Assignment - 8

PCA

1) Load the Data matrix *faceimages.mat* given to you. There are *400* face images of size *112×92*.

1. Last column of the data is the class label. Column 1 to 10304 are *112×92* pixel. Each row represents one image.
2. Construct the data matrix and Mean-center the data.
3. Construct covariance matrix for the data.
4. Solve eigenvalue problem to find projection matrix

   - Find low dimensional representation of Face images
   - Draw energy curve of PCA for the given data
   - Reconstruct any face image with 5,10,50 and 100 principal components.
   - Compute the reconstruction error for the same.