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Special Issue Reprint

Security, Privacy, Confidentiality and Trust in Blockchain

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Edited by
Mikolaj Karpinski
Oleksandr O. Kuznetsov
Roman Oliynykov

This Special Issue presents cutting-edge research in blockchain security, privacy, confidentiality, and trust mechanisms. The collection encompasses ten peer-reviewed papers that address critical challenges in blockchain technology implementation. The contributions span theoretical foundations and practical applications, including post-quantum cryptographic solutions, smart contract vulnerability detection, and privacy-preserving protocols. Notable advances include NTRU-based schemes for underwater communications, heterogeneous semantic graphs for security analysis, and zero-knowledge proofs for distributed systems. The research demonstrates significant progress in energy-efficient security protocols, particularly in IoT environments and multi-robot coordination. Several papers explore blockchain applications in emerging domains such as the metaverse, cryptocurrency transaction security, and vehicular networks. This Special Issue highlights the successful integration of blockchain with artificial intelligence and machine learning techniques for enhanced security. Each contribution has undergone rigorous peer review, and represents a substantial advancement in its respective domain. This collection serves as a valuable resource for researchers, practitioners, and developers working in blockchain security and related fields.

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