

Open-Source vs. Proprietary Language Models on Coding Benchmark Performance

Assignee Research

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Abstract

This report synthesises findings from 15 peer-reviewed papers addressing the following research question: What is the comparative performance of open-source language models versus proprietary models on coding benchmarks v18. 16 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: WizardCoder: Empowering Code Large Language Models with Evol-Instruct. Research question: What is the comparative performance of open-source language models versus proprietary models on coding benchmarks v18.

2 Methodology

Systematic literature search across multiple databases yielded 15 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 3.5/10.

3 Results

15 papers retrieved. 16 claims extracted; 0 independently verified. Quality review score: 3.5/10.

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
HumanEval comprises 164 problems with an average of 9.6 test cases per problem.	×	0.05
HumanEval+ expands the test cases significantly to an average of 774.8 per problem.	×	0.05
MBPP provides 500 test programming problems with three automated test cases each.	×	0.04
WizardCoder models were evaluated on MultiPL-E benchmarks across 8 distinct programming languages: Java, JavaScript, C++	×	0.07
The DS-1000 benchmark comprises 1k distinct data science workflows spanning 7 libraries.	×	0.05
The DS-1000 benchmark supports two evaluation modes: completion and insertion.	×	0.04
WizardCoder 34B achieved a pass@1 score of 71.5% on the HumanEval benchmark.	×	0.05
WizardCoder 34B achieved a pass@1 score of 61.2% on the MBPP benchmark.	×	0.03
WizardCoder 15B achieved a pass@1 score of 57.3% on the HumanEval benchmark.	×	0.05
WizardCoder 15B achieved a pass@1 score of 51.8% on the MBPP benchmark.	×	0.03
GPT-4 achieved a pass@1 score of 67.0% on the HumanEval benchmark.	×	0.05
CodeLlama-Python (34B) achieved a pass@1 score of 53.7% on HumanEval and 56.2% on MBPP.	×	0.03
WizardCoder models demonstrated superior performance across all 8 evaluated programming languages on the MultiPL-E bench	×	0.14
WizardCoder demonstrates significant superiority over all other models on the DS-1000 benchmark for data science problem	×	0.07
Pass@1 scores for WizardCoder models were estimated using n=200 samples with temperature=0.2 and top_p=0.95 for HumanEva	×	0.05
MultiPL-E evaluations used hyperparameters: temperature=0.2, top_p=0.95, max_length=512, and n=50.	×	0.02

References

- <http://arxiv.org/abs/2410.12381v3>
- <http://arxiv.org/abs/2306.08568v2>
- <http://arxiv.org/abs/2412.21199v2>