

Review on AI-Based Quality Inspection and Process Automation in Intelligent Robotic Manufacturing Systems

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Abstract: *The integration of Artificial Intelligence with robotic manufacturing systems has revolutionized quality inspection and process automation. This review synthesizes advancements in AI-enabled inspection techniques, discusses process automation frameworks, and highlights challenges toward robust intelligent manufacturing. Emphasis is placed on deep learning methods, sensor fusion, reinforcement learning control, and digital twin applications. Future directions in adaptive systems and real-time decision-making are also explored*

Keywords: Process Automation, Deep Learning, Sensor Fusion, Digital Twin

