Special Issue

Mathematics Applications of Neural Networks for Biological and Medical Processing

Message from the Guest Editors

This Special Issue focuses on the mathematical underpinnings and innovative applications of neural networks in biological and medical processing, seeking to explore how mathematical models enhance the accuracy, efficiency, and robustness of neural network-based medical solutions. The intersection of mathematics and neural networks plays a pivotal role in improving medical data processing tasks, such as medical imaging, diagnostic prediction, disease progression modeling, and treatment optimization. By leveraging mathematical theories like optimization, probability, graph theory, and differential equations, researchers are developing more interpretable, reliable, and computationally efficient neural network architectures for medical applications. We invite contributions that highlight novel mathematical methodologies for neural network design, implementation, and analysis in medical contexts. Topics of interest include, but are not limited to, mathematical optimization for network training, theoretical analyses of neural network behavior in biological and medical tasks, neural architectures for specific medical data types, and their practical implementations.

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The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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