

Future robotics technology and applications

CALL FOR PAPERS

Robots are transforming manufacturing, healthcare, logistics, agriculture, and domestic environments. As robotics applications expand, demand is growing for research talent and practical innovation across academia and industry. Advances in artificial intelligence, sensing, connectivity, and mobility are shaping the next generation of robots, which will be more intelligent, connected, collaborative, and mobile.

This special session will provide a forum for researchers to present and discuss original work on emerging technologies that are shaping the future of robotics. We invite innovative research papers in the following four technology areas and their potential applications:

✱ Robotic intelligence: research focused on enhancing the intelligence of future robots, including robotics foundation models, reinforcement learning, smart vision, learning from demonstration, cloud AI for robots, and inference;

✱ Human-robot collaboration: research focused on improving the collaborative capabilities of future robots, including natural language processing, haptic technology, safety assurance, and mixed reality for robotics;

✱ Robotic digital connectivity: research focused on improving the digital connectivity and interoperability of future robots, including ROS 2, robot middleware, Wi-Fi, LTE, the Internet of Things, and edge computing;

✱ Robotic mobility: research focused on improving the mobility of future robots, including natural navigation, ambient sensing, information fusion, V-SLAM, and collision detection and avoidance.

Research papers that demonstrate practical relevance, such as through simulation models, prototypes, or industrial collaboration, will be considered favorably for acceptance.

Authors are encouraged to submit work that advances the scientific foundations of robotics while demonstrating clear relevance to future real-world deployment.

Special Session Organizers:

Dr. Jingbing Zhang, Advanced Remanufacturing and Technology Centre (ARTC), A*STAR, Singapore

Dr. Zhengguo Li, Institute of Advanced Intelligence and Computing (IAIC), A*STAR, Singapore