

国神学院文学 Weakly Supervised Instance Segmentation using Class Peak Response

Qixiang Ye¹

Qiang Qiu² Jianbin Jiao¹ ¹ University of Chinese Academy of Sciences ² Duke University

Pattern Recognition and Intelligent System Development Laboratory http://ucassdl.cn

Duke







Motivation

Yanzhao Zhou¹

Image-level Supervision

much cheaper and easier i g to define.

Cutting-edge instance segmentation methods require **EXPENSIVE** rich annotated data for training deep models.

Our Goal

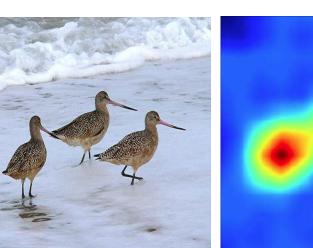
Enable classification networks for _ instance mask extraction

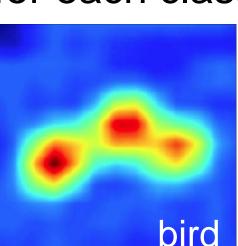
Method

Class Peak Response

Peak Response Map

Discover cues for each class and instance







Visual concepts within a single instance





representations

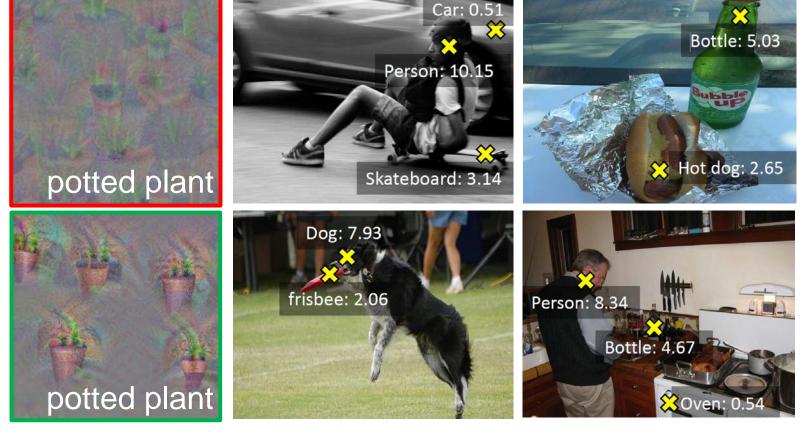
Multi-instances are difficult to form a stable pattern

We leverage class peak responses to extract fine-detailed instance-aware visual cues from classification networks

DCNNs trained using standard classification settings with negligible overhead 1 Peak Stimulation Segment 2 Peak Backpropagation **Proposals**

