# Classification of human emotion from eeg using discrete wavelet transform

**Abstract**

In this paper, we summarize the human emotion recognition using different set of electroencephalogram (EEG) channels using discrete wavelet transform. An audio-visual induction based protocol has been designed with more dynamic emotional content for inducing discrete emotions (disgust, happy, surprise, fear and neutral). EEG signals are collected using 64 electrodes from 20 subjects and are placed over the entire scalp using International 10-10 system. The raw EEG signals are preprocessed using Surface Laplacian (SL) filtering method and decomposed into three different frequency bands (alpha, beta and gamma) using Discrete Wavelet Transform (DWT). We have used db4 wavelet function for deriving a set of conventional and modified energy based features from the EEG signals for classifying emotions. Two simple pattern classification methods, K Nearest Neighbor (KNN) and Linear Discriminant Analysis (LDA) methods are used and their performances are compared for emotional states classification. The experimental results indicate that, one of the proposed features (ALREE) gives the maximum average classification rate of 83.26% using KNN and 75.21% using LDA compared to those of conventional features. Finally, we present the average classification rate and subsets of emotions classification rate of these two different classifiers for justifying the performance of our emotion recognition system.