Pathological infant cry analysis using wavelet packet transform and probabilistic neural network

Abstract

A new approach has been presented based on the wavelet packet transform and probabilistic neural network (PNN) for the analysis of infant cry signals. Feature extraction and development of classification algorithms play important role in the area of automatic analysis of infant cry signals. Infant cry signals are decomposed into five levels using wavelet packet transform. Energy and entropy measures are extracted at every level of decomposition and they are used as features to quantify the infant cry signals. A PNN is developed to classify the infant cry signals into normal and pathological and trained with different spread factor or smoothing parameter to obtain better classification accuracy. The experimental results demonstrate that the proposed features and classification algorithms give very promising classification accuracy of 99% and it proves that the proposed method can be used to help medical professionals for diagnosing pathological status of an infant from cry signals.