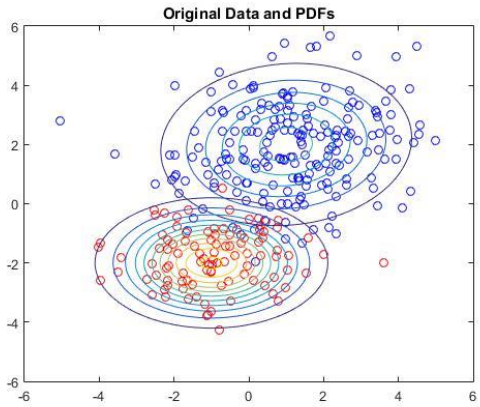
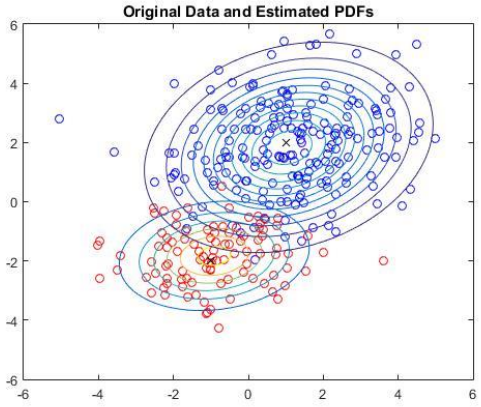
4105109 電腦視覺 (Computer Vision)

Assignment #3 – Gaussian Mixture Model

Deadline : 12/06(Thu) 11:59 p.m.





1. Trace the matlab code of Gaussian Mixture Model. Write your report:
   - Trace the code to understand how EM algorithm works for GMM (GMM_Examples_v2014_08_04: GMMExample_2D.m). Get to know each parameter in this method and each variable in this code.

2. Use AR Face dataset for evaluation.
   - Training features of 10 persons are provided. Each subject has 13 training samples and 13 test samples.
   - Use the sample code to train one GMM mixed by 10 Gaussians.
     a) Determine the class label for each Gaussian. For one Gaussian, you may calculate the average probability of all data samples in class_1, class_2, … and class 10. Then, choose the max probability as its label.
     b) For each person in the test set, calculate the recognition accuracy based on your model.
   - Report your final iteration numbers and the reason why it stops. Also report the final recognition accuracy.

Note:
- Hand in the matlab code and the report to E-Course.
- Your report should include:
  - 1) Method description
  - 2) Experimental results
  - 3) Discussion of results
  - 4) Problems or difficulties you have encountered
- Assignment format

- Zip all your files into a single one and upload it to the E-Course website.
- Please format the file name as:
  Student ID_proj3_verNo
  ex：602410143_proj3_v1