

Detecting Parkinson's Disease using Machine Learning

Literature Survey

Paper 1:

Paper Title: Diagnosis of Parkinson Disease using Handwriting Analysis

Publication Year: March 2022

Author name: Nihar Ranjan, Divya Umesh Kumar, Vaishnavi Dongare, Kiran Chavan, Yuvraj Kuwar.

Journal name: <https://www.researchgate.net/publication>

Abstract:

Parkinson is a neurodegenerative disease that affects your ability to control movement. Parkinson's disease starts slowly and worsens over time. The cure for Parkinson's disease is still unknown; medications might significantly improve your symptoms. Researchers suggest that early diagnosis of Parkinson can help improve the quality of the patient's life. In this survey, handwriting or drawings is considered as an aspect for detecting Parkinson disease using machine learning algorithm such as Random Forest Classifier and for detailed analysis of the drawings we use, Histogram of Oriented Gradients (HOG). We take drawings drawn by Parkinson patients as well as healthy people as input for detecting the Parkinson disease

Paper 2:

Paper Title: The Parkinson's Disease Detection Using Machine Learning Techniques

Publication Year: October 2021

Author name: C.K.Gomathy, B.Varshini,B.Varsha, Dheeraj kumarreddy

Journal name: <https://www.researchgate.net/publication>

Abstract:

The Parkinson's disease is progressive neuro 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 1's.those values will decide the person is effected with Parkinson's disease. 1's indicate person is effected, 0's indicate normal conditions.

Paper 3:

Paper Title: Machine Learning Based Approaches For Prediction of Parkinson's Disease

Publication Year: June 2016

Author name: Dr. Arvind Kumar Tiwari

Journal name: Machine Learning and Applications: An International Journal (MLAIJ)

Abstract:

The prediction of Parkinson's disease is most important and challenging problem for biomedical engineering researchers and doctors. The symptoms of disease are investigated in middle and late middle age. In this paper, minimum redundancy maximum relevance feature selection algorithms is used to select the most important feature among all the features to predict the Parkinson diseases. Here, it is observed that the random forest with 20 number of features selected by minimum redundancy maximum relevance feature selection algorithms provide the overall accuracy 90.3%, precision 90.2%, Mathews correlation coefficient values of 0.73 and ROC values 0.96 which is better in comparison to all other machine learning based approaches such as bagging, boosting, random forest, rotation forest, random subspace, support vector machine, multi layer perceptron, and decision tree based methods

Paper 4:

Paper Title: Detecting Parkinson's Disease using IBM Watson cloud

Publication Year: July-2022

Author name: Dr. Arun Kumar GH, Sachin MN, Nivedita K,
Nischitha N, Pooja Mudenur

Journal name: <https://www.irjmets.com>

Abstract:

According to the Parkinson's Foundation in worldwide more than 10 million people are suffering from Parkinson's Disease. While Parkinson's cannot be cured, early detection along with proper medication can significantly improve symptoms and quality of life. The researchers found that the drawing speed was slower and the pen pressure is lower among Parkinson's patients. One of the main indications of Parkinson's is tremors and rigidity in the muscles, it will make difficult to draw smooth spirals and waves. According to the researchers, it is possible to detect Parkinson's disease using the drawings alone instead of measuring the speed and pressure of the pen on paper. Our main goal is to quantify the visual appearance using HOG method of these drawings written by the persons and then train a machine learning model to classify these drawings. In this model, we are using, Histogram of Oriented Gradients (HOG) image descriptor along with a Random Forest classifier to automatically detect the Parkinson's disease using hand-drawn images of spirals and waves form drawings