

Special Issue on **Advanced Techniques in Machine Learning for Neural Data Processing**

CALL FOR PAPERS

Machine learning has become a significant area of research that has enabled machines to detect complex patterns, create models, and solve problems in different real-world engineering applications across a wide spectrum of fields, including neuroscience.

Our increasing ability to collect and generate tremendous volumes of neural data, at multiple scales, demands that machine learning and other bioinspired techniques extract useful information for a better understanding of information processing in the brain and to, potentially, reveal biological mechanisms. Although neural data is extremely rich in information, it also poses some constraints to machine learning techniques due to intrinsic spatial-temporal organization and missing or noisy data. The synergy of machine learning and neuroscience has the potential to generate opportunities for next-generation brain-inspired machine learning and computational models.

The objective of this special issue is to bring together researchers from the machine learning and computational neuroscience communities to discuss how machine learning methods can enhance the way we analyze and model neural data. The special issue seeks to collect high-quality research papers reporting recent developments, ideas, methods, and empirical findings that have the potential to stimulate collaboration and expand our knowledge in this field. Review articles that summarize the state of the art are also welcome.

Potential topics include but are not limited to the following:

- ▶ Decoding, analyzing, and modeling of neural activities using interpretable machine learning algorithms
- ▶ Applied deep learning for analyzing and modeling of neural mechanisms of brain activity and functions
- ▶ Frameworks and systems for machine learning on massive datasets in neuroscience
- ▶ Brain-inspired unsupervised and semisupervised learning algorithms
- ▶ Neuromorphic implementations and architectures of machine learning algorithms

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/cin/mlrat/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

Cesar Torres-Huitzil, Tecnológico de Monterrey, Puebla, Mexico
torresc@tec.mx

Guest Editors

Octavio Loyola-González, Tecnológico de Monterrey, Puebla, Mexico
octavioloyola@tec.mx

Horacio Rostro-Gonzalez, Universidad de Guanajuato, Salamanca, Mexico
hrostrrog@ugto.mx

Submission Deadline

Friday, 31 January 2020

Publication Date

June 2020