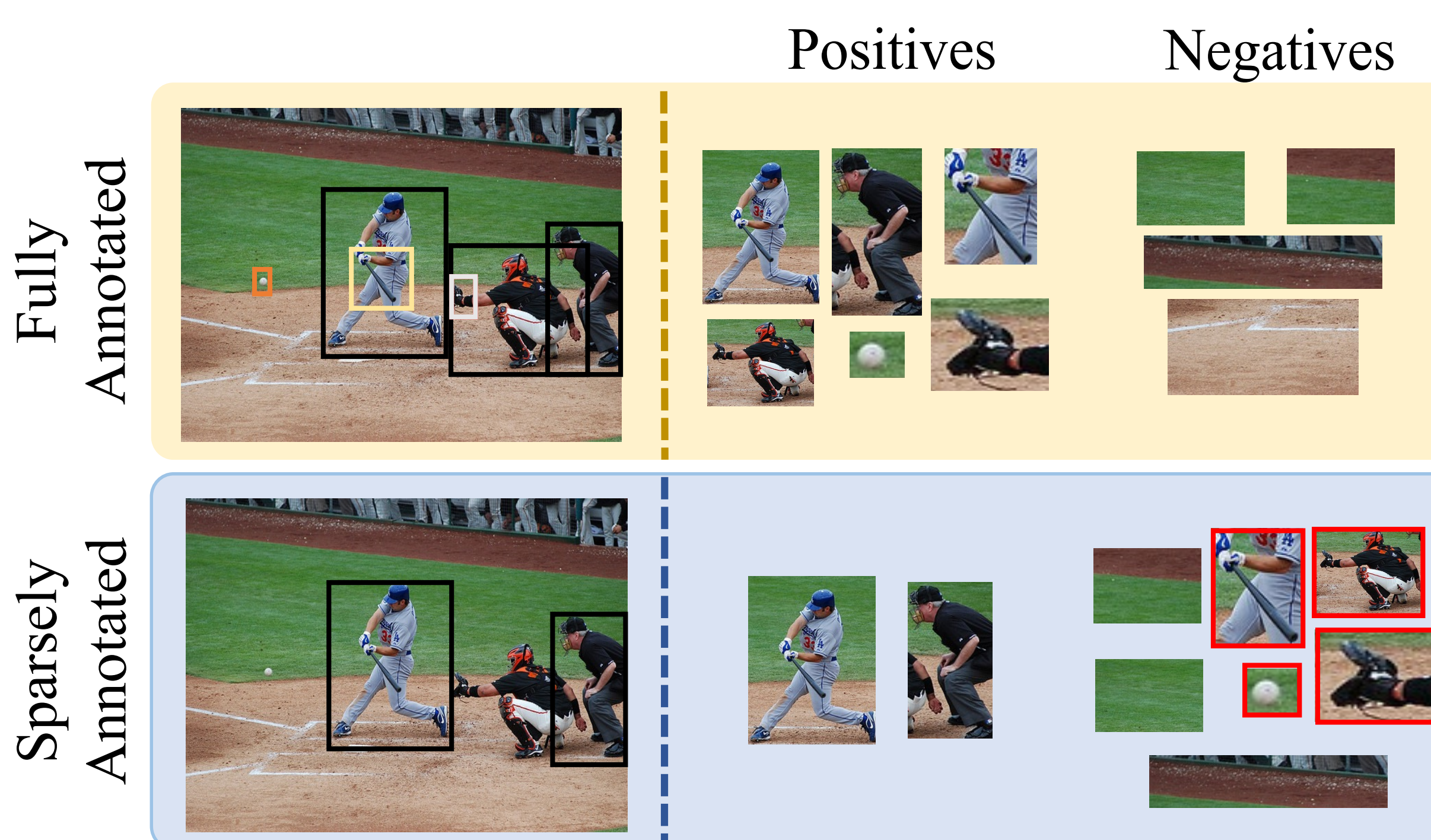


SparseDet: Improving Sparsely Annotated Object Detection with Pseudo-positive Mining

