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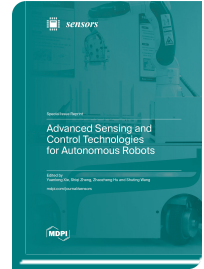
Advanced Sensing and Control Technologies for Autonomous Robots

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This Reprint compiles cutting-edge research on sensor-driven autonomy and adaptive control strategies for robotic systems operating in dynamic industrial and unstructured environments. It highlights innovations in robust control architectures, such as model-free adaptive control and fault-tolerant MPC frameworks, alongside advancements in perception technologies such as NeoSLAM and TSG-SLAM for dynamic scene navigation. The Reprint's contributions emphasize the synergy of LiDAR–vision–inertial sensor fusion with intelligent decision-making algorithms such as SAC-LSTM path planning while exploring novel paradigms such as artificially empathetic swarm control. By bridging theoretical rigor with industrial implementation, this Reprint provides a vital resource for researchers and engineers advancing resilient robotic autonomy through adaptive control, real-time perception, and multi-agent coordination in logistics, construction, and human–robot collaboration.



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