



## Advanced Optimization Methods and Their Applications

Guest Editors:

**Dr. Jianchao Bai**

Associate Professor, School of  
Mathematics and Statistics,  
Northwestern Polytechnical  
University, Xi'an 710129, China

**Prof. Dr. Qiyu Jin**

School of Mathematical Science,  
Inner Mongolia University,  
Hohhot, China

**Prof. Dr. Yuchao Tang**

School of Mathematics and  
Information Science, Guangzhou  
University, Guangzhou 510006,  
China

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### Message from the Guest Editors

Dear Colleagues,

With the development of big data and artificial intelligence, the development of efficient and straightforward optimization methods and the establishment of their convergence theory have become crucial. Furthermore, optimization plays a critical role in numerous other fields such as image processing, stochastic learning, signal processing, and computer vision. This Special Issue aims to disseminate some high-level manuscripts to the community on recent advanced optimization methods and their applications, which involves symmetric matrices or tensors related to the topics of Symmetry. It seeks to strengthen and deepen the understanding of the mathematical methodology of image processing and analysis by encouraging the quantitative comparison and performance evaluation.

This Special issue of Symmetry is open to all fields of computational optimization and imaging science, from theoretical research to practical applications, with a particular emphasis on some advanced optimization algorithms and image processing, machine learning, and computer vision.





# symmetry



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## Editor-in-Chief

### Prof. Dr. Sergei D. Odintsov

1. Institució Catalana de Recerca i Estudis Avançats (ICREA),  
Passeig Luis Companys, 23,  
08010 Barcelona, Spain  
2. Institute of Space Sciences  
(ICE-CSIC), C. Can Magrans s/n,  
08193 Barcelona, Spain

## 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.

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Symmetry Editorial Office  
MDPI, St. Alban-Anlage 66  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
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