

Daily Log

Tuesday October 15

Not at school

Wednesday October 16

PSAT Day

Friday October 18

Now that I had resolved the bugs in the Python code for locally making IBM Watson API requests and tested with a sample MP3 file, I made a request with a TED talk and it successfully returned a transcript in about a minute. I searched online and browsed through the API to see if I could make this parallelized instead of having to sequentially run queries, even in a for-loop, as this would accelerate the time. I couldn't quite find any such implementation, though there may be a similar feature in the next level subscription of the API service. For now, I implemented a loop to fetch transcripts and store them in the spreadsheet dataset (that was started from Kaggle).

Monday October 21

Ran the Python code for IBM Watson API requests but it started to slow down as I increased the batch size of transcripts to request. Five transcripts were returned during the class period. I resolved to continue getting transcripts from the demo site in parallel to speed things up.

Wednesday October 23

Continued to fetch transcripts from both the code and the demo site. In the meantime, while those processes were running in the background and I was updating the dataset, I began to look into the next steps of the project for text summarization. Explored the documentations of the following APIs: <https://deepai.org/machine-learning-model/summarization>, <https://www.meaningcloud.com/products/summarization>, <https://aylien.com/text-api/summarization/>, <https://aylien.com/text-api/summarization/>.

Friday October 25

Continued to fetch transcripts from both the code and the demo site. In the meantime, while those processes were running in the background and I was updating the dataset, I began to look into the next steps of the project for text summarization. I picked up where I left off at the start of the year in looking into the Mellin and discrete cosine transform algorithms for audio processing. Can consider processing the MP3 files this way and then fetching transcripts and comparing results to see whether this processing makes a difference in our overall algorithm's accuracy. Now in a place

where I can start working more fully on the summarization component of the project/algorithm as the data set expands and conduct initial tests when the dataset is large enough. If tests are successful, can then look into upgrading IBM Watson API level for more transcripts.

Timeline

| Date | Goal | Met |
|--------------|--|---|
| October 11th | Among me, Arvind, and Mr. White, figure out how to use IBM Watson's API locally in Python for scaling the dataset in the near future and continue to obtain as many TED Talk transcripts as possible for initial tests of summarization in the coming weeks | Yes, have working Python code for making IBM Watson speech-to-text API requests; also expanded data set to 10 transcripts from the API. |
| October 18th | Start scaling dataset using IBM Watson API to up to the 27 TED Talks allowed this month (500 minutes total cap), then decide when we'll need to upgrade to a higher API access level for more requests and transcripts to start video transcript summarization task of the project | Nearly, got up to 20 transcripts although with some coming from the demo site but am successfully and actively scaling the dataset with the IBM Watson API itself too. |
| October 25th | Start researching for initial parts of the video transcript summarization and in tandem, continue to build the dataset over time | Yes, found free API's for text summarization and explored their documentations and looked more into audio processing algorithms for pre-processing/normalization for results comparison in the future as we try to optimize the algorithm |
| November 1st | Decide on a text summarization API and start to implement code/API requests on a test TED transcript I have in the dataset and continue to scale dataset in parallel | |
| November 8th | Discuss with Mr. White whether need to go about implementing Mellin and Discrete Cosine Transform or any other audio processing algorithms; checkpoint: have a successful summarization working and determine what next steps are if any issues arise; continue to scale dataset in parallel | |

Reflection

I'm quite satisfied with the progress I've made this quarter, picking up from where we were at the end of last year and the summer. The transcription component of our project's algorithm is coming along well, as code for IBM Watson API queries and demo site fetches are fully functional. The dataset continues to grow each week and that rate increases too, especially with Arvind and I now running them in parallel. I also have an initial idea and base for where to start with regard

to the project's next big component: summarization. Overcoming the hurdles along the way with the other API and various bugs and handling laughter and applause has also been rewarding. I anticipate other challenges in the near future but I'm in a better place now to resolve them more efficiently.