

接棒程式設計學院

AI專題發表班

禁區偵測

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接棒程式設計學院
Coding Wizard

本投影片屬於接棒程式設計學院所擁有，如需取得重製權以及公開傳輸權需要透過接棒程式設計學院取得著作人同意；

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另外，如果有需要以光碟或紙本等實體的方式傳播，則需要取得接棒程式設計學院散佈權。

—接棒程式設計學院

課程重點



接棒程式設計學院
Coding Wizard

- Download VMware Workstation Player
- Download Ubuntu 20.04.2.0 LTS (Focal Fossa) Desktop image
- Create a New Virtual Machine
- 安裝 Docker
- 建置openvino專案環境

Download VMware Workstation Player



- [連結](#)

VMware Workstation 16 Player



VMware Workstation Player

VMware Workstation Player is an ideal utility for running a single virtual machine on a Windows or Linux PC. Organizations use Workstation Player to deliver managed corporate desktops, while students and educators use it for learning and training.

The free version is available for non-commercial, personal and home use. We also encourage students and non-profit organizations to benefit from this offering.

Commercial organizations require commercial licenses to use Workstation Player.

Need a more advanced virtualization solution? Check out Workstation Pro.

Try Workstation 16.0 Player for Windows

[DOWNLOAD NOW >](#)

Try Workstation 16.0 Player for Linux

[DOWNLOAD NOW >](#)

Download Ubuntu Desktop image



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- [連結](#)

Ubuntu 20.04.2.0 LTS (Focal Fossa)

Select an image

Ubuntu is distributed on four types of images described below.

Desktop image

The desktop image allows you to try Ubuntu without changing your computer at all, and at your option to install it permanently later. This type of image is what most people will want to use. You will need at least 1024MiB of RAM to install from this image.

