Special Issue

Algorithm Engineering for Complex Optimization Problems: Theory and Applications

Message from the Guest Editor

Optimization offers a robust set of tools and methodologies for resolving problems in science, engineering, and industry. Despite improvements in their convergence speed, traditional optimization methods often struggle with complex, high-dimensional problems, particularly those involving large and non-convex search spaces. The aim of this Special Issue is to explore the engineering of algorithms specifically developed to handle this complexity, effectively bridging the gap between theoretical knowledge and practical application. This call for papers seeks high-quality research that explores the design principles, theoretical analysis, and empirical validation of optimization algorithms. We encourage submissions that cover a broad range of methodologies, including, but not limited to, evolutionary algorithms, swarm intelligence, hyper-heuristics, machine learning-based methods, and hybrid techniques. Submissions should place a strong emphasis on algorithmic novelty, demonstrable scalability, robustness across diverse instances of a problem, and the ability to adapt effectively to the challenges posed by complex problems.

Guest Editor

Dr. Asma Ladj

Railenium Research and Technology Institute, 59540 Valenciennes, France

Deadline for manuscript submissions

31 January 2026

MDPI

Σ

Mathematics

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 4.6

MDPI

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.

Editor-in-Chief

Prof. Dr. Francisco Chiclana
School of Computer Science and Informatics, De Montfort University, The Gateway, Leicester LE1 9BH, UK

Author Benefits

High Visibility:
indexed within Scopus, SCIE (Web of Science), RePEc, and other databases.

Journal Rank:
JCR - Q1 (Mathematics) / CiteScore - Q1 (General Mathematics)

Rapid Publication:
manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.4 days after submission; acceptance to publication is undertaken in 2.4 days (median values for papers published in this journal in the first half of 2025).