

The Integration and Impact of Artificial Intelligence in Software Engineering

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Abstract: Artificial Intelligence (AI) has emerged as a transformative force in various domains, including software engineering. The integration of AI into software engineering practices has led to significant advancements in project management, software development, and testing processes. This paper explores the profound impact of AI on software engineering by examining its historical context, methodologies, and practical applications. It delves into AI-driven project management, AI-assisted software development lifecycle, and AI in software testing. Additionally, it highlights the application of AI in Software as Medical Devices (SaMD), software measurement, and overall software engineering practices. The interaction between AI and software engineering presents synergies and mutual benefits, yet poses challenges such as data quality, model interpretability, and ethical concerns. The paper concludes with insights into future trends and research directions, emphasizing the potential of AI to revolutionize software engineering further and the need for continuous research to address emerging challenges. The findings underscore the transformative potential of AI, guiding practitioners and policymakers towards more efficient, ethical, and innovative software engineering practices.

Keywords: Artificial Intelligence.