A Page-Hinkley based method for HFOs detection in epileptic depth-EEG

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Résumé en anglais	Interictal High Frequency Oscillations, (HFOs [30600 Hz]), recorded from intracerebral electroencephalo-graphy (iEEG) in epileptic brain, showed to be potential biomarkers of epilepsy. Hence, their automatic detection has become a subject of high interest. So far, all detection algorithms consisted of comparing HFOs energy, computed in bands of interest, to a threshold. In this paper, a sequential technique was investigated. Detection was based on a variant of the Cumulative Sum (CUSUM) test, the so-called Page-Hinkley algorithm showing optimal results for detecting abrupt changes in the mean of a normal random signal. Experiments on simulated and real datasets showed the good performance of the method in terms of sensitivity and false detection rate. Compared to the classical thresholding, Page-Hinkley showed better performance.
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