**Paper 2:** 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>

**Summary:**

Parkinson is a neurodegenerative disease that affects your ability to control movement. Parkinson's disease starts slowly and worsens over time. The cured 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.

Handwriting can be considered as an aspect in the assessment of Parkinson disease. Handwriting consist of cognitive planning, coordination, and execution abilities. To diagnose the disease and its severity handwriting problems can be considered as a prominent aspect, so changes in writing can be considered a prominent biomarker. In this paper we have considered handwriting or drawing as an aspect for detecting the Parkinson disease as it is cost friendly and less time consuming.

**Conclusion:**

There are systems which use devices like electronic pens or have interview processes based on which detection of Parkinson disease takes place. These processes sometimes become very tiring for the patients and also they are very time consuming. The proposed system is more beneficial. It is cost efficient as we avoid use of electronic or smart pens. The system is easy to understand. As we have used HOG descriptors, they are very powerful descriptors which are extremely helpful in describing the structure, shape and appearance of the input image.