CS 663 Project Proposal

Group Members

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Idea and Research paper

The project will be based on implementation of the following paper:

InfoGAN: Interpretable Representation Learning by Information Maximizing Generative Adversarial Nets (Paper Link)

In a normal GAN or Deep Convolutional GAN architecture, there is no systematic way to find the structures in an image and manipulate the generated images because of entangled representation of the image structures in the Generator input.

InfoGAN tries to solve this problem by providing a disentangled representation by providing latent codes and incorporating the concept of Mutual Information Theory from Information Theory.

In this project, I aim to replicate the results of the InfoGAN paper and further analyse the structures that are captures in latent codes in some other datasets.

Dataset

MNIST dataset to replicate the results of the paper
Some shape analysis dataset
Face dataset from the paper (If time permits)

Evaluation Strategy

The Paper doesn't define a particular metric to evaluate the generated images. Generated images will need to be evaluated manually to see how much they are similar to the original images. Losses of Generator and Discriminator convergence can be checked and variation of images with latent codes to be observed to analyse the structure captured by the images