

Special Issue

Trends and Prospects of Asymmetric and Symmetric Studies on Algorithms Optimizations

Message from the Guest Editors

Optimization tasks such as resource allocation, scheduling and prediction are common and challenging problems in many domains, such as logistics, economy, manufacturing, social life, healthcare, etc. The Special Issue aims to explore the pervasive role of symmetric and asymmetric principles in advancing optimization techniques. Although optimization methods are developed in diverse scientific domains, we focused on the integration of machine learning and optimization methodologies in this Special Issue with the main aim seek of elucidating how symmetric and asymmetric principles can enhance algorithmic goodness, i.e., first of all, the efficiency and solution quality in various already mentioned application areas because machine learning for optimization offers several advantages, such as scalability, adaptability and robustness. With obligatory interdisciplinary dialogue in mind, this collection should illuminate novel approaches for tackling complex optimization problems in different fields of human life through theoretical analyses, algorithm development, and real-world case studies.

Guest Editors

Prof. Dr. Dragan Randelović

Faculty of Diplomacy and Security, University Union—Nikola Tesla, Belgrade, Serbia

Dr. Jelena Misić

Department of Computer Science, Toronto Metropolitan University, Toronto, ON, Canada

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Symmetry
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
symmetry@mdpi.com

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

Editor-in-Chief

Prof. Dr. Sergei Odintsov

1. ICREA, 08010 Barcelona, Spain

2. Institute of Space Sciences (IEEC-CSIC), C. Can Magrans s/n, 08193 Barcelona, Spain

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