

Llama-3.1-70B Benchmark Performance Across Reasoning Mathematics and Language Tasks

Assignee Research

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: What are the benchmark performance scores of Llama-3.1-70B on reasoning mathematics coding and language understanding tasks. 10 claims were extracted from source literature; 1 was independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.8/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: MMSU: A Massive Multi-task Spoken Language Understanding and Reasoning Benchmark. Research question: What are the benchmark performance scores of Llama-3.1-70B on reasoning mathematics coding and language understanding tasks.

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 3.8/10.

3 Results

4 papers retrieved. 10 claims extracted; 1 independently verified. Quality review score: 3.8/10.

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
MMSU encompasses a wider range of acoustic features spanning 47 distinct tasks.	×	0.10
MMSU increases reasoning complexity by requiring models to integrate paralinguistic, phonetic, and semantic information.	×	0.07
MMSU is the first benchmark to systematically incorporate linguistically grounded phenomena into spoken language underst	✓	0.19
MMSU is evaluated on 22 models, including 12 Speech-LLMs and 10 Omni Large Language Models (OmniLLMs) with audio process	×	0.11
Each instance in MMSU consists of an audio clip and a text prompt, with the model choosing one of four options (A–D).	×	0.02
Answer options in MMSU are randomly ordered and balanced across the dataset to avoid potential positional bias.	×	0.02
All models in MMSU are evaluated with the same optimized instruction-following prompts to ensure fairness and minimize p	×	0.02
The sentence 'It's nice to meet you' is a common greeting that typically ends with a neutral or slightly falling intonat	×	0.01
The first part 'It's nice to meet you,' is spoken in a neutral tone, which is characteristic of a greeting.	×	0.02
The second part, 'you,' is spoken with a rising intonation.	×	0.04

References

- <http://arxiv.org/abs/2506.04779v3>

- <http://arxiv.org/abs/2407.04973v1>
- <http://arxiv.org/abs/2207.08179v1>