Ali GÜVEN

STROMA: Machine Learning Challenge

Data Processing

Data was obtained from [1]. It includes three parts as training, validation, and test and each was form of MP4 video. The annotations were in COCO JSON format. The format of the annotations had to be changed to YOLO format due to that used deep learning model was YOLO v5. Hence, to obtain and the proper dataset and give robustness, the steps below was applied.

- Extracting the frames from the given videos and save them as JPG file. While saving them as an image, to give robustness for changing environment like contrast, brightness, blur, randomly chosen images after saving clear image were changed by adding blur or adjusting brightness and contrast level. It can be called as image augmentation. Down sampled the images to 224x224 to get efficiency on running time.
- Annotations translated to YOLO label format. Some images have no labels, so they were used as background images to decrease false positive detections. There are extra images coming from adding robustness to dataset, they are labeled as same as the clear ones.

The scripts to save images from videos:

```
python dataset_generate.py --mode train --path ./challenge/images/train/train.mp4 --save ./yolov5/datasets/images/train/

python dataset_generate.py --mode val --path ./challenge/images/val/val.mp4 --save ./yolov5/datasets/images/val/

python dataset_generate.py --mode test --path ./challenge/images/test/test.mp4 --save ./yolov5/datasets/images/test/
```

The scripts to translate COCO JSON to YOLO TXT:

```
python label.py --mode train --path ./challenge/annotations/instances_train.json --save ./yolov5/datasets/labels/train/ --image ./yolov5/datasets/images/train/

python label.py --mode val --path ./challenge/annotations/instances_val.json --save ./yolov5/datasets/labels/val/ --image ./yolov5/datasets/images/val/

python label.py --mode test --path ./challenge/annotations/instances_test.json --save ./yolov5/datasets/labels/test/ --image ./yolov5/datasets/images/test/
```

Acknowledge

Thanks to STROMA VISION, data and annotation files were obtained.

References

[1] https://github.com/Stroma-Vision/machine-learning-challenge