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Fetal QRS complex detection algorithm for FPGA implementation (Conference Paper)

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Abstract

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An algorithm has been developed for the simultaneous measurement of the fetal and maternal heart rates from the maternal abdominal electrocardiogram during pregnancy and labor for fetal monitoring. The algorithm is based on crosscorrelation, adaptive thresholding and statistical properties in the time domain. Hardware description language - VHDL has been used to implement the algorithm for FPGA implementation. The design is synthesized and fitted into Altera's Stratix EPIS10 using the Quartus IIplatform. Test case results showed an error percentage of around ±0.3% and ±0.5% for the detection of maternal and fetal heart rate respectively. © 2005 IEEE.

SciVal Topic Prominence

Topic: Electrocardiograph | Signal Denoising | Heart Arrhythmia

Prominence percentile: 97.032

Indexed keywords

Engineering controlled terms: Adaptive algorithms | Computer hardware description languages | Medical imaging | Patient monitoring | Statistical methods | Time domain analysis

Engineering uncontrolled terms: Altera's Stratix EPIS10 | Quartus IIplatforms | VHDL

Engineering main heading: Field programmable gate arrays (FPGA)

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