

Special Issue

Robotics and Intelligent Systems: New Mathematical Challenges and Algorithmic Innovations

Message from the Guest Editor

We're seeking papers for a special issue on the mathematical and algorithmic challenges of autonomous intelligent robots. The current era is defined by the transition from mastering automation to achieving true autonomy, which requires developing the foundational mathematical principles for artificial intelligence. The key challenge is the transformation of sensory data into actionable knowledge. This includes:

- Visual signals to visual knowledge: Creating mathematical models to transform raw visual data into knowledge about geometry, topology, kinematics, and dynamics.
- Existing knowledge to new knowledge: Developing principles to allow robots to autonomously update their understanding of the physical world.
- Task knowledge to motor signals: Establishing the link between high-level task goals and the precise motor commands needed for a robot to perform its function.

If your research contributes to these areas, we invite you to express your interest. Five authors will be selected for a full waiver of publication fees, and we hope you will be one of them in this exciting special issue.

Guest Editor

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About the Journal

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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Author Benefits

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Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 17.3 days after submission; acceptance to publication is undertaken in 2.8 days (median values for papers published in this journal in the second half of 2025).