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Journal of Intelligent & Robotic Systems

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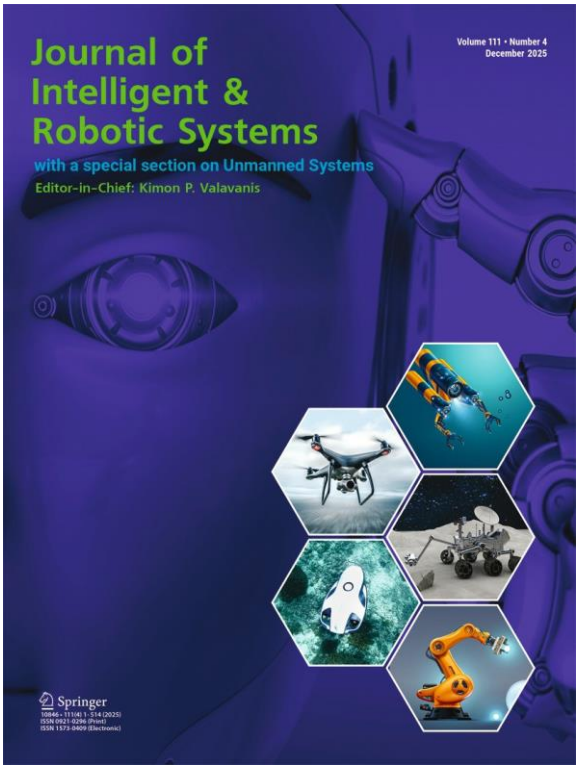
Call for Paper

Robotic Autonomy in Uncertain and Dynamic Environments

This Special Issue addresses the challenge of building safe and trustworthy robotic autonomy under uncertainty. Beyond sensor noise and dynamic environments, safety-critical applications require effective human-in-the-loop integration, where human guidance and shared control enhance autonomous decision-making. The issue focuses on the integration of uncertainty-aware perception, adaptive and fault-tolerant control, predictive safety assurance, and human–robot interaction on edge platforms.
We welcome high-quality contributions from academia and industry on advances in autonomy, human–robot collaboration, uncertainty modeling, predictive safety, robust perception, and real-world deployment.



Topics of interest include, but are not limited to:

- Uncertainty-aware autonomy architectures for mobile robots and manipulators
- Adaptive, robust, and fault-tolerant control under uncertainty
- Learning-based control with safety guarantees and formal verification
- Human-in-the-loop control, shared autonomy, and mixed-initiative planning
- Trust-, intent-, and uncertainty-aware human–robot collaboration
- Physical and cognitive HRI under uncertainty
- Robust visual perception and multi-modal sensor fusion
- Uncertainty modeling and propagation in perception and decision-making
- Perception-driven risk assessment and safety-aware scene understanding
- Predictive safety monitoring and proactive intervention
- Safety certification, runtime assurance, and formal methods
- Explainable and interpretable safety mechanisms
- Energy- and time-efficient autonomy on edge platforms
- Reliable autonomy under communication constraints and partial observability
- Real-world deployment, benchmarking, and long-term autonomy

Guest Editors:

Kuanqi Cai; Italian Institute of Technology, Genova, Italy; EPFL, Lausanne, Switzerland.
Arash Ajoudani; Italian Institute of Technology, Genova, Italy.
Chao Tang; KTH Royal Institute of Technology, Stockholm, Sweden.
Qiyi Tong; Italian Institute of Technology, Genova, Italy; University of Genoa, Genova, Italy.
Chaoqun Wang; Shandong University, Jinan, China.
Liding Zhang; Technical University of Munich, Munich, Germany.

Important Dates:

Manuscript Submission Deadline: **1 February, 2027**
First Review Round: 1 March, 2027
Revision Papers Due: 1 April, 2027
Acceptance Notification: 1 May, 2027
Final Manuscript Due: 15 May, 2027

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Submitted manuscripts will be handled on a rolling basis; early submissions may receive earlier review decisions.