

# Follow Person VIII

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# Resumen

1. Intentar por enésima vez reinstalación de drivers
2. Vídeo con Tello
  - a. Tiny YOLOv4 CPU
  - b. YOLOv4 Jetson GPU
3. PX4 v1.12.3 en simulado
4. Despegue con mavros en PX4 real

# Resumen

1. Intentar por enésima vez reinstalación de drivers ✓
2. Vídeo con Tello ✓
  - a. ~~Tiny YOLOv4 GPU~~
  - b. ~~YOLOv4 Jetson GPU~~
3. PX4 v1.12.3 en simulado ✗
4. Despegue con mavros en PX4 real ✓

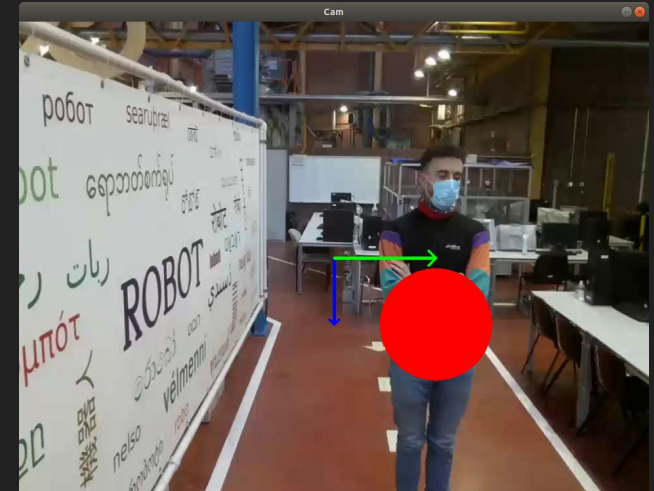
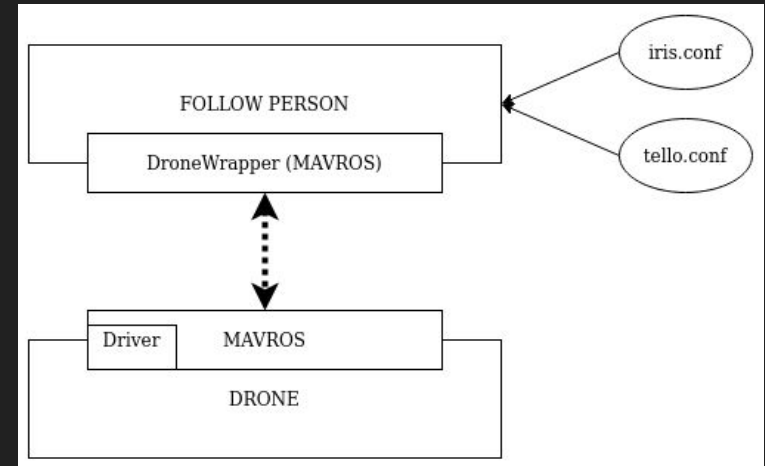
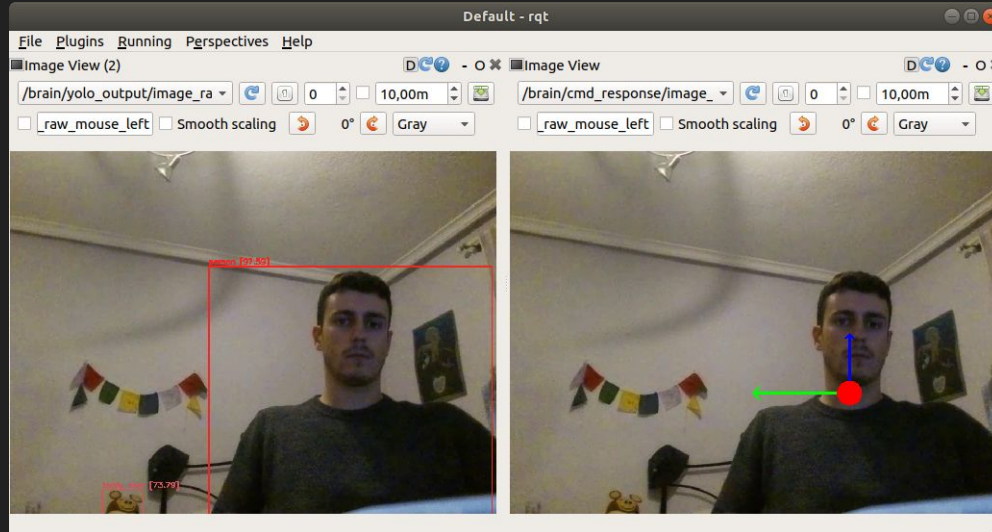
# Drivers NVIDIA

