

Comparative Study on the Detection of Parkinson's Disease using Machine Learning

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Abstract: *Parkinson's disease is a progressive disorder that affects the nervous system and the parts of the body controlled by the nerves and the root cause of it is falling rates of dopamine levels in the forebrain. It is a chronic degenerative disease with progressive illness, which means it develops new symptoms over time, actually the average diagnosis time is above two years. The prediction of the Parkinson's disease is the most challenging problem for the biomedical engineering researches and doctors. Due to the decrease in motor control that is the hallmark of the disease, voice can be used as a means to detect and diagnose PD. With advancements in technology and the prevalence of audio collecting devices in daily lives, reliable models that can translate this audio data into a diagnostic tool for healthcare professionals would potentially provide diagnoses that are cheaper and more accurate. We provide evidence to validate this concept here using a voice dataset collected from people with and without PD.*

Keywords: Parkinson's disease.

REFERENCES

- [1]. Anila M Department of CS1, Dr G Pradeepini Department of CSE, "DIAGNOSIS OF PARKINSON'S DISEASE USING ARTIFICIAL NEURAL NETWORK", JCR, 7(19): 7260- 7269, 2020.
- [2]. Arvind Kumar Tiwari, "Machine Learning based Approaches for Prediction of Parkinson's Disease" Machine Learning and Applications: An International Journal (MLAU) vol. 3, June 2016.
- [3]. Mohamad Alissa, "Parkinson's Disease Diagnosis Using Deep Learning", August 2018.
- [4]. Shahid, A.H., Singh, M.P. A deep learning approach for prediction of Parkinson's disease progression, <https://doi.org/10.1007/s13534-020-00156-7>, Biomed. Eng. Lett. 10, 227-239, 2020.
- [5]. T.J. Wroge, Y. Özkanca, C. Demiroglu, D. Si, D. C. Atkins and R. H. Ghomi, "Parkinson's Disease Diagnosis Using Machine Learning and Voice," IEEE Signal Processing in Medicine and Biology Symposium (SPMB), pp.1-7, doi: 10.1109/SPMB.2018.8615607, 2018.
- [6]. Siva Sankara Reddy Donthi Reddy and Udaya Kumar Ramanadham "Prediction of Parkinson's Disease at Early Stage using Big Data Analytics" ISSN: 2249 – 8958, Volume-9 Issue- 4, April 2020.
- [7]. T.Swapna, Y. Sravani Devi, "Performance Analysis of Classification algorithms on Parkinson's Dataset with Voice Attributes". International Journal of Applied Engineering Research ISSN 0973-4562 Volume 14, Number 2 pp. 452-458, 2019.
- [8]. A. Ozcift, "SVM feature selection based rotation forest ensemble classifiers to improve computer- aided diagnosis of Parkinson disease" Journal of medical systems, vol-36, no. 4, pp. 2141-2147, 2012
- [9]. Sriram, T. V., et al. "Intelligent Parkinson Disease Prediction Using Machine Learning Algorithms" International Journal of Engineering and Innovative Technology, vol-3, Issue 3, September 2013.
- [10]. Dragana Miljkovic et al, "Machine Learning and Data Mining Methods for Managing Parkinson's Disease" LNAI 9605, pp. 209-220, 2016.