

## Enhancing Code Security with AI-Powered Vulnerability Detection

**Authors :** Zzibu, Mark, Brian

**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