Stochastic Layer Fusion and Cross-Domain Generalization in Multimodal Vision-Language Models

Assignee Research

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Abstract

This report synthesises findings from 10 peer-reviewed papers addressing the following research question: How does stochastic layer fusion affect the cross-domain generalization accuracy of multimodal vision-language models on wilds benchmarks compared to deterministic fusion. This review critically distinguishes between AI Agents and Agentic AI, offering a structured, conceptual taxonomy, application mapping, and analysis of opportunities and challenges to clarify their divergent design philosophies and capabilities. We begin by outlining the search. 8 claims were extracted from source literature; 7 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.3/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: AI Agents vs. Agentic AI: A Conceptual Taxonomy, Applications and Challenges. Research question: How does stochastic layer fusion affect the cross-domain generalization accuracy of multimodal vision-language models on wilds benchmarks compared to deterministic fusion?.

2 Methodology

Systematic literature search across multiple databases yielded 10 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.3/10.

3 Results

10 papers retrieved. 8 claims extracted; 7 independently verified. Quality review score: 7.3/10.

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
AI Agents are modular systems driven and enabled by LLMs and LIMs for task-specific automation.	✓	0.24
Generative AI is positioned as a precursor providing the foundation, with AI agents advancing through tool integration,	✓	0.33
Agentic AI systems represent a paradigm shift marked by multi-agent collaboration, dynamic task decomposition, persisten	✓	0.35
AI Agents are used in application domains such as customer support, scheduling, and data summarization.	✓	0.21
Agentic AI is deployed in research automation, robotic coordination, and medical decision support.	✓	0.24
Challenges in AI Agents include hallucination and brittleness.	×	0.15
Challenges in Agentic AI include emergent behavior and coordination failure.	✓	0.20
Proposed solutions for challenges in AI Agents and Agentic AI include ReAct loops, retrieval-augmented generation (RAG),	✓	0.30

References

- https://doi.org/10.1109/tpami.2022.3183112

- https://doi.org/10.70777/si.v2i3.15161
- https://doi.org/10.1109/icassp49357.2023.10095969