A. Ouhmida, O. Terrada, A. Raihani, B. Cherradi and S. Hamida, "Voice-Based Deep Learning Medical Diagnosis System for Parkinson's Disease Prediction," 2021 International Congress of Advanced Technology and Engineering (ICOTEN), Taiz, Yemen, 2021, pp. 1-5, doi: 10.1109/ICOTEN52080.2021.9493456.

Ouhmida et al. have employed two deep learning models, namely Convolutional Neural Network (CNN) and Artificial Neural Network (ANN), for the purpose of classifying healthy individuals and those afflicted with Parkinson’s Disease based on vocal features. The researchers have given preference to utilizing two datasets sourced from the UCI Machine Learning Repository to underpin their investigative efforts. Notably, the CNN model has demonstrated significant efficacy, yielding an accuracy rate of 93.1% in the classification of patients.

P. Mounika and S. G. Rao, "Machine Learning and Deep Learning Models for Diagnosis of Parkinson’s Disease: A Performance Analysis," 2021 Fifth International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), Palladam, India, 2021, pp. 381-388, doi: 10.1109/I-SMAC52330.2021.9640632.

Mounika et al. investigates the early diagnosis of Parkinson's Disease using Deep Learning and Machine Learning on a substantial UCI dataset. Employing various performance metrics, the K-Nearest Neighbors (KNN) algorithm with k=5 stands out with an impressive 97.43% accuracy, showcasing its potential as a robust approach for early PD detection.

N. Jahan, A. Nesa and M. A. Layek, "Parkinson's Disease Detection Using CNN Architectures withTransfer Learning," 2021 International Conference on Innovative Computing, Intelligent Communication and Smart Electrical Systems (ICSES), Chennai, India, 2021, pp. 1-5, doi: 10.1109/ICSES52305.2021.9633872.

Jahan et al. addresses the escalating challenge of Parkinson's Disease (PD) by proposing a novel diagnostic system using fine motor symptom-based sketch analysis. Employing Convolutional Neural Network (CNN) models, specifically Inception-v3 and ResNet50 with transfer learning, their system had achieved a commendable 96.67% accuracy in distinguishing PD patients from a Healthy control group based on spiral sketching.

S. R. Burri, D. K. Agarwal, N. Vyas and R. Duggar, "A Machine Learning Framework for Accurate Prediction of Parkinson's Disease from Speech Data," 2023 3rd International Conference on Innovative Sustainable Computational Technologies (CISCT), Dehradun, India, 2023, pp. 1-6, doi: 10.1109/CISCT57197.2023.10351422.

Burri et al. proposed a DBN-based solution, which exhibits superior performance, surpassing competitors with a remarkable 92% success rate in Parkinson's disease diagnosis. The evaluation, incorporated F1 score, sensitivity, specificity, and accuracy measures, underscores the consistency of the achieved results. This study underscores the potential of language-trained Machine Learning (ML) models in Parkinson's disease diagnosis, offering significant implications for both research and treatment in the field.

M. Ogawa and Y. Yang, "Residual-Network -Based Deep Learning for Parkinson's Disease Classification using Vocal Datasets," 2021 IEEE 3rd Global Conference on Life Sciences and Technologies (LifeTech), Nara, Japan, 2021, pp. 275-277, doi: 10.1109/LifeTech52111.2021.9391925.

Ogawa and Yang presented a non-invasive approach for Parkinson's disease diagnosis and early detection, focusing on abnormal motor signs. A 10-layered 1-dimensional Convolutional Neural Network (CNN) and a novel-residual-network-type 1-dimensional CNN have been introduced for classifying Parkinson's disease using vocal feature datasets. The proposed residual network yields favourable classification results, achieving an accuracy of 0.888, F-measure of 0.928, and Matthews Correlation Coefficient (MCC) of 0.692. These findings highlight the efficacy of the introduced models in the context of Parkinson's disease classification based on vocal features.

S. S, A. S, G. V. V. Rao, P. V, K. Mohanraj and R. Azhagumurugan, "Parkinson's Disease Prediction Using Machine Learning Algorithm," 2022 International Conference on Power, Energy, Control and Transmission Systems (ICPECTS), Chennai, India, 2022, pp. 1-5, doi: 10.1109/ICPECTS56089.2022.10047447.

Sandhiya et al. utilized spiral/wave drawing datasets from 102 individuals (51 healthy an 51 with Parkinson's disease) employing Histogram of Oriented Gradients (HOG) for feature extraction. Classification is accomplished through the Random Forest Classifier in the Scikit-learn package, alongside OpenCV and NumPy for statistical data generation. Emphasizing the expanding applications of image processing, particularly in Parkinson's disease detection, classification, and diagnosis, Random Forest Classifier achieved a classification accuracy of 71.33%, sensitivity of 69.33%, and specificity of 73.3%. This analysis streamlines pattern classification involving Parkinson's disease and healthy individuals, offering time-saving benefits and enhanced productivity.

