Performance comparison of daubechies wavelet family in Infant cry classification

Abstract

Infant cry is a non-stationary, loud, high-pitched signal made by infants in response to certain situations. This acoustic signal can be used to identify physical or psychology status of infant. The aim of this work is to compare the performance of Daubechies wavelet family in infant cry classification. The orders of db1, db3, db4, db6 and db10 are chosen randomly for this investigation. Infant cry signals are decomposed into five levels using wavelet packet transform. Energy and entropy features are computed at different sub bands. Two different case studies such as, normal versus asphyxia and normal versus hypoacoustic are performed. Two different types of radial basis artificial neural networks namely, Probabilistic Neural Network (PNN) and General Regression Neural Network (GRNN) are used to classify the infant cry signals. The results emphasized that the proposed features and classification algorithms can be used to aid the medical professionals for diagnosing pathological status of infant cry.

Keywords — Infant cry, wavelet packet transform, probabilistic neural network, general regression neural network.