Detection of Cardiomyopathy using Support Vector Machine and Artificial Neural Network

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Abstract

With the growing needs of Medical diagnosis, recently several software tools and various algorithms have been proposed by the researchers for developing effective medical Expert systems. Diagnosing of heart disease like Cardiomyopathy is one of the important issue Cardiomyopathy refers to diseases of the heart muscle. These diseases enlarge the heart muscle or make it thicker and more rigid than normal. As cardiomyopathy worsens, the heart becomes weaker. It's less able to pump blood through the body and maintain a normal electrical rhythm. This can lead to heart failure or irregular heartbeats called arrhythmias which can be detected by analyzing ECG Signals. This paper describes aiming to develop an automated system for diagnosing of Cardiomyopathy using support vector machine and feed forward backpropagation technique. ECG data collected from Online PTB diagnostic ECG database ,preprocessing is applied for noise Cancellation and baseline correction then four time based features have been extracted and finally classification is been performed using Support vector machines and Artificial neural Networks. Results Shows that Feed forward backpropagation giving 98% accuracy for Healthy and 85% for Cardiomyopathy and Support Vector Machines
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gives 94.11 % accuracy for Healthy and 60 % accuracy for cardiomyopathy.

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Index Terms

Computer Science Artificial Intelligence

Keywords

Cardiomyopathy, ECG, Support Vector Machines (SVM), Artificial Neural Networks (ANN), Feed forward back propagation Neural Network.