

Lifting scheme for human emotion recognition using EEG

Abstract

In recent years, the need and importance of automatically recognizing emotions from EEG signals has grown with increasing role of brain computer interface applications. The detection of fine grained changes in functional state of human brain can be detected using EEG signals when compared to other physiological signals. This paper proposes an emotion recognition system from EEG (Electroencephalogram) signals. The audio-visual induction based acquisition protocol has been designed for acquiring the EEG signals under four emotions (disgust, happy, surprise and fear) for participants. Totally, 6 healthy subjects with an age group of 21-27 using 63 biosensors are used for registering the EEG signal for various emotions. After preprocessing the signals, two different lifting based wavelet transforms (LBWT) are employed to extract the three statistical features for classifying human emotions. In this work, we used Fuzzy C-Means (FCM) clustering for classifying the emotions. Results confirm the possibility of using two different lifting scheme based wavelet transform for assessing the human emotions from EEG signals.

Keywords — Face recognition, human emotions, lifting schemes, biosensors, computer applications