Lab Session 1

COMP 4134, Biometrics and Security

Performance Evaluation of Biometrics Systems

19th September 2017, PQ604B-C

Objective: The objective of this lab session is to provide hands on experience in the performance evaluation of biometrics system.

Problem Details: The biometrics features from real biometrics samples/images are automatically extracted[1] and saved in the attached file. These biometric features are made available for 100 subjects and each of these subjects has given his/her 10 image samples - 5 during the enrollment and 5 six months after the enrollment. The feature vectors from each of these 1000 image samples are stored in this file. The system has acquired 144 features from each of the biometric images and generated a representative feature vector.

You have to use the first five image samples as training features and remaining five as the one to report test results.

Your task is to compute the following performance curves/scores on the test data using **(i)** Euclidean distance and **(ii)** cosine similarity as the matching distance.

A. Genuine Distribution

B. Imposter Distribution

C. FAR Plot

D. FRR Plot

E. Receiver Operating Characteristics

F. Equal Error Rate and Decidability Index

[1] The features are automatically extracted from real palmprint images using the algorithm detailed in this paper: A. Kumar and D. Zhang, "Personal recognition using hand-shape and texture," *IEEE Trans. Image Process*, vol. 15, no. 8, pp. 2454-2461, August 2006.