Developing Resource Efficient Heart Arrhythmia Classifier

Abstract

This paper presents development of optimal digital circuit for the Heart Disease Classification using Cartesian Genetic Programming (CGP) for different types of arrhythmia. Extensive research work has already been carried out in this domain but non-linear nature of the technique remained one of the hurdles in its hardware prototyping. Efficient circuit development for resource constraint environment of the classifier remained an unsolved problem due to its algorithmic complexity. CGP system is trained to generate a classifier circuit based upon the fiducial points extracted out of the Electrocardiography (ECG) signals of dataset. Experimental results reported on heart disease data from machine learning repository of MIT-BIH showed satisfactory results as compare to other contemporary methods used in the field.

References


- S. L. Smith, "Cartesian Genetic Programming and its Application to Medical Diagnosis", Computational Intelligence Magazine, IEEE, vol. 6, no. 4, pp. 56,67, Nov. 2011

Index Terms

Computer Science
Information Science

Keywords

Cartesian Genetic Programming  Neuro-evolution  CVD  Cardiac Arrhythmias
Classification

Fiducial points

LBBB beats

RBBB beats.