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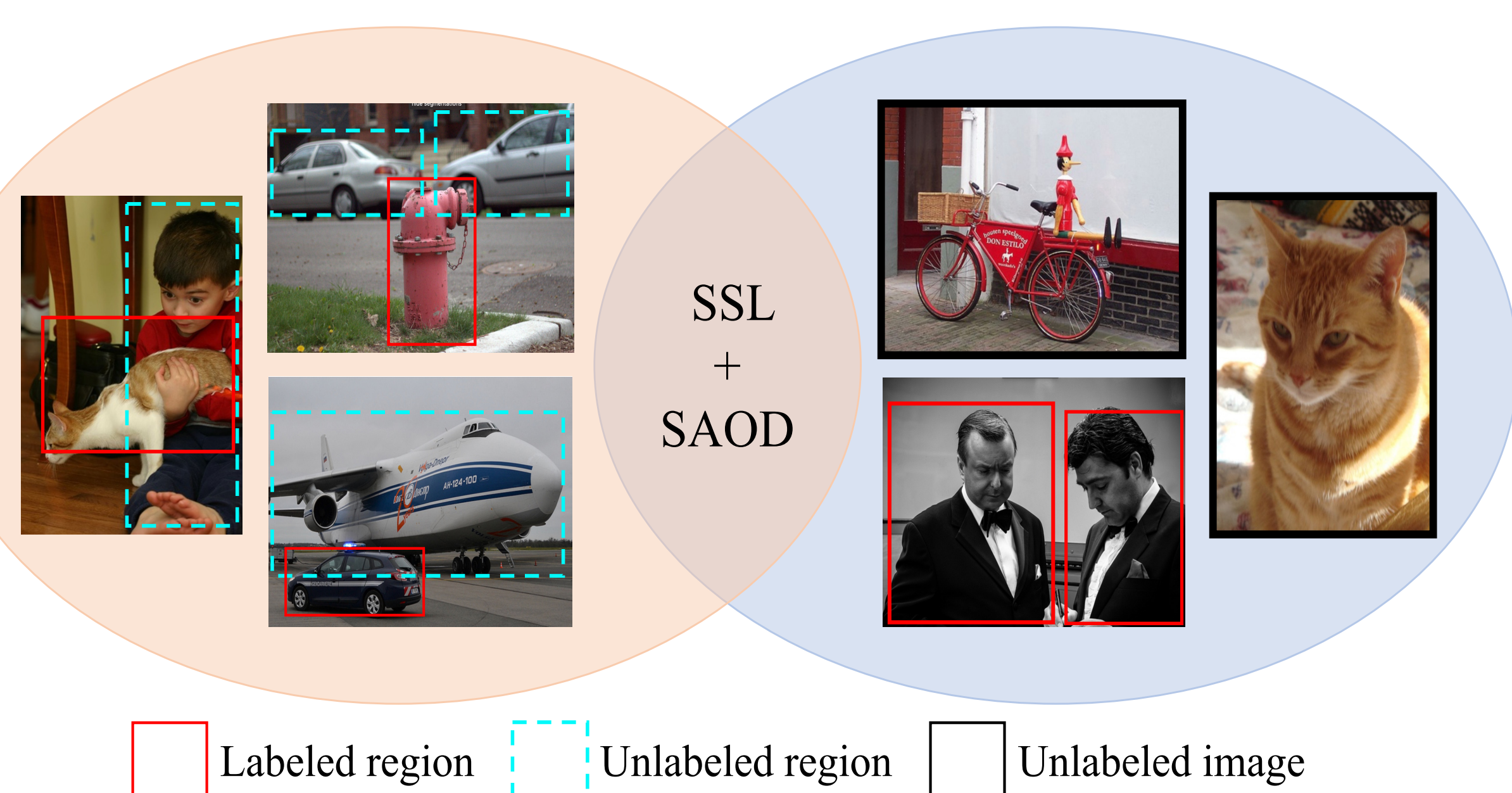
Overview

- We present **SparseDet** which is devised for training with **sparse labels** for object detection.
- Sparse annotations refer to **missing bounding boxes** and corresponding **label** for instances in an image. Training with such annotations reduces performance as it considers all **unlabeled regions** as **background**.
- Our approach can handle sparse annotations and is especially effective at **higher sparsity**.



