**Mobile IT diagnostic system for Parkinson's disease based on the patient's voice**

Our research group at the Belarusian State University of Informatics and Radio electronics has developed an innovative approach to the early detection of Parkinson's disease, leveraging machine learning techniques and vocal analysis.

Innovative Approach:

By examining speech signals, specifically the pronunciation of vowels from patients, our method utilizes the publicly available Parkinson's Speech Database to differentiate between individuals with and without Parkinson's disease. This process involves sophisticated data pre-processing and feature extraction techniques, including the analysis of mean, maximum, minimum, peak, wavelet coefficients, MFCCs, and TQWT. Through the application of algorithms such as KNN, Random Forest, and Bayesian Neural Networks, optimized with Bayesian optimization and GridSearch methods, we have achieved classification accuracies of up to 94.7%.

Key Advantages:

Early Detection: By focusing on voice markers, our system can detect Parkinson's disease in its nascent stages, allowing for earlier intervention and potentially more effective management of the disease.

Accessibility: As a mobile solution, it provides an easily accessible tool for patients and healthcare providers alike, enabling regular monitoring without the need for constant clinical visits.

Precision: With a demonstrated accuracy of up to 94.7%, our system offers a reliable method for screening, supporting clinicians in making informed decisions regarding diagnosis and treatment.

Our Goal:

Our primary aim is to revolutionize the early detection and ongoing monitoring of Parkinson's disease through technological innovation. We believe that by providing a non-invasive, efficient, and accessible diagnostic tool, we can significantly improve the quality of life for individuals affected by Parkinson's disease. Our system not only aids in the early detection of Parkinson's but also offers the potential to monitor the progression of the disease over time, enabling tailored treatment plans and improving patient outcomes.

Meet Our Project Leader: Dr. Vishniakou Uladzimir Anatol'evich

Professor Vishniakou Uladzimir Anatol'evich, with a rich background in academic research including over 300 publications and 21 patents, significantly contributes to our Alzheimer's detection project with his deep expertise in information and communication technologies.

Join Us:

We cordially invite healthcare professionals, researchers, and individuals interested in Parkinson's diagnosis to join us in exploring and promoting the development of this technology.

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