Follow Person III

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Soluciones

- Local:
  - Seguir en nuevo equipo
  - Darknet acabará compilando

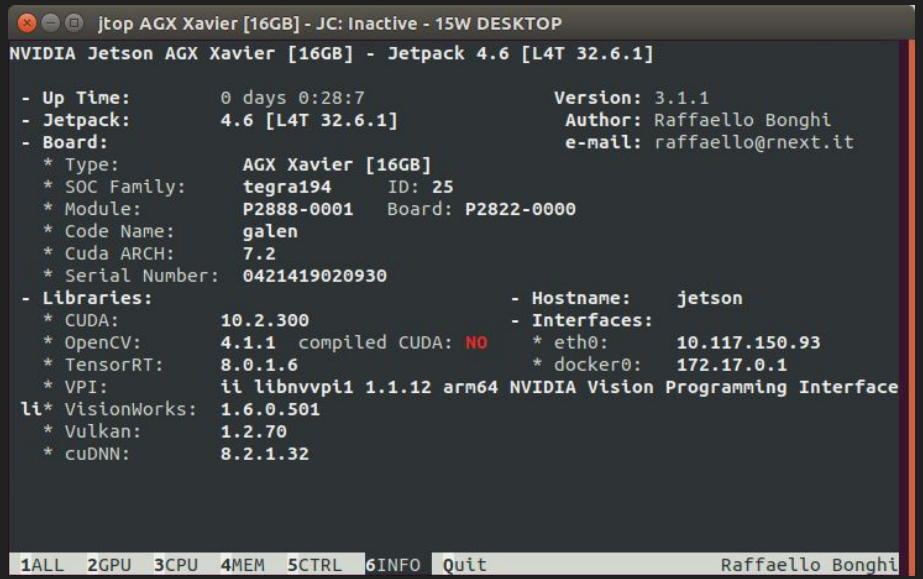
- Jetson:
  - Buscar darknet con CUDA < 10.2
  - Otra implementación de YOLO
  - **Probar con cable original del kit** 

