Special Issue

Artificial Intelligence Applications in Complex Networks

Message from the Guest Editor

In recent years, network theory has become the core of the interdisciplinary study of complex systems. Graph theory offers a simple tool to model the interactions among nonlinear dynamic units and study the emerging collective and nontrivial patterns in different fields. Artificial intelligence (AI) combined with a great volume of available data and advanced algorithms can provide an unprecedented opportunity to explore complex system features by means of data-driven techniques. Indeed, AI makes use of neuronal networks, deep learning, machine learning techniques, and supervised and unsupervised learning to automate the building of analytical models, and improve repetitive learning and discovery through data. This Special Issue aims to collect unpublished and original contributions from different fields and areas of interest that combine AI techniques and complex networks. Topics of interest include, but are not limited to:

- Real-world applications to biophysical and socioeconomic phenomena;
- Processes on hypergraphs and higher-order networks, and topological data analyses;
- Community detection;
- Data mining and evolutionary games on networks;
- Cognitive processes.

Guest Editor

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Deadline for manuscript submissions

closed (28 February 2025)

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About the Journal

Message from the Editor-in-Chief

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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