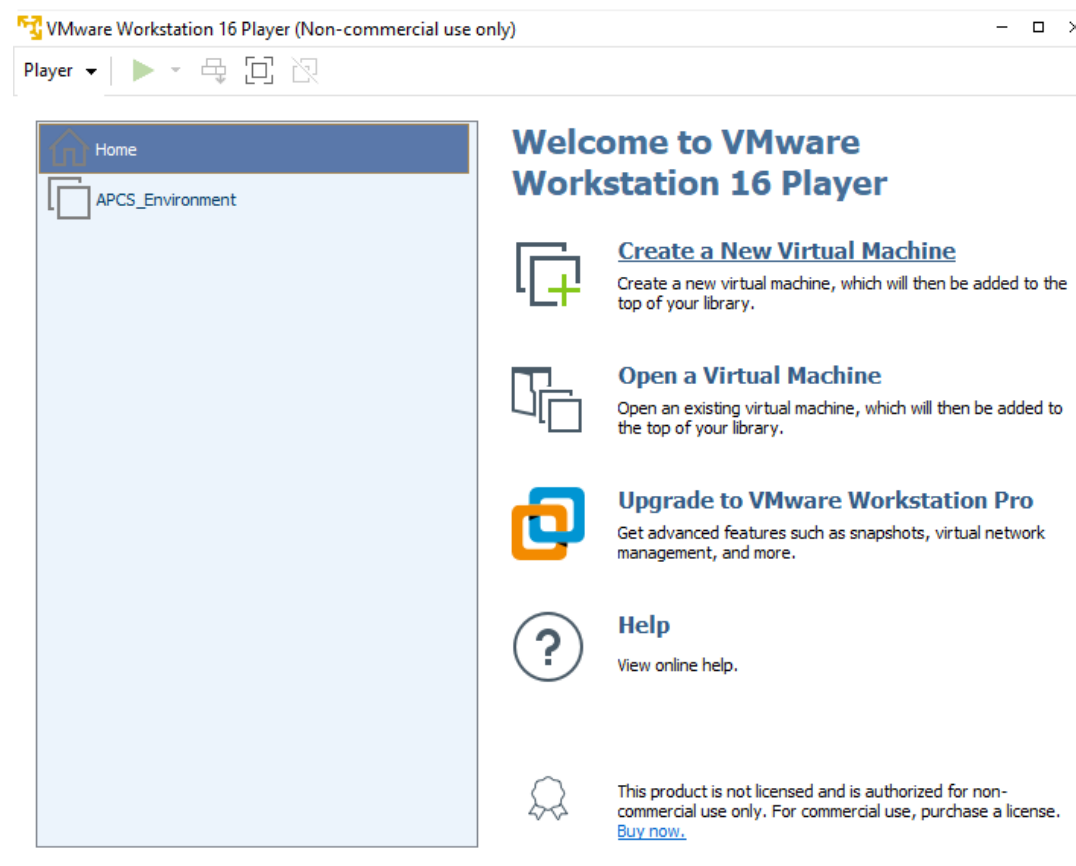
64-bit PC (AMD64) desktop image

Choose this if you have a computer based on the AMD64 or EM64T architecture (e.g., Athlon64, Opteron, EM64T Xeon, Core 2). Choose this if you are at all unsure.

Create a New Virtual Machine



- 點選 Create a New Virtual Machine



Create a New Virtual Machine



- 點選 Installer disc image file (iso)

New Virtual Machine Wizard ×

Welcome to the New Virtual Machine Wizard
A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?

Install from:

☐ Installer disc:
No drives available

☒ Installer disc image file (iso):
C:\Users\james\OneDrive\Desktop\ubuntu-20.04.2.0- Browse...
Ubuntu 64-bit 20.04.2.0 detected.
This operating system will use Easy Install. [\(What's this?\)](#)

☐ I will install the operating system later.
The virtual machine will be created with a blank hard disk.

Help < Back Next > Cancel

Create a New Virtual Machine



- 填寫帳號密碼

New Virtual Machine Wizard ×

Easy Install Information
This is used to install Ubuntu 64-bit.

Personalize Linux

Full name:

User name:

Password:

Confirm:

Create a New Virtual Machine



- 填寫VM名字

New Virtual Machine Wizard ×

Name the Virtual Machine
What name would you like to use for this virtual machine?

Virtual machine name:

Location:

Create a New Virtual Machine



- 決定VM大小

New Virtual Machine Wizard

Specify Disk Capacity
How large do you want this disk to be?

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (GB):

Recommended size for Ubuntu 64-bit: 20 GB

☐ Store virtual disk as a single file

☒ Split virtual disk into multiple files

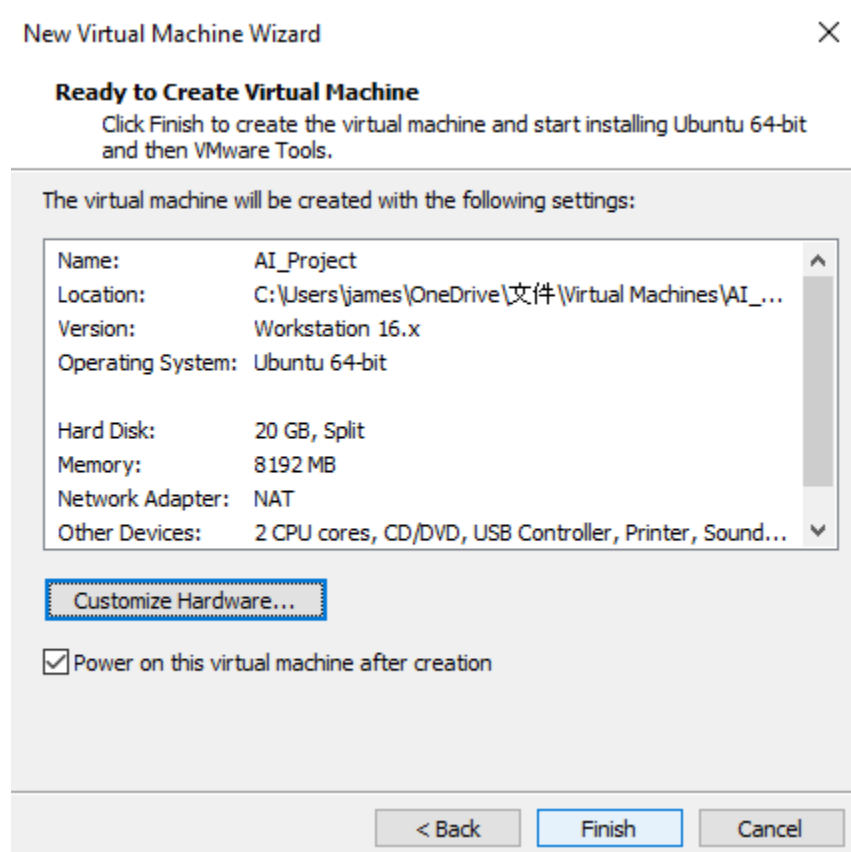
Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