- gcc-7 & g++-7
- NVIDIA Drivers [\[1\]](#)
- CUDA Toolkit & cudNN [\[2\]](#)

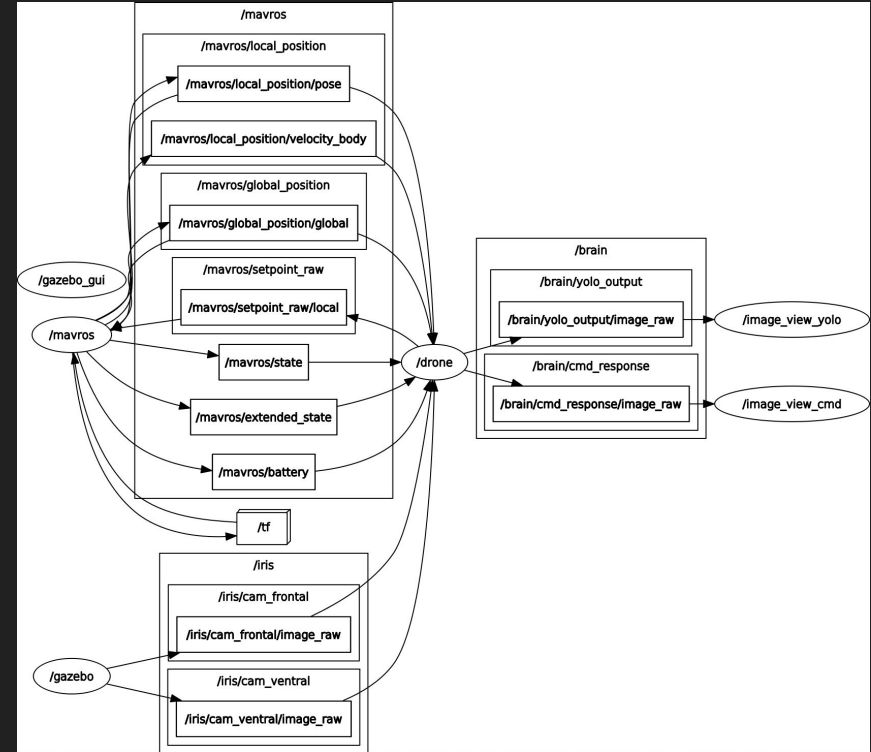
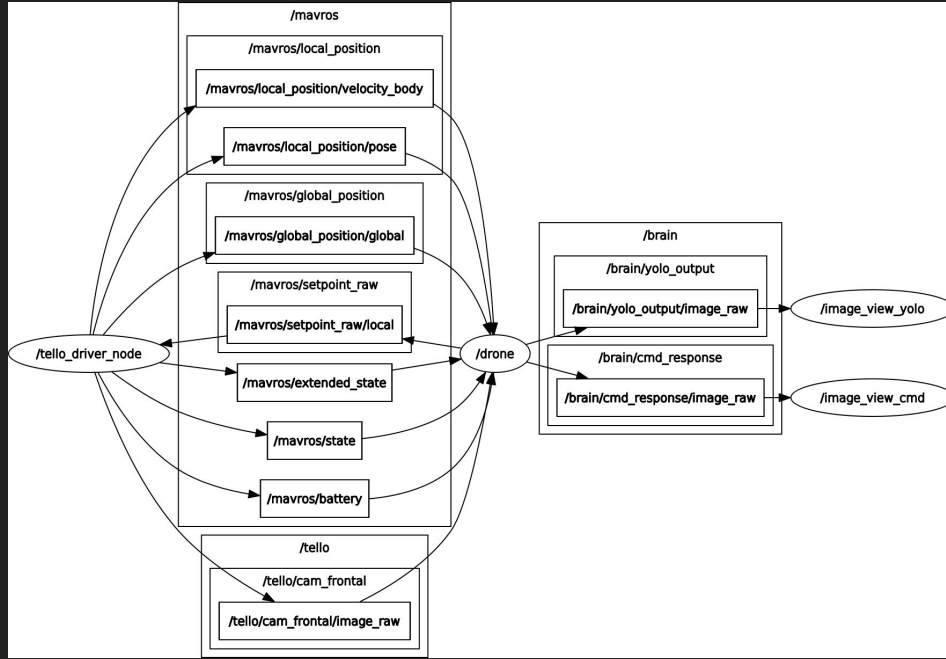
```
parias@stick: ~  
Archivo Editar Ver Buscar Terminal Ayuda  
parias@stick:~$ nvidia-smi  
Tue Nov 30 00:22:31 2021  
+-----+  
| NVIDIA-SMI 470.82.00      Driver Version: 470.82.00      CUDA Version: 11.4      |  
+-----+  
| GPU   Name               Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |  
| Fan   Temp  Perf    Pwr:Usage/Cap|      Memory-Usage | GPU-Util  Compute M. |  
|=====  
| 0     NVIDIA GeForce ...   Off      00000000:01:00:0 Off |      613MiB /  4042MiB |      2%      Default |  
| N/A   49C    P0      N/A /   N/A    |      613MiB /  4042MiB |      2%      Default |  
|=====  
+-----+  
+-----+  
| Processes: |  
| GPU   GI    CI          PID    Type    Process name                  GPU Memory |  
| ID     ID     ID              |              | Usage      |  
+-----+  
| 0     N/A   N/A         1941     G       /usr/lib/xorg/Xorg             47MiB |  
| 0     N/A   N/A         2174     G       /usr/bin/gnome-shell           88MiB |  
| 0     N/A   N/A         3005     G       /usr/lib/xorg/Xorg             242MiB |  
| 0     N/A   N/A         3195     G       /usr/bin/gnome-shell           39MiB |  
| 0     N/A   N/A         3602     G       /usr/lib/firefox/firefox       157MiB |  
| 0     N/A   N/A         3813     G       /usr/lib/firefox/firefox        1MiB |  
| 0     N/A   N/A         4041     G       .../debug.log --shared-files   30MiB |  
| 0     N/A   N/A        13477     G       /usr/lib/firefox/firefox        1MiB |  
| 0     N/A   N/A        25403     G       /usr/lib/firefox/firefox        1MiB |  
+-----+  
parias@stick:~$ nvcc --version  
nvcc: NVIDIA (R) Cuda compiler driver  
Copyright (c) 2005-2021 NVIDIA Corporation  
Built on Mon_Oct_11_21:27:02_PDT_2021  
Cuda compilation tools, release 11.4, V11.4.152  
Build cuda_11.4.r11.4/compiler.30521435_0  
parias@stick:~$
```

