

Phishing email detection through linguistic patterns and sentiment analysis

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Summary: With the wide usage of e-mail as a communication tool, phishing attacks have become increasingly common and sophisticated. This dissertation aims to explore **the use of linguistic patterns** and **sentiment analysis to detect phishing emails**. By analyzing the emotional tone and language used in emails, we may be able to identify potential phishing attempts and improve email security.

Objectives

❖ Objectives:

- Review State of the Art
- Research technologies to investigate and use
- Review existing datasets
- Use LLM to generate synthetic dataset
- Use collaborative annotation platform to annotate the dataset
- Develop initial validation pipeline
- Validate the annotated dataset

Work done / Results

❖ Work Done:

- Generated the synthetic dataset
- Collaborative annotation process
- Development of validation pipeline

❖ Results:

- Synthetic dataset
- Validation Pipeline
- Preliminary Results:
 - Phishing Accuracy: 0.815
 - Emotion F1 Score: 0.539

Next Steps / Challenges / Bottlenecks

❖ Next Steps:

- Execute work plan proposal
- Develop Phishing Detection Models
- Develop Emotion Detection Models

