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NARX neuromorphic software in ECG wave prediction

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We present an approach to predict ECG waves with non-linear autoregressive exogenous neuromorphic (NARX) software. These predictions are important in comparing the underlying QRS complex of the ECG-wave with the slowly deteriorating waves (or arrythmia) in cardiac patients. A deep Q-wave for instance (such as 1/4 of the R-wave) is a typical sign of (inferior wall) myocardial necrosis - associated in most cases with vascular dysfunction. It is important to have a rolling predictor - slow ECG wave degradation being normal. A real-time predictor takes into account a suite of influencing parameters (body temperature, effort, current medication, sugar levels, stress, etc), being much better suited in making a call for "normal" vs. "anomalous" ECG waves, rather than some outdated reference waves. Although this research is in its begining, it shows encouraging results, which clinical studies can conclude as to how effective the approach may be.

Summary

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