Help < Back Next > Cancel

Create a New Virtual Machine



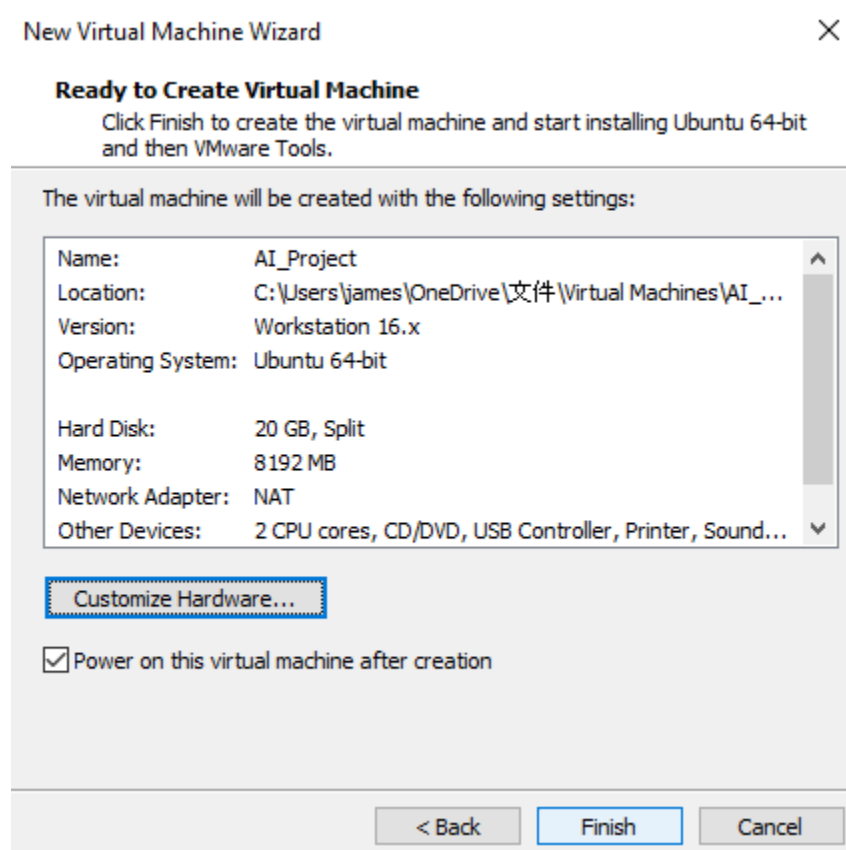
- 決定VM硬體規格



Create a New Virtual Machine



