Task:

Face recognition using DLib and openCV

Algorithm

1) The face is detected from the image using Dlib. The get_frontal_face_detector() extracts the face coordinates.

2) With the extracted coordinated , face is cropped.

3) Now the cropped face is subjected to intensity normalisation using histogram equalisation. This is essential for feature extraction because GLCM matrix depends on intensity values of images.

4)The features are extracted from the normalised image using GLCM matrix. This GLCM provides 6 features for each image. Each persons facial parts have different types of textures and GLCM helps in identification of textural variations of image. hence GLCM is used here.

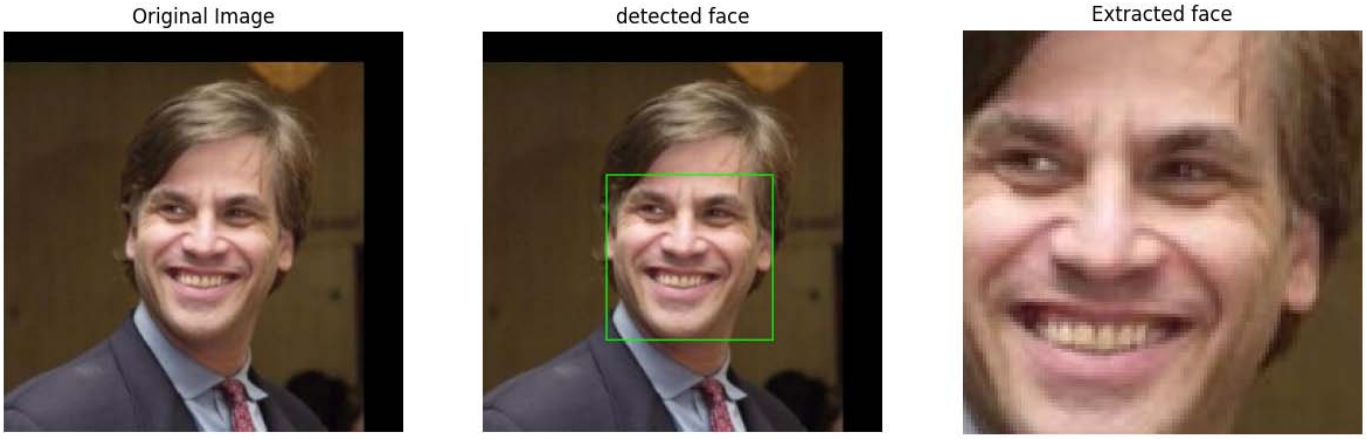
5) The extracted features are fed into SVM for training. SVM is a good binary classifier which can be implemented effortlessly.

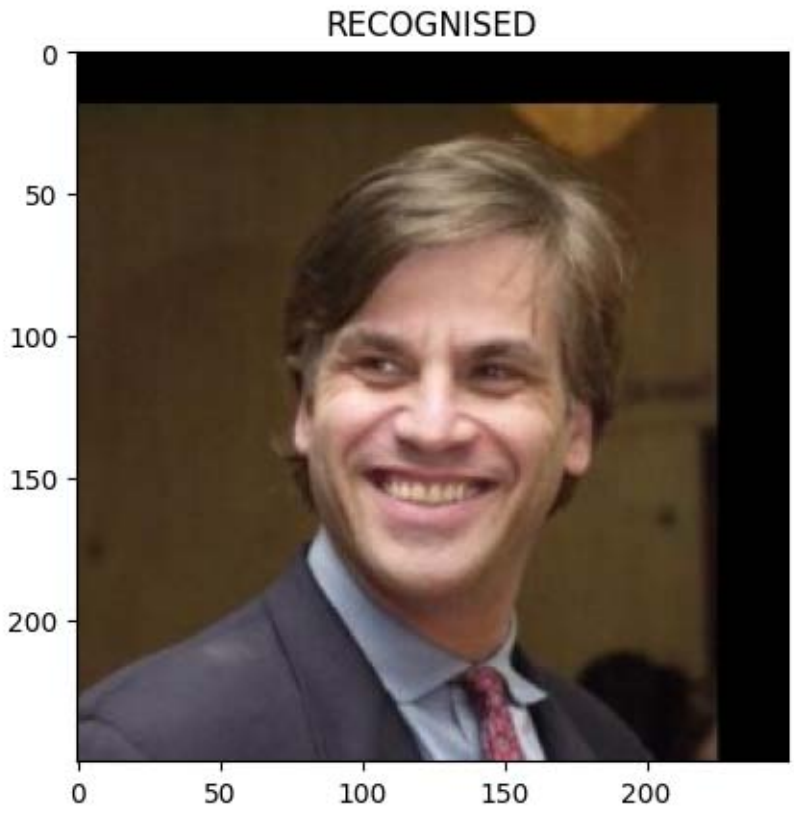
6) The testing phase follows step 1 to 5 followed by prediction

Implementation and outputs:

The dataset is derived from lfw dataset. I have trained 10 images with 5 as positive case(data which should be recognised) and 5 as negative case (data which should be unrecognised). I have used the same data for testing for easy analysis

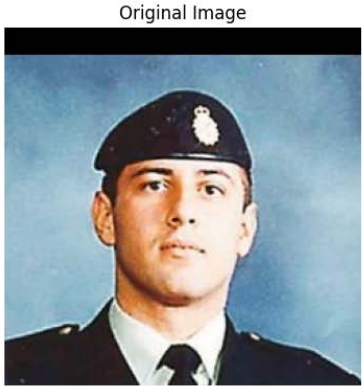
1)Positive prediction





2)Negative prediction

Original Image



detected face

Extracted face