

## **The Use of Artificial Intelligence in Cyber Security**

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### **Abstract:**

Cybersecurity is an essential discipline that safeguards networks, devices, software, and data from cyber threats. The rapid advancement of interconnected systems has made cybersecurity more complex, requiring innovative solutions to counter increasingly sophisticated cyberattacks. Artificial Intelligence (AI) has emerged as a powerful tool in addressing cybersecurity challenges by analyzing vast datasets and proactively mitigating risks. This paper explores the integration of AI within cybersecurity frameworks, emphasizing its role in intrusion detection, malware analysis, and risk assessment. By reviewing relevant literature, this study highlights the trends in AI-driven cybersecurity research, evaluates key AI methodologies, and discusses their applications in enhancing digital security. The findings underscore the increasing adoption of AI in cybersecurity and its potential in revolutionizing threat detection and response mechanisms. Furthermore, this research identifies gaps in existing studies and suggests future directions for advancing AI-driven cybersecurity solutions.

### **Keywords:**

Cybersecurity, Artificial Intelligence, AI Cybersecurity algorithm.