Anti-Candid

# Reference

YOLO v4

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

Scaled YOLO v4

<https://alexeyab84.medium.com/scaled-yolo-v4-is-the-best-neural-network-for-object-detection-on-ms-coco-dataset-39dfa22fa982?source=friends_link&sk=c8553bfed861b1a7932f739d26f487c8>

Metropolis Documentation

<https://docs.nvidia.com/metropolis/index.html>

# Environment Version

Ubuntu : 18.04

Python : 3.6.9

CUDA : 10.2

cuDNN : 8.0

Pytorch : 1.7.1

JetPack : 4.5.1

TensorRT : 7.1.3

# Pose Estimation & Object Detection

<https://forums.developer.nvidia.com/t/integrated-deepstream-pose-estimation-into-deepstream-app-with-smalll-display-issue/160620>

## DataSet

### COCO

<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/>

## Classification Pose

<https://spyjetson.blogspot.com/2019/12/jetsonnano-human-pose-estimation-using.html>

<https://github.com/hafizas101/Real-time-human-pose-estimation-and-classification>

## Path

cd /opt/nvidia/deepstream/deepstream-5.1/sources/apps/sample\_apps/deepstream-app-yolo-and-pose/

## Build

先複製 /opt/nvidia/deepstream/deepstream-5.1/sources/apps/apps-common 到 /opt/nvidia/deepstream/deepstream-5.1/sources/apps/sample\_apps/ 底下，然後貼上Code的資料夾

(x86)

sudo apt-get install libgstreamer1.0-dev

(x86)

sudo apt-get install libgstreamer-plugins-base1.0-dev

sudo apt-get install libjson-glib-dev

sudo apt-get install libgstrtspserver-1.0-dev

CUDA\_VER=10.2 make

CUDA\_VER=10.2 make -C nvdsinfer\_custom\_impl\_Yolo

(If memory isn't enough, it must generate engine alone)

/usr/src/tensorrt/bin/trtexec --onnx=pose\_estimation.onnx --fp16 --saveEngine=pose\_estimation.onnx\_b1\_gpu0\_fp16.engine

## Run

./deepstream-app -c deepstream\_app\_config.txt

# Performance

<https://docs.nvidia.com/metropolis/deepstream/dev-guide/text/DS_Performance.html>

# Docker

## DeepStream-l4t IoT

<https://ngc.nvidia.com/catalog/containers/nvidia:deepstream-l4t/tags>

xhost +

sudo docker run --restart=always -it --device /dev/video0 --rm --net=host --runtime nvidia -e DISPLAY=$DISPLAY -w /opt/nvidia/deepstream/deepstream-5.1 -v /tmp/.X11-unix/:/tmp/.X11-unix nvcr.io/nvidia/deepstream-l4t:5.1-21.02-base

docker cp /opt/nvidia/deepstream/deepstream-5.1/sources/apps/sample\_apps/apps-common/ 628f50f8de63:/opt/nvidia/deepstream/deepstream-5.1/sources/apps/sample\_apps/

docker cp /opt/nvidia/deepstream/deepstream-5.1/sources/apps/sample\_apps/deepstream-app\_yolo\_and\_pose/ 628f50f8de63:/opt/nvidia/deepstream/deepstream-5.1/sources/apps/sample\_apps/

./deepstream-app -c deepstream\_app\_config.txt

# Startup

<https://blog.csdn.net/u010168781/article/details/102464156>

因為DeepStream是GUI程式，無法使用rc.local

gnome-session-properties

/opt/nvidia/deepstream/deepstream-5.1/sources/apps/sample\_apps/deepstream-app\_yolo\_and\_pose/start.sh

or

/opt/nvidia/deepstream/deepstream-5.1/sources/apps/sample\_apps/deepstream-app\_yolo\_and\_pose/start\_docker.sh

# To Do List

## DeepStream / NGC / Kubernetes / EGX

<https://developer.nvidia.com/blog/deploying-ai-apps-with-egx-on-jetson-xavier-nx-microservers/>