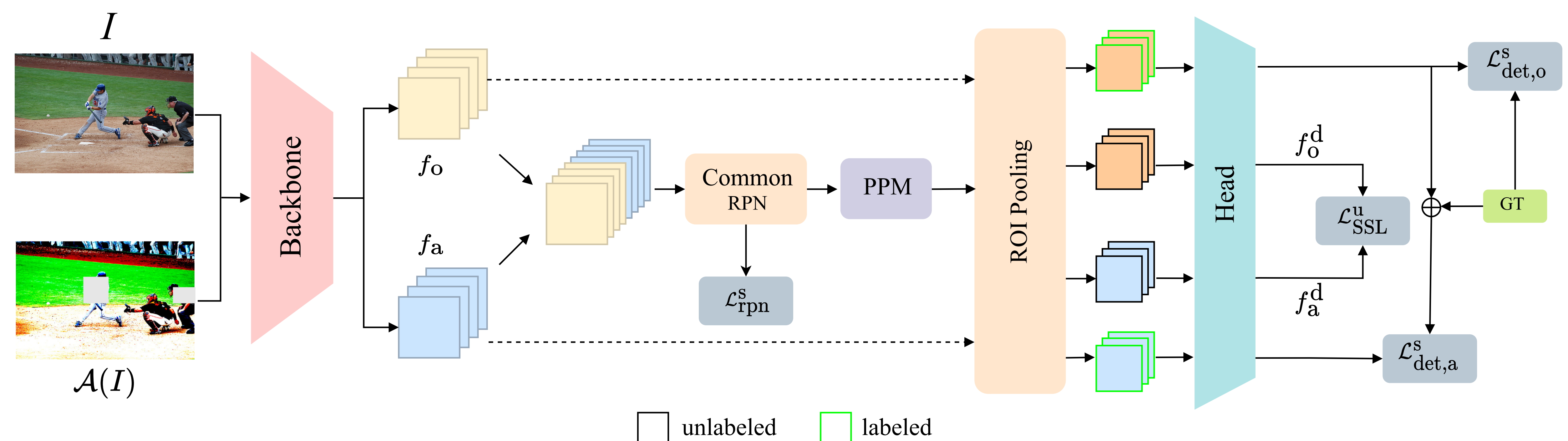
SSL + SAOD

Sparsity in labeled regions Sparsity in labeled images



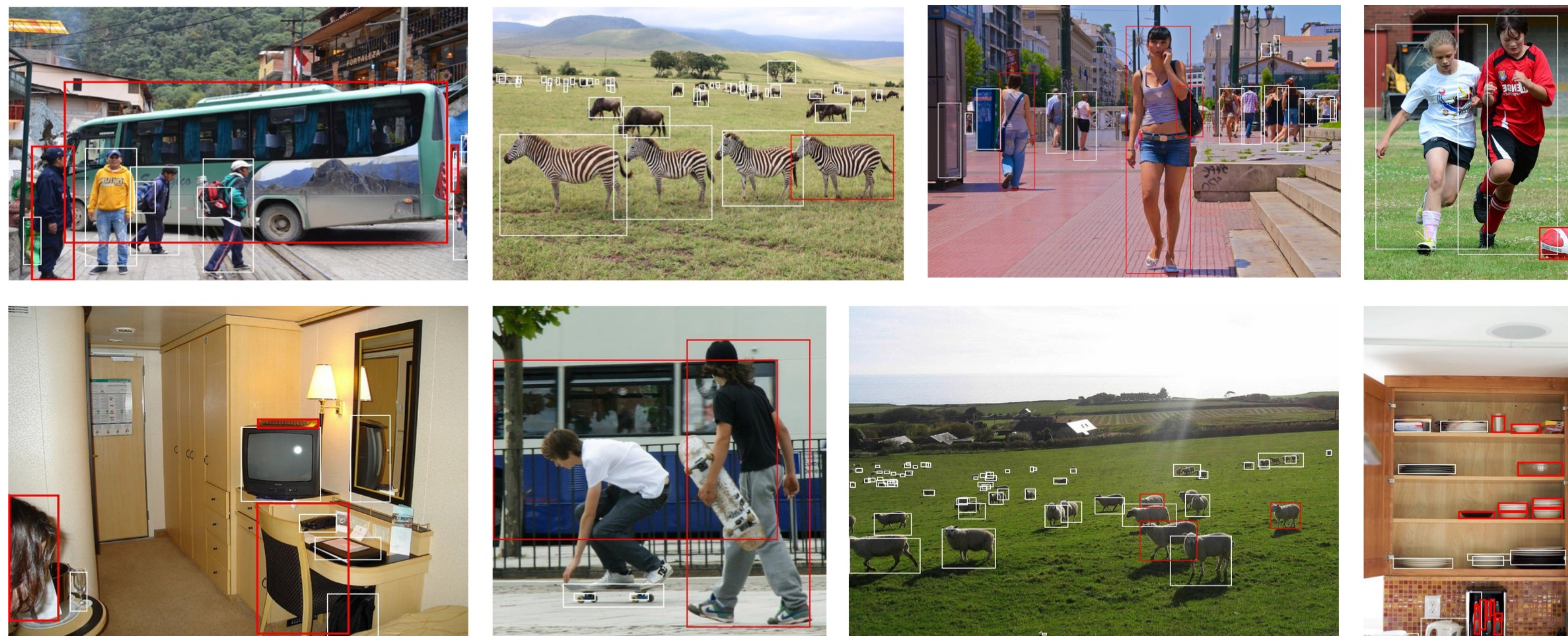
Approach

Feature Extraction > Concatenation > C-RPN > Pseudo