Computational Vision - Lab 5

Hamid Dehghani,
School of Computer Science,
University of Birmingham, U.K.
B15 2TT
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Instructions

- Start Create a directory **matlab** and a directory **lab5** inside that.

- Start up a web browser and bring up the following URL:
    http://www.cs.bham.ac.uk/~dehghanh/vision_files/lab/lab5/

- Download the .zip file and the .gz file for Lab 5 and put them in the lab 5 directory. Unzip (**unzip eigenface_code.zip**) and (**gunzip pics.gz**) them as needed.

- To run the eigenfaces demo you now need to reserve a couple of files for testing. Create a test directory and move (using mv command) a handful of different faces to it.

- Now move the rest of the images to another new sub-directory **images**.

- In matlab run **learn**. This loads up the images in **images** and finds the eigenvectors. It will take about six minutes to run. Type **whos** and you will see that there is a collection of eigenfaces in **vec**. You can cycle through them using **show_images(vec)**. The least important ones come first, and the more useful ones last. There are the same number of eigenfaces as there were training images, if you want to see an individual one use **show_image(vec(i,:))**, where **i** is the number of the eigenface (from 1 to about 80).

- Now you can load up the test images, type **test_images = read_images([pwd '/test/']);** To see if you can correctly recognise one you can now type help recognise, and then **recognise(test_images,m,avg,vec,faces,images);** where m is the number of the test face you want to try to match. In figure(1) it will display the (previously unseen) test image, and in figure(2) it will display the picture in the training set that matches best.

- Now try to reconstruct an image from a weight vector using image2face and face2image. What happens as you reduce the number of dimensions in the face2image routine?