Special Issue

Symmetry and Asymmetry in Optimization Algorithms and System Control

Message from the Guest Editors

In contemporary scientific research and technological applications, the concepts of symmetry and asymmetry have emerged as critical elements in optimization algorithms and system control, for example, data encryption, information security, and discrete production systems. Symmetry, a fundamental attribute in nature and mathematics, not only simplifies problem complexity and enhances computational efficiency but also plays a unique role in system control. For example, symmetry can significantly enhance the design of efficient optimization algorithms, such as symmetric cone optimization, sparse optimization, and optimization methods based on symmetric models. By contrast, asymmetry has shown distinct advantages in complex system control, such as asymmetric consensus problems in multi-agent systems and asymmetric rule applications in complex signal control. This Special Issue, entitled "Symmetry and Asymmetry in Optimization Algorithms and System Control," aims to gather the latest research findings from scholars worldwide to explore the applications of symmetry and asymmetry in optimization algorithms and system control.

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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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