**DETECTING PARKINSONS DISEASE USING MACHINE LEARNING**

**LITERATURE REVIEW**

1. **AUTHOR: S. Kanagaraj, M.S. Hema, M. Nageswara Gupta**

In this paper, the comparative study of various machine learning algorithms is carried out. For analysis and prediction of Parkinson’s PPMI data sets and six different classification algorithms are used. The results show that the multiclass classifier and logistic regression better performed than the other algorithms for the data sets. In future, more number of biomarker features are to be included for the prediction of progression of PD. Advanced stages of PD are estimated based on the visits from baseline t0 visit 12.

1. **AUTHOR: F.M. Javed Mehedi Shamrat, Md.Asaduzzaman, A.K.M. Sazzadur Rahman, Raja,TariqulHasan Tusher, Zarrin Tasnim**

This analysis has utilized three machine learning methods for the exposure of Parkinson disease in view of a few parameters. In accumulation, this work is part of a project that has the aim to cultivate an automated application to give more accurate action to normal occurrences and make a greater decision to multifaceted situations. The application will be able to detect in Parkinson disease in very few minutes and notify the dangerous probability of having the disease

1. **AUTHOR:** **Ma, C. et al**

This system proposed a novel hybrid method named Kernel-Based Extreme Learning Machine with Subtractive Clustering Features Weighting (SCFWKELM) significantly outperforms SVM, KNN, and extreme learning machine (ELM) approaches for Parkinson disease dataset was to discriminate healthy people from those with Parkinson disease. given the results of various medical tests carried out on a patient achieved highest classification results reported so far via 10-fold cross validation scheme, with SVM-based, KNN based, and ELM-based.

1. **AUTHOR:** **Ma, Ouyang, Chen, & Zhao**

This study proposed a hybrid method named SCFW-KELM has been presented for the analysis of Parkinson disease. The result of the proposed method is effective for Parkinson detection by MAE for the Total-UPDRS and Motor-UPDRS were accomplished correspondingly MAE = 0.4656 and MAE = 0.4967.

1. **AUTHOR: Yahia A. et al**

This study proposed classification algorithm based on Naïve Bayes and K- Nearest Neighbours (KNN) using Parkinson speech dataset with multiple types of sound recordings to prediction voice signal find the Parkinson disease or healthy people. K- Nearest Neighbours performed accuracy 80% and Naïve Bayes classifier performed an accuracy of 93.3% sensitivity 87.5%, and specificity 100%.

1. **AUTHOR:** **Chen et al.,**

The study (Chen et al., 2013) proposed a fuzzy-based KNN model to predict Parkinson. Their study was shown to the best accuracy (96.07%) obtained by the proposed algorithm including 10-fold cross-validation. Another study also considers a hybrid model of detection Parkinson with compared to the existing methods and their proposed model has achieved brilliant accuracy through 10-fold cross approval investigation, the highest precision of 96.47% and quite good accuracy of 95.97%.

1. **AUTHOR:** **Sriram, Rao, Narayana, Kaladhar, Vital**

a comparative study between Naïve Bayes, Random Forest, Logistics Regression, Support Vector Machine to detect Parkinson disease. SVM (i.e. 88.9%) has shown good performance to compared NB (i.e. 69.23%), and RF (90.26%) shown the compared to SVM for the Parkinson detection. Moreover, LR (i.e. 83.66%) showed quite good performance. 86%). And the SVM and LDA have superior sensitivity in comparison to other classifiers. The contribution of this study is to the analysis of voice data to understand the presence of Parkinson disease.

1. **AUTHOR:** **Rusz J. et al**

This system proposed a applied support vector machine to find the best combination of measurements to differentiate Parkinson disease from healthy subjects. This method leads to overall classification performance of 85%. Admittedly, we have found relationships between measures of phonation and articulation and bradykinesia and rigidity in Parkinson disease. as measures of clinical progression as well as in the monitoring of treatment effects.

1. **AUTHOR:** **Ozcift A. et al.**

This study proposed a computer-aided diagnosis (CADx) systems to improving the accuracy. Rotation forest (RF) collective classifiers of 30 machine learning algorithms correlation based feature selection (CFS) algorithm and Rotation forest prediction to diabetes, heart and Parkinson’s datasets. RF classifier predict the accuracy (ACC), kappa error (KE) and area under the receiver operating characteristic (ROC) curve (AUC).

1. **AUTHOR:** **Wu, S et al**

This study proposed regression, decision tree and neural network analysis to analyse the databank of Parkinson disease for error probability calculated. The result was logistic regression, classification and neural network analysis error probability by 5.15%, 8.47% and 23.73% respectively.

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| **S.no** | **Year** | **Researcher** | **Title** | **Methodology** | **Remarks** |
| 01 | 2019 | S. Kanagaraj, M.S. Hema, M. Nageswara Gupta | Machine Learning Techniques for Prediction of Parkinson’s Disease using Big Data | Progression Marker Initiative (PPMI) | Predicts Parkinson’s disease at an early stage from the formerly available public database |
| 02 | 2019 | F.M. Javed Mehedi Shamrat, Md. Asaduzzaman, A.K.M. Sazzadur Rahman, Raja Tariqul Hasan Tusher, Zarrin Tasnim | A Comparative Analysis Of Parkinson Disease Prediction Using Machine Learning | machine learning techniques | Thus, different experiments to assess the three machine learning supervised algorithms for recognition of Parkinson’s disease |
| 03 | 2014 | Ma, C. et al | Identifying Parkinson disease using machine learning | SVM, KNN, and extreme learning machine (ELM) | discriminate healthy people from those with Parkinson’s disease |
| 04 | 2014 | Ma, Ouyang, Chen, & Zhao | analysis of Parkinson disease | SCFW-KELM | Hybrid method is used to analysis Parkinson’s disease |
| 05 | 2014 | Yahia A. et al | classification algorithm based on Naïve Bayes and K- Nearest Neighbours (KNN) | Parkinson speech dataset | Thus, Parkinson’s Disease is detected through voice signal |
| 06 | 2013 | Chen et al., | demonstrative precision for the identification of Parkinson Disease | fuzzy-based KNN model, a hybrid model | Identified the Parkinson’s disease using these methods |
| 07 | 2013 | Sriram, Rao, Narayana, Kaladhar, Vital | detection of Parkinson diseases using machine learning algorithms | voice data | Thus, the analysis of voice data to understand the presence of Parkinson disease |
| 08 | 2011 | Rusz J | measurements to differentiate Parkinson disease from healthy subjects | vector machine | Vector machine is used to differentiate Parkinson disease |
| 09 | 2011 | Ozcift A. et al | detection of Parkinson diseases using machine learning algorithms | computer-aided diagnosis (CADx) systems | Thus, Parkinson’s Disease is detected |
| 10 | 2011 | Wu, S et al | Analysing the databank of Parkinson disease | regression, decision tree and neural network | Thus databank of Parkinson’s disease is analysed |