CSE 841 Project Proposal - Naive FaceNet Implementation

Ibrahim Ahmed

17. October 2018

1 Scientific Question

How accurate can a machine learning model trained using a deep neural network predict faces?

2 Project Description

FaceNet is a unified embedding for face recognition and clustering developed by employees at Google in 2015. The system proposed, called FaceNet, learns a mapping from face images to a compact Euclidean space where distances directly correspond to a measure of face similarity. The methods used in FaceNet involve a deep convolutional neural network that is trained to directly optimize the embeddings.

Implementing FaceNet will introduce quite a few challenges where I will learn how to use deep neural networks and the TensorFlow framework as well as implementing novel ideas from a white-paper.

You can find the FaceNet paper here.

I plan to provide an implementation with visualizations of my results based on its performance on the Labeled Faces in the Wild (LFW) dataset.

3 Implementation Details

The naive FaceNet implementation will be written in Python using the TensorFlow machine learning framework.

The implementation will be written on a Google Colaboratory Notebook which provides free GPU access and a Python runtime, free of charge.