

Multi-Language Pre-Training and Single-Language Fine-Tuning Effects on Cross-Language Bug Detection Robustness

Assignee Research

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Abstract

This report synthesises findings from 12 peer-reviewed papers addressing the following research question: To what extent does multi-language pre-training versus single-language fine-tuning impact the robustness of sub-10B models in detecting cross-language bugs across diverse CWE categories. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 2.2/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Fine-Tuning Code Language Models to Detect Cross-Language Bugs. Research question: To what extent does multi-language pre-training versus single-language fine-tuning impact the robustness of sub-10B models in detecting cross-language bugs across diverse CWE categories?.

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 2.2/10.

3 Results

12 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 2.2/10.

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/2507.21954v2>
- <http://arxiv.org/abs/2504.16584v1>
- <http://arxiv.org/abs/2505.18673v1>