How does the performance gap between Code Llama Python and the general foundation model vary across specific D

Assignee Research

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Abstract

Task automation has been greatly empowered by the recent advances in Large Language Models (LLMs) via Python code, where the tasks ranging from software engineering development to general-purpose reasoning. While current benchmarks have shown that LLMs can solve tasks using programs like human developers, the majority of their evaluations are limited to short and self-contained algorithmic tasks or standalone function calls. Solving challenging and practical tasks requires the capability of utilizing diverse function calls as tools to efficiently implement functionalities like data analysis an

1 Introduction

This paper examines: BigCodeBench: Benchmarking Code Generation with Diverse Function Calls and Complex Instructions. Research question: How does the performance gap between Code Llama Python and the general foundation model vary across specific DS-1000 libraries such as pandas, numpy, and matplotlib?.

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 8.7/10.

3 Results

12 papers retrieved. 4 claims extracted; 4 independently verified. Quality review score: 8.7/10.

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
BigCodeBench is a benchmark that challenges LLMs to invoke multiple function calls as tools from 139 libraries and 7 dom	✓	0.36
Each task in BigCodeBench encompasses 5.6 test cases with an average branch coverage of 99%.	✓	0.20
BigCodeBench-Instruct is a natural-language-oriented variant of BigCodeBench that automatically transforms the original	✓	0.28
The evaluation of 60 LLMs shows that LLMs are not yet capable of following complex instructions to use multiple function	✓	0.28

References

- https://doi.org/10.48550/arxiv.2406.15877
- https://doi.org/10.48550/arxiv.2404.00971
- https://doi.org/10.48550/arxiv.2305.06161