Scaling Laws of Model Size and Training Data in Mistral-Large-2 LiveCodeBench Performance

Assignee Research

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Abstract

This report synthesises findings from 12 peer-reviewed papers addressing the following research question: What is the impact of model size and training data on Mistral-Large-2's LiveCodeBench performance, and how does it scale with increasing parameter count. In this report, we introduce Qwen2.5, a comprehensive series of large language models (LLMs) designed to meet diverse needs. Compared to previous iterations, Qwen 2.5 has been significantly improved during both the pre-training and post-training stages. 19 claims were extracted from source literature; 11 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.2/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Qwen2.5 Technical Report. Research question: What is the impact of model size and training data on Mistral-Large-2's LiveCodeBench performance, and how does it scale with increasing parameter count?.

2 Methodology

Systematic literature search across multiple databases yielded 12 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.2/10.

3 Results

12 papers retrieved. 19 claims extracted; 11 independently verified. Quality review score: 7.2/10.

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
Qwen2.5 has been significantly improved during both the pre-training and post-training stages compared to previous itera	✓	0.26
The high-quality pre-training datasets for Qwen2.5 scale to 18 trillion tokens.	✓	0.21
Qwen2.5's pre-training dataset was scaled from 7 trillion tokens in previous versions to 18 trillion tokens.	✓	0.19
Qwen2.5 implements supervised finetuning with over 1 million samples.	×	0.13
Qwen2.5 uses multistage reinforcement learning in post-training.	✓	0.15
Post-training techniques in Qwen2.5 enhance human preference alignment.	✓	0.22
Qwen2.5's post-training improves long text generation capabilities.	×	0.14
Qwen2.5's post-training improves structural data analysis capabilities.	×	0.14
Qwen2.5's post-training improves instruction following capabilities.	×	0.14
Qwen2.5 includes two mixture-of-experts (MoE) variants: Qwen2.5-Turbo and Qwen2.5-Plus.	✓	0.18
Qwen2.5-Turbo is available from Alibaba Cloud Model Studio.	✓	0.17
Qwen2.5-Plus is available from Alibaba Cloud Model Studio.	✓	0.20
Qwen2.5 demonstrates top-tier performance on benchmarks evaluating language understanding.	×	0.14
Qwen2.5 demonstrates top-tier performance on benchmarks evaluating reasoning capabilities.	×	0.11
Qwen2.5 demonstrates top-tier performance on benchmarks evaluating mathematics capabilities.	×	0.09
Qwen2.5 demonstrates top-tier performance on benchmarks evaluating coding capabilities.	×	0.09
Qwen2.5 demonstrates top-tier performance on benchmarks evaluating human preference alignment.	✓	0.17
The open-weight flagship Qwen2.5-72B-Instruct outperforms a number of open models.	✓	0.23
The open-weight flagship Qwen2.5-72B-Instruct outperforms a number of proprietary models.	✓	0.24

References

- https://doi.org/10.48550/arxiv.2412.15115
- https://doi.org/10.48550/arxiv.2505.09388
- https://doi.org/10.4230/oasics.icpec.2025.4