Impact of Image Resolution on LLaVa Reasoning Accuracy in Visual Mathematical Tasks

Assignee Research

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Abstract

This report synthesises findings from 16 peer-reviewed papers addressing the following research question: What is the impact of varying image resolution on the reasoning accuracy of LLaVa-1.8-7B when solving visual mathematical problems, and how does it scale with model size or additional pre-training. 7 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Visual Generation Unlocks Human-Like Reasoning through Multimodal World Models. Research question: What is the impact of varying image resolution on the reasoning accuracy of LLaVa-1.8-7B when solving visual mathematical problems, and how does it scale with model size or additional pre-training data?.

2 Methodology

Systematic literature search across multiple databases yielded 16 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 3.5/10.

3 Results

16 papers retrieved. 7 claims extracted; 0 independently verified. Quality review score: 3.5/10.

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
Interleaved Chain-of-Thought with visual world modeling significantly outperforms purely verbal counterparts on the pape	×	0.10
Verbal world modeling is omitted for multi-hop manipulation and ball tracking tasks because models struggle to precisely	×	0.06
On the paper folding task, visual world modeling achieves performance comparable to verbal world modeling while using mo	×	0.09
Multimodal reasoning tasks relying on world reconstruction capabilities, such as the cube 3-view task, benefit substanti	×	0.10
Emergent internal representations in UMMs support implicit world modeling on simple maze tasks.	×	0.08
Spatial transformation in paper unfolding critically relies on an understanding of geometric symmetry that is more natur	×	0.05
In the paper folding example provided, reversing a diagonal fold where the hole is on the stationary part of the paper d	×	0.02

References

- http://arxiv.org/abs/2410.19288v1
- http://arxiv.org/abs/2512.05091v1
- http://arxiv.org/abs/2601.19834v1