J. Naanoue, R. Ayoub, F. E. Sayyadi, L. Hamawy, A. Hage-Diab and F. Sbeity, "Parkinson's disease detection from speech analysis using deep learning," 2023 Seventh International Conference on Advances in Biomedical Engineering (ICABME), Beirut, Lebanon, 2023, pp. 102-105, doi: 10.1109/ICABME59496.2023.10293142.

A deep learning approach for early Parkinson's disease detection is introduced in this paper, employing a long short-term memory (LSTM) model with features extracted from speech signals. Promising results are achieved by the LSTM model, with a testing accuracy of 93%, utilizing a dataset that includes features from 188 Parkinson's patients and 64 healthy individuals. The emphasis on speech signal features highlights the potential of this methodology for early Parkinson's disease diagnosis and intervention, with contributions to the enhanced quality of life for affected individuals.

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L. Igene, A. Alim, M. H. Imtiaz and S. Schuckers, "A Machine Learning Model for Early Prediction of Parkinson's Disease from Wearable Sensors," 2023 IEEE 13th Annual Computing and Communication Workshop and Conference (CCWC), Las Vegas, NV, USA, 2023, pp. 0734-0737, doi: 10.1109/CCWC57344.2023.10099230.

The best validation accuracy achieved by the proposed model by Igene et al. for holdout validation was 92.6, accompanied by a test accuracy of 95.2. The success of SVM classifiers is demonstrated by an AUC score of 0.95 which is observed for the test dataset, utilizing K-fold validation on the model, and an AUC test score of 0.92 is noted when employing holdout validation at a PCA variance of 95. The results indicate that the model's validation and test accuracy are more balanced at a PCA variance of 95 compared to results obtained at a PCA variance of 85.

A. Hussain and A. Sharma, "Machine Learning Techniques for Voice-based Early Detection of Parkinson's Disease," 2022 2nd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE), Greater Noida, India, 2022, pp. 1436-1439, doi: 10.1109/ICACITE53722.2022.9823467.

To attain one of the top results, various machine learning techniques were applied by Hussain and Sharma using diverse voice features of the patients obtained from the UCI Machine Learning Repository. The analysis concluded that the Stacking Model outperforms other utilized models in terms of Accuracy and F1 scoring. The Stacking Model demonstrates a mean Accuracy of 93% with a standard deviation of 5% and a mean F1-Score of 94%.

N. Alapati, N. Anusha, P. Joharika, N. J. Jerusha and P. Tanuja, "Prediction of Parkinson's Disease using Machine Learning," 2023 Second International Conference on Electronics and Renewable Systems (ICEARS), Tuticorin, India, 2023, pp. 1357-1361, doi: 10.1109/ICEARS56392.2023.10085443.

In this paper, Alapati et al. performed a comparative analysis, to identify total performance indicators, focusing on precision, recall, and f1-score. It is observed that RF models outperform KNN models, demonstrating higher accuracy and improved prediction of PD. The RF model, known for its ability to process large datasets, requires less training time compared to other machine learning algorithms. The conclusion drawn, is that the RF Algorithm achieves a 93% accuracy rate, while KNN achieves an 89% accuracy rate.

P. Goyal, R. Rani and K. Singh, "Comparative Analysis of Machine Learning and Ensemble Learning Classifiers for Parkinson’s Disease Detection," 2022 3rd International Conference on Computing, Analytics and Networks (ICAN), Rajpura, Punjab, India, 2022, pp. 1-6, doi: 10.1109/ICAN56228.2022.10007376.

In this paper, the performance of various ML and EL-based classifiers is compared by Goyal et al. for predicting PD. To enhance classifier performance and alleviate overfitting, various preprocessing techniques, along with the application of PCA as a feature selection method, are employed. The best accuracy is achieved by the Random Forest, a ML model, with an accuracy of 82.37%. Additionally, the best-performing Ensemble Learning model, Light Gradient Boosted Machine (LGBM), attains an accuracy of 85.90%.

M. Bajaj, P. Rawat, V. Sharma, S. Vats, S. P. Yadav and V. Kukreja, "Study on Degenerative Parkinson's Disease Using Various Machine Learning Algorithms," 2023 3rd Asian Conference on Innovation in Technology (ASIANCON), Ravet IN, India, 2023, pp. 1-6, doi: 10.1109/ASIANCON58793.2023.10270216.

Good accuracy, precision, recall, and F1 score were exhibited by all models presented by Bajaj et al. highlighting their potential for early Parkinson's disease detection. According to their findings, the Random Forest and XG-Boost models surpassed the others, achieving accuracy rates of over 95%.