

Unveiling the Brain and its disorders through Artificial Intelligence

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Artificial Intelligence (AI) and Machine Learning (ML) are widely used in the Healthcare and Biomedical Field improving and speeding up clinical decisions. In the exploration of the human Brain, the application of AI ranges from the processing of signals and neuroimages, the analysis of neuropsychological and neurophysiological data, to the automatic diagnosis of the neurodegenerative diseases.

In this talk, the state-of-the-art of the ML algorithms for the knowledge discovery in Neuroscience will be discussed, focusing the attention on the early and differential diagnosis of the Parkinson's and Alzheimer's disease from Neuroimaging data. In particular, the most common ML techniques will be explored, such as SVM, Random Forest as well as the feature selection approaches for dealing with the so called "Curse of Dimensionality". Moreover, the novel challenge of Explainable and Interpretable ML will be presented, which is a very recent approach born with the aim of providing accurate intelligibility of the ML findings.