

SNG-YOLOX : Non-obvious remote sensing target detection based on enhanced YOLOX

In the problem of remote sensing target detection, due to the large differences in size and shape of the target, uneven distribution of the target, and strong background interference in remote sensing images, it is difficult to identify and locate the detection algorithm. To solve this problem, this paper starts from YOLOX. Firstly, self-calibration convolution is used to replace the deep convolution module in CSPLayer in YOLOX to enhance the context-aware ability of the model and expand the receptive field of the model. Then, in order to solve the interference of local information caused by too much consideration of the surrounding context information in the self-calibration convolution, the normalized attention module is introduced at the end of the self-calibration convolution to enhance the attention to local and non-obvious information. Finally, considering the defects of IOU in boundary box regression, GIoU loss is introduced to replace the boundary box regression. Experiments on RSOD remote sensing data set show that the improved algorithm improves the detection performance of 7.87 % mAP compared with YOLOX on this data set, and improves 22.03 % AP on non-obvious overpass images. In addition, compared with the current advanced detection algorithm, the improved algorithm has advanced detection performance.