

Brain–Computer Interfaces Handbook

Technological and Theoretical Advances

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This handbook addresses the recent and rapid changes in the field of braincomputer interfaces (BCIs). Due to these changes interest in BCI has grown enormously, including interest from computer science researchers with a background in computational intelligence, human-computer interaction, and researchers in entertainment technology.

KEY FEATURES

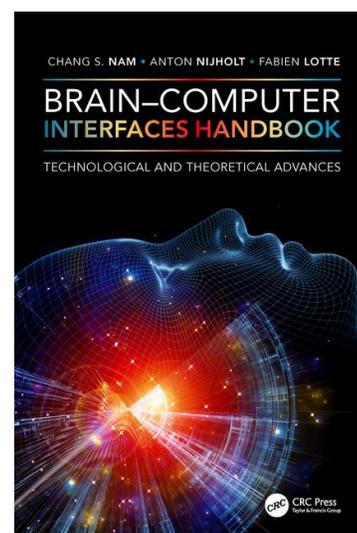
- In-depth look at the different methods and techniques used in acquiring and pre-processing brain signals, extracting features, and classifying the user's intention
- Covers various theories, models, and empirical findings regarding ways in which the human brain can interface with the systems or external environments
- Presents applications of BCI technology to understand various aspects of human cognition and behavior such as perception, affect, action, etc.
- Includes clinical trials and individual case studies of the experimental therapeutic applications of BCI
- Provides human factors and human-computer interface concerns in the design, development, and evaluation of BCIs

SELECTED CONTENTS

Introduction. Part I: Brain–Computer Interface Applications. Section A: Brain–Computer Interfaces Introduction. Section B: Therapeutic Applications. Section C: Affective and Artistic Brain–Computer Interfaces. Section D: BCI Control of Entertainment and Multimedia. Part II: Signal Acquisition and Open Source Platform in BCI. Part III: Signal Processing, Feature Extraction, and Classification in BCI. Part IV: Brain–Computer Interface Paradigms. Part V: Human Factors, Design, and Evaluation in BCI. Part VI: Emerging Issues and Future BCIs. Conclusion: Moving Forward in Brain–Computer Interfaces.

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