

This homework is able to recognize a person's face by comparing facial images to that of a known person. The algorithm projects the image onto a "face space" composed of a complete basis of "eigenfaces."

The experimental dataset is uploaded at "Files". There 40 subjects in this dataset and each subject has ten images. The size of image is 112 x 92 pixels.

Tasks:

1. 1NN: Do classification using KNN (1NN in this project) with 5-fold cross validation. Report average accuracy.
2. 1NN + PCA: In each cross validation, using PCA to reduce the dimensionality of images (need to center the images when calculating PCA) to 100. Report average accuracy.
3. Resize images from 112 x 92 to 56 x 46 and repeat Task 2, compare the new results to the results using un-resized images.
4. Submit Jupyter notebook at ELMS