Special Issue

Blockchain-Based Architecture: Performance and Applications

Message from the Guest Editors

Blockchain technologies have evolved from purely transactional systems into complex, distributed infrastructures supporting data sharing, automation, and trust across heterogeneous environments. However, as blockchain adoption expands beyond cryptocurrencies into domains such as Internet of Things (IoT), smart grids, digital twins, supply chains, healthcare, and decentralized AI, architectural design and performance considerations become critical challenges. This Special Issue aims to gather high-quality research addressing blockchain-based architectures with a particular emphasis on performance, scalability, interoperability, and real-world applicability. Contributions may focus on architectural designs integrating blockchain with cloud–edge–fog computing, IoT platforms, artificial intelligence and cyber–physical systems (CPS), as well as on-layer optimizations such as consensus mechanisms, off-chain computation, data storage strategies, and cross-chain communication. This Special Issue encourages application-driven studies. Survey and review articles synthesizing architectural trends, performance metrics, and open challenges are also welcome.

Guest Editors

Dr. Jesús Rodríguez-Molina
Department of Telematic Engineering and Electronics, Universidad Politécnica de Madrid, 28040 Madrid, Spain

Dr. Bimal Ghimire
Computer Science, Penn State Harrisburg, Middletown, PA 17057, USA

Deadline for manuscript submissions

20 July 2026

Applied Sciences

mdpi.com/journal/
applsci

About the Journal

Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, Italy

Author Benefits

Open Access:
free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:
indexed within Scopus, SCIE (Web of Science), Ei Compendex, Inspec, CAPlus / SciFinder, and other databases.

Journal Rank:
JCR - Q2 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering)