

# IDAPI Coursework 4

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## Q1

The mean vector for the HepetitisC data set is:

$$\begin{pmatrix} 1.164 & 3.916 & 0.448 & 5.679 & 4.865 & 3.778 & 4.127 & 3.604 & 0.217 \end{pmatrix}$$

## Q2

The covariance array is:

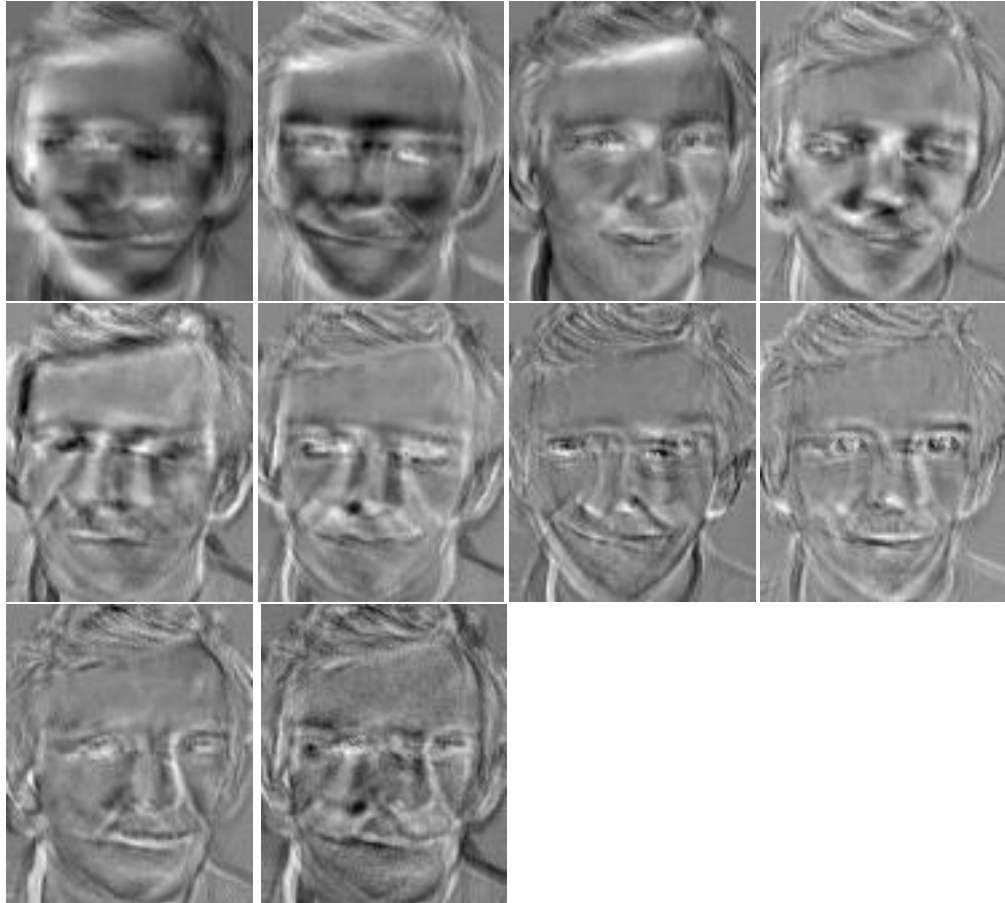
$$\begin{pmatrix} 5.880 & 0.245 & -0.004 & -0.284 & -0.346 & -0.417 & -0.481 & -0.267 & -0.067 \\ 0.245 & 7.572 & 0.073 & -0.358 & -0.346 & 0.257 & 2.273 & 0.946 & -0.032 \\ -0.004 & 0.073 & 0.247 & -0.116 & -0.039 & -0.003 & 0.100 & 0.066 & -0.005 \\ -0.284 & -0.358 & -0.116 & 16.960 & 7.969 & 4.443 & -1.036 & -0.306 & 0.047 \\ -0.346 & -0.346 & -0.039 & 7.969 & 8.361 & 4.921 & -0.763 & -0.752 & -0.001 \\ -0.417 & 0.257 & -0.003 & 4.443 & 4.921 & 6.683 & -0.087 & -0.376 & -0.141 \\ -0.481 & 2.273 & 0.100 & -1.036 & -0.763 & -0.087 & 20.583 & 1.122 & 0.014 \\ -0.267 & 0.946 & 0.066 & -0.306 & -0.752 & -0.376 & 1.122 & 4.317 & 0.119 \\ -0.067 & -0.032 & -0.005 & 0.047 & -0.001 & -0.141 & 0.014 & 0.119 & 0.170 \end{pmatrix}$$

