Special Issue

Multi-Objective Optimization Based on Artificial Intelligence and Evolutionary Algorithms

Message from the Guest Editor

This Special Issue aims to unite researchers exploring artificial intelligence (AI) - evolutionary algorithms (EAs) fusion for multi-objective optimization. We welcome original research articles, reviews on the following topics:

- AI-Driven Optimization: Neural networks, reinforcement learning, transformers, and deep learning for surrogate modeling or adaptive operators;
- Evolutionary and Swarm Intelligence: Novel EA variants, particle swarm, ant colony, or co-evolutionary algorithms;
- Hybrid AI-EA Frameworks: Integration of machine learning with EAs for constraint handling, convergence acceleration, or preference articulation;
- Large-Scale and Many-Objective Optimization: Scalable algorithms for >3 objectives, dimensionality reduction, and explainable Pareto fronts;
- Constrained Multi-Objective Optimization: Novel constraint handling techniques for multi-objective optimization problems with constraints;
- Uncertainty-Aware Optimization: Robustness under noise, fuzzy logic, Bayesian optimization, and stochastic environments;
- Real-World Applications: Sustainable systems, Industrial 4.0, smart cities, climate modeling, financial portfolio optimization, and risk management.

Guest Editor

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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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