

工程与应用

冠心病心电信号ST段的波形形态分类

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摘要 ECG波形形态改变是心脏病诊断的重要依据。一个非正常的ST段改变对心肌缺血诊断来说尤其重要。因此ECG的长时段记录是必要的, 而ST段形态的改变是短暂的。心脏病专家从大量的数据中找出短暂的ST段改变, 工作量巨大而困难。根据波形的特征提出多项式拟合和波形模板匹配分类算法。算法包括三个部分ST特征点检测、ST段波形改变的Lipschitz指数判断、ST段分类。算法通过ECG信号欧洲ST段数据库进行验证, 从分析结果中可以知道ST段波形改变的时间和改变的类型。

关键词 [小波Lipschitz指数](#) [多项式拟合](#) [波形分类](#)

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ST of cardiovascular ECG classification research based on shape morphology

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Abstract

Morphological change of ECG is the important diagnostic parameter to finding the malfunction of a heart. An abnormal ST segment change plays an important role in finding myocardial ischemia. Long-term ECG recording is needed because ST change is transient. It is difficult for cardiologists to find transient ST segments changes from a large amount of data and the workload is extremely heavy. The aim of this study is to classify ST according to its shape type using a polynomial approximation method and the reference STs set. The algorithm consists of feature point detection, ST change Lipschitz detection and ST shape classification. This paper applies the algorithm to the ECG data in European ST database. Through the result of the algorithm, we can know when the ST change occurs and what the ST shape type is.

Key words [wavelet Lipschitz polynomial](#) [approximation](#) [shape classification](#)

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