## Q3

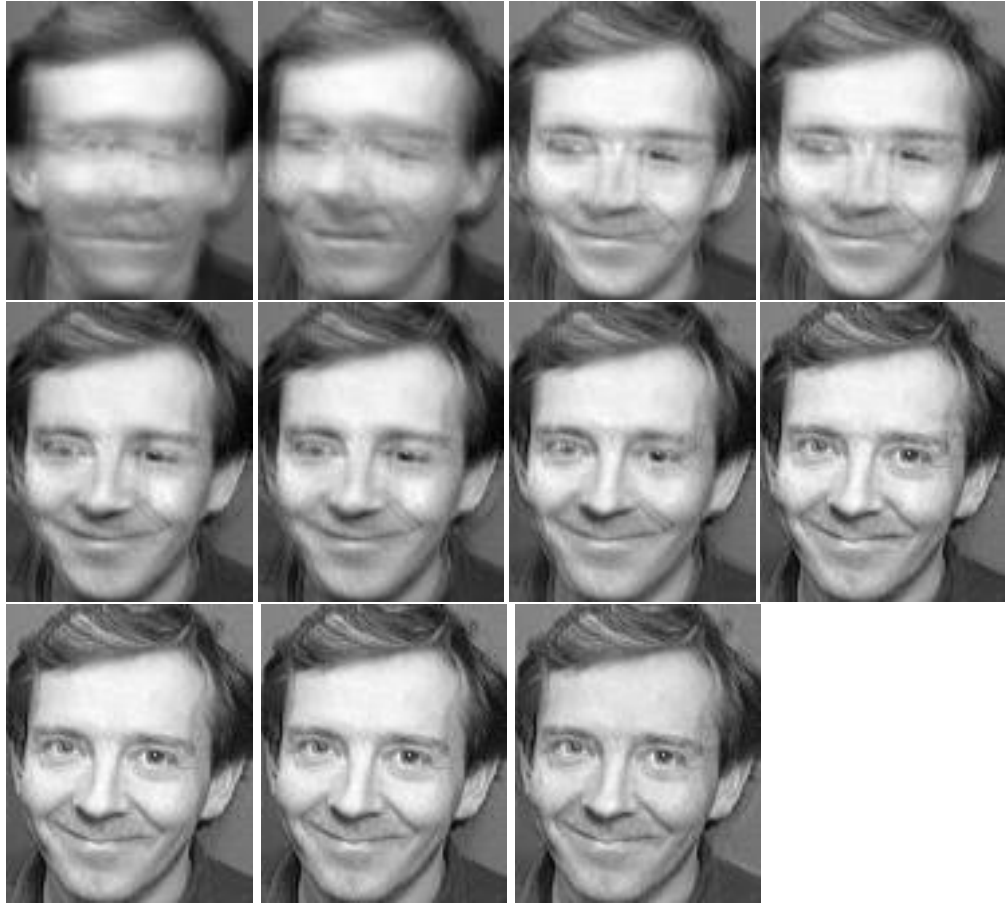
The component magnitudes for c.pgm on the given basis are:

$$\begin{pmatrix} 1206.254 \\ -1590.133 \\ -248.136 \\ -821.249 \\ 246.009 \\ -771.900 \\ 963.633 \\ 376.967 \\ 161.599 \\ -533.276 \end{pmatrix}$$

## Eigenfaces



## Partial reconstructions



## Partial reconstructions with my basis