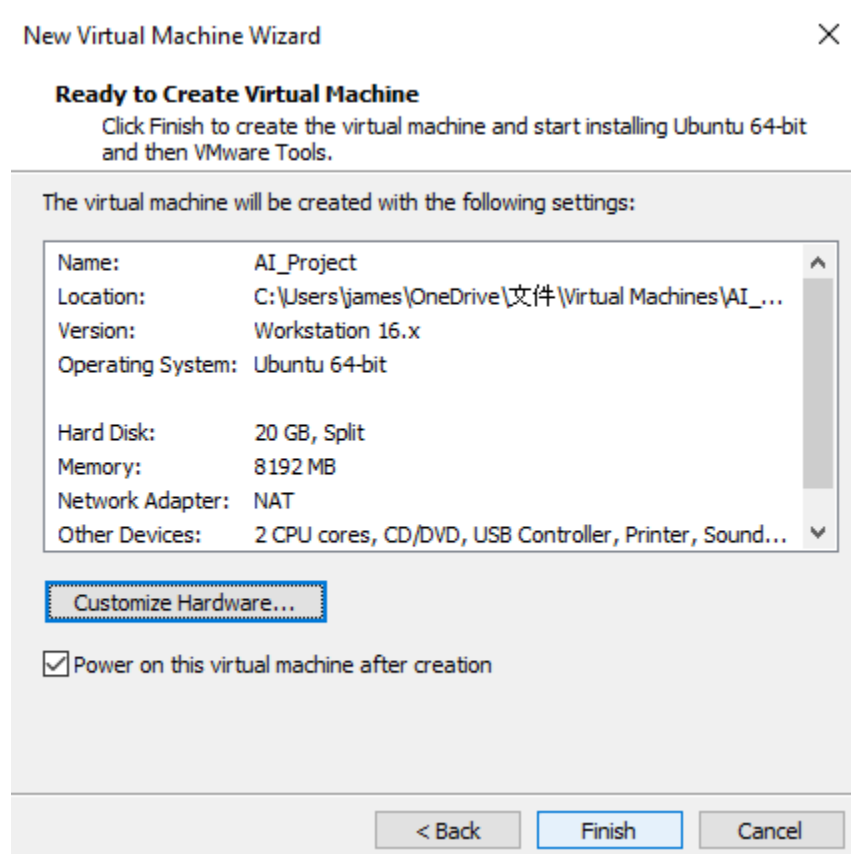
- 決定VM硬體規格



Create a New Virtual Machine



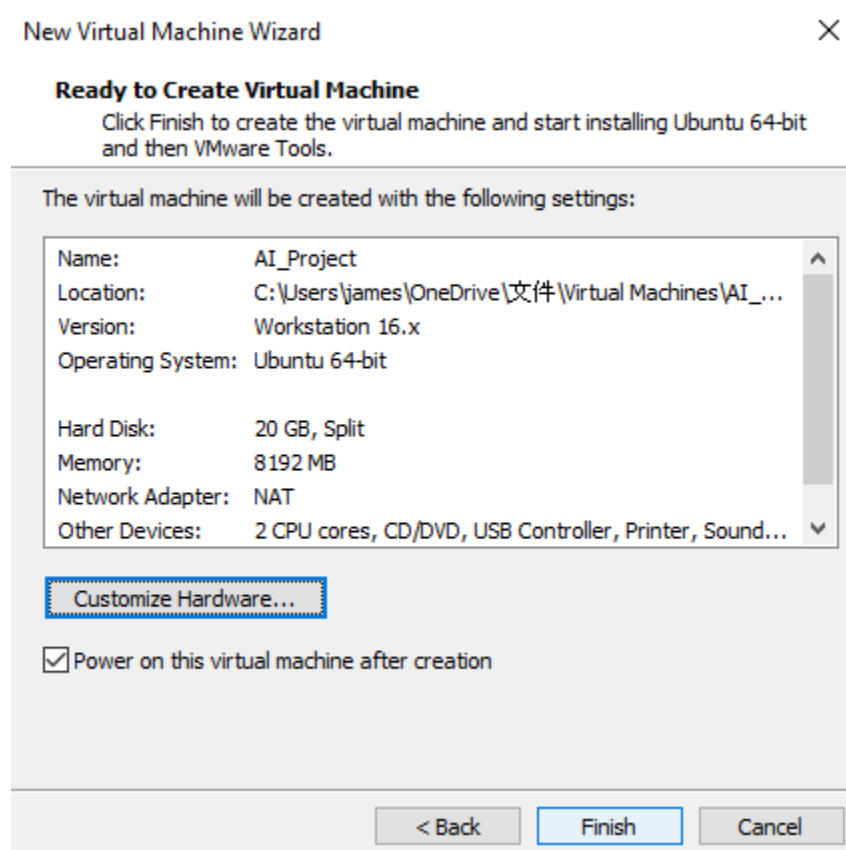
