Analysis of Multi-Lead ECG Signals using Decision Tree Algorithms

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Authors:
Smita L. Kasar, Madhuri S. Joshi

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Abstract

Electrocardiogram (ECG) is a signal with unique, valuable information about the functional aspects of the heart with respect to time. The automatic analysis of ECG signals is an important application since the early detection of heart diseases/abnormalities can prolong life and enhance the quality of living through appropriate treatment. The ECG is collected using a number of electrodes placed in different positions on the body. Multi-lead ECGs acquired simultaneously helps in better diagnosis of heart diseases. This paper focuses on classification of healthy and Myocardial infarction signals. The identification of acute myocardial infarction with symptoms of Ischemia is critical to delivering appropriate medical care. In this paper decision tree based classifiers are implemented for the classification of ECG signals. The signals were analyzed for 34 normal and 33 myocardial infarction patients in the database PTB from the domain Physionet.org. The classifiers, J48 and Classification and Regression Trees (CART) are compared with respect to accuracy measures. The J48 classifier performs better with the correct classification rate of 98% and 0.9 Kappa statistics.
References

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Index Terms

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Keywords

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