Abstract

Early prediction of premature pregnancy reduces neonatal death and helps in adoption of treatment well suited for the pre-term pregnancy state. There are scads of work done in the area of term and pre-term pregnancy analysis like artificial intelligence, regressive models, and higher order statistical models. This paper proposes a four-level decomposition of Electrohysterography (EHG) signals using Discrete Wavelet Transform (DWT) based on pyramid algorithm to obtain the final feature vector matrix. Classification is done using Support Vector Machines (SVM) by dividing the data into test and training sets. It is validated on a well known benchmark database from Physionet Database. The proposed method can be used for real time implementation owing to low computational cost, high speed and its feasibility to be implemented on hardware. The encouraging experimental results show that the technique gives an accuracy of 97.8% and can be a promising tool for investigating the risk of preterm labor.


- The EHG dataset has been downloaded from this site http://www.physionet.org/cgi-bin/atm/ATM.


- Vinken, Maartje P. G. C. MD; Rabotti, Chiara MSc; Mischi, Massimo PhD; Oei, S Guid MD, PhD — “Accuracy of Frequency Related Parameters of the Electrophystero gram for Predicting Preterm Delivery: A Review of the Literature”, Vol. 64, Issue- 8.


Index Terms

Computer Science

Signal Processing
Keywords
Discrete wavelet transform  labor time detection  term and pre-term pregnancy
Support Vector Machines

EHG