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# Are GPT-Powered AI Systems Superior to Traditional Cybersecurity Tools: Applications and Challenges

[International Journal of Safety and Security Engineering](#) • Article • [Open Access](#) • 2025 •

DOI: 10.18280/ijss.150912

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## Abstract

Generative Pre-trained Transformer (GPT) models are revolutionizing cybersecurity by enhancing threat detection, risk evaluation, phishing defense, and automatic vulnerability analysis. This study delves into the various applications of GPT Technologies in security operations, emphasizing their competence in processing security information of large volume, anomaly detections, and providing real-time insights. Case studies cite quantifiable benefits: Anomaly detection by AI reached a high of 80% accuracy, malware and phishing classification 75–95% accuracy, and Microsoft Copilot reduced phishing attacks by 45% in commercial settings. VirusTotal and Cylance AI improved malware categorization accuracy by 38%, reducing false positives by 35%. Incident response effectiveness was improved by as high as 40% in reported deployments. However, GPT models are also exposed to adversarial exploitation, gaps in explanation, integration issues, and dependence on previous data.

This paper lists countermeasures, such as prompt engineering, fine-tuning, domain-specific training, and hybrid AI-human decision systems. Findings further highlight the significance of continuous updates, interdisciplinary collaboration with adherence to ethical frameworks to reap the full benefits of GPT-powered cybersecurity. So, take into consideration integrating these models into present security ecosystems. This way, organizations may strengthen their defenses, improve risk management, and make resilience against cyber threats. ©2025 The authors. This article is published by IIETA and is licensed under the CC BY 4.0 license (<http://creativecommons.org/licenses/by/4.0/>).

## Author keywords

cybersecurity; data privacy; generative AI; natural language processing; phishing prevention; risk management; threat detection

## Funding details

Details about financial support for research, including funding sources and grant numbers as provided in academic publications.

Funding sponsor	Funding number	Acronym
Prince Sattam bin Abdulaziz University <a href="#">See opportunities by PSAU</a> ↗	PSAU/2025/R/1446	PSAU
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### Funding text

This study is supported via funding from Prince Sattam bin Abdulaziz University project number (PSAU/2025/R/1446).

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