Positive Mining > Sup. + Self-Sup. Loss



Pseudo Positive Mining

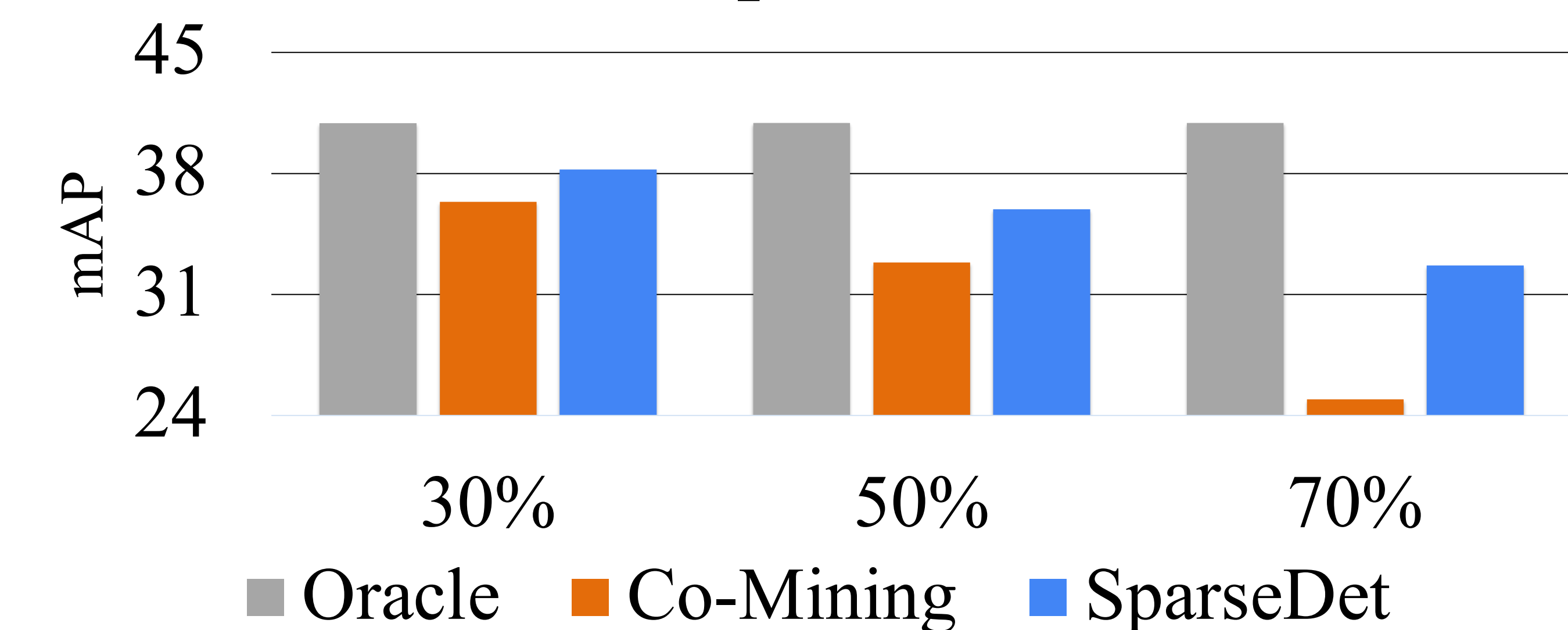
Unlabeled regions identified by PPM shown in white. The red boxes correspond to the available ground truth.



