

Homework 4 - CSE 291 - Math for Robotics

Due: Friday, 9 March 2018

1. In robotics it is typical to have to recognize people as part of interaction. In this homework your task is to compare performance of sub-space methods.

Use the Kaggle P1-faces dataset - <https://www.kaggle.com/c/p1-faces> to compute subspaces for the PCA and LDA methods. Provide illustration of the respective 1st, 2nd and 3rd eigenvectors.

Compute the recognition rates for the test-set. Report

- Correct classification
- Incorrect classification

Provide at least one suggestion for how you might improve performance of the system

2. In robotics sound source localization is a frequent challenge. In the file <http://www.hichristensen.com/demo-delay.wav> estimate the delay between the two sound channels using FFT. provide an explanation of how you compute the delay between the two channels.

For both questions provide a description of the approach adopted, the associated code and a description of your results.