Face detection and Recognition

Face detection and recognition is done in matlab. For recognition images of face of size 100\*100 size is required. So before recognition detection is required. In which face is detected from captured image and recognized from images in database.

For detection, in matlab ‘vision.CascadeObjectDetector’ whose documentation is found in <http://www.mathworks.in/help/vision/ref/vision.cascadeobjectdetectorclass.html>

For recognition we used the face recognition algorithm code implemented by Philipp Wagner <http://www.bytefish.de/pdf/facerec_octave.pdf>, whose documentation describes the procedures in matlab. We used the Eigen Face method for recognition.

So in matlab procedure followed were:

1. Creating the image database which consist 10 images per subject.
2. Then feature extraction is done for the images in database along with the id for each subject.
3. When query image(cropped face) is passed through the face recognition using prediction function which gives the id of recognized subject.

Functions from matlab code repository <https://github.com/bytefish/facerec>

read\_images(folder)- Read images from a given path and return the Imagematrix

eigenfaces(X,y,10)- Performs a Principal Component Analysis on X and stores num\_components principal components.

eigenfaces\_predict(model, Xtest, 1)- Predicts nearest neighbor for given Eigenfaces model which gives the id for the recognized subject

Test Cases:

For known subject from database 5 burst image from single subjected were tested.

Person in database=6;

Percentage of recognition

|  |  |  |
| --- | --- | --- |
| **Test subject** | **Percentage of detection** | **Percentage of recognition** |
| 1 | 100 | 100 |
| 2 | 100 | 100 |
| 3 | 100 | 0 |
| 4 | 100 | 0 |