# Tello Follow Person

- Nuevo algoritmo genérico
- Dos nuevo topics *image\_view*



# Follow Person: Grafos

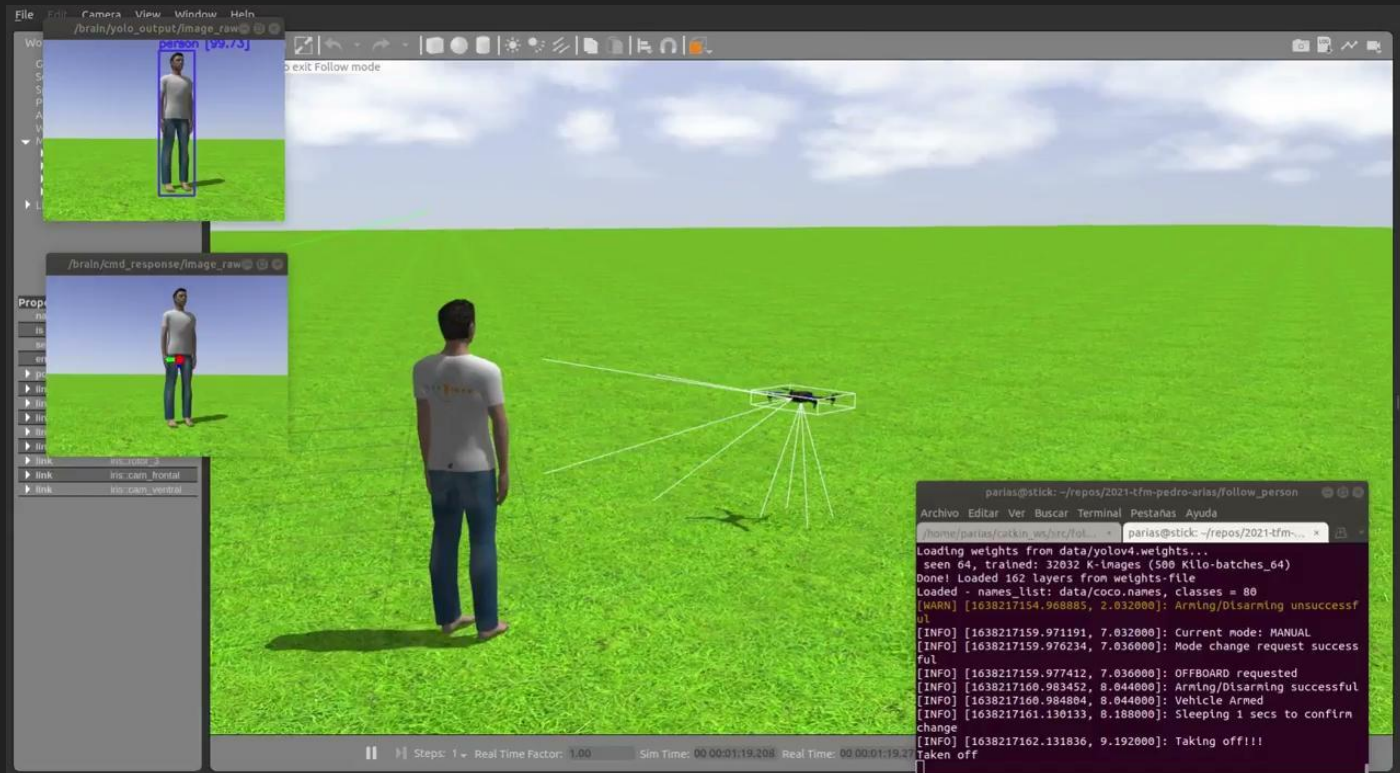


# Follow Person: Pseudocódigo

```
despegue
while:
    obtén imagen
    detecta "persona"
    if "persona":
        nuevo error
        actualiza PIDs
        cmd velocidad
    else:
        busca persona
land
```

# Sim Follow Person

```
drone:
  model: 'iris_sim'
  vx:
    kp: 0.5
    ki: 0.0
    kd: 0.001
  yaw_rate:
    kp: -0.005
    ki: 0.0
    kd: 0.001
  vz:
    kp: -0.02
    ki: 0.0
    kd: 0.001
```





# Tello Follow Person



```
drone:
  model: 'tello'
  vx:
    kp: 0.2
    ki: 0.0
    kd: 0.0002
  yaw_rate:
    kp: -0.002
    ki: 0.0
    kd: 0.0001
  vz:
    kp: -0.0015
    ki: 0.0
    kd: 0.0
```

$v_x \rightarrow$  Área ¿?

The screenshot displays a ROS2 development environment. The top window is a code editor showing the `my_generic_solution.py` file. The code defines a `GenericSolution` class that implements a PID controller for a drone. It includes methods for updating position, velocity, and acceleration, and for publishing control commands to a `cmd_vel` topic. The code also includes a `main` function that initializes the ROS2 node and starts the control loop.

The bottom-left window is a terminal showing the output of the `roslaunch` command. It displays the launch configuration for the `follow_person.launch` file, which sets the drone's initial position and velocity. The terminal also shows the output of the `rostopic echo` command, which displays the current state of the drone's position and velocity.

