Impact of Reward Shaping Potentials on PPO-Trained LLM Convergence and MATH Performance

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: What is the impact of different reward shaping potentials on the convergence speed and final MATH benchmark performance of LLMs trained with PPO. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 2.3/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: From Reward Shaping to Q-Shaping: Achieving Unbiased Learning with LLM-Guided Knowledge. Research question: What is the impact of different reward shaping potentials on the convergence speed and final MATH benchmark performance of LLMs trained with PPO?.

2 Methodology

Systematic literature search across multiple databases yielded 4 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 2.3/10.

3 Results

4 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 2.3/10.

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/1710.05833v2
- http://arxiv.org/abs/2103.10093v1
- http://arxiv.org/abs/2410.01458v1