Pose Estimation

This example demonstrates human pose estimation. It uses the yolov8s_pose model.

1. Detection of the video

Terminal input,

```
cd hailo-rpi5-examples/
```

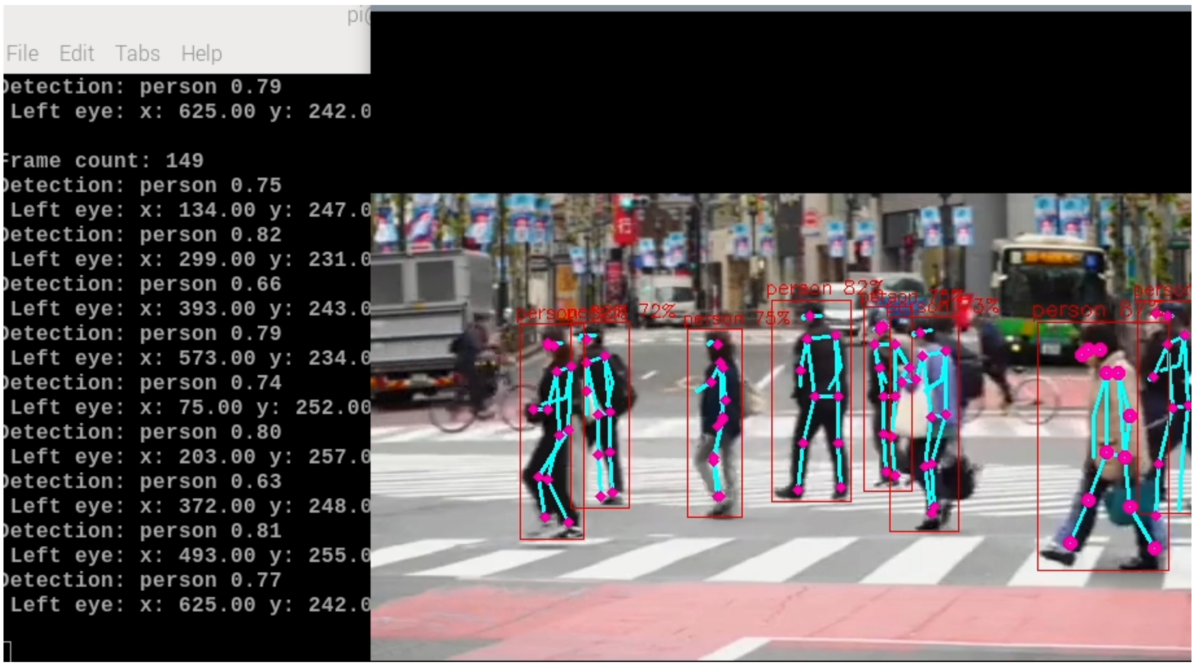
Then enter the command to enter the virtual environment

```
source setup_env.sh
```

Enter the command. Run the video to detect

```
python basic_pipelines/pose_estimation.py --input resources/detection0.mp4
```

Where the .mp4 suffix indicates the path of the video



```
etection: person 0.79
 Left eye: x: 625.00 y: 242.0

rame count: 149
etection: person 0.75
 Left eye: x: 134.00 y: 247.0
etection: person 0.82
 Left eye: x: 299.00 y: 231.0
etection: person 0.66
 Left eye: x: 393.00 y: 243.0
etection: person 0.79
 Left eye: x: 573.00 y: 234.0
etection: person 0.74
 Left eye: x: 75.00 y: 252.00
etection: person 0.80
 Left eye: x: 203.00 y: 257.0
etection: person 0.63
 Left eye: x: 372.00 y: 248.0
etection: person 0.81
 Left eye: x: 493.00 y: 255.0
etection: person 0.77
 Left eye: x: 625.00 y: 242.0
```

To close it, press ctrl+c.

