國立高雄科技大學
電機工程系 課程：人工智慧 期末專題操作手冊

主題：他們回來了

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OpneR8 使用教學

作者：KevinChiu 參考：https://tw.openrobot.club/article/index?sn=10969

OpneR8 安裝

1. 在官網註冊帳號
2. 下載免費版 OpneR8
3. 解壓縮檔案
4. 就可以開始使用了

OpneR8 執行

1. 到C:\OpenR8-Windows-19.32-2\OpenR8目錄下
2. 執行 R8-CPU.bat
3. 就會跳出一個網頁就可以AI了
4. file > open 可以運行他的範例
5. 目錄中的PDF 檔會有詳細的教學

OpenVINO 使用教學

作者：KevinChiu

參考：https://docs.openvinotoolkit.org/latest/_docs_install_guides_installing_openvino_linux.html

OpenVINO install

到OpenVINO官網安裝OpenVINO，看得懂可以跳過本章節，看不懂看我們懶人包

https://docs.openvinotoolkit.org/latest/_docs_install_guides_installing_openvino_linux.html

選擇你的作業系統來安裝，建議Linux，以下教學也以Linux來說明：

1. 下載OpenVINO https://software.intel.com/en-us/openvino-toolkit/choose-download/free-download-linux
2. 下載完成後，到該檔案的目錄下如：

```
cd ~/Downloads/
```

3. 解壓縮該檔案，l_openvino_toolkit_p_<version>換成該檔名稱：

```
tar -xvzf l_openvino_toolkit_p_<version>.tgz
```

4. 到解壓縮完的目錄下：

```
cd l_openvino_toolkit_p_<version>
```

5. 安裝OpenVINO

   用GUI介面安裝

```
sudo ./install_GUI.sh
```

   或Command-Line安裝

```
sudo ./install.sh
```

6. 在prerequisites回顯示缺乏的軟件，一直下一步就安裝完成了

7. 安裝完成後，到install_dependencies目錄下：

```
cd /opt/intel/openvino/install_dependencies
```

8. 執行install_openvino_dependencies.sh

```
sudo -E ./install_openvino_dependencies.sh
```

9. 設定環境變數 setupvars.sh：

   每次開啟terminal後都要執行：

```
source /opt/intel/openvino/bin/setupvars.sh
```

   如果嫌麻煩也可以加到.bashrc，讓他自動執行：

```
sudo vim ~/.bashrc
source /opt/intel/openvino/bin/setupvars.sh
```

   "i"加在最後一行"ESC"後，":wq"儲存退出

10. 切換到Model Optimizer prerequisites目錄下：

```
cd
/opt/intel/openvino/deployment_tools/model_optimizer/install_prerequisites
```

11. 配置一些軟件Caffe, TensorFlow, MXNet, Kaldi*, and ONNX：

```
sudo ./install_prerequisites.sh
```

Run a Demo

1. 到Inference Engine demo目錄下：

```
cd /opt/intel/openvino/deployment_tools/demo
```

2. 執行demo_squeezenet_download_convert_run.sh：

下載一些Demo會用到的東西

```
./demo_squeezenet_download_convert_run.sh
```

3. 執行demo：

```
./demo_security_barrier_camera.sh
```

正常運作就是安裝成功了！

Build the Sample Applications

```
cd '/opt/intel/openvino/inference_engine/demos'
```

```
./build_demos.sh
```

Model downloader

```
cd /opt/intel/openvino/deployment_tools/tools/model_downloader
```

```
./downloader.py --print_all
```

```
./downloader.py --name
```

Security Barrier Camera C++ Demo

```
cd /home/user/omz_demos_build/intel64/Release
```

```
./security_barrier_camera_demo -i
/opt/intel/openvino_2019.3.334/deployment_tools/demo/car_1.bmp -m
/home/user/openvino_models/ir/FP16/intel/vehicle-license-plate-detection-barrier-
0106/FP16/vehicle-license-plate-detection-barrier-0106.xml
```

yolo

轉tf

```
cd ~/tensorflow-yolo-v3

python convert_weights_pb.py --class_names coco.names  --data_format NHWC --
weight_file yolov3.weights
```

轉IR

```
cd ~/Desktop/openvino/deployment_tools/model_optimizer

sudo python3 mo_tf.py --input_model '/home/user/tensorflow-yolo-
v3/frozen_darknet_yolov3_model.pb' --tensorflow_use_custom_operations_config
'/home/user/Desktop/openvino/deployment_tools/model_optimizer/extensions/front/tf/
yolo_v3.json' --batch 1
```

