

# 1-D Convolutional Neural Network for ECG Arrhythmia Classification

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**Abstract.** This paper deals with the ECG classification of arrhythmias by using a 1-D convolutional neural network. The input is given by the combination of several databases from Physionet and is composed of two leads, LEAD1 and LEAD2. Data are not preprocessed, and no feature extraction has been performed, except for the medical evaluation in order to label it.

The test accuracy of our neural approach is very high. However, the goal of this work is also the interpretation not only of the results, but also of the behavior of the neural network, by means of correlation analysis and symbolic regression.

**Keywords:** Arrhythmia classification, Convolutional neural networks, Correlation, ECG, EKG, Symbolic Regression.