Final Project: Deliverable 1

I found a dataset of more than 1000 painting s by 50 different artists (https://www.kaggle.com/ikarus777/best-artworks-of-all-time#artists.csv). Though I may not use the whole dataset, I chose this one simply because it was the largest one I found. All the images are a 2-D works. I may just chose 10-15 artists by which to classify my paintings. I may also gather more pictures of artists work from wikipedia and other websites.

When analyzing the painting some of the important factors are the number of colours used and overall brightness of the painting. I can do this by looking at every pixel in each image and taking the overall brightness and the range of colours used. I can also look at the amount of empty space in a painting. Or how many colours are used in a certain unit of space. I also could look for common patterns in artists works and maybe use a CNN to identify certain repeating images.

As far as preprocessing, once I extract data from the colour of each painting, it might be beneficial to turn them into black and white so that it is easier for the CNN to detect common patterns.

From this dataset I want to make an AI that is able to look at work of art and classify it by artist. I think a Convolution Neural Network would be best for this project, but I believe I will have a better idea after we go over classification techniques. One of the key ways to recognize an artist is by repeated patterns in their works, like visible brush strokes, or dark lines. A CNN could break the paintings down into these small patterns and use them for filtering. I don't know of any other alternative models, so I cannot comment on the pros and cons.

I would like to present my work at the poster presentation. I could not find any articles on trying to classify artwork by artist, I found a paper about trying to classify 2-D art by artistic style. The paper reported that their CNN performed with 62% accuracy. Perhaps my project I will aim for 75% accuracy (https://www.lamsade.dauphine.fr/~bnegrevergne/webpage/documents/2017_rasta.pdf).