Title:
Comparative Analysis of Machine Learning Algorithms for Early Parkinson's Disease Prediction

Abstract:
This project aims to conduct a comprehensive comparative study of various machine learning algorithms for predicting Parkinson's disease at an early stage. Parkinson's disease, a neurodegenerative disorder affecting motor functions, demands early detection for effective management. Employing a diverse dataset, this research evaluates multiple machine learning algorithms, contributing insights into their respective strengths and suitability for disease prediction.

Keywords:
Parkinson's disease, Machine learning, Comparative analysis, Binary classification, Early detection

Objectives:
This project's key objectives are:

1. Algorithm Assessment: Evaluate and compare the performance of multiple machine learning algorithms for early Parkinson's disease prediction.
2. Feature Selection Impact: Analyze the influence of feature selection on model accuracy across different algorithms.
3. Model Robustness: Assess the algorithms' robustness against varying dataset sizes and potential imbalances.
4. Interpretability vs. Complexity: Investigate the trade-off between algorithm interpretability and predictive power.
5. Clinical Relevance: Identify algorithms that offer clinical relevance through accurate disease prediction and informative feature contributions.

Data Source:
The dataset employed in this research originates from Kaggle, titled "Parkinsons Data Set." This dataset encapsulates anonymized patient data, spanning clinical, demographic, and biomedical attributes. The dataset serves as a foundation for exploring the capabilities of various machine learning algorithms in predicting Parkinson's disease.

Reference:

Dataset: "Parkinsons Data Set" from Kaggle (https://www.kaggle.com/datasets/dipayanbiswas/parkinsons-disease-speech-signal-features)

By executing a comprehensive analysis of multiple machine learning algorithms, this project strives to provide valuable insights into their performance variations, strengths, and limitations for early Parkinson's disease prediction.

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