

## Brain-Computer Interface: Using Deep Learning Applications

### About the book

Deep learning has been applied in various fields such as computer vision and natural language processing, along with BCI growth, outperforming conventional approaches to machine learning. As a result, a significant number of researchers have shown interest in deep learning in engineering, technology, and other industries; convolutional neural network (CNN), recurrent neural network (RNN), and generative adversarial network (GAN). In the BCI region, researchers are trying to complement BCI with deep learning algorithms. However as brain impulses are high-dimensional, chaotic, and very non-stationary, there are some restrictions. Additionally, relative to image data in computer vision fields, datasets are greatly reduced. Therefore more research based on deep learning as BCI applications and a detailed assessment of how this technology can be used to incorporate the use of the interface in practice would be helpful. The main purpose of this book is to create a platform for debate, putting together the efforts of researchers to make progress in BCIs based on deep learning. Opinions/survey data on the practical problems of applying deep learning to BCI are also welcome.

### List of Topics: (Not limited to)

- Introduction: Brain computer interface, Deep Learning
- Hard-coded features in the brain and DNN
- Resting state fMRI - large data analytics in Neuroimaging
- Transfer learning for BCI with minimum calibration
- Data augmentation for the limited training dataset
- Signal Processing and Machine Learning for Brain-Machine Interfaces
- Data preprocessing of Electroencephalography
- Statistical learning for Brain computer Interface
- Feature extracting techniques for brain signals.
- Role of Brain-Computer Interface in health informatics
- Limitations and Critical issues in applying deep learning to BCI
- Analysis of electroencephalography Deep learning algorithms.
- Brain-Computer Interfaces for Human Augmentation
- Non-EEG-based human-computer interface
- Improving the quality of elderly living with Brain-Computer Interface

### Scopus

### Important Dates

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**25 March 2021**

Full Chapter  
Submission:  
**30 May 2021**

Chapter  
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**30 June 2021**

Final Chapter Submission (in words):  
**30 November 2021**

Abstract Submission Link:  
<https://easychair.org/conferences/?conf=wileybci2021>

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The book will be indexed by Scopus and the majority of our titles are also indexed by Web of Science.

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