How does the inference efficiency of Deepseek R1 compare to Codestral when handling multimodal inputs, as measured by latency per token and throughput on mixed text-image benchmarks

Assignee Research

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Abstract

Large Language Models achieve remarkable performance but incur substantial computational costs unsuitable for resource-constrained deployments. This paper presents the first comprehensive task-specific efficiency analysis comparing 16 language models across five diverse NLP tasks. We introduce the Performance-Efficiency Ratio (PER), a novel metric integrating accuracy, throughput, memory, and latency through geometric mean normalization. Our systematic evaluation reveals that small models (0.5–3B parameters) achieve superior PER scores across all given tasks. These findings establish

1 Introduction

This paper examines: Task-Specific Efficiency Analysis: When Small Language Models Outperform Large Language Models. Research question: How does the inference efficiency of Deepseek R1 compare to Codestral when handling multimodal inputs, as measured by latency per token and throughput on mixed text-image benchmarks?.

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 7.0/10.

3 Results

14 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 7.0/10.

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/2306.13394v5
- http://arxiv.org/abs/2605.11733v1
- http://arxiv.org/abs/2603.21389v1