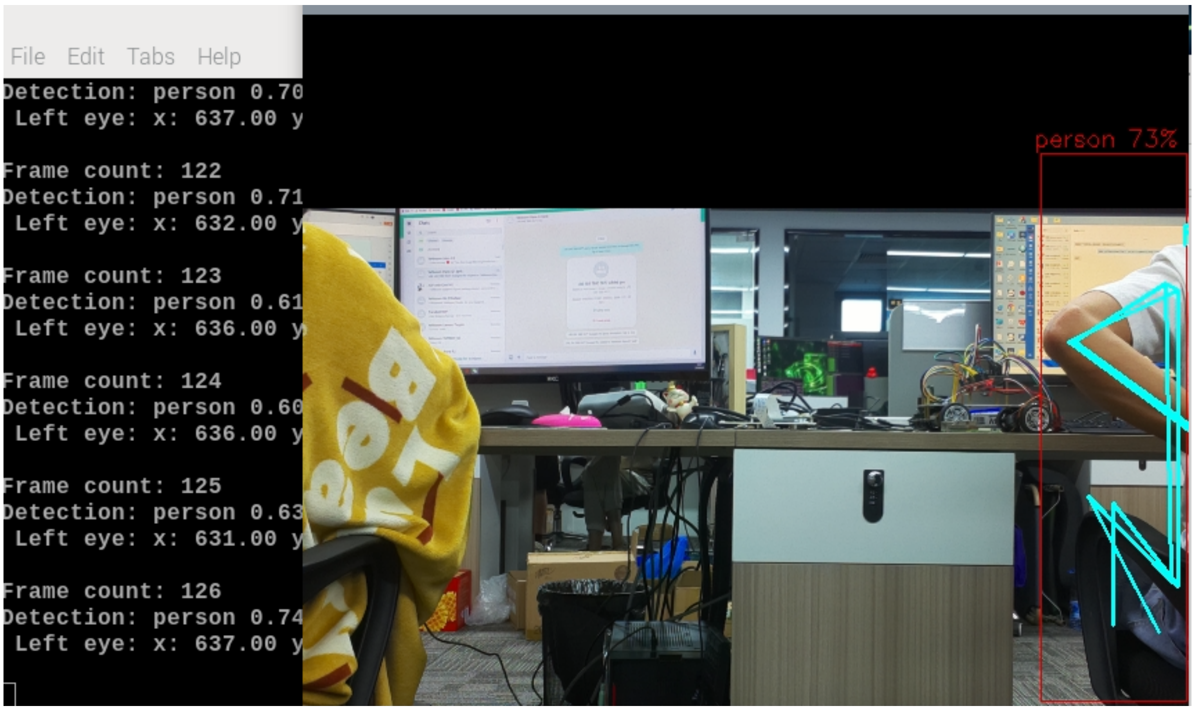
Contents in this example:

The Callback function shows how to get the pose estimation metadata from the network output. Each pesron is represented as a with 17 key points (objects). The code parses the landmarks and extracts the left and right eye coordinates and prints them to the terminal. If the flag is set, the eyes are drawn on the user frame. The key point dictionary can be obtained from the function. `HAILO_DETECTION``HAILO_LANDMARKS``--use-frame``get_keypoints`

2. Real-time detection of camera images

In the virtual environment terminal, enter the following command. By default, these examples run with a USB camera (/dev/video0). You can change the input source using the --input flag according to the real-time situation.

```
python basic_pipelines/pose_estimation.py --input /dev/video0 #usb camera
python basic_pipelines/pose_estimation.py --input rpi #csi camera
```



```
etection: person 0.70
 Left eye: x: 637.00 y

rame count: 122
etection: person 0.71
 Left eye: x: 632.00 y

rame count: 123
etection: person 0.61
 Left eye: x: 636.00 y

rame count: 124
etection: person 0.60
 Left eye: x: 636.00 y

rame count: 125
etection: person 0.63
 Left eye: x: 631.00 y

rame count: 126
etection: person 0.74
 Left eye: x: 637.00 y
```

If the camera does not display properly, you can check which video devices are available by running the following command:

```
ls /dev/video*
```

You can test whether the camera is working properly by running the following command:

```
ffplay -f v4l2 /dev/video0
```

If you encounter an error, try another device, such as /dev/video2.

Troubleshooting and known issues

If the camera example suddenly stops running in the middle, you can refer to the solution steps below. If it still does not work, you need to restart the Raspberry Pi.

- RPi camera input is still in the Beta stage. It may be unstable and may cause the application to crash.
- The frame buffer is not optimized and may slow down the application. It is shown as a simple example.
- **DEVICE_IN_USE() error.** This error usually means that the Hailo device (usually) is currently being accessed or locked by another process. This can happen during concurrent access attempts or if the previous process was not terminated cleanly, leaving the device in a locked state.

Solution steps:

1.**Identify the device:** Typically, Hailo devices are located at . Make sure this is the correct device file for your setup. `/dev/hailo0`

2.**Find processes using the device:** Run the following command to list any processes currently using the Hailo device:

```
sudo lsof /dev/hailo0
```

3.**Kill the process:** Kill the process using the PID (Process ID) from the output of the previous command. Replace with the actual PID. `<PID>`

```
sudo kill -9 <PID>
```