

Abstract: In order to achieve portable heart rate signal acquisition and analysis, and to benchmark the precision of electrocardiogram testing, a heart rate demodulation system based on ...

AbstractIntroductionResultsDiscussionConclusionMethodsData

availabilityAcknowledgementsFundingContinuous monitoring of cardiac motions has been expected to provide essential cardiac physiology information on cardiovascular functioning. A fiber-optic micro-vibration sensing system (FO-MVSS) makes it promising. This study aimed to explore the correlation between Ballistocardiography (BCG) waveforms, measured using an FO-MVSS, and myocardial v...See more on nature Author: Jing Zhannih.govBallistocardiography monitoring system based on optical fiber ...In conclusion, in our work, we demonstrate a BCG monitoring system based on an optical fiber interferometer adopting a new phase modulation method, which can remove the baseline drift to ...

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These systems can collect information from the vibrations in the chest due to blood pumping and the movements generated by breathing, known as ballistocardiography (BCG). This work presents the ...

Accurate detection of premature atrial contractions (PACs) is crucial for identifying life-threatening arrhythmias. Traditional electrocardiogram (ECG) devices, which require electrodes attached to the ...

This paper explores the efficacy of using non-invasive fiber optic sensors (FOS) for continuous monitoring of vital signs, particularly heart rate (HR) and respiratory rate (RR), through ...

Abstract: A compressed sensing (CS) framework is built for ballistocardiography (BCG) signals, which contains two parts of an optical fiber sensor-based heart monitoring system with a CS module and an ...

In this study, we aim to investigate the relationship between changes in BCG waveforms, as detected by fiber-optic micro-vibration sensing system (FO-MVSS), and the various phases of the...

Based on the use of fiber optic sensing, an algorithm for heart rate signal analysis with optimized variational modal decomposition (OVMD) is proposed. Fiber Bragg Grating Sensors (FBGs) ...

The proposed BCG quality evaluation model has been validated on micro-bend fiber optic sensors and FBG sensors, demonstrating its accuracy and robustness.

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