

Combined Odd Pair Autoregressive Coefficients for Epileptic EEG Signals Classification by Radial Basis Function Neural Network

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Abstract : This paper describes the use of odd pair autoregressive coefficients (Yule _Walker and Burg) for the feature extraction of electroencephalogram (EEG) signals. In the classification: the radial basis function neural network neural network (RBFNN) is employed. The RBFNN is described by his architecture and his characteristics: as the RBF is defined by the spread which is modified for improving the results of the classification. Five types of EEG signals are defined for this work: Set A, Set B for normal signals, Set C, Set D for interictal signals, set E for ictal signal (we can found that in Bonn university). In outputs, two classes are given (AC, AD, AE, BC, BD, BE, CE, DE), the best accuracy is calculated at 99% for the combined odd pair autoregressive coefficients. Our method is very effective for the diagnosis of epileptic EEG signals.

Keywords : epilepsy, EEG signals classification, combined odd pair autoregressive coefficients, radial basis function neural network

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