Special Issue

Advances in Machine Learning and Symmetry/Asymmetry

Message from the Guest Editors

As a critical concept in understanding the laws of nature, symmetry has been well-investigated in studies of mathematical optimizations. Over the past few decades, optimization has played a pivotal role in formulating and solving machine learning tasks, thus the connection between optimization and machine learning is becoming a popular research topic. It is no surprise that with the ever-increasing complexity of real-life tasks, both optimization and machine learning come with inherent facets of symmetry or asymmetry conveyed in different formal ways, which requires effective approaches to produce optimal solutions as well as efficient algorithms. This Special Issue is focused on the methodologies and applications of coping with symmetry in optimization through the usage of concepts of machine learning. Research papers that employ theoretical analysis and/or practical applications in the related scope are welcomed. Papers devoted to improving the interpretability and the computational efficiency of the symmetry constrained optimization models are also welcomed.

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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

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