**CAP 6610, Machine Learning, Fall 2020**

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Project Report 1

**Project Objective:** To do a comparative analysis of the performance of Generative Adversarial Network (GAN) vs Variational Autoencoder (VAE).

**About Dataset:** To do the comparative analysis of Generative Adversarial Network (GAN) vs Variational Autoencoder (VAE) I intend to use MNIST handwriting Data set mentioned at <http://yann.lecun.com/exdb/mnist/>. The dataset contains 60,000 training images and 10,000 test images. The dataset is of 21.00 MB. If time persists, I would like to use the celeb Face dataset with over 200 thousand images located <https://www.kaggle.com/jessicali9530/celeba-dataset>.

**Programming Environment:** To develop the Generative Adversarial Network and Variational Autoencoder, I will be using Python as my primary development programming Language. I will be using Tensorflow and or Keras for creating and training my model. It is one of the more famous libraries when it comes to dealing with Deep Neural Networks.

**Computational Resources:** I will be using my local machine for training the model. If the train time is considerably high, I would use AWS instances with dedicated GPU servers since they are easy to set up and I have prior knowledge. AWS offers Free tier for University student just like other cloud platforms which would make sure no money is being charged.