Scaling Adversarial Contrastive Learning for Robust CodeT5 Across MBXP Languages

Assignee Research

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Abstract

This report synthesises findings from 10 peer-reviewed papers addressing the following research question: What is the impact of scaling the adversarial contrastive learning approach on the robustness of CodeT5 across different programming languages in the MBXP benchmark. 16 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: CLUDA : Contrastive Learning in Unsupervised Domain Adaptation for Semantic Segmentation. Research question: What is the impact of scaling the adversarial contrastive learning approach on the robustness of CodeT5 across different programming languages in the MBXP benchmark?.

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 3.5/10.

3 Results

10 papers retrieved. 16 claims extracted; 0 independently verified. Quality review score: 3.5/10.

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 experiments are conducted on GTA $\rightarrow$Cityscapes using DAFormer[19] + CLUDA with Swin-L[26] as the backbone and a simple	×	0.02
The experiments are conducted on GTA $\rightarrow$Cityscapes using HRDA[20] + CLUDA with Segformer-B5[49] as the backbone and a simp	×	0.02
DAFormer[19] + CLUDA achieves a mIoU score of 70.11 on GTA $\rightarrow$Cityscapes.	×	0.03
HRDA[20] + CLUDA achieves a mIoU score of 74.4 on GTA $\rightarrow$Cityscapes.	×	0.05
HRDA[20] achieves a mIoU score of 73.8 on GTA $\rightarrow$Cityscapes.	×	0.02
HRDA[20] + CLUDA (LR only) achieves a mIoU score of 72.2 on GTA $\rightarrow$Cityscapes.	×	0.03
HRDA[20] + CLUDA (LR + HR) achieves a mIoU score of 72.9 on GTA $\rightarrow$Cityscapes.	×	0.03
HRDA[20] + CLUDA (Weighted(LR + HR)) achieves a mIoU score of 74.4 on GTA $\rightarrow$Cityscapes.	×	0.05
CLUDA improves the existing method by a margin of +0.6 mIoU (standard deviation: 0.32) in GTA $\rightarrow$Cityscapes.	×	0.05
CLUDA improves the existing method by a margin of +1.0 mIoU (standard deviation: 0.44) in SYNTHIA $\rightarrow$Cityscapes.	×	0.06
Class-wise improvements can be seen in 12 of the 19 classes in GTA $\rightarrow$Cityscapes.	×	0.02
Class-wise improvements can be seen in 13 of the 16 classes in SYNTHIA $\rightarrow$Cityscapes.	×	0.03
DAFormer[19] achieves a mIoU score of 33.4 with unweighted CL on GTA $\rightarrow$Cityscapes.	×	0.02
DAFormer[19] + CLUDA achieves a mIoU score of 58.6 with unweighted CL on GTA $\rightarrow$Cityscapes.	×	0.03
DAFormer[19] + CLUDA achieves a mIoU score of 69.9 with weighted CL on GTA $\rightarrow$Cityscapes.	×	0.04
The contrastive losses applied on the domain-mixed features are weighted according to the confidence score computed usin	×	0.07

References

- http://arxiv.org/abs/2306.11066v2
- http://arxiv.org/abs/2208.14227v2
- http://arxiv.org/abs/2403.03788v1