

AI-Driven Software Testing: A New Paradigm for Quality Assurance

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Abstract: *This research presents the design and development of an AI-driven software testing framework aimed at revolutionizing the quality assurance process in modern software development. The study focuses on integrating Artificial Intelligence (AI) techniques such as machine learning, deep learning, and natural language processing to automate and optimize various phases of software testing, including test case generation, defect prediction, and regression analysis. The proposed system intelligently analyzes historical test data and code patterns to predict high-risk modules, prioritize test cases, and minimize human intervention. By continuously learning from previous test outcomes, the framework enhances testing accuracy, efficiency, and adaptability. The model not only reduces the time and cost associated with manual testing but also improves defect detection and product reliability. Overall, this AI-driven approach introduces a new paradigm in software quality assurance, ensuring faster release cycles, higher software quality, and greater confidence in software delivery.*

Keywords: Artificial Intelligence, Software Testing, Machine Learning, Quality Assurance, Automation, Defect Prediction

