Interleaved RoI and Language Embeddings Enhance Cross-Domain Visual Grounding

Assignee Research

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: Does interleaving RoI features with language embeddings improve cross-domain generalization performance on unbseen visual grounding datasets like RefCOCOg compared to global image feature fusion. In the era of AIGC, the fast development of visual content generation technologies, such as diffusion models, bring potential security risks to our society. Existing generated image detection methods suffer from performance drop when faced with out-of-domain generators and image. 8 claims were extracted from source literature; 1 was independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 4.3/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Artifact Feature Purification for Cross-domain Detection of AI-generated Images. Research question: Does interleaving RoI features with language embeddings improve cross-domain generalization performance on unbseen visual grounding datasets like RefCOCOg compared to global image feature fusion?.

2 Methodology

Systematic literature search across multiple databases yielded 4 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 4.3/10.

3 Results

4 papers retrieved. 8 claims extracted; 1 independently verified. Quality review score: 4.3/10.

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
The GenImage dataset contains 1,331,167 real images from ImageNet and 1,350,000 fake images generated by 8 generators us	×	0.05
DiffusionForensics (DF) provides 40,000 real images from LSUN-Bedroom for training and 40,000 images generated by ADM fo	×	0.04
For DiffusionForensics, fake images are generated by 8 generators under the LSUN-Bedroom scene, with each generator gene	×	0.07
The baseline methods used include Spec, CNNSpot, F3Net, GramNet, PatchFron, Swin-T, Patch5M, SIA, LNP, and LGrad.	×	0.01
Swin-T based methods were trained on SD v1.4 training subset and evaluated on other training subsets in GenImage.	×	0.06
Methods are trained on real images and ADM-generated images for DF evaluation.	×	0.06
For cross-scene evaluation, methods are trained on SD v1.4, ADM, and Midjourney subsets from GenImage and evaluated on c	×	0.05
The artifact-related feature space and artifact-irrelated feature space are used in the methodology for cross-domain gen	✓	0.17

References

- http://arxiv.org/abs/2403.11172v1
- http://arxiv.org/abs/2503.08977v1
- http://arxiv.org/abs/2502.10682v3