- 決定VM硬體規格



Create a New Virtual Machine



- 決定VM硬體規格

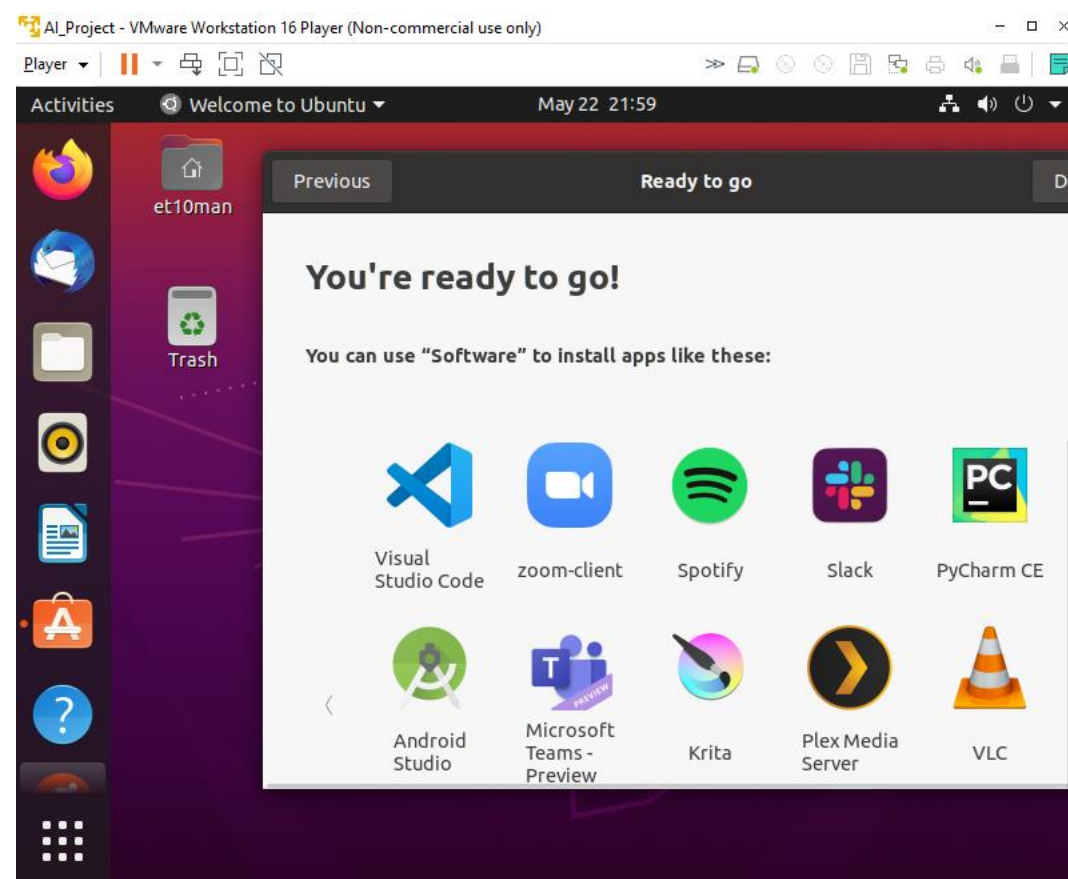
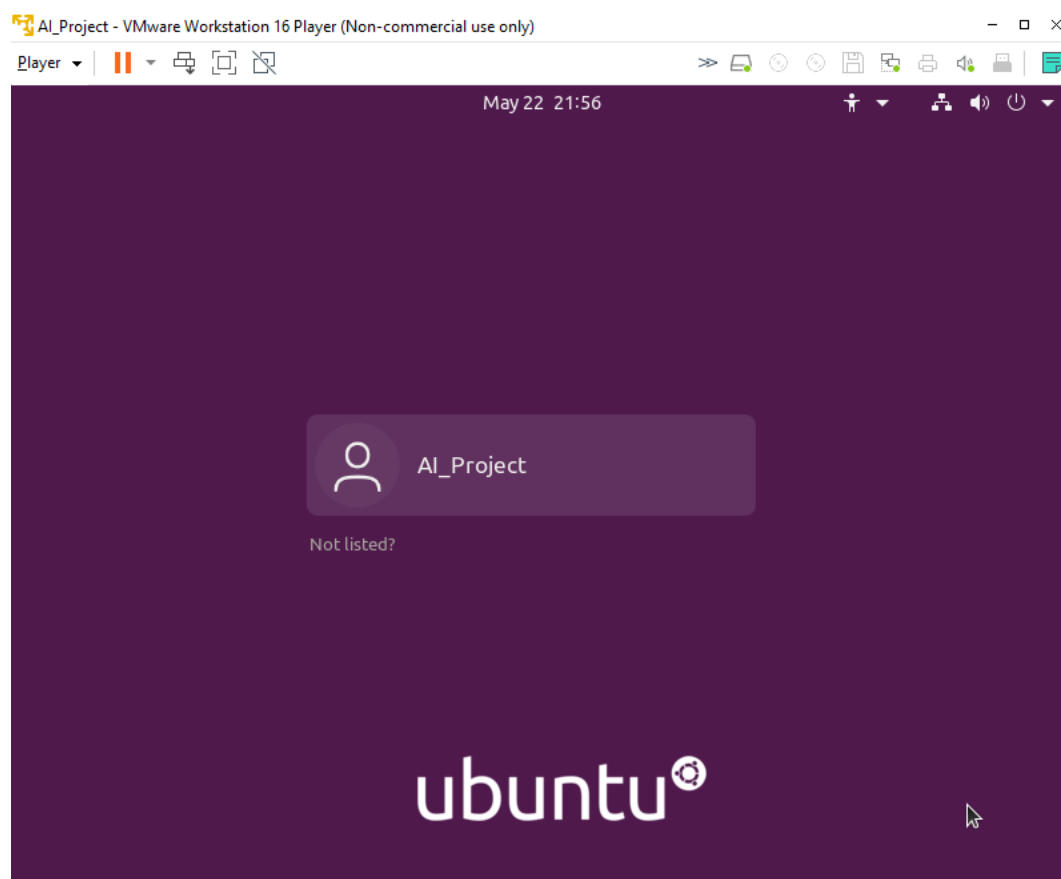


