How does Llama3's zero-shot performance in energy market anomaly detection compare to fine-tuned smaller

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 quantita

1 Introduction

This paper examines: Task-Specific Efficiency Analysis: When Small Language Models Outperform Large Language Models. Research question: How does Llama3's zero-shot performance in energy market anomaly detection compare to fine-tuned smaller models in terms of F1 score and latency?.

2 Methodology

Systematic literature search across multiple databases yielded 16 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 6.7/10.

3 Results

16 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 6.7/10.

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.

References

- http://arxiv.org/abs/2603.21389v1
- http://arxiv.org/abs/2106.16020v1
- http://arxiv.org/abs/2604.14552v2