Abstract

Arrhythmia disorders play a vital role in heart diseases progression. Detection and treatment of arrhythmia disorders can help indirectly in controlling the heart disease. In hospitals, physicians classify the beats after examining the electrocardiogram (ECG) report. Sometimes, physicians are not that expert to diagnose the arrhythmias correctly and accurately. In these circumstances, there is a need for automatic and accurate heart beat classifier which takes the ECG signal as an input and classify it into different rhythm disorders. In this paper, an arrhythmia disorder classifier is designed and developed using Feedforward Backpropagation neural network. The supervised network is trained based on the features extracted from the ECG databases of MIT-BIH. The trained network will classify the beats into premature atrial/ventricular contraction (PAC/PVC), left/right bundle branch block (LBBB/RBBB), paced beat and normal beat. This automatic system will make the treatment faster even in the absence of expert physicians.
Rhythm Disorders – Heart Beat Classification of an Electrocardiogram Signal

- The Standard 12 Lead ECG:
  http://library.med.utah.edu/kw/ecg/ecg_outline/Lesson1/index.html
- Basic ECG Interpretation Tutorial: http://www.mauvila.com/ECG/ecg_intro.htm
- ECG: http”//www.mauvila.com/ECG/ecg_intro.htm
- Tom Kenny, 2011, “The Nuts and Bolts of Cardiac Pac-ing”.
- Samuel Bellet, 1971, “Clinical disorders of the heart beat”.
- Codes for beat identification: http://www.physionet.org/

Index Terms

Computer Science

Signal Processing

Keywords

QRS Complex  Mean Power Frequency  Power Spectral Density  Fiducial Point
LBBB
RBBB
PVC
APC
Paced
purelin
logsig