

Abstract

Feature extraction is the fundamental problem in pattern recognition. It is well known that the feature distribution of face images under a perceivable variation in viewpoint, illumination and facial expression is highly nonlinear, so it is not surprising that linear techniques, such those based on principle component analysis (PCA) or linear discriminant analysis (LDA), cannot provide reliable and robust solution to those problems. One of solution to failure of linear techniques on feature extraction to those nonlinear problem is the idea of using kernel function. Some algorithm that utilize kernel function have been proved to overcome those problems faced by linear techniques on feature extraction, one of those algorithm is kernel direct discriminant analysis (KDDA) algorithm which generalized from linear direct discriminat analysis (DLDA) and generalized discriminant analysis (GDA).

This final task analyze the performance of KDDA method with kernel polynomial by experiment and compared it with direct fractional linear discriminant analysis (DF-LDA) method. The result of experiments on KDDA method performance are 49%-60% (2 sample), 69%-75% (3 sample), 82%-88% (4 sample), 90%-94% (5 sample), and 98%-99% (6 sample), otherwise DF-LDA performance are 56% (2 sample), 70% (3 sample), 84% (4 sample), 94% (5 sample), and 98% (6 sample).

Keywords: *face recognition, kernel method, KDDA, DF-LDA.*