

Deep Reinforcement Learning–Based Adaptive Control Strategies for Autonomous Robotic Systems

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Abstract: *Deep Reinforcement Learning has emerged as a powerful paradigm for learning complex control policies for autonomous robotic systems, especially in environments with high uncertainty and nonlinearity. Integrating deep learning with reinforcement learning enables robots to perceive high-dimensional sensory inputs while adapting control strategies in real time. This review examines the state of the art in DRL-based adaptive control, categorizes key methodologies, discusses challenges, and highlights future research directions. Comparative analysis of recent studies is also presented in tabular form*

Keywords: *Adaptive Control, Autonomous Robotics, Model-Free Control*

