Literature Survey

Detecting Parkinson’s Disease using Machine Learning

1.Jie Mei, Christian Desrosiers, Johannes Frasnelli, "Machine Learning for the Diagnosis of Parkinson’s Disease," 2021.

This paper conveys the importance of Diagnosis of Parkinson's disease (PD) is commonly based on medical observations and assessment of clinical signs, including the characterization of a variety of motor symptoms. However, traditional diagnostic approaches may suffer from subjectivity as they rely on the evaluation of movements that are sometimes subtle to human eyes and therefore difficult to classify, leading to possible misclassification. In the meantime, early non-motor symptoms of PD may be mild and can be caused by many other conditions. Therefore, these symptoms are often overlooked, making diagnosis of PD at an early stage challenging. To address these difficulties and to refine the diagnosis and assessment procedures of PD, machine learning methods have been implemented for the classification of PD and healthy controls for patients with similar clinical presentations (e.g., movement disorders).

2.Iqra Nissar, Waseem Ahmad Mir, Izharuddin, Tawseef Ayoub Shaikh, “Machine Learning Approaches for Detection and Diagnosis of Parkinson’s Disease,” 2021.

Parkinson's disease (PD) is a disabling disease that affects the quality of life. It happens due to the death of cells that produce dopamine in the substantia nigra part of the central nervous system (CNS) which affects the human body. People who have Parkinson's disease feel difficulty in doing activities like speaking, writing, and walking. However, speech analysis is the most considered technique to be used. Researches have shown that 90% of the people who suffer from Parkinson's disease have speech disorders. With the increase in the severity of the disease, the patient's voice gets more and more deteriorated. The proper interpretation of speech signals is one of the important classification problems for Parkinson's disease diagnosis. This paper contemplates the survey work of the machine learning techniques and deep learning procedures used for Parkinson's disease classification.

3.Zehra Karapinar Senturk, "Early diagnosis of Parkinson's disease using machine learning algorithms," 2020.

Parkinson's disease is caused by the disruption of the brain cells that produce substances to allow brain cells to communicate with each other, called dopamine. The cells that produce dopamine in the brain are responsible for the control, adaptation, and fluency of movements. When 60–80% of these cells are lost, then enough dopamine is not produced and Parkinson's motor symptoms appear. It is thought that the disease begins many years before the motor (movement related) symptoms and therefore, researchers are looking for ways to recognize the non-motor symptoms that appear early in the disease as early as possible, thereby halting the progression of the disease. In this paper, machine learning based diagnosis of Parkinson's disease is presented. The proposed diagnosis method consists of feature selection and classification processes.

4.C K Gomathy, "The Parkinson's Disease Detection using Machine Learning Techniques." 2021.

Parkinson's disease is progressive neuro degenerative disorder that affects only people significantly affecting their quality of life. It mostly affects the motor functions of humans. 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 this model, a huge amount of data is collected from the normal person and previously affected person by Parkinson's disease. These data are 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 Parkinson's disease or not.

5.Mari Muthu Mari Muthu, "Detection of Parkinson's disease using Machine Learning Approach," 2021.

In this paper, it is concentrated as Parkinson's disease has recently become one of the most common chronic global diseases among the elderly. The disease is identified by the motor related symptoms caused due to the lack of production of dopamine from the brain cells. But there are other non-motor related symptoms which occur much earlier which can be identified and predict the various stages of disease. The earlier detection of the disease will help us to halt the progression of the disease; thereby the livelihood of the patients remains easy. Machine learning plays a key role in the Healthcare area because of its accuracy, less computation time, and its adaptability. In this research paper, we propose a machine learning based algorithm for early diagnosis, Machine learning techniques XGBClassifier which is based on data mining principles that is useful for generating and processing the data.

6.Radouani Laila, Lagdali Salwa, Rziza Mohammed, "Detection of voice impairment for Parkinson's disease using machine learning tools," 2021.

In this paper, it proposes that Parkinson's disease (PD) is disabling disease that affects the quality of life. It happens due to the death of cells that produce dopamine in the substantia nigra part of the central nervous system (CNS) which affects the human body. People who have Parkinson's disease makes it difficult to do activities like speaking, writing, and walking. Speech analysis is the most considered technique to be used. Researches have shown that 90% of the People who suffer from Parkinson's disease have speech disorders. With the increase in the severity of the disease, the patient's voice gets more and more deteriorated. The proper interpretation of speech signals is one of the important classification problems for Parkinson's disease diagnosis. The main purpose of this paper is to contemplate the survey work of the machine learning techniques and deep learning procedures used for Parkinson's disease classification.