Detecting Parkinsons Disease Using Machine Learning

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ABSTRACT

The Parkinson’s disease is progressive neuro degenerative disorder that affects a lot only people significantly affecting their quality of life. It mostly affectthe 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.A model will be trained for detecting the parkinson’s disease in people using machine learning techniques like XGBoost , Random Forest . the algorithm with best accuracy will be taken as a solution.

S.No	Author Name	Year	Methodoloy	Input Data	Performances
1	Mohammad S Islam etal	2014	SVM,Random Tree and Feedforward Back propagation built Artifical Neural Network	Speech	90% recognition accuracy
2	Oana Geman et al	2015	SVM,DNN	Voice data	SVM:AUC-0.9623 ANFIS:AUC-0.848
3	Bo Penga et al	2015	T-test,SVM and Minimum Redundancy and Maximum Relevance	Speech impairment data	Proposed method used multilevel ROI-based features and is observed better classification accuracy
4	Othman Ibrahim Mehrbakhsh Nilashi, & Ali Ahani	2016	PCA is used for feature selection, EM, ANFIS and Support Vector Regression (SVR)	Voice Data	SVM:AUC-0.9623 ANFIS:AUC-0.848
5	Hui-Ling Chen et al	2016	Extreme learning machine and kernel ELM	Speech samples	10- fold cross validation through 10 runs achieved 96.47% accuracy

6	Derya Avei and Akif Dogantekin et al	2016	Genetic Algorithm, wavelet kernel and Extreme Learning Machines(ELM)	Voice data	96.81%
7	Thomas J. Hirschauer	2015	EPNN (Enhanced Probabilistic Neural Network	Speech	98.6%
8	Ligia Sousa et al	2019	DNN, KNN,PCA (for optimizing feature set)	Voice Samples	93.4%for the binary classification ,84.7% for multiclass classification
9	Leandro A. Passos	2018	ResNet-50, Optimum-Path Forest (OPF) classifier	HandPD dataset speech	96% of identification rate using speech samples.
10	Deepak Gupta	2018	Optimized cuttlefish algorithm Decision tree, KNN	Speech data and Handwritten data are used to evaluate the proposed model.	94%

11	Shreya Bhat	2018	Along with advanced machine learning methods, Neuroimaging modalities also used	Image data. speech. MRI EEG	(Various implementations are discussed)
12	Hariharan et al	2014	Gaussian mixture with PCA and LDA. SVM classifier	Speech data	100%
13	Zhang et al	2019	Stacked autoencoders, KNN	Speech	93. In the range of 94-98%
14	Oung et al	2018	ResNet-50, Optimum-Path Forest (OPF) classifier	Motion and Speech	KNN:93.26% PNN:95.22% ELM:95.93%
15	Indrajit Mandal et al	2017	Multinomial logistic regression,rotation forest together with SVM and PCA,ANN boostin methods	Speech	100% accuracy achieved with sparse multinomial logistic regression and linear regression ,observed sensitivity:0.983 and specificity:0.996

THANK YOU