

# Multi-Relation Attention and Semantic Disentanglement in Few-Shot Object Detection

Assignee Research

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## Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: What is the impact of multi-relation attention mechanisms versus semantic feature disentanglement on detection AP for novel classes in few-shot object detection benchmarks. 10 claims were extracted from source literature; 3 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 5.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: Top-Related Meta-Learning Method for Few-Shot Object Detection. Research question: What is the impact of multi-relation attention mechanisms versus semantic feature disentanglement on detection AP for novel classes in few-shot object detection benchmarks?.

## 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 5.5/10.

## 3 Results

4 papers retrieved. 10 claims extracted; 3 independently verified. Quality review score: 5.5/10.

## 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 proposed method combines TCL-C with a category-based grouping mechanism.	✓	0.20
The proposed method significantly outperforms previous state-of-the-art methods for few-shot detection.	×	0.07
Compared with the previous competitive baseline, the proposed method improves detection APs by almost 4% for few-shot de	×	0.09
Existing methods [36], [8], and [4] use Faster R-CNN and ResNet-101 with FPN as the backbone to detect objects.	×	0.03
Existing methods fail to consider unequal detection APs and increase more parameters, resulting in slower training and p	×	0.09
Method [33] uses a contrastive branch to measure similarity between proposals but fails to capture similarity between ca	×	0.02
Method [41] projects features into a category-based embedding space obtained by a large corpus of text, incurring high c	×	0.06
The proposed approach splits all categories into disjoint groups to improve detection performance without additional sub	✓	0.18
The proposed approach captures the correlation between groups or categories from category-based meta-features to reduce	✓	0.15
The input of the meta-model M is an image and a mask of only an object selected randomly.	×	0.08

## References

- <http://arxiv.org/abs/2603.01036v1>

- <http://arxiv.org/abs/2110.14711v3>
- <http://arxiv.org/abs/2007.06837v6>