Plagiarism Detector .net

Oct 08, 2024

Plagiarism Scan Report

Characters:2974	Words:424
Sentences:17	Speak Time: 4 Min

Excluded URL	None

Content Checked for Plagiarism

Results and Discussions Model Comparison: A comparison of some machine learning algorithms used in the classification of Parkinson's Disease from vocal biomarkers within dataset is carried out in the study. The used models are LR (Logistic Regression), DT (Decision Tree), RF (Random Forest), SVM (Support Vector Machine), KNN (K-Nearest Neighbors), GNB (Gaussian Naive Bayes), BNB (Bernoulli Naive Bayes), and VC (Voting Classifier) on the same standardized dataset with the same preprocessing pipeline. Accuracy Comparison of Various Machine Learning Algorithms Out of all algorithms tested, Random Forest emerged as the best-performing model with an accuracy of 98.3051%. The results of this comparative analysis underscore the importance of selecting appropriate machine learning models for Parkinson's Disease detection, with Random Forest providing the most reliable and interpretable results for further clinical use. Classification Report ROC Curve Graph The performance evaluation of the best model, Random Forest, was particularly robust in terms of precision, recall, and F1 score, critical metrics in assessing classification models in healthcare applications. Our Random Forest model achieved a precision of 1.0, indicating that 100% of the positive predictions were correct, reducing the risk of false positives in Parkinson's detection. The model's recall was 0.97, showing its ability to detect actual cases of Parkinson's effectively, minimizing the chances of false negatives. With an F1 score of 0.98, the balance between precision and recall was optimized, making this model reliable for both sensitivity and specificity. These results align with those observed in previous research studies, such as [refer paper 1], which also reported high precision and recall values when employing similar techniques, reinforcing the credibility of our findings. Additionally, the model's ROC-AUC score of 0.89 further confirmed its superior diagnostic capabilities. Frontend for displaying detection result The image in Fig. 8. represents the frontend of a Parkinson's Disease Prediction App, which allows users to input vocal biomarkers to predict the presence of Parkinson's disease. The interface is designed to be user-friendly, displaying fields for various vocal feature inputs such as MDVP (Hz), and other relevant parameters. Once the values are entered, the machine learning model processes the data and provides a prediction, shown under the "Prediction Result" section. The result is visually distinct, alerting the user if Parkinson's disease is detected. Below the result section, there's a brief explanation about the app, emphasizing that it uses machine learning to predict the disease

based on these vocal features, and reminding users to input accurate data for optimal predictions. This kind of interface exemplifies how machine learning can be applied in healthcare for non-invasive disease prediction.

Sources