Machine Learning in disease classification

Case Study/Parkinson's disease

Parkinson's disease (PD) is a neurodegenerative disorder that affects the nervous system in a chronic and progressive manner. After Alzheimer's disease, it is the second most prevalent neurodegenerative disease. It belongs to what is known as Movement Disorders.

Its diagnosis is fundamentally clinical, based on the patient's clinical history and neurological examinations.

PD presents with motor and non-motor symptoms, which sometimes occur before those related to movements. Among the non-motor symptoms there is a group related to voice. **The use of tools to detect dysphonia in patients is useful in the development of PD screening tools.**

Data used

Data obtained from voice recordings of healthy individuals and individuals with PD were used. These data consisted of frequency values, frequency variability and amplitudes, among others.

Models employed

At NNBi we apply different machine learning algorithms that learn from the collected data. These models learn, discriminate the most relevant variables to classify individuals and extract the information that is necessary to classify individuals.

Results obtained

The model, based on measurements obtained from the voice, automatically generates a classification with an accuracy rate of over 90%.

This type of tool helps the clinician to classify patients in early stages. In certain cases, early detection can lead to early initiation of treatment, resulting in a delay in the onset of severe disease.

The use of Machine Learning tools supports patient classification.

They can be used in early stages, when the disease has barely manifested itself.

For more information: www.nnbi.es

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