

A comparison of quadratic discriminant function with discriminant function based on absolute deviation from the mean

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Abstract

Consider the problem of statistical discrimination involving two multivariate normal distributions with equal means but different covariance matrices. Traditionally we use a *quadratic discriminant function* (QDF) to separate two such populations. A simple model for such situations is to perform a linear discriminant analysis on the absolute value of deviations from the mean. In this paper some theoretical results on this alternative approach are reported.

We introduce a linear discriminant function called *Absolute Euclidean Distance Classifier* (AEDC) and compare its performance with that of QDF. A real life case study was carried out to illustrate the superior performance of AEDC.

Keywords : *Multivariate normal distributions, linear discriminant function, quadratic discriminant function, Euclidean distance classifier, contaminated data.*

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