

A Study on the Effectiveness of AI in Cybersecurity Threat Detection and Prevention

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Abstract: *Cyberattacks, and prevent data breaches. The study reviews existing literature, explores real-world applications, and analyses case studies of leading AI-powered security platforms to understand the impact of AI on threat intelligence, intrusion detection systems (IDS), and automated response mechanisms. The findings suggest that AI significantly improves the accuracy and speed of identifying threats, reduces the burden of false positives, and enables proactive defence strategies. However, the paper also addresses the challenges associated with implementing AI in cybersecurity, including data privacy concerns, adversarial attacks, and the need for skilled personnel. The study concludes that while AI is not a panacea, it plays a crucial role in augmenting traditional security systems and will be a foundational component in the future of cybersecurity architecture*

Keywords: Artificial Intelligence, Cybersecurity, Threat Detection, Machine Learning, Intrusion Detection, Automation

