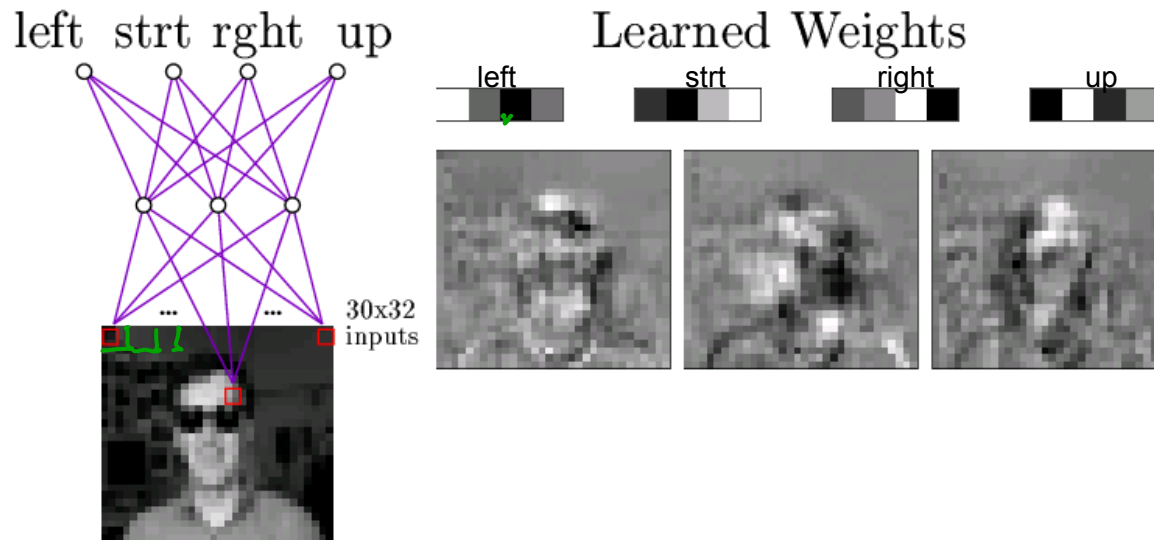


Learned Hidden Unit Weights

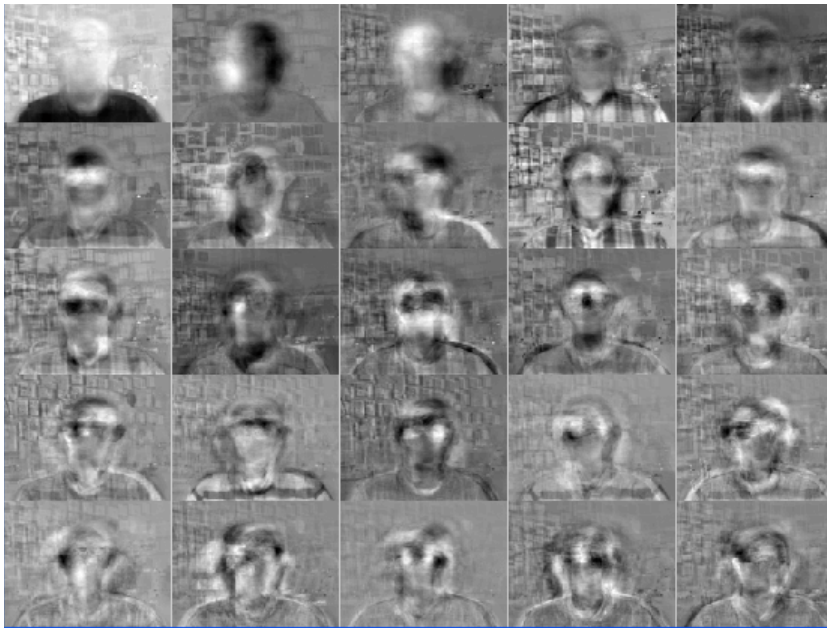


Typical input images

<http://www.cs.cmu.edu/~tom/faces.html>

PCA Example

- Top 25 Eigenfaces



The results of recognition come from randomly partitioning the data into training and testing sets. The best match to each test entry is shown to the right of the test entry.

