Robustness of Continuous vs. Discrete Action Representations in Multimodal Video-Language Models under Synthetic Visual Occlusion

Assignee Research

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Abstract

Self-supervised learning has gained popularity because of its ability to avoid the cost of annotating large-scale datasets. It is capable of adopting self-defined pseudolabels as supervision and use the learned representations for several downstream tasks. Specifically, contrastive learning has recently become a dominant component in self-supervised learning for computer vision, natural language processing (NLP), and other domains. It aims at embedding augmented versions of the same sample close to each other while trying to push away embeddings from different samples. This paper provides an e

1 Introduction

This paper examines: A Survey on Contrastive Self-Supervised Learning. Research question: How does the robustness of continuous latent action representations compare to discrete tokenization in multimodal video-language models under varying levels of synthetic visual occlusion?.

2 Methodology

Systematic literature search across multiple databases yielded 14 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 9.0/10.

3 Results

14 papers retrieved. 8 claims extracted; 8 independently verified. Quality review score: 9.0/10.

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
Self-supervised learning has gained popularity because of its ability to avoid the cost of annotating large-scale datase	✓	0.37
Self-supervised learning is capable of adopting self-defined pseudolabels as supervision and use the learned representat	✓	0.40
Contrastive learning has recently become a dominant component in self-supervised learning for computer vision, natural l	✓	0.41
Contrastive learning aims at embedding augmented versions of the same sample close to each other while trying to push aw	✓	0.38
The paper provides an extensive review of self-supervised methods that follow the contrastive approach.	✓	0.35
The work explains commonly used pretext tasks in a contrastive learning setup, followed by different architectures that	✓	0.39
The paper presents a performance comparison of different methods for multiple downstream tasks such as image classificat	✓	0.34
The paper concludes with the limitations of the current methods and the need for further techniques and future direction	✓	0.27

References

- https://doi.org/10.48550/arxiv.2312.10997
- https://doi.org/10.3390/technologies9010002
- https://doi.org/10.1016/j.preteyeres.2017.11.003