LITERATURE SURVEY

Detecting Parkinson’s Disease Using Machine Learning

1.Paper Title: The Parkinson’s Disease Detection Using Machine Learning Techniques

Publication: Oct 2021

Author name: Dr. C K GOMATHY, Mr. B. DHEERAJ KUMAR REDDY, Ms. B. VARSHA, Ms. B. VARSHINI

Methodology: The Parkinson's disease is a progressive neuro degenerative disorder that mostly affect the motor functions of human. The main motor symptoms are shaking, rigidity, slowness of movement and difficulty with walking. There is a model for detecting Parkinson's using voice. The deflections in the voice will confirm the symptoms of Parkinson’s disease. The data of any person can be entered in to check whether the person is affected by Parkinsons disease or not. 60% of the data is used for training and 40% for testing. This project showed 73.8% efficiency using machine learning algorithms.

2.Paper Title: Parkinson Disease Detection Using Deep Neural Networks

Publication: august 2019

Author name: Shivangi, Anubhav Johri, Ashish Tripathi

Methodology: Parkinson's disease (PD) is a neurodegenerative disorder, which is responsible for the deterioration of motor function. Two neural network based models namely, VGFR Spectrogram Detector and Voice Impairment Classifier have been introduced. The proposed models outperformed the existing state of the art in terms of accuracy. The classification accuracy on VGFR Spectrogram Detector is recorded as 88.1% while Voice Impairment Classifier has shown 89.15% accuracy.

3.Paper Title: A nonlinear decision tree based classification approach to predict the Parkinson's disease using different feature sets of voice data

Publication: March 2018

Author Name: Satyabrata Aich, Kim Younga, Kueh Lee Hui, Ahmed Abdulhakim Al-Absi, Mangal Sain

Methodology: Recently machine learning based approach has been used by many researchers across the field because of its accuracy on the complex data. Machine learning based approach has been used in many cases of Parkinson's disease using gait data as well as voice data. However, so far no body ha s compared the performance metrics using different feature sets by applying non-linear based classification approach based on the voice data. This paper proposed a new approach by comparing the performance metrics with different feature sets such as original feature sets as well as Principal component Analysis based feature reduction technique for selecting the feature sets.It shows an accuracy of 96.83% using random forest classifiers using PCA based feature sets. This analysis will help the clinicians to differentiate the PD group from healthy group based on the voice data.

4.Paper Title: Diagnosis of Parkinson's Disease Using Speech Samples and Threshold-Based Classification

Publication: November 2015

Author Name: Froelich, Wojciech; Wrobel, Krzysztof; Porwik, Piotr

Methodology: This paper proposed the diagnosis of Parkinson's disease on the basis of characteristic features of a person's voice. First, the individual voice samples are classified as belonging either to a sick or to a healthy person. For that task, decision trees (the most efficient classifier) are selected. Second, using the threshold-based method, the final diagnosis of a person is made using previously classified voice samples. The value of the threshold determines the minimal number of individual voice samples (indicating the disease) that is required for the reliable diagnosis of a sick person. After numerous experiments with real-world data, the accuracy of classification achieved 90%. The high efficiency of diagnosis justifies that the proposed approach is worth using in medical practice.