YOLOv4 Process

# Reference

<https://github.com/AlexeyAB/darknet>

<https://github.com/WongKinYiu/ScaledYOLOv4>

<https://medium.com/ching-i/yolo-c49f70241aa7>

# Environment Version

Ubuntu : 18.04.5

Python : 3.6.9

GRAPHICS CARD : RTX3090

NVIDIA DRIVER : 455.32.00

CUDA : 11.1.1

cuDNN : 8.0.5.39-1

Pytorch : 1.7.1

TensorFlow : 2.4.0

# Git Clone

<https://github.com/AlexeyAB/darknet>

# Install MISH-CUDA

pip3 install git+https://github.com/JunnYu/mish-cuda.git

# Make

export PATH=/usr/local/cuda-11.1/bin${PATH:+:${PATH}}

sudo apt install libopencv-dev

sed -i "s/GPU=0/GPU=1/g" darknet/Makefile

sed -i "s/CUDNN=0/CUDNN=1/g" darknet/Makefile

sed -i "s/CUDNN\_HALF=0/CUDNN\_HALF=1/g" darknet/Makefile

sed -i "s/OPENCV=0/OPENCV=1/g" darknet/Makefile

cd darknet; make

* If cuda make error, try it.

sudo ln -s /usr/lib/x86\_64-linux-gnu/libcuda.so.1 /usr/local/cuda/lib64/libcuda.so

# Prepare Dataset

pip3 install beautifulsoup4

* Run reference file

python3 xml\_covert\_to\_yolo.py

# How to train

* Update cfg

<https://github.com/AlexeyAB/darknet#how-to-train-to-detect-your-custom-objects>

* Update anchors

<https://medium.com/ching-i/yolo-c49f70241aa7>

cd ../darknet

./darknet detector calc\_anchors ../Object\_Detection/YOLO/darknet/yolov4-csp/obj.data -num\_of\_clusters 9 -width 512 -height 512 -showpause

./darknet detector train ../Object\_Detection/YOLO/darknet/yolov4-csp/obj.data ../Object\_Detection/YOLO/darknet/yolov4-csp/yolov4-csp-512.cfg ../Object\_Detection/YOLO/darknet/yolov4-csp/weights/yolov4-csp.conv.142

# Inference image

<https://github.com/AlexeyAB/darknet#custom-object-detection>

./darknet detector test ../Object\_Detection/YOLO/darknet/yolov4-csp/obj.data ../Object\_Detection/YOLO/darknet/yolov4-csp/yolov4-csp-512.cfg ../Object\_Detection/YOLO/darknet/yolov4-csp/weights/yolov4-csp-512\_final.weights ../Object\_Detection/YOLO/data/0.png

# mAP

./darknet detector map ../Object\_Detection/YOLO/darknet/yolov4-csp/obj.data ../Object\_Detection/YOLO/darknet/yolov4-csp/yolov4-csp-512.cfg ../Object\_Detection/YOLO/darknet/yolov4-csp/weights/yolov4-csp-512\_final.weights

# recall

./darknet detector recall ../Object\_Detection/YOLO/darknet/yolov4-csp/obj.data ../Object\_Detection/YOLO/darknet/yolov4-csp/yolov4-csp-512.cfg ../Object\_Detection/YOLO/darknet/yolov4-csp/weights/yolov4-csp-512\_final.weights

# DataSet Reference

* 1. COCO

<https://cocodataset.org/#download>

<https://chtseng.wordpress.com/2019/12/01/%E5%BE%9Ecoco-dataset%E5%8F%96%E5%87%BA%E7%89%B9%E5%AE%9A%E7%9A%84%E7%89%A9%E4%BB%B6%E6%A8%99%E8%A8%98/>

* 1. Open Image

<https://storage.googleapis.com/openimages/web/index.html>

<https://towardsdatascience.com/faster-r-cnn-object-detection-implemented-by-keras-for-custom-data-from-googles-open-images-125f62b9141a>