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Symmetry in Artificial Intelligence and Mathematical Modeling for Cybersecurity

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Message from the Guest Editor

Dear Colleagues,

The rapid digitalization of the economy has led to the digital transformation of all industries. With the development of technology, new complex objects have appeared—cyber-physical systems, digital economy, and digital production systems. Keeping such a modern system in a secure state means its invariance under any kind of outer or inner transformations. It has become evident that modern cyber-physical systems follow the laws of nature originate in symmetries: fractal features, identity of operational chains, system resilience and cybersecurity, homeostatic control, symmetric network structures, and symmetric algorithms.

Ensuring information security of the whole digital infrastructure requires the use of an interdisciplinary approach that involves various mathematical models and methods – statistics, the theory of fractals and wavelets, number-theoretic and cryptography methods, and graph theory...



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Special Issue



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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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