Training Stability Techniques in OLMo 2 Enhance OLMoE-1B-7B-0125 Robustness on Adversarial Tasks

Assignee Research

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Abstract

This report synthesises findings from 8 peer-reviewed papers addressing the following research question: What is the impact of training stability techniques employed in OLMo 2 on the robustness of OLMoE-1B-7B-0125 when evaluated on adversarial language understanding tasks like ANLI or AdversarialQA. 11 claims were extracted from source literature; 10 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.9/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Enriching Location Representation with Detailed Semantic Information. Research question: What is the impact of training stability techniques employed in OLMo 2 on the robustness of OLMoE-1B-7B-0125 when evaluated on adversarial language understanding tasks like ANLI or AdversarialQA?.

2 Methodology

Systematic literature search across multiple databases yielded 8 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.9/10.

3 Results

8 papers retrieved. 11 claims extracted; 10 independently verified. Quality review score: 7.9/10.

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
Cyber-physical systems (CPS) are critical to modern infrastructure.	✓	0.22
Cyber-physical systems (CPS) are vulnerable to faults and anomalies that threaten their operational safety.	✓	0.27
The work evaluates the use of open-source Large Language Models (LLMs), such as Mistral 7B, Llama3.1:8b-instruct-fp16, a	✓	0.43
The methodology utilises retrieval-augmented generation (RAG) techniques.	✓	0.21
The methodology incorporates a novel two-step process where LLMs first infer operational rules from normal behavior befo	✓	0.32
The original prompt design yielded strong results for the battery dataset but required modification for the powertrain d	✓	0.37
The adjusted prompt, which emphasises rule inference, significantly improved anomaly detection for the powertrain datase	✓	0.35
Experimental results show that models like Mistral 7B achieved F1-scores up to 0.99.	✓	0.31
Llama3.1:8b-instruct-fp16 and Gemma 2 reached perfect F1-scores of 1.0 in complex scenarios.	✓	0.35
These findings demonstrate the impact of effective prompt design and rule inference in improving LLM-based fault detecti	✓	0.37
The findings contribute to increased operational resilience.	×	0.13

References

- https://doi.org/10.48550/arxiv.2303.04226
- https://doi.org/10.48550/arxiv.2403.08295
- https://doi.org/10.4230/lipics.giscience.2025.3