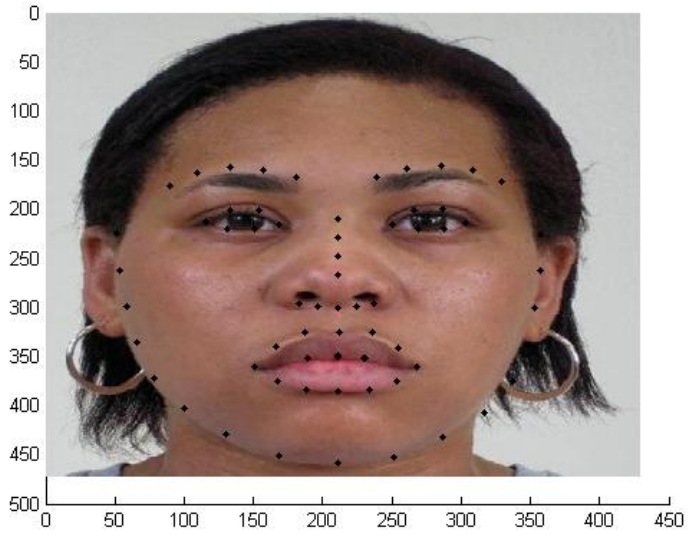
The objective of this homework is to:

. Design a regressor that detects 2D keypoints/landmark-points on images of faces.

. Do procrustes alignment on the reconstructed 2D keypoints of these images, and compute the procrustes mean.



You are provided with a set of images of faces and their corresponding 2D landmarks. There are 66 landmarks points for each image. You may train any Active Shape Model (ASM) regressor to detect landmark-points directly from the images. You must divide the images into a training and testing set. You must then compute the procrustes mean of the reconstructed 2D landmark points of the test image. You may use any subset of the dataset for training and testing. You may also reduce the number of landmark points to simplify the task, but the resulting set of landmarks should retain the shape of a face. The data is in the zip file "homework5data". The images are in the "images", and the corresponding ground-truth landmark points are in "markings". We recommend using this package to train the ASM model, but you are free to use any package, or implement your own code for ASM.

Submission instructions: Submit your PDF file and code. All submissions must be in Carmen. Your report should clearly describe the method used to perform 2D landmark detection, how many training and testing images were used, with sample images of the results. You must include the procrustes mean in the report. Also describe what you what you learned.

Special instructions for the code: You must submit and the code. All folders and loading files should be relative to the project folder e.g. "./images/, ./libs/, e.t.c. Do not use absolute folder addresses e.g. "c:/my documents/". Do not upload the data in your submission, only submit a report and your code.