CLIP-TD and ALIGN Performance in Low-Shot VQA and COCO Retrieval Benchmarks

Assignee Research

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Abstract

This report synthesises findings from 14 peer-reviewed papers addressing the following research question: How does the performance of CLIP-TD compare to ALIGN in low-shot settings when evaluated on VQA and COCO text-to-image retrieval benchmarks. Natural Language Processing (NLP) is one of the most captivating applications of Deep Learning. In this survey, we consider how the Data Augmentation training strategy can aid in its development. 9 claims were extracted from source literature; 9 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.0/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Text Data Augmentation for Deep Learning. Research question: How does the performance of CLIP-TD compare to ALIGN in low-shot settings when evaluated on VQA and COCO text-to-image retrieval benchmarks?.

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 8.0/10.

3 Results

14 papers retrieved. 9 claims extracted; 9 independently verified. Quality review score: 8.0/10.

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
Natural Language Processing (NLP) is one of the most captivating applications of Deep Learning.	✓	0.26
The major motifs of Data Augmentation include strengthening local decision boundaries, brute force training, causality a	✓	0.36
Concrete lists of augmentation frameworks have been developed for text data.	✓	0.20
Deep Learning generally struggles with the measurement of generalization and characterization of overfitting.	✓	0.27
Studies exist covering how augmentations can construct test sets for generalization.	✓	0.16
NLP is at an early stage in applying Data Augmentation compared to Computer Vision.	✓	0.28
Key differences and promising ideas that have yet to be tested in NLP exist between NLP and Computer Vision regarding Da	✓	0.23
Tools such as consistency regularization, controllers, and offline and online augmentation pipelines facilitate Data Aug	✓	0.28
Topics around Data Augmentation in NLP include task-specific augmentations, the use of prior knowledge in self-supervise	✓	0.45

References

- https://doi.org/10.1186/s40537-021-00492-0
- https://doi.org/10.48550/arxiv.2301.12597
- https://doi.org/10.1038/s41586-023-05881-4