Special Issue

Mathematical Modeling and Analysis for the Security and Privacy of Cyber–Physical Systems (CPSs)

Message from the Guest Editor

Cyber–Physical Systems (CPSs) tightly integrate sensing, computation, communication, and actuation to interact with—and often control—critical infrastructures, industrial processes, transportation, healthcare, and smart city services. Their pervasiveness and real time constraints make CPSs attractive yet vulnerable targets for adversaries seeking to disrupt physical processes, exfiltrate sensitive data, or compromise user safety. Robust, mathematically grounded defenses and engineering level countermeasures are therefore essential for sustaining trust in next generation intelligent systems. This Special Issue aims to assemble a cross-disciplinary collection of at least ten high-quality articles that deepen our theoretical understanding and practical mitigation of CPS security and privacy risks. Contributions on CPS—ranging from rigorous mathematical analyses and algorithmic designs to hardware–software co-engineering approaches—are warmly welcomed. Contributions should demonstrate clear relevance to CPSs and advance the state of the art in modeling threats, proving security guarantees, or engineering resilient architectures.

Guest Editor

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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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