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*