Special Issue

Symmetry/Asymmetry in Neural Networks and Applications

Message from the Guest Editors

This Special Issue aims to explore the application of symmetry in the field of neural network learning, as well as the application of symmetry and asymmetry to the training of fully supervised, semi-supervised, and unsupervised models. Deep learning models such as the auto-encoder network, adversarial generative network (GAN), graph neural network (GNN), distillation learning, and twin network all exhibit strong symmetry. Applying these techniques in many industrial and agricultural fields, including object recognition, image segmentation, pedestrian re-recognition, image compression, time series prediction, and anomaly detection applications, these deep learning models have shown good performance in many application fields. This Special Issue will look at the future direction of machine learning, especially deep learning theory and practice, inspired by various symmetries. We are therefore inviting manuscript submissions. Topics of interest include, but are not limited to, the following:

- neural network
- artificial intelligence
- deep learning
- adversarial learning
- self-supervised learning
- feature engineering

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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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