

Multi-Positive Contrastive Learning Enhances Video-JEPA Robustness in Cross-Domain Video-Text Retrieval

Assignee Research

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Abstract

This report synthesises findings from 7 peer-reviewed papers addressing the following research question: What is the impact of contrastive versus predictive auxiliary objectives on Video-JEPA's robustness in cross-domain video-text retrieval on MSRVTT and Charades-STA. 10 claims were extracted from source literature; 5 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 6.7/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Improving the Robustness of Dense Retrievers Against Typos via Multi-Positive Contrastive Learning. Research question: What is the impact of contrastive versus predictive auxiliary objectives on Video-JEPA's robustness in cross-domain video-text retrieval on MSRVTT and Charades-STA?.

2 Methodology

Systematic literature search across multiple databases yielded 7 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 6.7/10.

3 Results

7 papers retrieved. 10 claims extracted; 5 independently verified. Quality review score: 6.7/10.

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
Employing multi-positive contrastive learning on the robustifying subtask yields improvements in robustness against usin	✓	0.40
The more dramatic improvement comes when applying multi-positive contrastive learning on DR+DL since the original work o	✓	0.15
In DR+DLM, we consider the typo-free query and all its available typoed variants as positives and use a multi-positive c	✓	0.21
Employing all available positives (typoed queries) at once and using multi-positive contrastive loss outperforms samplin	✓	0.21
DR+DL+STM outperforms DR+DL+ST, a model that already uses multiple positives.	×	0.05
DR+DL+ST uses a contrastive loss with a single positive for the query retrieval dual task (i.e., Lq_CE) while considerin	×	0.09
Current typo-robust dense retrievers use contrastive learning with a single positive sample and multiple negative ones f	✓	0.29
Given an anchor x, a positive sample x+, and a set of negative samples X-, the contrastive prediction task aims to bring	×	0.12
In many cases, multiple positive samples are available per anchor and can be used simultaneously to increase the discrim	×	0.09
A multi-positive contrastive loss is computed as $LMCE(x, X+, X-) = -1/ X+ * \sum \log(\text{ef}(x, x+) / (\text{ef}(x, x+) + \sum \text{ef}(x, x-)))$ for	×	0.06

References

- <http://arxiv.org/abs/2605.17165v1>
- <http://arxiv.org/abs/2403.10939v1>
- <http://arxiv.org/abs/2302.12552v1>