

Special Issue

Symmetry or Asymmetry in Big Data Datasets for Cybersecurity

Message from the Guest Editor

The rapid expansion of digital infrastructures and the ubiquitous deployment of smart technologies have led to an exponential growth in data generation. Big data has revolutionized the field of cybersecurity, offering a wealth of information that can be harnessed for threat detection, anomaly analysis, and the prevention of cyberattacks. However, the inherent properties of big data often present unique challenges, particularly concerning the notions of symmetry and asymmetry in data structures, distributions, and patterns. This Special Issue explores the dual roles of symmetry and asymmetry in big data as they pertain to cybersecurity. Symmetrical data patterns, often leveraged for predictive analytics, provide consistent insights, enhancing the detection of familiar threats. Conversely, asymmetric data distributions, characteristic of unpredictable and emerging cyber threats, require advanced models for effective analysis and mitigation. We invite submissions that address theoretical advancements and practical applications focusing on how symmetry and asymmetry can influence security frameworks, data modeling, and threat analysis in the era of big data.

Guest Editor

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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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