Special Issue

The Future of Computational Neuroscience: Mathematical Frameworks and Societal Applications

Message from the Guest Editor

This Special Issue solicits research that advances the interdisciplinary field of computational neuroscience with a strong focus on algorithmic innovations and computational methods. We welcome original research and comprehensive review articles that develop novel algorithms, analytical frameworks, and modeling techniques to unravel the complexity of the nervous system. In light of recent breakthroughs in neuroscience-inspired technologies, such as deep neural networks and neural coding theories, we encourage contributions that:

- Propose innovative algorithmic approaches for modeling neural processes and brain function.
- Develop efficient optimization techniques and computational algorithms to simulate large-scale neural networks.
- Explore novel mathematical and computational frameworks for understanding neural dynamics and information processing.
- Investigate the broader societal implications of these emerging technologies and their real-world applications.
- Identify future directions for algorithmic research in neuroscience, guided by neuroengineering, medicine, and biology challenges.

Guest Editor

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Message from the Editor-in-Chief

Algorithms are the very core of Computer Science. The whole area has been considered from quite different perspectives, having led to the development of many sub-communities: Complexity theory (limitations), approximation or parameterized algorithms (types of problems), geometric algorithms (subject area), metaheuristics, algorithm engineering, medical imaging (applications), indicates the range of perspectives. Our journal welcomes submissions written from any of these perspectives, so that it may become a forum for exchange of ideas between the corresponding scientific subcommunities.

Editor-in-Chief

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