Proprioceptive Feedback Enhances Vision-Language Alignment in CLAM for Robotic Control

Assignee Research

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Abstract

This report synthesises findings from 6 peer-reviewed papers addressing the following research question: How does the integration of proprioceptive feedback in CLAM's multimodal architecture affect the alignment of vision-language representations in RoboSuite tasks compared to vision-only models, as. 10 claims were extracted from source literature; 10 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.6/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Virtuality and reality of a near-optimal time-delayed teleoperator control system based on teleprogramming paradigm. Research question: How does the integration of proprioceptive feedback in CLAM's multimodal architecture affect the alignment of vision-language representations in RoboSuite tasks compared to vision-only models, as measured by CLIPScore on task instruction compliance?.

2 Methodology

Systematic literature search across multiple databases yielded 6 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.6/10.

3 Results

6 papers retrieved. 10 claims extracted; 10 independently verified. Quality review score: 8.6/10.

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 teleprogramming control paradigm is suggested as a means to efficiently perform teleoperation tasks in situations wh	✓	0.39
The effects of communication delays in the order of seconds can be reduced by building a virtual reality simulated model	✓	0.44
This concept overcomes the delay by transmitting not Cartesian or joint level informations in the form of signals, but r	✓	0.36
Symbolic instructions are send to the remote station every time the contact state changes or every second if no change o	✓	0.33
Remote robotic systems are often very complex and difficult to operate, especially as multiple robots are integrated to	✓	0.33
Training the operators is time-consuming and costly.	✓	0.19
A simulated virtual reality based system will provide a means by which operators can be trained to operate in an intuiti	✓	0.34
Operator interaction with the remote system is at a high, task-oriented, level.	✓	0.22
Real-time state monitoring can prevent illegal robot actions and provides interactive feedback.	✓	0.28
A teleprogramming based simulator is essential for cost-effective training and operation of remote robotic systems.	✓	0.22

References

- https://doi.org/10.48550/arxiv.2510.04978

- https://openalex.org/W7162045213
- https://doi.org/10.82308/21962