

Alignment Tuning Effects on Llama3 and DeepSeek-R1 Code Generation Accuracy

Assignee Research

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Abstract

This report synthesises findings from 7 peer-reviewed papers addressing the following research question: How does alignment tuning in Llama3 and Deepseek R1 impact code generation accuracy on the LDOT benchmark compared to untuned baselines. 5 claims were extracted from source literature; 5 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.4/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: RLEF: Grounding Code LLMs in Execution Feedback with Reinforcement Learning. Research question: How does alignment tuning in Llama3 and Deepseek R1 impact code generation accuracy on the LDOT benchmark compared to untuned baselines?.

2 Methodology

Systematic literature search across multiple databases yielded 7 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.4/10.

3 Results

7 papers retrieved. 5 claims extracted; 5 independently verified. Quality review score: 8.4/10.

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
Large language models (LLMs) deployed as agents solve user-specified tasks over multiple steps while keeping the require	✓	0.41
State-of-the-art LLMs struggle to improve code iteratively compared to independent sampling.	✓	0.33
The proposed end-to-end reinforcement learning method achieves new state-of-the-art results with both small (8B paramete	✓	0.39
The proposed method reduces the amount of samples required by an order of magnitude.	✓	0.16
The analysis of inference-time behavior demonstrates that the proposed method produces LLMs that effectively leverage au	✓	0.38

References

- <https://doi.org/10.48550/arxiv.2410.02089>
- <https://doi.org/10.1109/jsac.2025.3641905>
- <https://doi.org/10.48550/arxiv.2310.01714>