Versatile Detector of Pseudo Periodic Patterns

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Introduction: This study aimed to develop a detector with few physiologically-meaningful parameters, that could be capable of detecting pseudo periodic patterns.

Materials and Methods: The algorithm is based in a signal detection based on a matched filter, and a threshold calculation based on robust stadistics. The evaluation of the detector was performed under a corpus consisting in two sets. One set of human ECGs, and one set of rodent pseudo ECGs. The evaluation was performed with respect to the gold standard annotations, and was calculated in terms of sensitivity (S) and positive predictive value (P).

Results: For the human ECG set of recordings, the detector had 100 $S$and 99.9 P, while for the rodent pseudo ECG set of recordings the results where 97.1 S and 79.1 P. Both sets results are median values. The results obtained under the rodent set where comapred to those obtained with another two detectors, where our detector obtained the best results.

Discussion: The algorithm achieved promising results, in a broad set of ECG recordings of very different nature, with the addiional capability of further adaptation provided by expert assistance.