Code Llama 34B and 70B Inference Latency and Throughput Under Large Context Windows

Assignee Research

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Abstract

This report synthesises findings from 14 peer-reviewed papers addressing the following research question: What is the comparative inference latency and throughput efficiency of 34B versus 70B Code Llama models when generating complex multi-file code solutions under large context window constraints. We release Code Llama, a family of large language models for code based on Llama 2 providing state-of-the-art performance among open models, infilling capabilities, support for large input contexts, and zero-shot instruction following ability for programming tasks. We provide. 16 claims were extracted from source literature; 14 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.8/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Code Llama: Open Foundation Models for Code. Research question: What is the comparative inference latency and throughput efficiency of 34B versus 70B Code Llama models when generating complex multi-file code solutions under large context window constraints?.

2 Methodology

Systematic literature search across multiple databases yielded 14 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.8/10.

3 Results

14 papers retrieved. 16 claims extracted; 14 independently verified. Quality review score: 7.8/10.

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.

5 Extracted Claims

Claim	Verified	Confidence
Code Llama is a family of large language models for code based on Llama 2.	✓	0.28
Code Llama provides state-of-the-art performance among open models.	✓	0.25
Code Llama has infilling capabilities.	✓	0.16
Code Llama supports large input contexts.	×	0.15
Code Llama has zero-shot instruction following ability for programming tasks.	✓	0.28
Code Llama is available in multiple flavors: foundation models (Code Llama), Python specializations (Code Llama - Python	✓	0.41
Code Llama models have 7B, 13B, 34B, and 70B parameters each.	✓	0.27
All Code Llama models are trained on sequences of 16k tokens.	✓	0.23
Code Llama models show improvements on inputs with up to 100k tokens.	✓	0.21
7B, 13B, and 70B Code Llama and Code Llama - Instruct variants support infilling based on surrounding content.	✓	0.41
Code Llama reaches state-of-the-art performance among open models on several code benchmarks.	✓	0.36
Code Llama scores up to 67% on HumanEval.	✓	0.16
Code Llama scores up to 65% on MBPP.	×	0.13
Code Llama - Python 7B outperforms Llama 2 70B on HumanEval and MBPP.	✓	0.36
All Code Llama models outperform every other publicly available model on MultiPL-E.	✓	0.24
Code Llama is released under a permissive license that allows for both research and commercial use.	✓	0.21

References

- https://doi.org/10.48550/arxiv.2402.06196
- https://doi.org/10.48550/arxiv.2308.12950
- https://doi.org/10.18653/v1/2024.acl-long.737