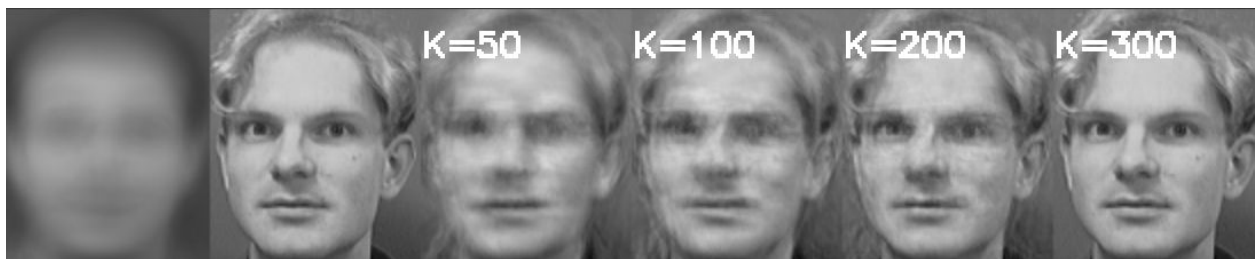# E2 212 : Matrix Theory - Assignment 2
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06-02-01-10-18-12-15505

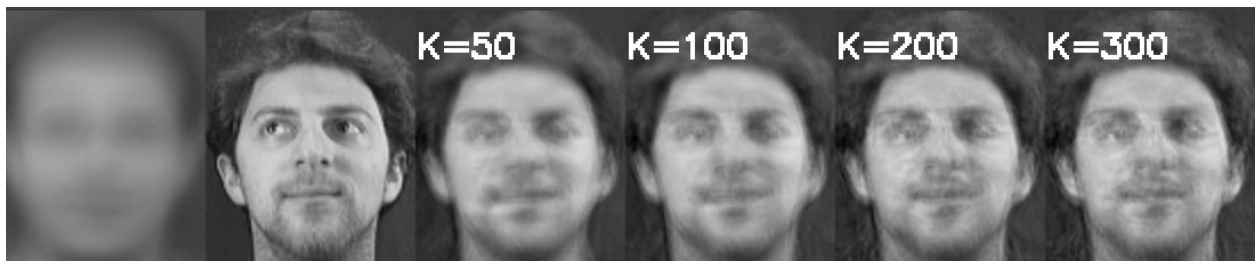## Reconstructed images - training set

As K increases, the images become clearer and at large enough K the images are almost identical.

Mean image, original image from train set, and reconstructions with varying values of K.

Reconstructed images - test set

Although the image reconstruction improves with increasing values of K, it does not quite reach the clarity as is achieved in the training set. This is because the test image is not present in the matrix that is used to compute the eigenvectors. Hence the 300 or so eigenvectors do not have the sufficient data to recreate the test image and the image quality is bad.

Mean image, original image from test set, and reconstructions with varying values of K.

Nearest Neighbour Classification

3-NN classifier was trained on the 320-dimensional representation of the 320 training images (40 classes of 8 images each). This was then used to predict the classes of the 80 images in the test set.

Of these 80 images, 75 were classified correctly while 5 were classified incorrectly.

This resulted in a prediction accuracy of 93.75% over the training set.