Infant cry classification: time frequency analysis

Abstract

Acoustic analysis of infant cry has been the subject of a number of researchers since half decades ago. This paper addresses a simple time-frequency analysis based signal processing technique using short-time Fourier transform (STFT) for the investigation and classification of infant cry signals. A cluster of statistical features are derived from the time-frequency plots of infant cry signals. The extracted feature vectors are used to model and train two types of radial basis neural network namely Probabilistic Neural Network (PNN) and General Regression Neural Network (GRNN) in classification phases. Three classes of infant cry signals are considered such as normal cry signals cry signals from deaf infants and infants with asphyxia. Promising classification results above 99% reveals that the proposed features and classification technique can effectively classify different infant cries.

Keywords — Acoustic analysis, classification, infant cry, signal processing