CARDIAC ARRHYTHMIA DIAGNOSIS USING A NEURO-FUZZY APPROACH

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Abstract :

The ventricular premature contractions (VPC) are cardiac arrhythmias that are widely encountered in the cardiologic field. They can be detected using the electrocardiogram (ECG) signal parameters. A novel method for detecting VPC from the ECG signal is proposed using a new algorithm (Slope) combined with a fuzzy-neural network (FNN). To achieve this objective, an algorithm for QRS detection is first implemented, and then a neuro-fuzzy classifier is developed. Its performances are evaluated by computing the percentages of sensitivity (SE), specificity (SP), and correct classification (CC). This classifier allows extraction of rules (knowledge base) to clarify the obtained results. We use the medical database (MIT-BIH) to validate our results.