Special Issue

SLAM and Adaptive Navigation for Robotics

Message from the Guest Editors

Simultaneous Localization and Mapping (SLAM) and adaptive navigation are fundamental to enabling diverse autonomous robotic systems—including unmanned aerial vehicles (UAVs), unmanned ground vehicles (UGVs), unmanned surface vehicles (USVs), and unmanned underwater vehicles (UUVs)—to perceive, localize, and coordinate effectively in complex and dynamic environments. This Special Issue explores the integration of SLAM and adaptive navigation techniques for single-robot systems, multi-robot systems, and large-scale robotic swarms. Topics of interest include, but are not limited to, SLAM, localization and mapping, adaptive navigation, and path planning. We especially encourage submissions focusing on swarm coordination strategies such as cluster-wide coverage path planning, distributed task allocation, and dynamic topology control. Contributions that harness artificial intelligence, machine learning, and bio-inspired algorithms to improve robustness, scalability, and real-time adaptability of heterogeneous robotic systems are highly welcome. This topic aligns closely with the scope of *Robotics* by advancing coordinated autonomy and intelligent navigation for robots.

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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