

Mosaic Augmentation: Insights and Limitations

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Abstract : The goal of this paper is to investigate the impact of mosaic augmentation on the performance of object detection solutions. To carry out the study, YOLOv4 and YOLOv4-Tiny models have been selected, which are popular, advanced object detection models. These models are also representatives of two classes of complex and simple models. The study also has been carried out on two categories of objects, simple and complex. For this study, YOLOv4 and YOLOv4 Tiny are trained with and without mosaic augmentation for two sets of objects. While mosaic augmentation improves the performance of simple object detection, it deteriorates the performance of complex object detection, specifically having the largest negative impact on the false positive rate in a complex object detection case.

Keywords : accuracy, false positives, mosaic augmentation, object detection, YOLOV4, YOLOV4-Tiny

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