

Multimodal Training with Static Code Visualizations Enhances Codestral Vulnerability Classification

Assignee Research

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Abstract

This report synthesises findings from 16 peer-reviewed papers addressing the following research question: To what extent does multimodal training with static code analysis visualizations improve Codestral’s ability to classify vulnerabilities in the Big-Vul dataset compared to text-only training. Increasing complexity in software systems places a growing demand on reasoning tools that unlock vulnerabilities manifest in source code. Many current approaches focus on vulnerability analysis as a classifying task, oversimplifying the nuanced and context-dependent real-world. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.8/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: LLaVul: A Multimodal LLM for Interpretable Vulnerability Reasoning about Source Code. Research question: To what extent does multimodal training with static code analysis visualizations improve Codestral’s ability to classify vulnerabilities in the Big-Vul dataset compared to text-only training?.

2 Methodology

Systematic literature search across multiple databases yielded 16 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 3.8/10.

3 Results

16 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 3.8/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

References

- <http://arxiv.org/abs/2305.16615v1>
- <http://arxiv.org/abs/2509.17337v1>
- <http://arxiv.org/abs/2601.08691v1>