NVIDIA Jetson AGX Xavier

- Actualizar Jetpack → SDK Manager ✓

- NVIDIA 1 - Factory Setup
- NVIDIA 2 - Custom Setup

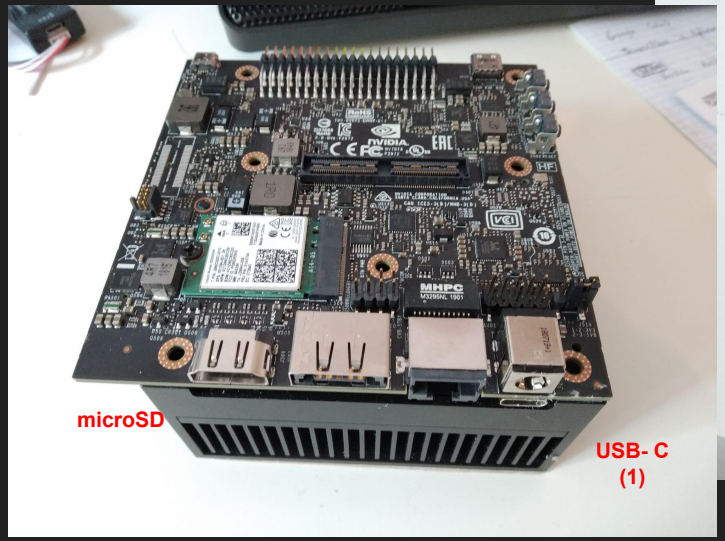
- Darknet:
  - CUDA >= 10.2 ✓

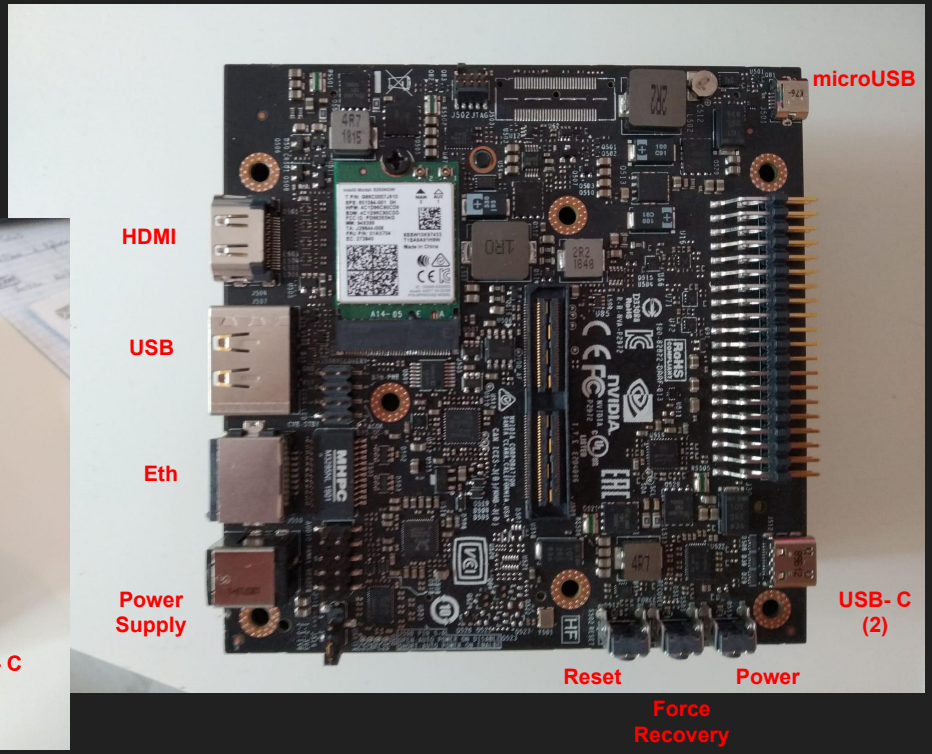


SDK Manager

- No detecta Nvidia Jetson
  - lsusb
- USB-C (2) & Recovery Mode

Recovery Mode
(1. Off) Hold Force Recovery + Press Power
(2. On) Hold Force Recovery + Hold Reset + Release





Setup I

1. ROS (base)

```
ROS_DISTRO=melodic
ROS_WORKSPACE=/home/nvidia/catkin_ws
```

2. catkin_ws

```
$ sudo apt-get install python3-catkin-tools
$ cd && mkdir -p /catkin_ws/src
$ cd /catkin_ws && catkin init
$ catkin build
```

3. drones

```
$ sudo apt-get install ros-melodic-mavros ros-melodic-mavros-extras ros-melodic-cv-bridge
$ cd repos && git clone https://github.com/JdeRobot/drones.git -b melodic-devel
$ roscd && cd src && ln -s ~/repos/drones/drone_wrapper .
$ roscd && catkin build 1
```

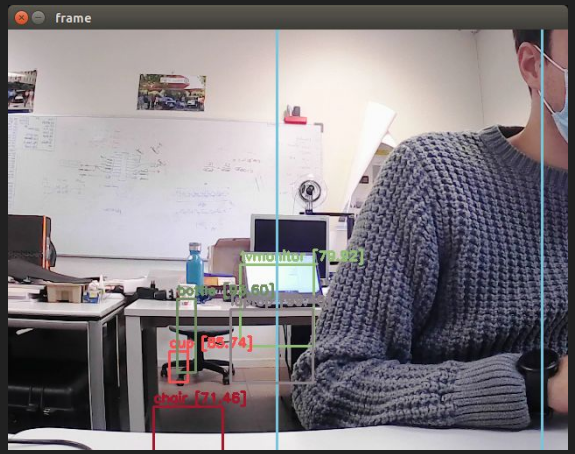
4. Darknet

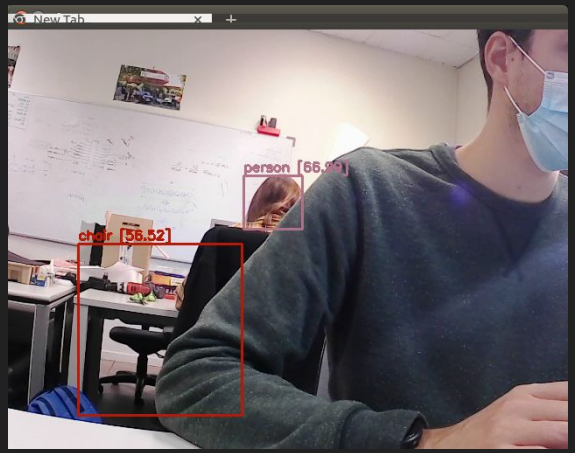
```
export PATH="$PATH:/usr/local/cuda-10.2/bin"
export LD_LIBRARY_PATH="$LD_LIBRARY_PATH:/usr/local/cuda-10.2/lib64"

$ git clone https://github.com/AlexeyAB/darknet
$ cd darknet
$ wget https://github.com/AlexeyAB/darknet/releases/download/darknet_yolo_v4/yolov4.weights
$ make # after setting FLAGS in Makefile
```

Darknet sobre Jetson

- Darknet Wrapper
- YOLOv4 → demasiado pesada, tiny?

