People Detecting and Tracking in Video by CNN YOLO and StrongSORT Combined Algorithm

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Multi-object tracking (MOT) is a key research area in video-surveillance systems. The most common method for MOT is tracking-by-detection. Efficiency of tracking is influenced by the detector and tracker used in the approach. In this paper, we use the current well-performing StrongSORT tracker and investigate CNN YOLO family to choose better detector. To improve the efficiency of person tracking, a choice of YOLO modifications is done in the paper. Training experiments using the MOT17 and MOT20 as an evaluation benchmark are presented. We defined that using YOLOv6l as a detector, the tracker performance is better compared to other YOLO family models. The tracking algorithm joining StrongSORT and YOLOv6l is presented. The experimental results show that the good results of tracking with the YOLO series model integrated in StrongSORT depend not only on the performance of the detector, but also on the video environment.

Key words: YOLO, object detection, MOT, StrongSORT tracker, tracking by detectiond

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