



## Machine Learning and Its Application in Neuroscience and Brain-Computer Interfaces

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### Message from the Guest Editors

Recent technological innovations have led to substantial disruptions in fields like medicine and healthcare, patient monitoring, and telemedicine. Brain-computer interfaces are a novel and highly significant technology that establishes an information-sharing pathway between an external device such as a computer and the electrical signals in the brain. With this technology, it is possible for even a paralyzed patient to communicate their thoughts to a computer. The technology is made possible through three common methods that define how the electrodes make contact with the brain tissues. These methods are invasive (microelectrode array), partially invasive (endovascular and ECoG), and non-invasive (MRI, EEG, EOG, MEG).

Topics of interest for this SI include, but are not limited to, the following:

Convolutional neural networks (CNNs) for neuroimaging applications.

Development of a brain-computer interfaces by integrating machine learning approaches with Riemannian geometry.

Methods to enhance motor imagery classification using machine learning for brain-computer interfaces.

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