

Assignment # 7

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.