**Project 1** **PCA Face Recognition**

**(Presentation Slides due to blackboard Oct 22nd 11:59pm;**

**Complete Submission due Oct 27th 11:59pm)**

**In-class presentation time: Oct 23rd**

***Reference Materials:***

1. Two papers on PCA face recognition
2. Slide 10 and Slide 11
3. Compare the PCA algorithm in slide with the demo code for 4 persons
4. Run the demo code for 4 persons using images\_4persons.zip as training(enroll) and testing datasets. The enroll folder gives you all the training images, the testing folder gives you all the testing images for the demo code. Pay attention that the demo code is not a complete code for PCA face recognition, you should first understand the demo code and change it for a large dataset.
5. Compare the eigenface figures, Wt\_A plots you have generated with the figures in note “faceRecognition4faces.pdf”.

***Project Requirement:***

**25 points (10 report + 10 code/performance + 5 presentation)**

**+ bonus points (up to 5 points)**

**Basic requirement:**

1. **Download the large dataset from blackboard/content/Project1/Dataset.zip**
2. **Select at least 20 or more people from the training dataset as your own training dataset (including yourself, at least 20 people)**
3. **Include your own face as one of the enroll people**
4. **Use 5 face images for each person to perform training**
5. **Select at least 10 different people (at least 10 images) as your testing dataset**
6. **Show the Eigenfaces generated by your training process, include the Eigenfaces in your report and your presentation slide.**
7. **Plot the weights representing the first person in your training dataset**

**(e.g. I should plot wt\_a(:,1) representing all my face images in the training dataset)**

**Include the plot figure in your report and your presentation.**

1. **Plot the CMC curve for your system performance. Include the plot**

**in your report and your presentation.**

**Bonus part:**

Any approach you did except the basic requirement.

(e.g. Image enhancement, data/results analysis etc.)

**Submission:**

**Presentation Slides (Due 22nd 11:59pm)**

We will have each student make a 3-minutes presentation about his/her work in class on Wednesday, Oct 22nd. Each student needs to rate your peers’ work from 1 to 5 points. Students who had a late submission or being absent on Wednesday will lose the 5 points.  **Each student has only 3 minutes time slot to present, 5-6 pages of slide will be reasonable. Instructor will stop the presentation if longer than 3 minutes.**

**Full Submission (Due 27th 11:59pm)**

**1.Report : “Project1\_FirstName\_LastName.pdf” or “Project1\_FirstName\_LastName.doc”.**

**2. A compressed file “Project1Code\_FirstName\_LastName.zip” with:**

**All source code files**

(with proper names, e.g. PCAmainprogram.m function1.m function2.m) and

Other files you think that helps grading (e.g. readme.txt)

**3 (optional) The input dataset “Project1Dataset\_FirstName\_LastName.zip” if needed**

Students need to make sure the code can be executed using any input from the whole dataset “Dataset.zip”. The code is independent with the size of the training and texting datasets. Failure to compile, or execute your code will get **up to 3 points out of 10 points**. Any datapath has to be relative e.g. “./enroll/” or “./testing”.