

Special Issue

AI-Powered Robotic Systems: Learning, Perception and Decision-Making

Message from the Guest Editors

Recent advances in artificial intelligence (AI) have dramatically transformed the capabilities of robotic systems, enabling them to perceive complex environments, learn from experience, and make autonomous decisions in real time. The integration of machine learning, deep learning, and probabilistic reasoning into robotics has led to substantial progress in various domains, including autonomous navigation, human–robot interaction, and swarm coordination. Topics of interest include, but are not limited to, the following:

- Learning-based control and planning for robotics;
- Perception and sensor fusion using AI techniques;
- Reinforcement learning and imitation learning in robotics;
- Vision-based navigation and manipulation;
- Real-time decision-making under uncertainty;
- Cognitive robotics and adaptive behaviors;
- Multi-agent coordination and decision-making;
- AI applications in human–robot interaction;
- Applications in service robotics, field robotics, manufacturing, and more.

We welcome original research articles, comprehensive reviews, and case studies that address theoretical foundations, algorithm development, system implementations, and real-world deployments of AI-powered robotic systems.

Guest Editors

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About the Journal

Message from the Editor-in-Chief

It is my great pleasure to welcome you to our open access journal, *Robotics*, which is dedicated to both the foundations of artificial intelligence, bio-mechanics and mechatronics, and the real-world applications of robotic perception, cognition and actions. The 21st century is the robotics century and intelligent robots will change our lifestyle forever. Let us work together toward the realization of intelligent robots step by step.

It is great fun to create intelligent robots and imagine their practical applications. *Robotics* is now ready to serve you in the long journey towards such a goal.

Editor-in-Chief

Prof. Dr. Marco Ceccarelli

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