Create a New Virtual Machine



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- 輸入密碼





Pull openvino docker Image

安裝Docker

- `sudo apt install curl`
- `curl -fsSL https://get.docker.com -o get-docker.sh`
- `sudo sh get-docker.sh`

將Docker 加入目前群組，這樣使用Docker就不需要root權限

- `sudo groupadd docker`
- `sudo usermod -aG docker $USER`
- 重新登入
- 打`docker run hello-world`測試看看有沒有裝成功，如果有看到" Hello from Docker!"
表示安裝成功。



openvino環境準備

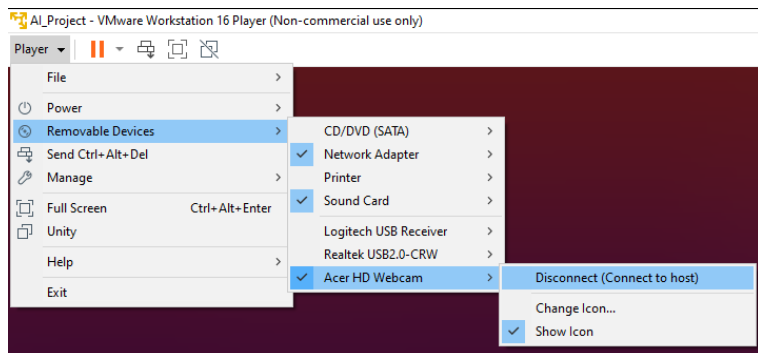
將openvino環境的image從docker hub 拉下來並安裝

- `sudo docker pull openvino/ubuntu18_dev:2020.4`
- `docker images`

```
et10man@ubuntu:~$ docker images
REPOSITORY          TAG         IMAGE ID      CREATED       SIZE
hello-world         latest      d1165f221234  2 months ago 13.3kB
openvino/ubuntu18_dev 2020.4     04f8a4183062 10 months ago 5.08GB
```

讓container環境可以使用webcam以及imshow看結果

- 在host端先打xhost+ `et10man@ubuntu:~/Desktop$ xhost +`
access control disabled, clients can connect from any host
- Removable Devices 選取webcam (選了之後，windows環境將不能使用webcam)





