Pose\_And\_Object\_Classification (Kneron)

# Reference

Kneron

<https://www.kneron.com/tw/>

toolchain manual

<http://doc.kneron.com/docs/#toolchain/manual/>

PLUS

<http://doc.kneron.com/docs/#plus/getting_started/>

# Environment Version

Ubuntu : 18.04

Python : 3.6.9

CUDA : 10.2

cuDNN : 8.0

Pytorch : 1.7.1

ONNX : 1.6.0

# Pose Estimation & Object Detection

## 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>

# Model Convert Command (Light-Openpose)

* 1. 進入docker
* docker start 31585f1fc895
* docker exec -it 31585f1fc895 bash
  1. 轉換Pytorch模型到ONNX

python3 convert\_to\_onnx.py --checkpoint-path checkpoint\_iter\_370000.pth

python3 -m onnxsim human-pose-estimation.onnx human-pose-estimation\_simplify.onnx

* 1. 替換不符合的層

python3 onnx\_adjust.py

* 1. onnx的GPU影像推論測試
* python3 python\_api\_workflow\_onnx.py --video 0
* python3 python\_api\_workflow\_onnx.py --images /home/minggatsby/src/Kneron/test/a.png
  1. 拉取Kneron Docker
* docker pull kneron/toolchain:latest
* docker run --rm -it -v /mnt/docker:/docker\_mount kneron/toolchain:latest
  1. 把ONNX模型複製到指定路徑
* docker cp human-pose-estimation.onnx 31585f1fc895:/data1
  1. 把一般ONNX模型轉換成耐能版本ONNX
* python /workspace/scripts/convert\_model.py onnx /data1/human-pose-estimation.onnx /data1/output1.onnx

or

python /workspace/libs/ONNX\_Convertor/optimizer\_scripts/onnx2onnx.py human-pose-estimation.onnx -o output1.onnx --add-bn -t

* 1. 複製圖片資料夾進Docker
* docker cp /home/minggatsby/test 31585f1fc895:/data1
  1. Git Clone light-openpose
* git clone https://github.com/Daniil-Osokin/lightweight-human-pose-estimation.pytorch.git
  1. 範例推論複製與撰寫
* cp /workspace/examples/LittleNet/python\_api\_workflow.py ../../data1/lightweight-human-pose-estimation.pytorch
* docker cp 31585f1fc895:/data1/lightweight-human-pose-estimation.pytorch/python\_api\_workflow.py /home/minggatsby/GitHub/lightweight-human-pose-estimation.pytorch
* docker cp /home/minggatsby/GitHub/lightweight-human-pose-estimation.pytorch/python\_api\_workflow.py 31585f1fc895:/data1/lightweight-human-pose-estimation.pytorch
  1. 範例推論測試
* cd /data1/lightweight-human-pose-estimation.pytorch
* nano python\_api\_workflow.py
* python python\_api\_workflow.py
* docker cp 31585f1fc895:/data1/batch\_compile/models\_720.nef /home/minggatsby/

# Dongle

* 1. 本機編譯opencv3.4，參考以下連結

<https://www.kneron.com/forum/discussion/comment/375>

<https://askubuntu.com/questions/430705/how-to-use-apt-get-to-download-multi-arch-library>

<https://www.itdaan.com/tw/2a976875642768e514fe10fc6be72ebb>

* 1. 建置Dongle的固件環境

sudo python3 KL720DemoCamAppPoseYoloInference.py

# Issue

<https://www.kneron.com/forum/discussion/181/kl720-dongle-deploy-on-rk3399-problem>