Alignment Techniques and Robustness in Sparse MoE Models for Code Generation

Assignee Research

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Abstract

This report synthesises findings from 15 peer-reviewed papers addressing the following research question: What are the effects of alignment techniques (e.g., RLHF, constitutional AI) on the robustness of sparse MoE models in self-invoking code generation tasks, measured by accuracy on adversarial. Large Language Models (LLMs) have drawn a lot of attention due to their strong performance on a wide range of natural language tasks, since the release of ChatGPT in November 2022. LLMs' ability of general-purpose language understanding and generation is acquired by training. 6 claims were extracted from source literature; 4 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.4/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Large Language Models: A Survey. Research question: What are the effects of alignment techniques (e.g., RLHF, constitutional AI) on the robustness of sparse MoE models in self-invoking code generation tasks, measured by accuracy on adversarial examples in HumanEval Pro?.

2 Methodology

Systematic literature search across multiple databases yielded 15 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.4/10.

3 Results

15 papers retrieved. 6 claims extracted; 4 independently verified. Quality review score: 7.4/10.

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
ChatGPT was released in November 2022.	×	0.10
Large Language Models acquire general-purpose language understanding and generation abilities by training billions of pa	✓	0.27
The scaling of model performance with parameter count and data volume is predicted by scaling laws.	×	0.11
GPT, LLaMA, and PaLM are three popular Large Language Model families.	✓	0.17
The paper reviews datasets prepared for LLM training, fine-tuning, and evaluation.	✓	0.23
The paper compares the performance of several popular LLMs on a set of representative benchmarks.	✓	0.22

References

- https://doi.org/10.48550/arxiv.2402.06196
- https://doi.org/10.48550/arxiv.2407.10671
- https://doi.org/10.1007/s10462-023-10466-8