MAIS 202 FINAL PROJECT: DELIVERABLE 1

Data Selection Proposal: Artistic Animal Generator

1. Datasets:

a. http://vision.stanford.edu/aditya86/ImageNetDogs/
I chose this dataset of dogs because they are well labeled according to their breeds and there is plenty of good quality images for each.

b. https://www.kaggle.com/rickyjli/chinese-fine-art
This dataset contains artworks of various Chinese artists from many art disciplines over the past 200 years. I will use their artworks as the basis of art style transfer of the dogs

2. Methodology:

a. Data Preprocessing:

I will extract the relevant columns of data for each of the datasets.
In the case of the dogs, each picture will be associated with their breed, and that is about all I need.
In the case of the art dataset, I will arbitrarily pick a few styles to used for the style-transfer, they will be associated with the artwork's name and the artist's name.
I might also need to reformat the images to a uniform resolution.

b. Machine learning model:

I will be using a Generative Adversarial Network (GAN) to generate synthetic images of dogs, using a brief text description. The resulting images will be pumped into another GAN trained to a particular style of a Chinese artist. The 2nd GAN will perform a style-transfer on the synthetic images.

c. Evaluation matrix:

There is no objective loss function used to train GAN generator models, as such it is hard to come up with an objective method to evaluate the results of it. As a beginner, I will try to evaluate them manually, judging the generated images personally. Later, there are quantitative measures like the Inception score and the Fréchet Inception distance that I will learn to apply to evaluate my results.

3. Application:

My project will be presented on a web app. The user can choose an available art style, and then they can either use their own dog picture or choose to generate a synthetic dog image using a short text description. The dog picture, real of fake, will then be transformed into the selected art style.