

## Phishing Email Mitigation Through Gmail Plugins: A Review of Current Technologies and Future Trends

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### Abstract

Phishing attack is a chronic cybersecurity threat, particularly in popular platforms like Gmail, where traditional rule-based systems often struggle to detect evolving phishing tactics. This review examines effectiveness of the approaches of AI/ML-based Gmail plugins focusing on supervised learning and NLP techniques. These technologies increase the accuracy and flexible of phishing email detection while fixing the issues with traditional methods. The literature review was conducted by considering publications between 2015 and 2024 and the materials retrieved from trusted cybersecurity websites and other scholarly sources. The research points out the strengths and weaknesses by contrasting them with alternative approaches, so the use of AI/ML-based plugins enhances e-mail security, which is an advantage over rule-based, static systems. This research highlights that the Supervised Learning and NLP improve the detection of phishing emails by focusing on patterns of the email content where traditional methods are failed to identify. Future research is required to carryout overcome the constraints of real-time automatic responses for more flexibility. This review recommends for future developments with the combination of deep learning and privacy-preserving federated learning to improve real-time response capabilities. The circle of usage could be increased by developing better user interfaces, user alert systems, and reporting tools. These would make email security solutions with more agile and efficient, while improving phishing detection, and also improving the security of the email ecosystem.

**Keywords:** *Phishing detection, AI techniques, Machine learning, Email security, Anti-phishing*