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AI-Powered Cybersecurity: Improving Threat Identification and Reaction

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Abstract: *The detection, analysis, and mitigation of threats have been completely transformed by the use of artificial intelligence (AI) into cybersecurity. The revolutionary potential of AI-driven solutions in improving the effectiveness and precision of threat detection and response systems is examined in this study. Important developments like anomaly detection, machine learning, and natural language processing are reviewed, along with how they might be used to spot complex cyberattacks. Innovative approaches to cybersecurity are necessary due to the swift evolution of cyber threats in a digital world that is becoming more interconnected. AI-powered cybersecurity solutions have become an essential weapon in the fight against more complex and dynamic cyberattacks. This study explores how threat detection and response systems can use artificial intelligence technologies including machine learning, deep learning, and natural language processing. With the use of these technologies, computers can now analyze enormous volumes of data in real time, identify trends, spot irregularities, and make unmatched predictions about possible intrusions. The paper also emphasizes how AI may reduce response times, automate incident response, and lessen human error. The efficiency of AI in identifying ransomware, phishing assaults, and advanced persistent threats (APTs) is illustrated by real-world case studies. Adversarial attacks on AI models, data privacy issues, and the moral ramifications of autonomous are some of the obstacles to the widespread use of AI in cybersecurity.*

Keywords: cybersecurity

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