

Electrocardiogram (ECG) Analysis From Domain Experience to Classification

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Abstract

The core issue of artificial intelligence is thinking simulation. We use the electrocardiogram (ECG) as an example. Here, Abstract and logical thinking work alongside with imagery thinking and experience analysis, and the physicians diagnosis has both macro precepts together with micro particulars. Meanwhile, a few problems restrict clinical acceptance of the many theoretical ECG analysis methods developed during the last forty years, such as whether they are identical with thinking patterns in the physicians' brain, and whether extracted ECG features are sufficient and necessary. Based on the Chinese Cardiovascular Diseases Database (CCDD, <http://58.210.56.164:88/ccdd/>) we have designed, physicians diagnosis experience and relevant formal representation are discussed, implicit knowledge that is hard to express is analyzed, and fusion of rules inference and deep learning for ECG classification is implemented. We have got the better classification result comparing with the state-of-the-art approaches.

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