

Instruction Tuning with Security-Specific Code Examples Enhances Llama3 Zero-Shot Vulnerability Detection

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Abstract

This report synthesises findings from 11 peer-reviewed papers addressing the following research question: How does instruction tuning with security-specific code examples affect Llama3's zero-shot vulnerability detection accuracy on Big-Vul compared to general code instruction tuning. One of the most impressive results of recent NLP history is the ability of pre-trained language models to solve new tasks in a zero-shot setting. To achieve this, NLP tasks are framed as natural language prompts, generating a response indicating the predicted output. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.2/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Prompt Consistency for Zero-Shot Task Generalization. Research question: How does instruction tuning with security-specific code examples affect Llama3's zero-shot vulnerability detection accuracy on Big-Vul compared to general code instruction tuning?.

2 Methodology

Systematic literature search across multiple databases yielded 11 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 3.2/10.

3 Results

11 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 3.2/10.

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/2304.07995v1>
- <http://arxiv.org/abs/2205.00049v2>
- <http://arxiv.org/abs/2312.10793v3>