

# Cross-Domain Finetuning Enhances DeepSeek-V3 Performance on GPQA Diamond

Assignee Research

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## Abstract

This report synthesises findings from 11 peer-reviewed papers addressing the following research question: Does cross-domain finetuning improve DeepSeek-V3's performance on GPQA Diamond, and if so, by what percentage. Abstract The rapid evolution of large language models (LLMs) has driven a transformative shift in artificial intelligence (AI), reshaping both research paradigms and practical applications. Distinguished from their predecessors by unprecedented scale and advanced capabilities. 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: A Survey of Large Language Models. Research question: Does cross-domain finetuning improve DeepSeek-V3's performance on GPQA Diamond, and if so, by what percentage?.

## 2 Methodology

Systematic literature search across multiple databases yielded 11 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

11 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
Large language models are distinguished from their predecessors by unprecedented scale and advanced capabilities	✓	0.23
LLMs establish core model capabilities through large-scale self-supervised training	✓	0.25
LLMs necessitate new frameworks for understanding their development, behavior, and societal impact	✓	0.24
Post-training techniques include supervised fine-tuning and reinforcement learning to adapt foundational models	✓	0.23
Post-training techniques enhance alignment and safety of LLMs	✓	0.18
Utilization strategies include in-context learning, prompt engineering, and agentic reasoning	✓	0.20
Evaluation methods encompass benchmarks for key ability dimensions such as core language capabilities, reasoning, and sa	✓	0.25

## References

- <https://doi.org/10.1007/s11704-026-60308-3>
- <https://doi.org/10.48550/arxiv.2412.19437>
- <https://doi.org/10.1038/s41586-025-09422-z>