. I also uploaded all my code onto my GitHub account. It was sort of confusing at first, but then someone said I could just copy and paste my code to make commits.

### Tuesday November 19

I made a module of helpful classes for data retrieval so I don't have to constantly retype the same Spotipy and librosa functions over and over again. So far it retrieves common song features, like tempo and modality, and calculates MFCC. I'm still adding useful features for data formatting.

### Thursday November 21

I got a response from the researcher I emailed! He couldn't give me an in-depth response, but he did give me a general description of what exactly MFCC is and does. I'm going to email one or two other researchers. I also made progress with Pandas: I was able to make a DataFrame structure that organizes data into different categories, rows, and columns.



Mark Gregory <mark.gregory@rmit.edu.au>  
to 2020vagrinya@tjhsst.edu ▾

Nov 19, 2019, 4:07 PM (7 days ago) ☆ ↩ ⋮

Dear Victoria,

Thank you for contacting me about this research. Unfortunately, this is a very busy time of the year here, and I'm not able to respond to your questions in detail.

Mel-frequency cepstral coefficients (MFCCs) are coefficients that collectively make up a Mel-frequency cepstrum (MFC), which is a short-term power spectrum of a source signal (sound), based on a linear cosine transform of a log power spectrum on a nonlinear mel scale of frequency.

The approach shown in the paper utilized second differentials to improve the identification of the coefficients.

Why do we do this? The purpose is to capture the key attributes of the speech, which is analog, in a digital form. This aids speech recognition by AI – such as SIRI, Cortana, and others used on our mobile phones and products like Google home.

I recommend you read the following

[https://en.wikipedia.org/wiki/Mel-frequency\\_cepstrum](https://en.wikipedia.org/wiki/Mel-frequency_cepstrum)

[https://medium.com/@jonathan\\_hui/speech-recognition-feature-extraction-mfcc-plp-5455f5a69dd9](https://medium.com/@jonathan_hui/speech-recognition-feature-extraction-mfcc-plp-5455f5a69dd9)

It is great that you're looking at technology in your project, best wishes for the outcome.

Figure 1: Response from an MFCC researcher.

## Timeline

Date	Goal	Met
11/04/19- 11/08/19	Continue work on CNN	Yes
11/11/19- 11/15/19	Continue work on CNN	Yes
11/18/19- 11/22/19	Continue work on CNN and email MFCC researcher	Yes
11/25/19- 11/29/19	Continue work on CNN	In progress
12/02/19- 12/06/19	Continue work on CNN	In progress

## Winter Goal

Run CNN and have it predict Spotify song popularity score (on a scale of 0-100) with at least 80 percent accuracy.

## Reflection

Now that I have data formatted correctly I just need to input it into Keras. To be honest, that seems to be the most difficult part of setting up the CNN - figuring out how to input data so it makes accurate predictions. Luckily I have time to figure it out since I got a lot of the heavy stuff out of the way. I'll continue to make regular updates to my GitHub repository and make a Readme file next week.