進入openvino專案環境

- 將專案資料夾取名為safety_zone_car 放在Desktop
- `docker run --device=/dev/video0 -v /tmp/.X11-unix:/tmp/.X11-unix -e DISPLAY=$DISPLAY --env="_X11_NO_MITSHM=1" -v /home/$USER/Desktop/safety_zone_car:/safety_zone_car -u root -it --name NCS_safety_zone_car openvino/ubuntu18_dev:2020.4 /bin/bash`，將環境啟動，並將專案資料夾映射到虛擬環境內
- 重新進入container `docker run -u root -it --name NCS_safety_zone_car /bin/bash`
- 移除container `docker rm NCS_safety_zone_car`
- `cd /safety_zone_car/safety_zone_car`
- 備註: NCS (Neural Compute Stick)

進入openvino專案環境



- python3 01_get_coordinate.py
- 點擊滑鼠左鍵兩下可以點出紅點，可依照需求點出不一樣的多邊形，這裡以四邊形為例。點完按一下q鍵就可以將座標存成JSON檔。



進入openvino專案環境

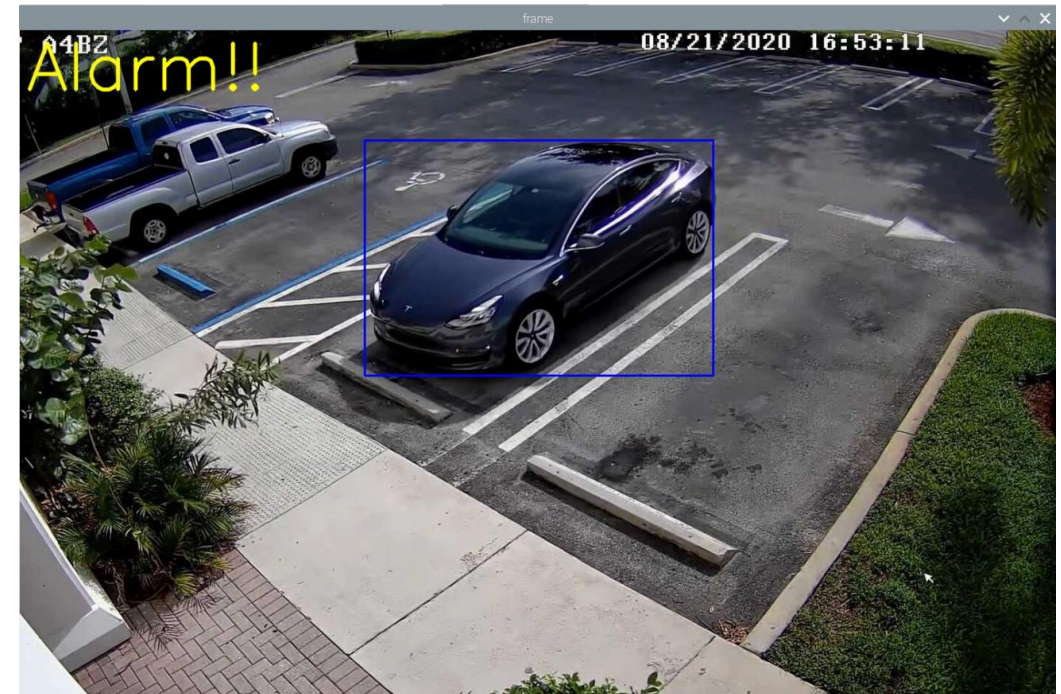


- python3 02_safety_zone_car.py

結果如下圖。

```
57 '''
58 # 檢視一下，是否使用device執行時，有不支援的layers
59 supported_layers = ie.query_network(network=net, device_name="MYRIAD")
60 unsupported_layers = [l for l in net.layers.keys() if l not in supported_layers]
61
62 if len(unsupported_layers) != 0:
63     print("Following layers are not supported by the specified plugin {}:\\n
        {}".format("MYRIAD", ", ".join(unsupported_layers)))
64     # sys.exit(1)
65 else:
66     print("All layers are supported")
67 '''

86 # load model to the plugin
87 print("[INFO] loading model to the plugin...")
88 execNet = ie.load_network(network=net, device_name = "CPU")
```



總結



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Q & A ✨