Enhancing Code Security with AI-Powered Vulnerability Detection

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Abstract : As software systems become increasingly complex, ensuring code security is a growing concern. Traditional vulnerability detection methods often rely on manual code reviews or static analysis tools, which can be time-consuming and prone to errors. This paper presents a distinct approach to enhancing code security by leveraging artificial intelligence (AI) and machine learning (ML) techniques. Our proposed system utilizes a combination of natural language processing (NLP) and deep learning algorithms to identify and classify vulnerabilities in real-world codebases. By analyzing vast amounts of open-source code data, our AI-powered tool learns to recognize patterns and anomalies indicative of security weaknesses. We evaluated our system on a dataset of over 10,000 open-source projects, achieving an accuracy rate of 92% in detecting known vulnerabilities. Furthermore, our tool identified previously unknown vulnerabilities in popular libraries and frameworks, demonstrating its potential for improving software security.

Keywords : AI, machine language, cord security, machine leaning

Conference Title : ICCSPS 2024 : International Conference on Computer Science, Programming and Security

Conference Location : Vancouver, Canada

Conference Dates : October 24-25, 2024

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