Graininess-aware Deep Feature Learning for Pedestrian Detection

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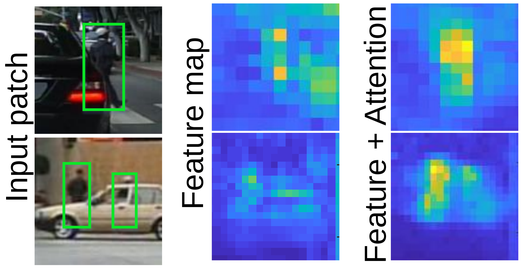
INTRODUCTION

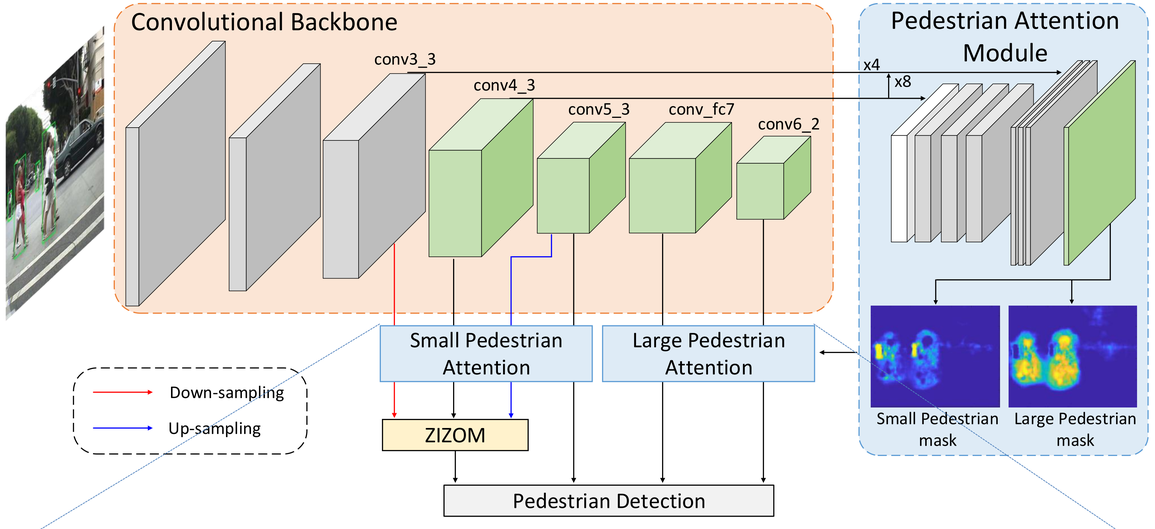
Pedestrian detection is an important research topic in computer vision. Despite the recent progress, pedestrian detection still remains a challenging problem. Small and occluded pedestrians are often miss-detected due to low resolution and noisy representation.

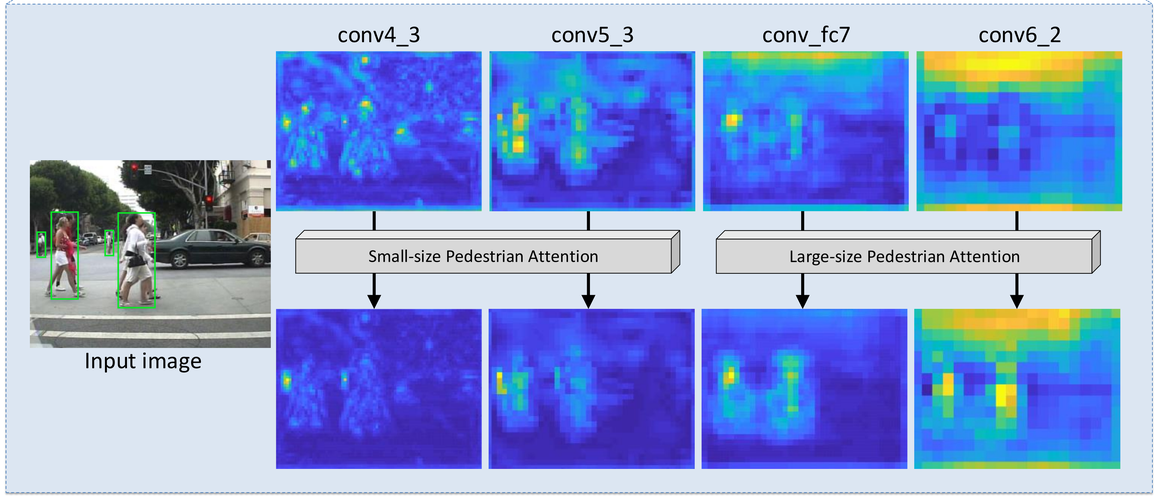
CONTRIBUTIONS

To handle these issues, we propose:

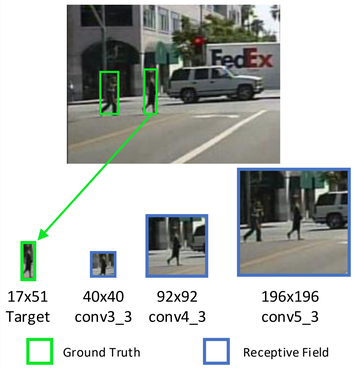
- Fine-grained attention module to guide the detector to focus on pedestrian regions
- Intuitive zoom-in-zoom-out module to further alleviate the detection of pedestrians of small size



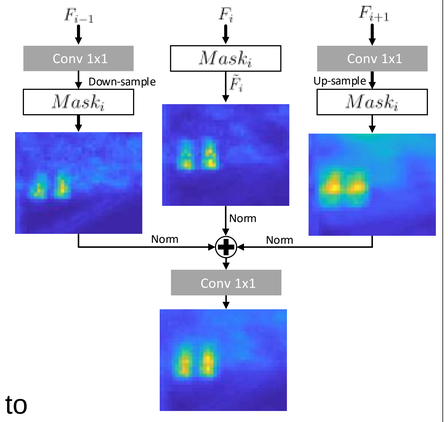




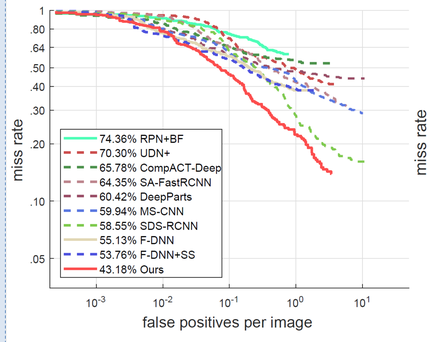
Zoom-in-zoom-out module (ZIZOM)



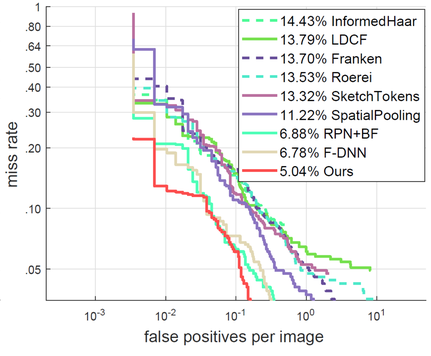
Conv5_3 has more capability to get context information while conv3_3 is able to get more local details



Architecture of module



Performance on Caltech Pedestrian Heavy Occluded



Performance on INRIA Pedestrian Reasonable