Abstract

Feature extraction method is a vital element in face-recognition process. The features in facial image, which have tons of variation in illumination, facial expression and image viewpoint, have a non-linear behavior. A linear, classic method like PCA and LDA can't give an accurate result of feature extraction from a non-linear object, like the facial image. The drawback of linear method can be overcome with the use of kernel function. One of the methods that used the kernel is KDDA. This method had been proven to have a better performance and gives a more precise result compared to other methods like GDA, D-LDA and KPCA [5].

In this Final Assignment, some analysis and implementation have been done through facial image using Gaussian RBF kernel in KDDA method. Gaussian RBF variance, along with some different samples were tested to see its influence on face recognition's level of accuracy. The test was applied to UMIST facial database, 112 x 92 in measure and had varied viewpoints. Polynomial kernel was used as comparison.

From the test result, we know that the amount of samples have bigger influence in level of accuracy than the variance of Gaussian RBF do. Moreover, the Gaussian RBF kernel has a better accuracy than the Polynomial one.

Keywords: *face recognition, kernel method, Gaussian RBF, Polinomial.*