

EE 779 Advanced topics in Signal Processing
Project on Principal Component Analysis (PCA)

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Problem 3(a)

We take an original image from the training set (orl-faces/s1/1.pgm) and project to the subspace spanned by eigenfaces. We then find a weight vector containing the weight of each eigenface in the original image. An estimate of the original image is reconstructed by summing up all the weighted eigenfaces(the weights from the weight vector).

The mean square error of this estimated image w.r.t the original is also calculated.

orlImgTrain



orlImgTrainEst



trainMSE = 0.529503153775707

Problem 3(b)

orlImgTest

orlImgTest = testData(:, 13);



orlImgTestEst



testMSE = 330.089201136936

Problem 3(c)

mylmg



myImgEst



myImgMSE = 1053.22541281570