





an Open Access Journal by MDPI

# Recent Trends, Applications, and Challenges of Brain-Machine Interfaces

Guest Editors:

#### Dr. Mufti Mahmud

School of Science and Technology, Nottingham Trent University, Clifton, Nottingham NG11 8NS, UK

#### Prof. Dr. Stefano Vassanelli

Department of Biomedical Sciences, University of Padua, Via U. Bassi 58/B, 35131 Padua, Italy

#### Dr. Gunasekaran Manogaran

John Muir Institute of the Environment, University of California, Davis, CA 95616, USA

Deadline for manuscript submissions:

closed (30 June 2021)

## **Message from the Guest Editors**

The brain-machine interface (BMI), also referred to as the brain-computer interface (BCI), has practical applications to many disciplines, such as brain research, medical rehabilitation, neuroergonomics and smart environment, security and authentication, etc. This involves a range of diverse data acquisition techniques recording brain signals from the scalp, subdural, subcortical, and deep brain structures. These signals include electrocorticograms (ECoG), intracortical signals such as local field potentials (LFP), multi- and single-unit activities (neuronal spikes) for the invasive category, electroencephalograms (EEG), magnetoencephalograms (MEG), functional magnetic resonance imaging (fMRI), and functional near-infrared spectroscopy (fNIRS) for the non-invasive category. These signals require sophisticated processing before they can be used in the application area of BMI/BCI. There are numerous challenges in the pipeline from signal acquisition to application.

This Special Issue aims to collate cutting-edge original research as well as reveiw articles targeting recent trends, applications, and challenges of BMI/BCI.











an Open Access Journal by MDPI

#### **Editor-in-Chief**

# **Prof. Dr. Giulio Nicola Cerullo**Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, Italy

### **Message from the Editor-in-Chief**

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

#### **Author Benefits**

**Open Access:** free for readers, with article processing charges (APC) paid by authors or their institutions.

**High Visibility:** indexed within Scopus, SCIE (Web of Science), Inspec, CAPlus / SciFinder, and other databases.

**Journal Rank:** JCR - Q2 (*Engineering, Multidisciplinary*) / CiteScore - Q1 (*General Engineering*)

#### **Contact Us**