Special Issue

Symmetry and Asymmetry in Data Analysis

Message from the Guest Editors

In the realm of data analysis, symmetry and asymmetry are pivotal concepts that offer profound insights into the structure and distribution of data. Symmetry in data often implies a balance or uniformity, which can be indicative of a stable or predictable system. It is frequently observed in well-behaved datasets, where the distribution of data points is even across different categories or variables. This property can simplify analysis by allowing analysts to apply symmetrical models, such as the normal distribution, to make predictions or inferences with a high degree of confidence. Conversely, asymmetry in data introduces complexity and variability, which can be challenging to model but also rich in information. Asymmetric data distributions, such as skewed or bimodal patterns, suggest underlying processes that may not conform to simple assumptions of symmetry. Analyzing asymmetry requires more nuanced approaches, such as using non-parametric tests or transforming data to better fit symmetrical models. The presence of asymmetry can reveal hidden patterns, outliers, or the influence of confounding variables that might be overlooked in a symmetrical analysis.

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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