

Special Issue

Applications of Symmetry/Asymmetry in Data Mining and Machine Learning

Message from the Guest Editors

Symmetry and asymmetry are fundamental patterns in data, models, and intelligent behavior. In data mining and machine learning, they appear in feature distributions, graph structures, temporal dynamics, class imbalance, causal relations, human-agent interaction, and the evolving memories of autonomous agents. This Special Issue invites original research and review articles on applications based on symmetry/asymmetry in data mining and machine learning, with particular interest in agent systems and agent memory. Relevant topics include symmetry-aware representation learning, asymmetric similarity and retrieval, imbalanced and long-tailed data mining, graph and network learning, anomaly detection, contrastive learning, continual learning, explainable decision-making, and memory-augmented agents that consolidate, retrieve, revise, or forget knowledge over time. We also welcome studies on multi-agent systems, personalized agents, trustworthy AI, and real-world applications where symmetric or asymmetric structures improve robustness, interpretability, adaptation, and decision support.

Guest Editors

Prof. Dr. Hang Yu

School of Computer Engineering and Science, Shanghai University,
Shanghai, China

Dr. Yonggang Zhang

Division of Arts and Machine Creativity (AMC), Hong Kong University of
Science and Technology, Clear Water Bay, Kowloon, Hong Kong

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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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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.

Editor-in-Chief

Prof. Dr. Sergei Odintsov

ICREA, 08010 Barcelona and Institute of Space Sciences (IEEC-CSIC),
C. Can Magrans s/n, 08193 Barcelona, Spain

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