

Abstract

This study involves the implementation of the extensions of the partial least squares generalized linear regression (PLSGLR) by combining it with logistic regression and linear discriminant analysis, to get a partial least squares generalized linear regression-logistic regression model (PLSGLR-log), and a partial least squares generalized linear regression-linear discriminant analysis model (PLSGLRDA). A comparative study of the obtained classifiers with the classical methodologies like the k-nearest neighbours (KNN), linear discriminant analysis (LDA), partial least squares discriminant analysis (PLSDA), ridge partial least squares (RPLS), and support vector machines (SVM) is then carried out. Furthermore, a new methodology known as kernel multilogit algorithm (KMA) is also implemented and its performance compared with those of the other classifiers. The KMA emerged as the best classifier based on the lowest classification error rates compared to the others when applied to the types of data are considered; the unprocessed and preprocessed.