Naïve Bayes: A Classical Approach for the Epileptic Seizures Recognition

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Abstract : Electroencephalography (EEG) is used to classify several epileptic seizures worldwide. It is a very crucial task for the neurologist to identify the epileptic seizure with manual EEG analysis, as it takes lots of effort and time. Human error is always at high risk in EEG, as acquiring signals needs manual intervention. Disease diagnosis using machine learning (ML) has continuously been explored since its inception. Moreover, where a large number of datasets have to be analyzed, ML is acting as a boon for doctors. In this research paper, authors proposed two different ML models, i.e., logistic regression (LR) and Naïve Bayes (NB), to predict epileptic seizures based on general parameters. These two techniques are applied to the epileptic seizures recognition dataset, available on the UCI ML repository. The algorithms are implemented on an 80:20 train test ratio (80% for training and 20% for testing), and the performance of the model was validated by 10-fold cross-validation. The proposed study has claimed accuracy of 81.87% and 95.49% for LR and NB, respectively.

Keywords : epileptic seizure recognition, logistic regression, Naïve Bayes, machine learning

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