執行

```
cd ~/omz_demos_build/intel64/Release

./object_detection_demo_yolov3_async -i cam -m
'/home/user/Desktop/openvino/deployment_tools/model_optimizer/frozen_darknet_yolov
3_model.xml' -d MYRIAD
```

py

```
cd
/opt/intel/openvino_2019.3.334/inference_engine/demos/python_demos/object_detectio
n_demo_yolov3_async
```

```
python3 object_detection_demo_yolov3_async.py -i cam -m
'/home/user/Desktop/openvino/deployment_tools/model_optimizer/frozen_darknet_yolov
3_model.xml' -d MYRIAD
```

```
python3 object_detection_demo_yolov3_async.py -i '/home/user/Videos/FILE0149.MOV'
-m
'/home/user/Desktop/openvino/deployment_tools/model_optimizer/frozen_darknet_yolov
3_model.xml' -d MYRIAD
```

```
python3 object_detection_demo_yolov3_async.py -i '/home/user/Videos/FILE0149.MOV'
-m
'/home/user/Desktop/openvino/deployment_tools/model_optimizer/frozen_darknet_yolov
3_model.xml' -d MYRIAD --labels '/home/user/tensorflow-yolo-v3/coco.names'
```

tiny

```
cd ~/tensorflow-yolo-v3
python convert_weights_pb.py --class_names coco.names  --data_format NHWC --
weight_file yolov3-tiny.weights --tiny --output_graph frozen_darknet_yolov3-
tiny_model.pb
```

```
cd ~/Desktop/openvino/deployment_tools/model_optimizer
sudo python3 mo_tf.py --input_model '/home/user/tensorflow-yolo-
v3/frozen_darknet_yolov3-tiny_model.pb' --tensorflow_use_custom_operations_config
'/home/user/Desktop/openvino/deployment_tools/model_optimizer/extensions/front/tf/
yolo_v3_tiny.json' --batch 1
```

```
cd
/opt/intel/openvino_2019.3.334/inference_engine/demos/python_demos/object_detectio
n_demo_yolov3_async
```

```
python3 object_detection_demo_yolov3_async.py -i '/home/user/Videos/FILE0149.MOV'
-m
'/home/user/Desktop/openvino/deployment_tools/model_optimizer/frozen_darknet_yolov
3-tiny_model.xml' -d MYRIAD --labels '/home/user/tensorflow-yolo-v3/coco.names'
```

```
python3 object_detection_demo_yolov3_async.py -i cam  -m
'/home/user/Desktop/openvino/deployment_tools/model_optimizer/frozen_darknet_yolov
3-tiny_model.xml' -d MYRIAD --labels '/home/user/tensorflow-yolo-v3/coco.names'
```

開啟檔案位置

```
nautilus
xdg-open
```

intel 開發板 開機啟動

```
> fs0:
> cd EFI\ubuntu
> grubx64.efi
```

face

```
cd
~/Desktop/openvino/deployment_tools/inference_engine/demos/python_demos/face_recog
nition_demo
```

```
python ./face_recognition_demo.py -m_fd
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/face-detection-
retail-0004/FP16/face-detection-retail-0004.xml -m_lm
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/landmarks-
regression-retail-0009/FP16/landmarks-regression-retail-0009.xml -m_reid
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/face-
reidentification-retail-0095/FP16/face-reidentification-retail-0095.xml -l
/home/user/Desktop/openvino/deployment_tools/inference_engine/lib/intel64/libcpu_e
xtension_sse4.so --verbose -fg "~/AI_class/face_tran" --run_detector --allow_grow
```

```
python ./face_recognition_demo.py -m_fd
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/face-detection-
retail-0004/FP16/face-detection-retail-0004.xml -m_lm
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/landmarks-
regression-retail-0009/FP16/landmarks-regression-retail-0009.xml -m_reid
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/face-
reidentification-retail-0095/FP16/face-reidentification-retail-0095.xml -l
/home/user/Desktop/openvino/deployment_tools/inference_engine/lib/intel64/libcpu_e
xtension_sse4.so --verbose -fg  "~/AI_class/face_gallery"
```

AI_class

```
cd ~/AI_class/face_recognition_demo
```

```
python ./face_recognition_demo.py -m_fd
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/face-detection-
retail-0004/FP16/face-detection-retail-0004.xml -m_lm
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/landmarks-
```

```
regression-retail-0009/FP16/landmarks-regression-retail-0009.xml -m_reid
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/face-
reidentification-retail-0095/FP16/face-reidentification-retail-0095.xml -l
/home/user/Desktop/openvino/deployment_tools/inference_engine/lib/intel64/libcpu_e
xtension_sse4.so --verbose -fg "/home/user/AI_class/face_tran/" --run_detector --
allow_grow
```

```
python ./face_recognition_demo.py -m_fd
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/face-detection-
retail-0004/FP16/face-detection-retail-0004.xml -m_lm
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/landmarks-
regression-retail-0009/FP16/landmarks-regression-retail-0009.xml -m_reid
~/Desktop/openvino/deployment_tools/tools/model_downloader/intel/face-
reidentification-retail-0095/FP16/face-reidentification-retail-0095.xml -l
/home/user/Desktop/openvino/deployment_tools/inference_engine/lib/intel64/libcpu_e
xtension_sse4.so --verbose -fg  "/home/user/AI_class/face_gallery/"
```