ABSTRACT

The Kernel Direct Discriminant Analysis (KDDA) algorithm is one of the algorithms used by pattern recognition experts to handle face feature extraction problems through the process of acquiring distinctive characteristics that is able to differenciate a certain face sample from the others. This algorithm was derived from *Direct linear Discriminant Analysis* (DLDA) and *Generalized Discriminant Analysis* (GDA), but what makes KDDA different is the utilization of kernel function which is proven to be able to solve non-linear problems found when using other face feature extraction linear algorithms such as *Principle Component Analysis* (PCA) and *Linear Discriminant Analysis* (LDA).

For this final project, a performance analysis of KDDA algorithm is done by specifying the use of *inverse multi quadric* kernel function through tests and comparing it with other kernel functions (*polynomial* kernel and *Gaussian RBF* kernel) to acquire optimal accurations level by representing it to a regression equation.

The tests results showed that *inverse multi quadric* kernel function has better accurations level 30%-53% (2 samples), 43%-63% (3 samples), 50%-77% (4 samples), 58%-95% (5 samples), 54%-98% (6 samples), 65%-100% (7 samples). Number of samples has strong correlation to accurations as much as 0,904, s is equal to 0.028 and c is equal to -0.056. Number of samples coefficient equals 9,893 and s equals 159,680 can influence accurations level, while coefficient c equals -0,611 can reduce accurations level face recognition at KDDA method.

Keywords: KDDA, Inverse Multi quadric, Polynomial, Gaussian RBF