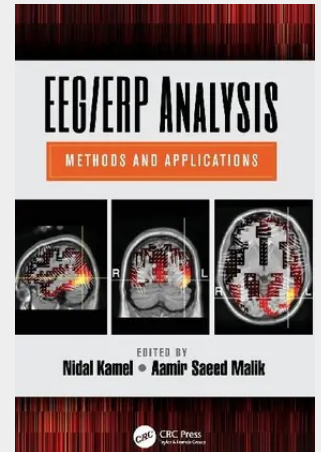


EEG/ERP Analysis

Methods and Applications

Changes in the neurological functions of the human brain are often a precursor to numerous degenerative diseases. Advanced EEG systems and other monitoring systems used in preventive diagnostic procedures incorporate innovative features for brain monitoring functions such as real-time automated signal processing techniques and sophisticated amplifiers. Highlighting the US, Europe, Australia, New Zealand, Japan, Korea, China, and many other areas, EEG/ERP Analysis: Methods and Applications examines how researchers from various disciplines have started to work in the field of brain science, and explains the different techniques used for processing EEG/ERP data. Engineers can learn more about the clinical applications, while clinicians and biomedical scientists can familiarize themselves with the technical aspects and theoretical approaches. This book explores the recent advances involved in EEG/ERP analysis for brain monitoring, details successful EEG and ERP applications, and presents the neurological aspects in a simplified way so that those with an engineering background can better design clinical instruments. It consists of 13 chapters and includes the advanced techniques used for signal enhancement, source localization, data fusion, classification, and quantitative EEG. In addition, some of the chapters are contributed by neurologists and neurosurgeons providing the clinical aspects of EEG/ERP analysis. - Covers a wide range of EEG/ERP applications with state-of-the-art techniques for denoising, analysis, and classification - Examines new applications related to 3D display devices - Includes MATLAB® codes EEG/ERP Analysis: Methods and Applications is a resource for biomedical and neuroscience scientists who are working on neural signal processing and interpretation, and biomedical engineers who are working on EEG/ERP signal analysis methods and developing clinical instrumentation. It can also assist neurosurgeons, psychiatrists, and postgraduate students doing research in neural engineering, as well as electronic engineers in neural signal processing and instrumentation.

This book covers EEG/ERP processing and analysis and their various applications. It explains the different techniques used for preprocessing the EEG/ERP data for artifacts removal and the advanced techniques used for signal enhancement, source localization, data fusion, classification, and quantitative EEG. It also demonstrates successful clinical applications of EEG/ERP in various areas. The book provides clinicians with an understanding of the technical issues and theoretical approaches involved in EEG/ERP and engineers, as well as an understanding of its clinical application.



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