

Performance Evaluation of Contemporary Classifiers for Automatic Detection of Epileptic EEG

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Abstract : Epilepsy is a global problem, and with seizures eluding even the smartest of diagnoses a requirement for automatic detection of the same using electroencephalogram (EEG) would have a huge impact in diagnosis of the disorder. Among a multitude of methods for automatic epilepsy detection, one should find the best method out, based on accuracy, for classification. This paper reasons out, and rationalizes, the best methods for classification. Accuracy is based on the classifier, and thus this paper discusses classifiers like quadratic discriminant analysis (QDA), classification and regression tree (CART), support vector machine (SVM), naive Bayes classifier (NBC), linear discriminant analysis (LDA), K-nearest neighbor (KNN) and artificial neural networks (ANN). Results show that ANN is the most accurate of all the above stated classifiers with 97.7% accuracy, 97.25% specificity and 98.28% sensitivity in its merit. This is followed closely by SVM with 1% variation in result. These results would certainly help researchers choose the best classifier for detection of epilepsy.

Keywords : classification, seizure, KNN, SVM, LDA, ANN, epilepsy

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