AI & ML Capstone Project

Date: 2nd April 2021

Topic: Face Detection and Recognition

In this project we will tackle the task of face detection followed by face recognition. As shown in the image below, face recognition pipeline involves four main steps:

a) Finding the face in the given image: Implement a face detection algorithm for detection multiple faces in a given image. You can either use Deep Learning methods or machine learning methods such as Histogram of Oriented Gradients or Harr Cascade Classifiers for this.

b) Face Alignment: Once the coordinate of the faces are obtained, crop the face and make them translational invariant i.e. scale and rotate the image to ensure similar nature of all facial images.

c) Feature Extraction: Perform Feature extraction for the given faces. Particularly, use an encoder network to encode the image into a fixed dimensional vector (Eg. 64/128). You can use a pre trained MLP or train your own MLP particularly for facial encoding using triplet loss function.

d) Prediction: Now once the model is trained, given any test image, find if it belongs to a specific person or not (use encodings for comparison).