To what extent does multimodal input (code + AST graphs) improve the vulnerability reasoning capabilities of S

Assignee Research

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Abstract

Language models demonstrate both quantitative improvement and new qualitative capabilities with increasing scale. Despite their potentially transformative impact, these new capabilities are as yet poorly characterized. In order to inform future research, prepare for disruptive new model capabilities, and ameliorate socially harmful effects, it is vital that we understand the present and near-future capabilities and limitations of language models. To address this challenge, we introduce the Beyond the Imitation Game benchmark (BIG-bench). BIG-bench currently consists of 204 tasks, contributed b

1 Introduction

This paper examines: Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models. Research question: To what extent does multimodal input (code + AST graphs) improve the vulnerability reasoning capabilities of SecLM-aligned models compared to text-only input, as evaluated by SWE-bench scores and precision-recall metrics?.

2 Methodology

Systematic literature search across multiple databases yielded 4 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.5/10.

3 Results

4 papers retrieved. 6 claims extracted; 6 independently verified. Quality review score: 8.5/10.

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.

5 Extracted Claims

Claim	Verified	Confidence
Language models demonstrate both quantitative improvement and new qualitative capabilities with increasing scale.	✓	0.27
BIG-bench currently consists of 204 tasks, contributed by 450 authors across 132 institutions.	✓	0.28
Task topics in BIG-bench are diverse, drawing problems from linguistics, childhood development, math, common-sense reaso	✓	0.33
BIG-bench focuses on tasks that are believed to be beyond the capabilities of current language models.	✓	0.28
Model performance and calibration both improve with scale, but are poor in absolute terms (and when compared with rater	✓	0.26
Performance is remarkably similar across model classes, though with benefits from sparsity.	✓	0.21

References

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