Early detection of Parkinson's disease using machine learning

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Abstract:

Parkinson's disease (PD) is a kind of is a neurodegenerative disorder affecting 60% of people over the age of 50 years, which is quite significant. Patients with Parkinson's (PWP) face mobility challenges and speech difficulties, making physical visits for treatment and monitoring a hurdle. PD can generally be treated through early detection, thus enabling patients to lead a normal life. The rise of an aging population over the world emphasizes the need to definitely detect PD early, remotely and accurately in a big way. This paper highlights the use of machine learning techniques in telemedicine to detect PD in its early stages. Research has been basically carried out on the multidimensional voice program (MDVP) audio data of 30 PWP and healthy people during training of 4 machine learning (ML) models.Comparison of results of classification by Support Vector Machine (SVM), particularly Random Forest, K-Nearest Neighbors (KNN) and Logistic Regression models, for all intents and purposes yield basically Random Forest classifier as the generally ideal Machine Learning (ML) technique for detection of PD. Random Forest classifier model particularly has a detection accuracy of 91.83% and sensitivity of 0.95. Through the findings of this paper, we aim to go for all intents and purposes that promote the use of ML in telemedicine, thereby providing a new lease of life to patients suffering from Parkinson's disease.

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