Proceedings of the International Conference on Control System, Computing and Engineering, 2011, pages 531-535

Classification of bundle branch blocks using multilayered percept ron network

Abstract

Development of automated and accurate techniques for ECG recognition is important for diagnosis of heart diseases. Arrhythmic signals occur due to the disturbances to the rate, regularity, nodes and conduction path of the electrical impulses. Bundle branch block arises from defects of the conduction pathways involving blockage of electrical impulses through the bundle branches. This paper investigates MLP network for classification of bundle branch block arrhythmias. Trainings were conducted for varying network topologies with different training algorithms. A 98.2% overall detection accuracy was achieved over 90 beat samples. Results show that the Levenberg-Marquardt algorithm managed to achieve 100% recognition accuracy for all network topologies.

Keywords—Bundle branch blocks, multilayered perceptron network, performance metrics, training algorithms.