

Plagiarism Scan Report



Characters:2235

Words:325

Sentences:16

Speak Time:
3 Min

Excluded URL

None

Content Checked for Plagiarism

Abstract— Parkinson's disease (PD) is one such progressive neurodegenerative disease that affects millions of people around the world, and it is still critical to be diagnosed early for effective treatment. In the last few years, numerous novel types of machine learning approaches have been developed for PD diagnosis using data represented in the form of speech patterns, handwriting samples, sensor data, and many more. However, with this, the performance of such algorithms has significant variation based on the kind of data and features chosen. In this paper, we have done the performance comparison of a number of machine learning algorithms in order to be used for Parkinson's disease. The dataset for this study was acquired from Oxford UCI Machine repository. We obtained the dataset for the study from the Oxford UCI Machine repository. We thus apply several classification algorithms to classify the person as a PD patient or healthy control after data pre-processing and relevant feature extraction. These include logistic regression, support vector machines, and random forests, among others. The performance evaluation parameters, including accuracy, precision, recall, F1 score, and Precision-Recall curve (PR curve), were used to compare the algorithms. Our findings revealed that random forests achieved the highest accuracy and other performance metric scores, while logistic regression and support vector machines offered greater interpretability. Overall, our research underscores the potential of machine learning in early PD detection and emphasizes the importance of comprehensive datasets and effective feature selection. The long-term goal of this work is to increase the sensitivity and specificity diagnostic methods and potentially improve the quality of life for individuals with Parkinson's disease along with better patient outcomes. Comparison of the classification results of Logistic Regression, Decision Tree, Random Forest, Support Vector Machine, KNN, Gaussian Naive Bayes, and Bernoulli Naive Bayes led to the conclusion of Random Forest as an ideal machine learning (ML) technique for the detection of Parkinson's Disease. The detection accuracy of the Random Forest model is 98.3051%

Sources

