

# Special Issue

## Advances in Mathematical Approaches to Trustworthy and Secure AI Systems

### Message from the Guest Editor

Rapid developments in artificial intelligence (AI) have led to transformative innovations across sectors such as healthcare, finance, transportation, and public services. However, the widespread deployment of AI systems raises critical concerns about their trustworthiness, encompassing their reliability, robustness, fairness, transparency, accountability, privacy, and security. Ensuring AI trustworthiness demands not only ethical and regulatory frameworks, but also solid mathematical foundations and computational models that can rigorously characterize, analyze, and enhance the behavior of AI systems. Mathematical tools such as optimization theory, probability and statistics, game theory, differential privacy, dynamical systems, and computational geometry play a central role in addressing issues of AI robustness, fairness, interpretability, and security. This Special Issue invites submissions of high-quality research papers, surveys, and position articles that advance the mathematical, theoretical, and algorithmic understanding of trustworthy AI.

### Guest Editor

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### Deadline for manuscript submissions

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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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### Editor-in-Chief

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