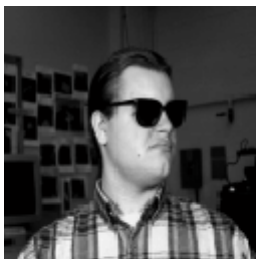
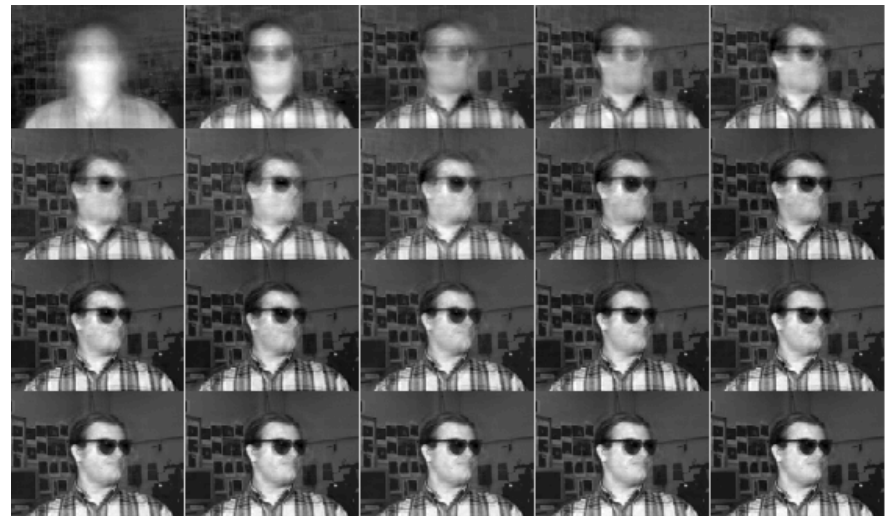


Reconstruction

Reconstructing a face (selected at random from the training data) adding 1 additional PCA component each step



Reconstructing a face adding 5 additional PCA components each step

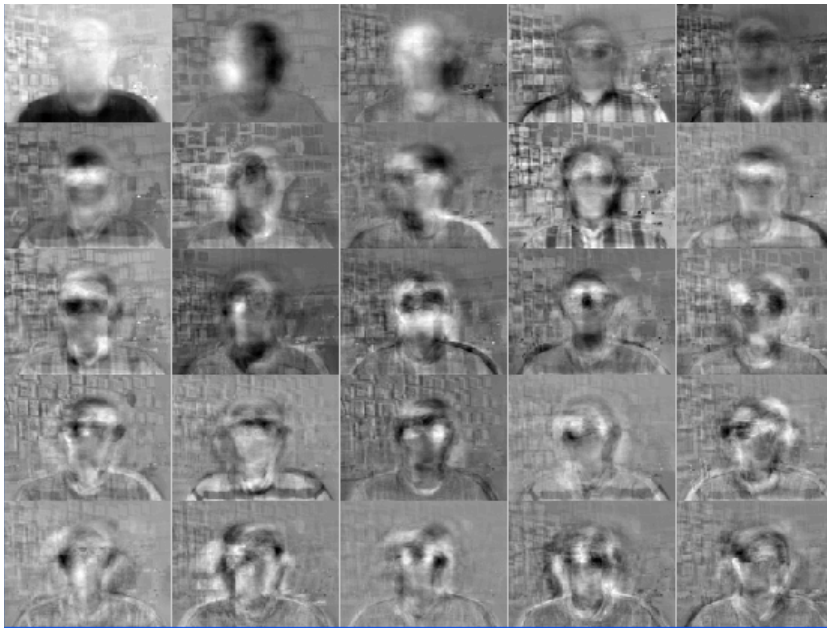


Original Image

Pretty good recognition with ~30 PCA and very good with 100!

Comparison

- Top 25 Eigenfaces



- weights for 3 neural net hidden units (predicting face direction)

