Brainwave Classification for Brain Balancing Index (BBI) via 3D EEG Model Using k-NN Technique

Authors : N. Fuad, M. N. Taib, R. Jailani, M. E. Marwan

Abstract : In this paper, the comparison between k-Nearest Neighbor (kNN) algorithms for classifying the 3D EEG model in brain balancing is presented. The EEG signal recording was conducted on 51 healthy subjects. Development of 3D EEG models involves pre-processing of raw EEG signals and construction of spectrogram images. Then, maximum PSD values were extracted as features from the model. There are three indexes for the balanced brain; index 3, index 4 and index 5. There are significant different of the EEG signals due to the brain balancing index (BBI). Alpha-α (8–13 Hz) and beta-β (13–30 Hz) were used as input signals for the classification model. The k-NN classification result is 88.46% accuracy. These results proved that k-NN can be used in order to predict the brain balancing application.

Keywords : power spectral density, 3D EEG model, brain balancing, kNN