I knew I wanted to create art using a NLP model, and I had quite a few ideas that had a lot of variation in scope. The idea that I settled on was using a LSTM model to produce poems given a prompt. A relatively straightforward extension to this could be having a convolution neural network provide prompts for the poem, and have the poems be compared to an industry standard such as img2poem.

The LSTM model would be trained on the works of Emily Dickenson and/or on the sonnets of Shakespere, the two datasets have a total of 295 poems, but they are all of varying length, (The sonnets are much larger).

To complete this project I plan on implementing the LSTM model from scratch, and compare it to a Recurrent Neural Network also implemented from scratch on the same dataset. Any CNN used would be a pretrained CNN or a simple implementation from a library (such as VGG).

My first step would be to finalize the model and its I/O. Once that's done, I would focus on downloading the datasets and training a very simple RNN to get a quick measure of accuracy. I believe using Perplexity would be an appropriate measure of accuracy. Then I would go on to implement the final LSTM model and have both the LSTM and the RNN model be trained for an equivalent amount of time and compare their accuracies.

To keep track of progress, I will be tracking accuracy scores over epochs for every model that I train and compare. At the end, I hope to have a model that can reliably produce poems that have realistic grammar, pentameter, and rhyming schemes.

Datasets:

Images to Poems:
https://github.com/researchmm/img2poem#download-trained-model

Complete work of Shakespere:
http://shakespeare.mit.edu/Poetry/sonnets.html

Project Gutenberg's Poems: Three series, complete by Emily Dickenson:
https://www.gutenberg.org/files/12242/12242-h/12242-h.html

Sentences matched with emotion:
https://www.kaggle.com/praveengovi/emotions-dataset-for-nlp

Papers:

Emotion recognition from images:
https://arxiv.org/pdf/1705.07543.pdf

Interesting way to construct a sonnet model (deep-speare):

https://www.aclweb.org/anthology/P18-1181.pdf

Img2poem paper:
https://arxiv.org/pdf/1804.08473.pdf

Another image emotion classification paper:
https://link.springer.com/article/10.1007/s11063-019-10033-9

LSTM based poetry generation + constraint based Poetry generation:
https://research.fb.com/wp-content/uploads/2017/06/automatically-generating-rhythmic-6-2.pdf

Basic LSTM poetry paper:
https://neuro.cs.ut.ee/wp-content/uploads/2018/02/poetry.pdf