Training Data Diversity and Cross-Language Generalization in Code Llama for Memory Corruption Detection

Assignee Research

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Abstract

This report synthesises findings from 12 peer-reviewed papers addressing the following research question: What is the impact of training data diversity on the cross-language generalization capability of Code Llama for detecting memory corruption vulnerabilities in C++ and Rust. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 5.8/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: SACTOR: LLM-Driven Correct and Idiomatic C to Rust Translation with Static Analysis and FFI-Based Verification. Research question: What is the impact of training data diversity on the cross-language generalization capability of Code Llama for detecting memory corruption vulnerabilities in C++ and Rust?.

2 Methodology

Systematic literature search across multiple databases yielded 12 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 5.8/10.

3 Results

12 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 5.8/10.

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/1710.01025v3
- http://arxiv.org/abs/2207.02337v1
- http://arxiv.org/abs/2503.12511v3