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Improvement of electrocardiogram by empirical wavelet transform.

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Electrocardiogram (ECG) is a crucial tool in the detection of cardiac arrhythmia. It is also often used in a routine physical exam, especially, for elderly people. This graphical representation of electrical activity of heart is obtained by a measurement of voltage at the skin so that the signal is always contaminated by noise from various sources. For a proper interpretation, the quality of the ECG should be improved by a noise reduction. In this article, we present a study of a noise filtration in the ECG by using an empirical wavelet transform (EWT). Unlike the traditional wavelet method, EWT is adaptive since the frequency spectrum of the ECG is taken into account in the construction of the wavelet basis. We show that the signal-to-noise ratio is increased after the noise filtration for the cases of different artifacts.

Author: Ms CHANCHANG, Vikanda (Kasetsart University)

Co-authors: Mr KUMCHAISEEMAK, Nakorn; Mrs SUTTHIOPAS,, Malee; Dr LUENGVIRIYA , Chaiya

Presenter: Ms CHANCHANG, Vikanda (Kasetsart University)

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