The bottom-right window is a camera feed showing a robot (a Pioneer 3 mobile robot) in a room. The robot is moving towards a yellow arrow on the floor, which is a visual cue for the person-following task.

# PX4 Real

## v1.11.3

- Compás calibrado
- Prechecks desactivados:
  - CBRK\_SUPPLY\_CHK
  - CBRK\_USB\_CHK
- Vuelo manual
- No despega con mavros

## v1.12.3

- No funciona con el código en simulado

# PX4 Real

## v1.11.3

- Compás calibrado
- Prechecks desactivados:
  - CBRK\_SUPPLY\_CHK
  - CBRK\_USB\_CHK
- Vuelo manual
- No despega con mavros

## v1.12.3

- No funciona con el código en simulado
- Vuelo con MAVROS con GAAS



[@generalized-intelligence/GAAS](https://github.com/generalized-intelligence/GAAS)

# Estado del TFM

- Drone Wrapper
- Tello Driver
- Victure Driver
- Integración YOLO

\	Tello	Sim PX4	PX4
FollowColor	✓	✓	-
FollowPerson	✓	✓	✗

# Memoria

## 1. Introducción

- 1.1. Robótica Aérea
- 1.2. Motivación
- 1.3. Problema
- 1.4. Objetivos

## 2. Herramientas (Estado del Arte)

- 2.1. Segmento Tierra
- 2.2. Segmento Aire
- 2.3. Comunicaciones

## 3. Desarrollo

- 3.1. Arquitectura
- 3.2. DroneWrapper
- 3.3. Tello Driver
- 3.4. Otro software

## 4. Resultados

- 4.1. PX4 Simulado
- 4.2. DJI Tello
- 4.3. PX4 Real

## 5. Conclusiones

## 6. Líneas Futuras