Special Issue

Applications of Artificial Intelligence to Cryptography

Message from the Guest Editors

For about four decades, artificial intelligence (AI) has provided an interesting set of techniques for the design and analysis of cryptographic primitives and protocols. Indeed, this fruitful interaction has been witnessed by multiple publications which have targeted. This research thread is well-established in the literature, while still featuring plenty of new directions and open problems to be addressed. The aim of this Special Issue is to gather the most recent results and works where AI plays a significant role in the design or the analysis of cryptographic primitives and protocols. Relevant topics include (but are not limited to): the use of bio-inspired optimization approaches (such as evolutionary algorithms and swarm intelligence) to construct symmetric primitives such as Boolean functions and S-boxes; the design of primitives and protocols using AI-based computational models, such as cellular automata and neural networks; deep learning models for cryptoanalysis and side-channel attacks. In addition to novel research contributions, we also welcome surveys and systematization of knowledge papers covering applications of AI methods to cryptography.

Guest Editors

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Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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