Safety and Reliability of Autonomous Systems

Guest Editor:

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Message from the Guest Editor

Dear Colleagues,

In the realm of autonomous systems, mathematics serves as the bedrock upon which safety and reliability are meticulously constructed. This Special Issue delves into the mathematical frameworks that underpin the robust design, analysis, and validation of autonomous systems.

This Issue commences with an exploration of probabilistic models, which are instrumental in quantifying uncertainty and risk in autonomous decision making.

Moving forward, this Issue examines the role of optimization techniques, such as linear and nonlinear programming. The importance of robust statistics is also highlighted, techniques such as robust regression and outlier detection algorithms are discussed in the context of maintaining data fidelity and system robustness.

Furthermore, this Issue explores the application of graph theory and combinatorial mathematics in the design of efficient communication networks and the mapping of complex environments.

Lastly, this Issue touches upon the emerging field of machine learning, where mathematical models are used to learn from data and improve system performance over time.

Special Issue

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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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