

Special Issue

Advanced Machine Learning Research in Complex System

Message from the Guest Editors

Advanced machine learning plays a critical role in understanding, modeling, and managing complex systems characterized by nonlinear interactions, uncertainty, and emergent behaviors. Such systems arise in biological and social networks, cyber-physical infrastructures, energy and transportation systems, and large-scale industrial and information platforms. This Special Issue, *“Advanced Machine Learning Research in Complex System,”* focuses on methodological advances at the intersection of machine learning and complex systems. We welcome contributions proposing new learning paradigms, models, and algorithms for complex system settings, including graph- and network-based learning, representation learning for dynamical systems, causal and structure-learning methods, scalable optimization and inference, and robust or safe reinforcement learning, supported by theoretical analysis. We particularly encourage studies addressing challenges such as high dimensionality, spatio-temporal dependencies, distribution shifts, partial observability, robustness, safety, and interpretability, with applications serving to validate methodological innovations.

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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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