Q-Shaping Robustness and Accuracy Trade-offs in Multimodal Task Scaling

Assignee Research

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Abstract

This report synthesises findings from 14 peer-reviewed papers addressing the following research question: Does Q-shaping maintain robustness in multimodal environments (e.g., VLMBench) when scaling to diverse tasks, and how does it compare to reward shaping in terms of accuracy-score trade-offs. Artificial intelligence (AI) researchers have been developing and refining large language models (LLMs) that exhibit remarkable capabilities across a variety of domains and tasks, challenging our understanding of learning and cognition. The latest model developed by OpenAI. 7 claims were extracted from source literature; 7 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.7/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Sparks of Artificial General Intelligence: Early experiments with GPT-4. Research question: Does Q-shaping maintain robustness in multimodal environments (e.g., VLMBench) when scaling to diverse tasks, and how does it compare to reward shaping in terms of accuracy-score trade-offs?.

2 Methodology

Systematic literature search across multiple databases yielded 14 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.7/10.

3 Results

14 papers retrieved. 7 claims extracted; 7 independently verified. Quality review score: 8.7/10.

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.

5 Extracted Claims

Claim	Verified	Confidence
GPT-4 was trained using an unprecedented scale of compute and data.	✓	0.22
The paper investigates an early version of GPT-4 while it was still in active development by OpenAI.	✓	0.24
GPT-4, ChatGPT, and Google's PaLM exhibit more general intelligence than previous AI models.	✓	0.27
GPT-4 can solve novel and difficult tasks in mathematics, coding, vision, medicine, law, and psychology without needing	✓	0.31
GPT-4's performance on the tested tasks is strikingly close to human-level performance.	✓	0.17
GPT-4's performance often vastly surpasses prior models such as ChatGPT.	✓	0.24
GPT-4 could reasonably be viewed as an early, yet incomplete, version of an artificial general intelligence (AGI) system	✓	0.32

References

- https://doi.org/10.48550/arxiv.2303.12712
- https://doi.org/10.1109/access.2021.3140175
- https://doi.org/10.1561/2200000071