CW-YOLO: Joint Learning for Mask Wearing Detection in Low-Light Conditions

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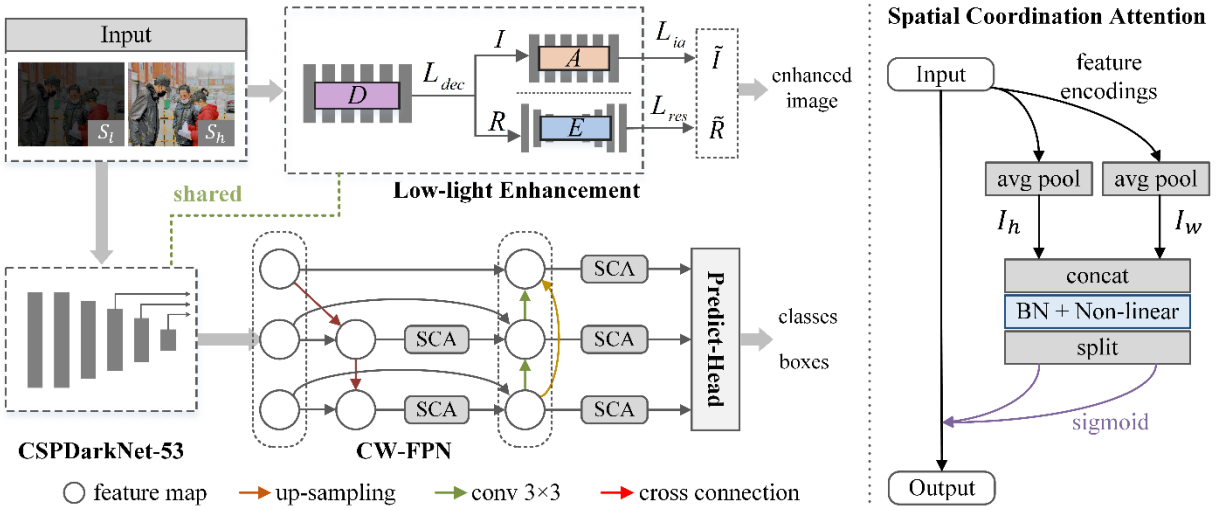
Problems & Ideas

- Problems of mask wearing detection in low-light conditions:
  - — The unfavorable conditions lead to a series of image degradations that seriously hamper object detection.
  - — Existing low-light detection approaches often fail to balance high efficiency and performance with low cost.
- Ideas: An end-to-end joint learning optimized detection framework with layer decomposition enhancement and adaptive multi-scale feature fusion.

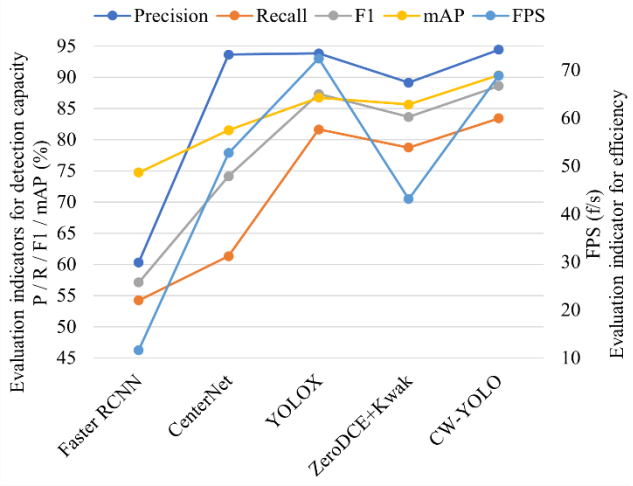


The overall framework of the proposed approach. (a) The detailed structure of CW-YOLO , including two branches of Low-light Enhancement and object detector; (b) Implementation details of Spatial Coordination Attention (SCA) .

Main Contributions

- Contributions:
  - An end-to-end multi-task learning framework with dual-branch is proposed for mask wearing detection in low-light conditions;

(a) Faster RCNN | (b) CenterNet | (c) YOLOX | (d) ZeroDCE+Kwak et al. | (e) **CW-YOLO**



The comparison with state-of-the-art baseline methods. Top: the quantitative comparison of each method in PWMFD; Bottom: the qualitative comparison of each method in DARK FACE.