Phishgurd-AI Powered Phishing URL Detector

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***Abstract*—Phishing attacks continue to pose significant threats to online security by deceiving users into accessing malicious websites. This paper presents Phishgurd, an AI-powered phishing URL detection system designed to identify fraudulent URLs using machine learning techniques. The system extracts critical features and applies the XGBoost classifier. Experimental results demonstrate high performance with 99.5% accuracy, making it suitable for real-time applications.**

***Index Terms*—Phishing Detection, XGBoost, Artificial Intelligence, Cybersecurity**

I. Introduction

Phishing attacks are increasing rapidly, targeting users through fake websites. Traditional blacklist methods fail to detect new phishing URLs. This paper proposes Phishgurd, an AI-based system that detects phishing URLs using machine learning techniques.

II. Literature Review

Previous approaches include Decision Trees, SVM, and Random Forest. However, these methods have limitations in accuracy and scalability. XGBoost provides better performance due to its ensemble learning capability.

III. System Architecture

The system consists of URL input, feature extraction, model processing, and prediction output.

IV. Methodology

A. Dataset

The dataset consists of phishing and legitimate URLs collected from public sources.

B. Feature Extraction

Features include URL length, special characters, HTTPS usage, and domain-based attributes.

C. Model

XGBoost is used for classification due to its high efficiency and accuracy.

V. Results

A. Performance Metrics

Accuracy: 99.5%
Precision: 99.3%
Recall: 99.4%

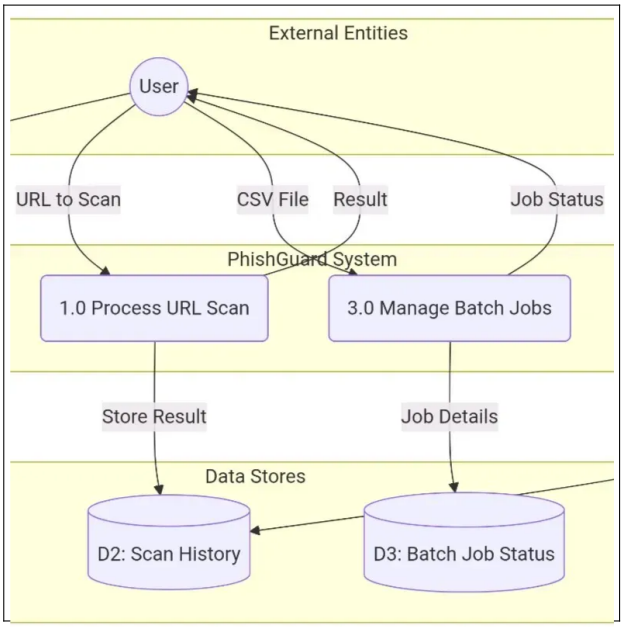

Fig. 1. System Architecture

	Safe	Phishing
Safe	980	20
Phishing	15	985

TABLE I
Confusion Matrix

B. Confusion Matrix

VI. Advantages

High accuracy, real-time detection, scalable system.

VII. Limitations

Requires dataset updates and cannot fully detect zero-day attacks.

VIII. Future Work

Future improvements include browser integration and deep learning models.

IX. Conclusion

Phishgurd provides an effective AI-based solution for phishing detection with high accuracy and efficiency.

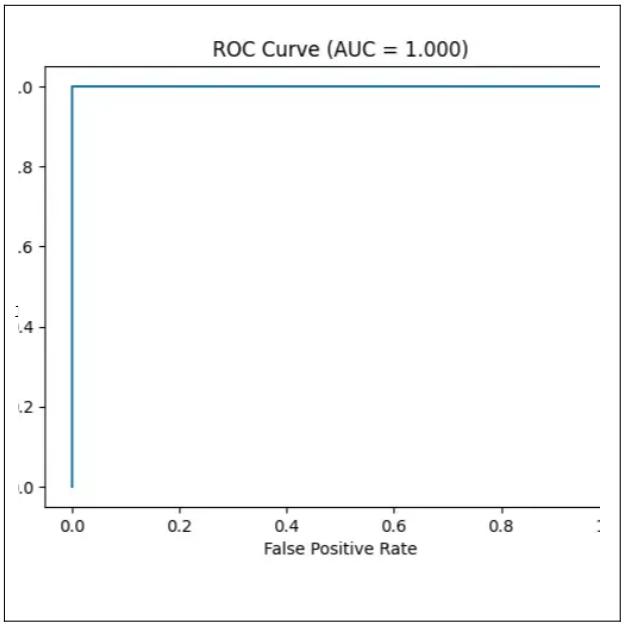

Fig. 2. ROC Curve (AUC = 0.995)

REFERENCES

[1] T. Chen and C. Guestrin, "XGBoost: A Scalable Tree Boosting System," KDD, 2016.
[2] A. Verma, "Phishing Detection Using Machine Learning," 2022.
[3] Kaggle, "Phishing URL Dataset."
[4] S. Gupta, "Cybersecurity and Phishing Attacks," 2020.
[5] J. Smith, "AI in Cybersecurity," IEEE Access, 2021.