

Special Issue

Applications Based on Symmetry in Machine Learning and Data Mining

Message from the Guest Editors

- Symmetry, the principle of invariance under transformation, offers a robust framework for advancing machine learning and data mining. This Special Issue of *Symmetry* explores its applications, inviting contributions from a broad research community beyond traditional symmetry experts. In machine learning, symmetry enables models to generalize across variations, such as recognizing objects regardless of orientation, enhancing efficiency and robustness. In data mining, this facilitates the identification of stable patterns within complex datasets, applicable to domains such as time series analysis or network structures. This Special Issue seeks original research, reviews, and theoretical insights that leverage symmetry to address contemporary challenges. Potential topics include symmetry-informed neural network designs, feature extraction methods, clustering techniques, and dimensionality reduction approaches.
- We also encourage interdisciplinary perspectives, welcoming submissions that integrate concepts from fields such as physics, biology, or social sciences with computational methods...

Guest Editors

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About the Journal

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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