

Embedded System Design Lab3 Document

第八組

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照片辨識：

1. 使用 yolov4-opencv-cpp-python.git 提供的 yolo4 tiny
2. opencv 使用 4.4.0，在 cmake-gui 要另外勾起其他選項
3. 將 yolov4-opencv-cpp-python.git 提供的 cpp code 與 Lab2 程式碼結合
4. cross compile 指令：
arm-linux-gnueabi-g++ -g -o lab3 cpp/lab3.cpp -I /usr/local/arm-opencv4.4.0/install/include/opencv4/ -I /opt/EmbedSky/gcc-linaro-5.3-2016.02-x86_64_arm-linux-gnueabi/include/ -I /usr/local/arm-opencv4.4.0/install/include/ -L /usr/local/arm-opencv4.4.0/install/lib/ -Wl,-rpath-link=/opt/EmbedSky/gcc-linaro-5.3-2016.02-x86_64_arm-linux-gnueabi/arm-linux-gnueabi/libc/lib/ -Wl,-rpath-link=/opt/EmbedSky/gcc-linaro-5.3-2016.02-x86_64_arm-linux-gnueabi/qt5.5/rootfs_imx6q_V3_qt5.5_env/lib/ -Wl,-rpath-link=/opt/EmbedSky/gcc-linaro-5.3-2016.02-x86_64_arm-linux-gnueabi/qt5.5/rootfs_imx6q_V3_qt5.5_env/qt5.5_env/lib/ -Wl,-rpath-link=/opt/EmbedSky/gcc-linaro-5.3-2016.02-x86_64_arm-linux-gnueabi/qt5.5/rootfs_imx6q_V3_qt5.5_env/usr/lib/ -lpthread -lopencv_world -std=c++11 -fopenmp

即時辨識：

1. 使用 YoloFastestv2.git 提供的 model
2. opencv 使用 Lab2 提供的 arm-opencv
3. cmake YoloFastestv2 要增加 toolchain，內容為

```
set(CMAKE_SYSTEM_NAME Linux)
set(CMAKE_SYSTEM_PROCESSOR arm)
set(CMAKE_C_COMPILER arm-linux-gnueabi-gcc)
set(CMAKE_CXX_COMPILER arm-linux-gnueabi-g++)
set(CMAKE_FIND_ROOT_PATH_MODE_PROGRAM NEVER)
set(CMAKE_FIND_ROOT_PATH_MODE_LIBRARY ONLY)
set(CMAKE_FIND_ROOT_PATH_MODE_INCLUDE ONLY)
set(THREADS_PTHREAD_ARG "-pthread")
```
4. 將 YoloFastestv2.git 提供的 cpp code 與 Lab2 的程式碼結合

5. cross compile 指令：

```
arm-linux-gnueabihf-g++ -g -o lab3_realtime_detect  
lab3_realtime_detect.cpp src/yolo-fastestv2.cpp -I src/include -I  
include/ncnn lib/libncnn.a -I /opt/EmbedSky/gcc-linaro-5.3-2016.02-  
x86_64_arm-linux-gnueabihf/include/ -I /usr/local/arm-  
opencv/install/include/ -L /usr/local/arm-opencv/install/lib/ -Wl,-rpath-  
link=/opt/EmbedSky/gcc-linaro-5.3-2016.02-x86_64_arm-linux-  
gnueabihf/arm-linux-gnueabihf/libc/lib/ -Wl,-rpath-  
link=/opt/EmbedSky/gcc-linaro-5.3-2016.02-x86_64_arm-linux-  
gnueabihf/qt5.5/rootfs_imx6q_V3_qt5.5_env/lib/ -Wl,-rpath-  
link=/opt/EmbedSky/gcc-linaro-5.3-2016.02-x86_64_arm-linux-  
gnueabihf/qt5.5/rootfs_imx6q_V3_qt5.5_env/qt5.5_env/lib/ -Wl,-rpath-  
link=/opt/EmbedSky/gcc-linaro-5.3-2016.02-x86_64_arm-linux-  
gnueabihf/qt5.5/rootfs_imx6q_V3_qt5.5_env/usr/lib/ -lpthread -  
lopencv_world -std=c++11 -fopenmp
```

Reference:

<https://github.com/improves/yolov4-opencv-cpp-python>

<https://github.com/dog-qiuqiu/Yolo-FastestV2.git>

<https://github.com/opencv/opencv>