

# Review for Object-Contextual Representations for Semantic Segmentation

Can Koz

May 23, 2021

## 1 Summary

In this paper, authors study context aggregation problem in semantic segmentation. In semantic segmentation problem, the aim is to assign a class label to each pixel of the image. By exploiting the object contextual representations, segmentation can be done effectively. Authors demonstrated that their proposed method achieves competitive performance in Cityscapes, ADE20K , LIP, PASCAL-Context and COCO-Stuff.

## 2 Strengths

- This method exploits the relations between pixels and object regions, while the previous studies consider the contextual pixels separately.
- In terms of performance, memory complexity and running time, the method is better choice in case of balance is required between these criteria.
- The method is evaluated on a diverse set of benchmarks and demonstrates great performance which shows the generalization capability of the method.
- On the more challenging panoptic segmentation task, the method is still able to improve the performance.

## 3 Weaknesses

- No ablation studies are performed so that the contributions of the stages cannot be analyzed.

## 4 Evaluation

The methods are evaluated on Cityscapes, ADE20K, LIP, PASCAL-Context, COCO-Stuff for segmentation. Additionally, they evaluated their algorithm in panoptic segmentation task. Unfortunately, there is no ablation studies to evaluate the contribution of different parts in the architecture. In most of the datasets, the method achieves state of the art performance.

## 5 Final Comments and Future Work

Authors achieved state of the art performance in semantic segmentation task by exploiting the object region representation for each pixel. In the ADE20k dataset ACNet method gives the best performance by combining richer local and global contexts, so that this type of approach may lead to improvements in the proposed method.