

ARTIFICIAL INTELLIGENCE IN MODERN SOFTWARE DEVELOPMENT

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Анотація

У публікації розглядається роль штучного інтелекту у сучасній розробці програмного забезпечення. Штучний інтелект активно використовується для автоматизації процесів програмування, аналізу даних та покращення якості програмних продуктів. Особлива увага приділяється застосуванню машинного навчання для виявлення помилок у коді, оптимізації програм та створення інтелектуальних систем підтримки розробників.

Ключові слова: штучний інтелект, програмування, машинне навчання, автоматизація, розробка програмного забезпечення.

Abstract

This paper examines the role of artificial intelligence in modern software development. Artificial intelligence is widely used to automate programming processes, analyse data, and improve the quality of software products. Special attention is given to the use of machine learning for detecting errors in code, optimizing programs, and creating intelligent developer support systems.

Key words: artificial intelligence, programming, machine learning, automation, software development.

Introduction

In recent years, artificial intelligence (AI) has become one of the most important technologies in the IT industry. Many companies use AI tools to improve productivity and simplify the software development process. Modern development environments increasingly include intelligent assistants that help programmers write code faster and more efficiently.

Artificial intelligence can analyse large amounts of data and identify patterns that would be difficult for humans to detect. As a result, AI technologies are being integrated into various stages of the software development lifecycle, including coding, testing, debugging, and maintenance.

Research results

One of the main applications of artificial intelligence in software development is automated code generation. AI-based tools can suggest code fragments, detect syntax errors, and recommend improvements in real time. Such tools help developers save time and reduce the number of mistakes during programming. [1]

Another important application is the use of machine learning algorithms to detect bugs and vulnerabilities in software systems. AI systems can analyse thousands of lines of code and identify potential security risks or logical errors. This significantly increases the reliability and security of software products. [2]

Artificial intelligence is also used in software testing. Intelligent testing systems can automatically generate test cases, analyse program behaviour, and predict possible failures. This allows developers to find problems earlier and improve the overall quality of the software. [3]

In addition, AI technologies support project management and decision-making. By analysing previous projects and development data, AI tools can predict deadlines, estimate project complexity, and recommend optimal development strategies. [4]

Conclusion

Artificial intelligence has become an important tool in modern software development. AI technologies help automate programming tasks, improve software quality, and increase development efficiency. Machine learning algorithms assist developers in detecting errors, optimizing code, and improving testing processes.

As artificial intelligence continues to evolve, its role in software engineering will become even more significant, transforming the way modern software systems are designed and developed.

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