

Low Complexity Algorithms for Heart Rate and Epileptic Seizure Detection

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Technical Abstract:

Algorithm design for low power platforms is constrained by memory and computational limitations, and real-world applications demand robust performance. This talk will present two algorithms that were designed with the view that simplicity can translate to robustness. The first algorithm processes ECG signals to detect QRS complexes reliably in the presence of significant noise. The second algorithm is a low-cost approach to detecting seizure onset from EEG data. The ECG algorithm was implemented on a TI MSP430-based platform and the EEG algorithm was implemented (in simulation) on a Cortex M3 based ultra-low power device.