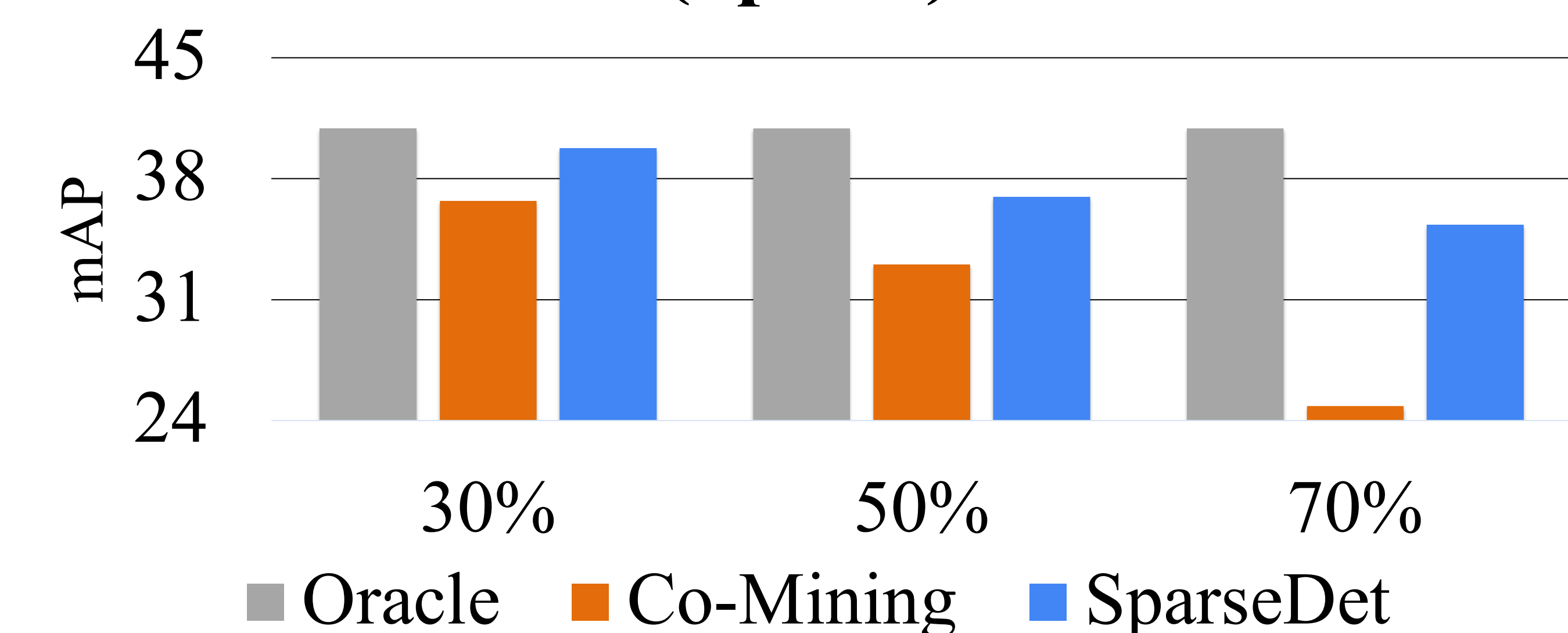
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Experimental Results

Performance on a COCO split (Split-1)



Performance on a COCO split (Split-2)



Performance on VOC '07+12 split (Split-4)

