THE PARKINSON'S DISEASE DETECTION USING MACHINE LEARNING TECHNIQUES

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The Parkinson's disease is a Degenerative disorder that affects a lot only people significantly affecting their quality of life. It mostly affect the motor functions of human. The main motor symptoms are called "parkinsonism" or "parkinsonian syndrome". The symptoms of Parkinson's disease will occur slowly, the symptoms include shaking, rigidity, slowness of movement and difficulty with walking, Thinking and behavior change, Depression and anxiety are also common. There is a model for detecting Parkinson's using voice. The deflections in the voice will confirm the symptoms of Parkinson's disease. This project showed 73.8% efficiency. In our model, a huge amount of data is collected from the normal person and also previously affected person by Parkinson's disease. These data is trained using machine learning algorithms. From the whole data 60% is used for training and 40% is used for testing. The data of any person can be entered in db to check whether the person is affected by Parkinsons disease or not. There are 24 columns in the data set each column will indicate the symptom values of a patient except the status column. The status column has 0's and I's.those values will decide the person is effected with Parkinsons disease. I's indicate person is effected, 0's indicate normal conditions. Key Words: Parkinson's disease; machine learning (ML), XGBoost, Decision tree. Parkinson's disease is•a disorder of the central nervous system affecting movement and inducing tremors and stiffness a neurodegenerative disorder affecting dopamine neurons in brain. Parkinson's disease is difficult to diagnose. Common

diagnostic criteria require the medication before. In this model, the huge data is collected from previously affected person and then by using machine learning algorithm will process the user input data with previous data to check he/she affects

Machine Learning for the Diagnosis of Parkinson's Disease: A Review of Literature

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The diagnosis of PD is traditionally based on motor symptoms. Despite the establishment of cardinal signs of PD in clinical assessments, most of the rating scales used in the evaluation of disease severity have not been fully evaluated and validated (Jankovic, 2008). Although non-motor symptoms (e.g., cognitive changes such as problems with attention and planning, sleep disorders, sensory abnormalities such as olfactory dysfunction) are present in many patients prior to the onset of PD (Jankovic, 2008; Tremblay et al., 2017), they lack specificity, are complicated to assess and/or yield variability from patient to patient (Zesiewicz et al., 2006). Therefore, non-motor symptoms do not yet allow for diagnosis of PD independently (Braak et al., 2003), although some have been used as supportive diagnostic criteria (Postuma et al., 2015).Machine learning techniques are being increasingly applied in the healthcare sector. As its name implies, machine learning allows for a computer program to learn and extract meaningful representation from data in a semi-automatic manner. For the diagnosis of PD, machine

learning models have been applied to a multitude of data modalities, including handwritten patterns (Drotár et al., 2015; Pereira et al., 2018), movement (Yang et al., 2009; Wahid et al., 2015; Pham and Yan, 2018), neuroimaging (Cherubini et al., 2014a; Choi et al., 2017; Segovia et al., 2019), voice (Sakar et al., 2013; Ma et al., 2014), cerebrospinal fluid (CSF) (Lewitt et al., 2013; Maass et al., 2020), cardiac scintigraphy (Nuvoli et al., 2019), serum (Váradi et al., 2019), and optical coherence tomography (OCT) (Nunes et al., 2019). Machine learning also allows for combining different modalities, such as magnetic resonance imaging (MRI) and single-photon emission computed tomography (SPECT) data (Cherubini et al., 2014b; Wang et al., 2017), in the diagnosis of PD. By using machine learning approaches, we may therefore identify relevant features that are not traditionally used in the clinical diagnosis of PD and rely on these alternative measures to detect PD in preclinical stages or atypical forms.

Early Detection of Parkinson's Disease through Patient Questionnaire and Predictive Modelling

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Early detection of Parkinson's disease (PD) is important which can enable early initiation of Therapeutic interventions and management strategies. However, methods for early detection still Remain an unmet clinical need in PD. In this study, we use the Patient Questionnaire (PQ) portion From the widely used Movement Disorder Society-Unified Parkinson's Disease Rating Scale (MDS-UPDRS) to develop prediction models that can classify early PD from healthy normal Using machine learning

techniques that are becoming popular in biomedicine: logistic regression, Random forests, boosted trees and support vector machine (SVM). We carried out both subjectwise and record-wise validation for evaluating the machine learning techniques. We observe that These techniques perform with high accuracy and high area under the ROC curve (both >95%) in Classifying early PD and healthy normal. The logistic model demonstrated statistically significant Fit to the data indicating its usefulness as a predictive model. It is inferred that these prediction Models have the potential to aid clinicians in the diagnostic process by joining the items of a Questionnaire through machine learning.

Imperative Role of Machine Learning Algorithm for DetectionOf Parkinson's Disease: Review, Challenges And Recommendations

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The brain of humans is the main computing unit of the human body, and if there is Any minor accident in any part of the human body, then it will directly affect the other Organs. One of its silent effects is PD [1]. PD is a neurological disease that is incurable And is progressive over time [2]. As of 2020, an estimated 9.4 million people were still Living with this disease worldwide [3]. This disease mostly affects people over the age Of 60 years, with only 4% of the cases occurring in people under the age of 50 [4]. The Symptoms of this disease are featured as motor and non-motor [5]. The main motor Symptoms are slowness of movement, tremor, rapid

eye movement disorder, shivering,Gait issue, and unstable posture [6,7]. Non-motor symptoms include hypotension, sweating in the body, fatigue, constipation, urinary problems, and loss of weight.