Biosignal Processing

By Hualou Liang

CRC Press, 2012. Hardcover. Book Condition: New. 17.8 x 25.4 cm. "This book provides state-of-the-art coverage of contemporary methods in biosignal processing, with emphasis on brain signal analysis. The topics covered in this book reflect an ongoing evolution in biosignal processing. As biomedical data sets grow larger and more complicated, emerging signal processing methods to analyze and interpret these data have gained in importance. This book discusses the process for biosignal analysis and stimulates new ideas and opportunities for developing cutting-edge computational methods for biosignal processing, which will in turn accelerate laboratory discoveries into treatments for patients. Provides a general overview of basic concepts in biomedical signal acquisition and processing. Discusses nonstationary and transient nature of signals by introducing time-frequency analysis and its applications to signal analysis and detection problems in bioengineering. Covers emerging methods for brain signal processing, each focusing on specific non-invasive imaging techniques such as electroencephalography (EEG), magnetoencephalography (MEG), magnetic resonance imaging (MRI) and functional near-infrared spectroscopy (fNIR). Explores a multivariate spectral analysis of EEG data using power, coherence and second-order blind identification. Introduces a general linear modeling approach for the analysis of induced and evoked response in MEG. Presents the progress in groupwise registration algorithms for...

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