The generation and utilization of Peak Response Maps



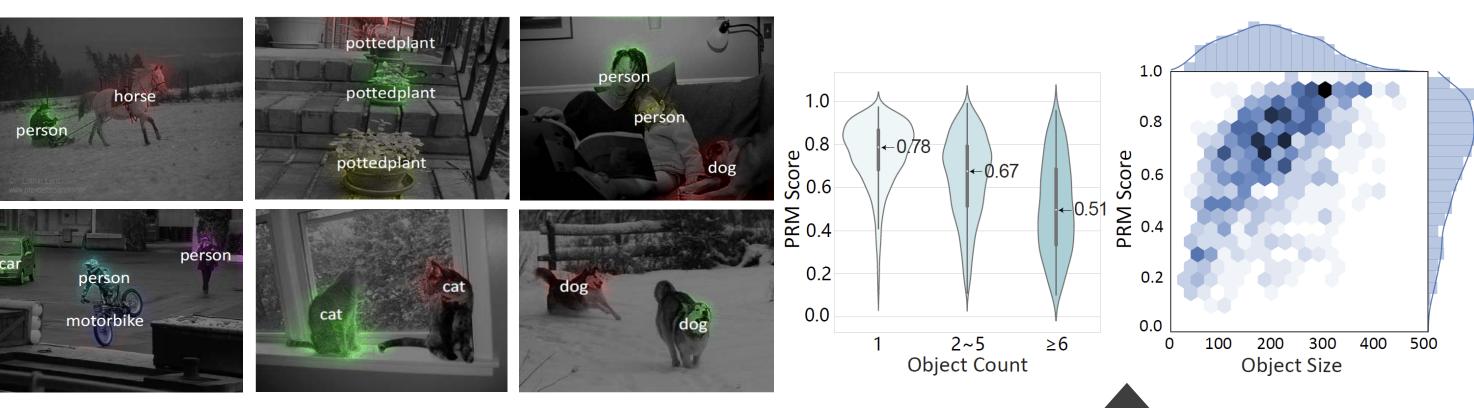


Yi Zhu¹

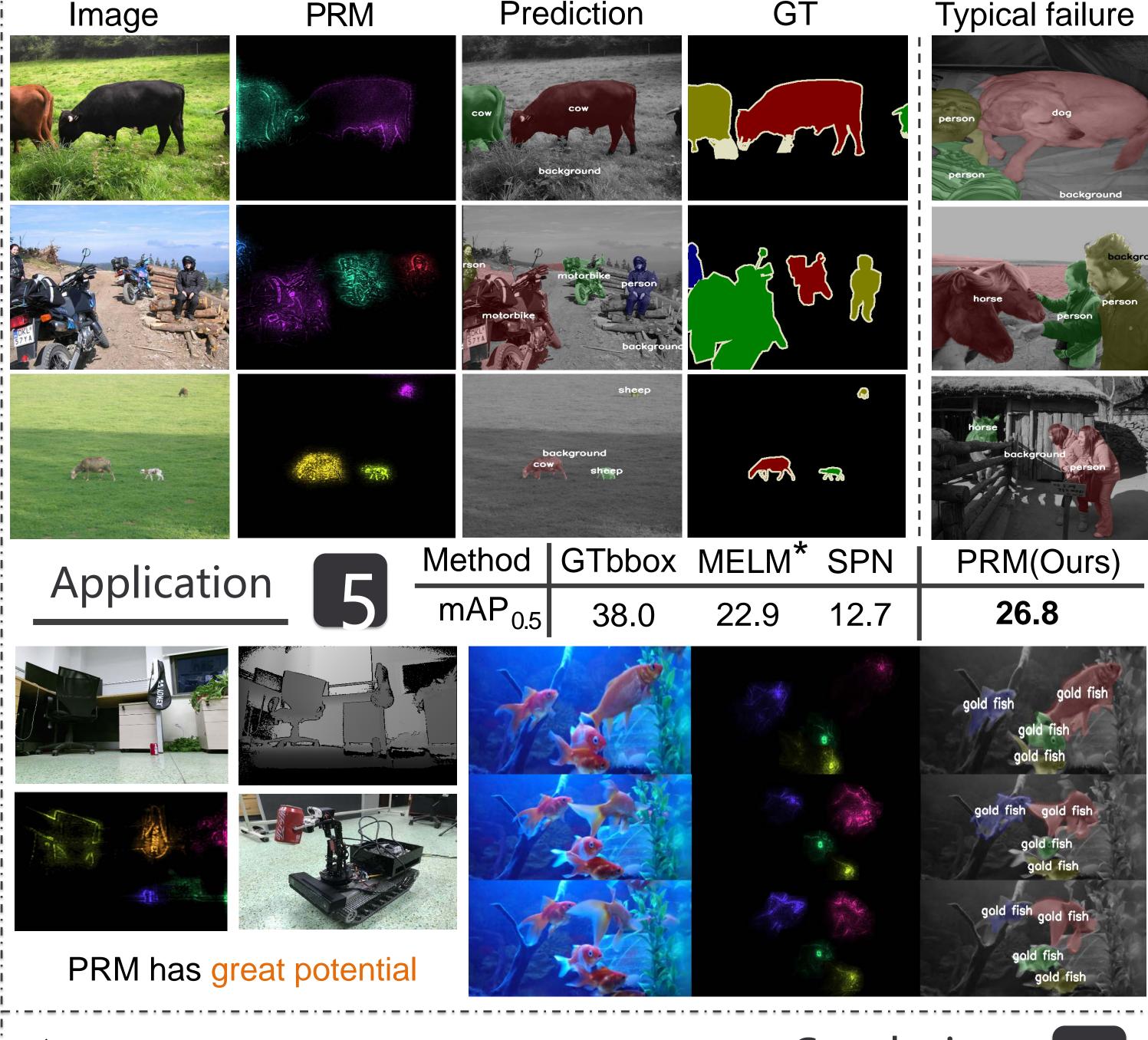
PRM(Ours)	85.5	57.5
SPN	82.9	55.3
WILDCAT	82.9	53.5
Method	VOC12	COCO

Significant improvement in Pointwise Localization (mAP)

Visualization shows clearer representations are learned via Peak Stimulation

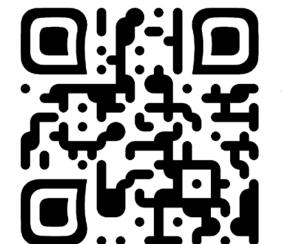


High-quality instance-aware visual cues are obtained via Peak Backprop



◆ A simple yet effective technique for weakly supervised instance segmentation using instance-aware cues from classification CNNs Conclusion

Contact



← Scan to get Paper & Code Yanzhao Zhou

r zhouyanzhao215@mails.ucas.ac.cn http://yzhou.work