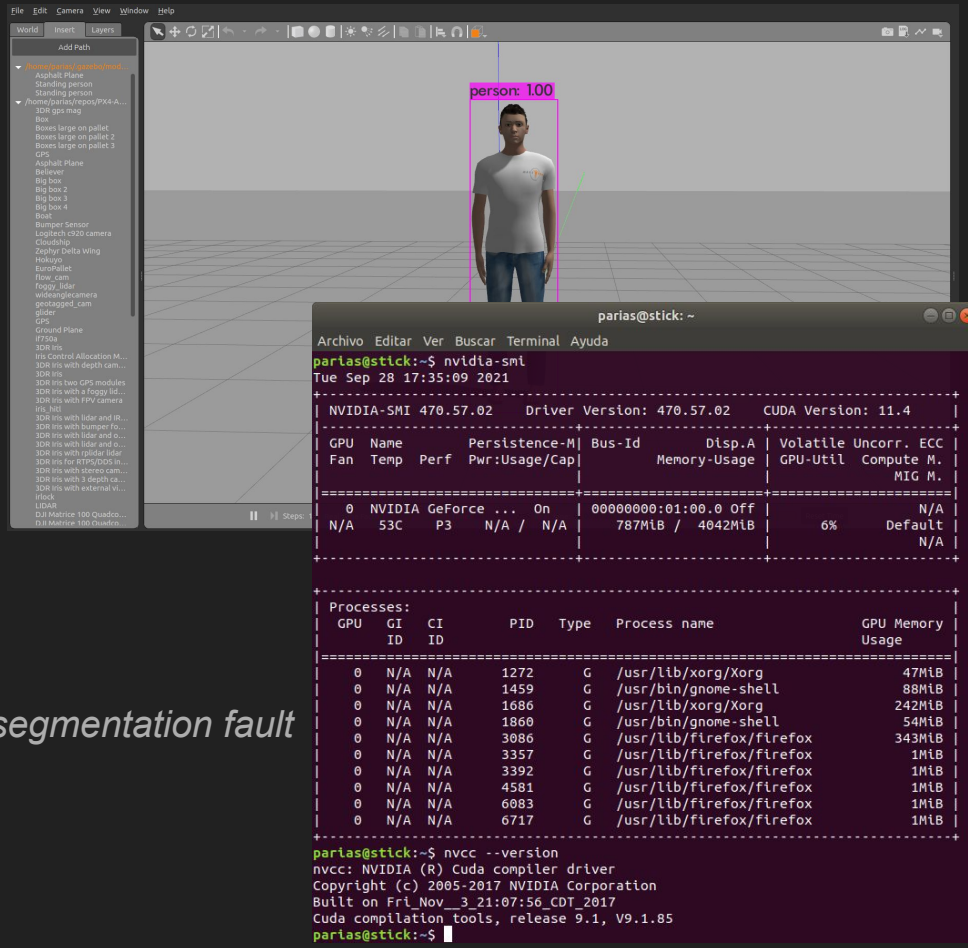
```python
import numpy as np
import cv2
import yolo_utils

yolo4_tiny = yolo_utils.YOLOv4Tiny()
# yolo4 = yolo_utils.YOLOv4()

cap = cv2.VideoCapture("/dev/video0") # check this
while(True):
    # Capture frame-by-frame
    ret, frame = cap.read()

    # Flip verticallly
    frame = cv2.flip(frame, 0)

    # Our operations on the frame come here
    yolo4_tiny.detect_frame(frame)

    # Display the resulting frame
    cv2.imshow('frame', frame)
    if cv2.waitKey(1) & 0xFF == ord('q'):
        break

# When everything done, release the capture
cap.release()
cv2.destroyAllWindows()
```





Darknet en local

- Muy lento
- Sin espacio para CUDA cuDNN



- Ubuntu -> USB 128Gb
  - Todavía en proceso de instalación
  - CUDA y cuDNN
    - Problema al compilar darknet -> *segmentation fault*

CUDA v11.4
nvcc v9.1
cuDNN v8.2.4