LongNav-R1 Scaling Under Instruction Ambiguity in ValHouse3D Benchmark

Assignee Research

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: How does LongNav-R1's performance scale with increasing instruction ambiguity complexity on the ValHouse3D benchmark compared to single-turn VLA policies in terms of trajectory deviation and success. In the vision and language navigation task (Anderson et al. 2018), the agent may encounter ambiguous situations that are hard to interpret by just relying on visual information and natural language instructions. 8 claims were extracted from source literature; 8 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.3/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Just Ask: An Interactive Learning Framework for Vision and Language Navigation. Research question: How does LongNav-R1's performance scale with increasing instruction ambiguity complexity on the ValHouse3D benchmark compared to single-turn VLA policies in terms of trajectory deviation and success rate?.

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 8.3/10.

3 Results

4 papers retrieved. 8 claims extracted; 8 independently verified. Quality review score: 8.3/10.

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
The vision and language navigation task was introduced by Anderson et al. in 2018.	✓	0.22
The proposed interactive learning framework enables the agent to ask for users' help in ambiguous situations.	✓	0.29
The simplest model-confusion-based method lets the agent ask questions based on its confusion, relying on the predefined	✓	0.40
Reinforcement learning (RL) with a proposed reward shaping term enables the agent to ask questions only when necessary.	✓	0.32
The success rate can be boosted by at least 15% with only one question asked on average during the navigation.	✓	0.22
The RL agent is capable of adjusting dynamically to noisy human responses.	✓	0.24
A continual learning strategy is designed for the agent to improve further utilizing its interaction history with a huma	✓	0.22
The proposed continual learning strategy is substantially more realistic and data-efficient compared to previously propo	✓	0.26

References

- https://doi.org/10.3390/s23198015
- https://doi.org/10.15607/rss.2024.xx.091
- https://doi.org/10.1609/aaai.v34i03.5627