

Face Recognition Using Principal Component Analysis - PCA

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Overview

Face Recognition.

Goal

Face Recognition using Principal Component Analysis - PCA using 5 photos for training and 1 image for testing for 9 individual persons.

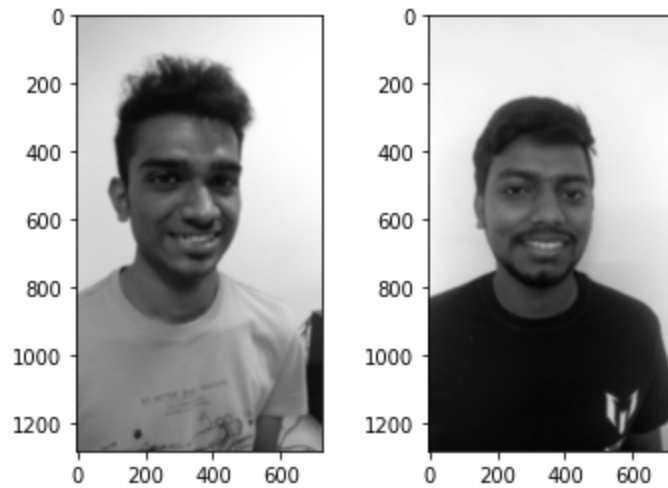
Process

1. Prepare a face training dataset.
2. Compute the average face vector.
3. Subtract the average face vector from original images.
4. Calculate the covariance matrix.
5. Calculate the eigen values.
6. Select the top K of all.
7. Create features weight for training.
8. Read the testing face image.
9. Calculate the feature vector of the testing face.
10. Compute euclidean distance between test feature vector and all the training feature vector.

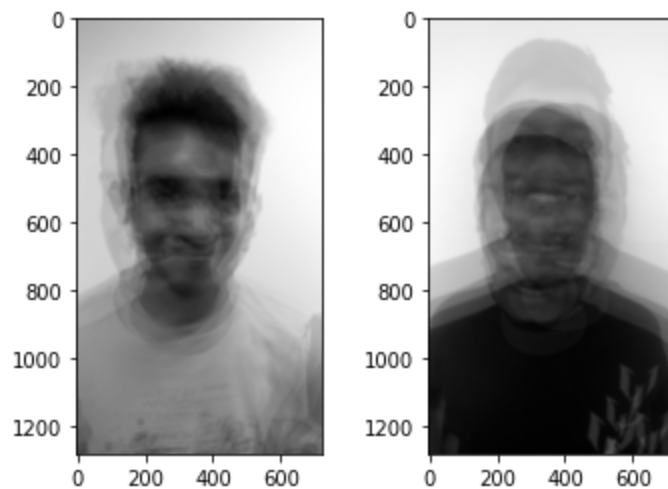
11. Find the face class with minimum distance.
12. End.

Results and Analysis

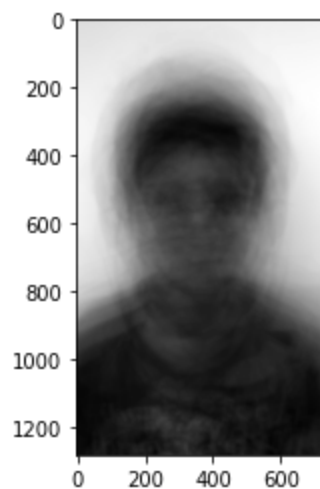
The images when captured look like this:



Their average images look like this:



The overall average image looks like this:



All the images were verified correctly.

The system successfully recognized the human faces and worked better in different conditions of face orientation.