H02A5a - Computer Vision

Assignment 3: recognition

1. *Intro*

Face detection and recognition is a major topic in computer vision.
In this project you will develop a program to detect faces on pictures and recognize Barack Obama and Arnold Schwarzenegger.

2. Face detection and recognition (2h)

On Toledo, skeleton code and images are provided. The outline of the approach is:

1. Use the build-in face detector of OpenCV to detect the faces in the images.
2. Crop and resample the images to the region of interest (the face) and save them in another directory.
3. Do a principal component analysis on the previously created images and build a model for the face of Arnold and one for the face of Barack.
4. Classify each image in the test set (these were not used for building the model):
    a. Represent the test image in both models.
    b. See which model represents the image the best (minimal sum of squared differences between the original and the reconstructed image).
5. Enjoy the result!
6. Submit your solution (the python file and a pdf document with the necessary copy pastes of intermediate pictures) on Toledo using the Assignments-tool.