

Electroencephalogram Based Alzheimer Disease Classification using Machine and Deep Learning Methods

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Abstract : In this research, different methods based on machine/deep learning algorithms are presented for the classification and diagnosis of patients with mental disorders such as alzheimer. For this purpose, the signals obtained from 32 unipolar electrodes identified by non-invasive EEG were examined, and their basic properties were obtained. More specifically, different well-known machine learning based classifiers have been used, i.e., support vector machine (SVM), Bayesian linear discriminant analysis (BLDA), decision tree (DT), Gaussian Naïve Bayes (GNB), K-nearest neighbor (KNN) and Convolutional Neural Network (CNN). A total of 668 patients from five different hospitals have been studied in the period from 2011 to 2021. The best accuracy is obtained was around 93 % in both ADM and ADA classifications. It can be concluded that such a classification will enable the training of algorithms that can be used to identify and classify different mental disorders with high accuracy.

Keywords : alzheimer, machine learning, deep learning, EEG

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