

Special Issue

Advanced Tensor Learning and Analysis: Theory, Symmetry, and Applications

Message from the Guest Editors

Tensors provide a natural and powerful framework for representing multi-dimensional data and modeling complex interactions across diverse scientific and engineering domains. Tensor-based learning and analysis have emerged as fundamental tools in modern data science, enabling the discovery of latent structures and symmetries in high-dimensional datasets. From signal processing and computer vision to scientific computing and machine learning, tensor methods are playing an increasingly critical role in theoretical developments and practical applications.

Symmetry and structural properties are essential to many tensor models and algorithms. Exploiting these properties enables more efficient representations, improved interpretability, and stronger theoretical guarantees. The rapid development of deep learning has created new opportunities for integrating tensor structures into neural network architectures, leading to more compact models, improved generalization, and enhanced computational efficiency.

This Special Issue will bring together researchers and practitioners working on the latest developments in tensor learning, tensor analysis, and their applications across disciplines.

Guest Editors

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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

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