DETECTING PARKINSON'S DISEASE USING MACHINE LEARNING

PROBLEM STATEMENT

People with parkinsonism generally have problem of balance, difficulty in speaking or tremors in one hand. These are the common issue faced by so many people in the world, especially geriatric aged. The problem that how will they know this is happening because of aging or they have Parkinson's disease is difficulty to identify. Here when the patient decides to speak and cannot produce the correct vocal sounds. Parkinson's disease is a neurodegenerative disorder that affects millions of people around the world. Parkinson's disease can affect a person's voice, causing them to speak softly or have difficulty in forming sound clearly. Speech or voice data is assumed to be 90% help full to diagnose the result. The proposed system used a data set parkinson.csv. A speech data set includes the number of voice features such as jitter, shimmer, pitch, and frequency. Different data pre-processing methods, such as data standardization technique to improve the quality of data. In the present work relevant features were then extracted using Mel Frequency Cepstral Coefficient (MFCC) algorithm. Classification is performed using a Support Vector Machine (SVM) algorithm to differentiate between healthy and people with Parkinson's disease. The outcome of the proposed system is early detection of Parkinson's disease, which may help to better diagnose the disease.

Medical observations and assessment of clinical indicators, including the identification of a variety of motor symptoms, are often used to diagnose Parkinson's disease (PD). Traditional diagnostic procedures, on the other hand, may be vulnerable to subjectivity because they rely on the assessment of motions that are sometimes subtle to human sight and hence difficult to define, potentially leading to misdiagnosis. Meanwhile, early nonmotor symptoms of Parkinson's disease can be minor and be caused by a variety of other illness. As a result, these symptoms are frequently missed, making early PD diagnosis difficult

PROBLEM	DESCRIPTION
What are the Symptoms of Parkinson Disease?	The symptoms of Parkinson's disease broadly divided into two categories. Motor symptom, non - Motor symptom Primary and Secondary Symptoms.
What is the main cause of Parkinson disease?	Parkinson's disease is caused by a loss of nerve cells in the part of the brain called the substantia nigra. Nerve cells in this part of the brain are responsible for producing a chemical called dopamine.
What causes the loss of nerve cells?	It's not known why the loss of nerve cells associated with Parkinson's disease occurs, although research is ongoing to identify potential causes. Currently, it's believed a combination of genetic changes and environmental factors may be responsible for the condition.

What are the main symptoms of Parkinson disease affect the physical movements?	Parkinson's has four main symptoms: Tremor in hands, arms, legs, jaw, or head, Muscle stiffness, where muscle remains contracted for a long time, Slowness of movement Impaired balance and coordination, sometimes leading to falls.
What are the techniques used to diagnosis the Parkinson disease using machine learning methodology?	• XG Boost • Support Vector Machine • Random Forest
How to Diagnose Parkinson Disease?	Parkinson's disease affects the CNS of the brain and has yet no treatment unless it's detected early. Late detection leads to no treatment and loss of life. The early detection is significant. For early detection of the disease, we utilized machine learning algorithms such as XG Boost and Random Forest.
What is Life Span of Person Diagnosed with Parkinson Disease?	Individuals with PD may have a slightly shorter life span compared to healthy individuals of the same age group. According to the Michael J. Fox Foundation for Parkinson's Research, patients usually begin developing Parkinson's symptoms around age 60 and many live between 10 and 20 years after being diagnosed.

What is the final stage of Parkinson disease?	The final stage of Parkinson's disease – they will have severe posture issues in their back, neck, and hips. They will require a wheelchair and may be bedridden. In end-stage of Parkinson's disease, patients will also often experience non-motor symptoms. These can include incontinence, insomnia, and dementia. Some medications used to treat Parkinson's disease can cause hallucinations. This is seen more frequently if the patient also has dementia.
Can you live a long life with Parkinson's disease?	Parkinson's disease is a progressive disorder of the nervous system. It affects a person's movement and mental ability, with the symptoms getting worse over time. Today, most people with Parkinson's disease will live as long, or almost as long, as those without the disease. Medications and other treatments can help make the symptoms manageable and improve a person's quality of life.

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