

Picamera2 Example

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[References](#)

[Preliminary preparation](#)

[Download the official source code](#)

[Install OpenCV dependencies](#)

[Picamera2 example](#)

[Object detection](#)

[Pose estimation](#)

[Object segmentation](#)

[Image classification](#)

Examples of using Picamera2 for image classification, object detection, object segmentation, and pose estimation.

References

[Official website of Raspberry Pi AI Camera](#)

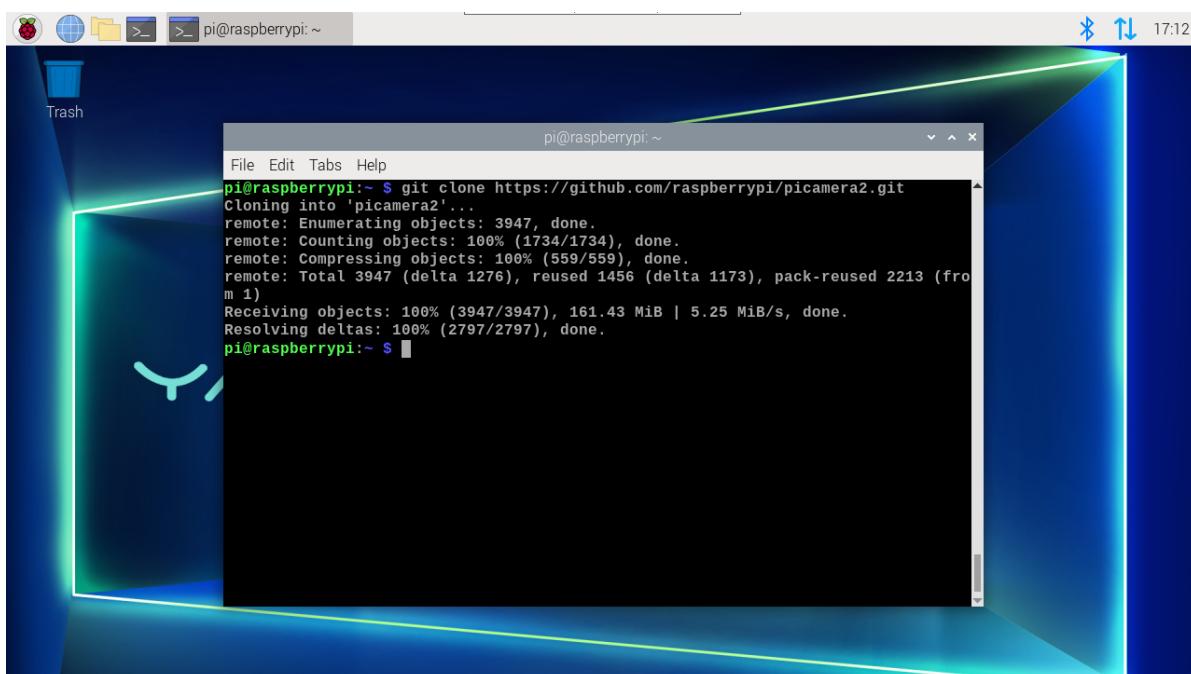
<https://www.raspberrypi.com/documentation/accessories/ai-camera.html>

Preliminary preparation

Download the official source code

```
git clone https://github.com/raspberrypi/picamera2.git
```

If you cannot download, you can find the file in the software data folder.

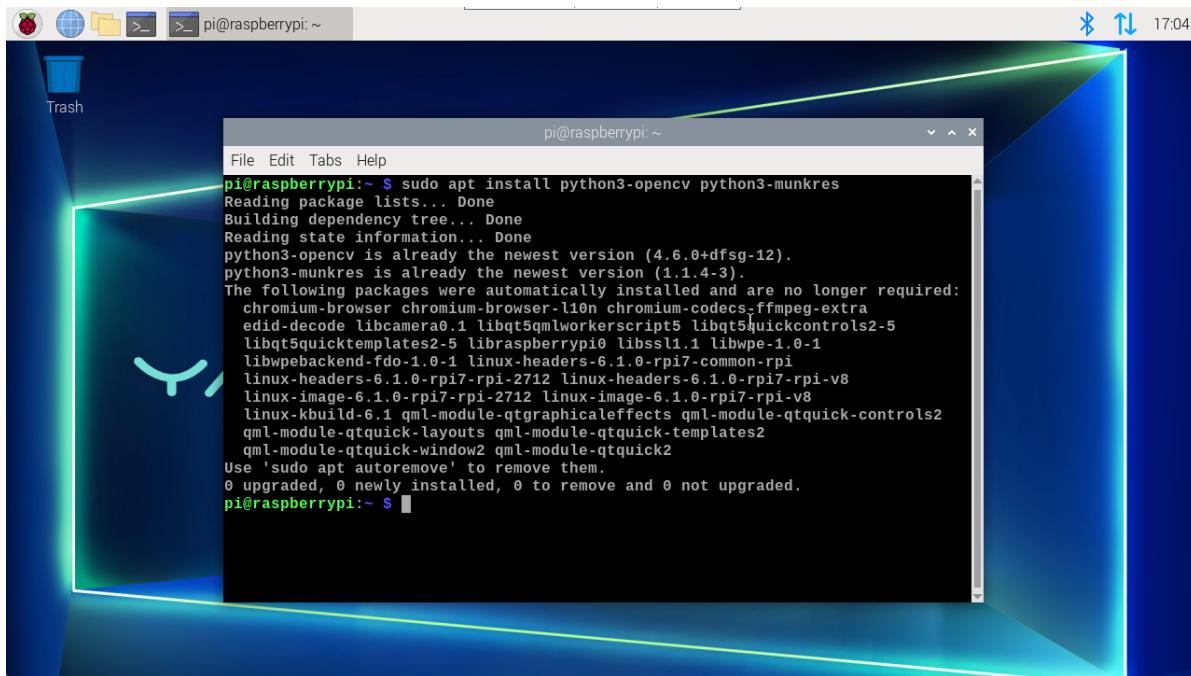


A screenshot of a terminal window titled "pi@raspberrypi: ~". The window displays the command "git clone https://github.com/raspberrypi/picamera2.git" and its execution. The output shows the progress of cloning the repository, including object enumeration, counting, compressing, and receiving objects, along with a final message about delta resolution. The terminal is set against a dark blue background with a green and blue light effect at the bottom.

```
pi@raspberrypi:~$ git clone https://github.com/raspberrypi/picamera2.git
Cloning into 'picamera2'...
remote: Enumerating objects: 3947, done.
remote: Counting objects: 100% (1734/1734), done.
remote: Compressing objects: 100% (559/559), done.
remote: Total 3947 (delta 1276), reused 1456 (delta 1173), pack-reused 2213 (from 1)
Receiving objects: 100% (3947/3947), 161.43 MiB | 5.25 MiB/s, done.
Resolving deltas: 100% (2797/2797), done.
pi@raspberrypi:~$
```

Install OpenCV dependencies

```
sudo apt install python3-opencv python3-munkres
```

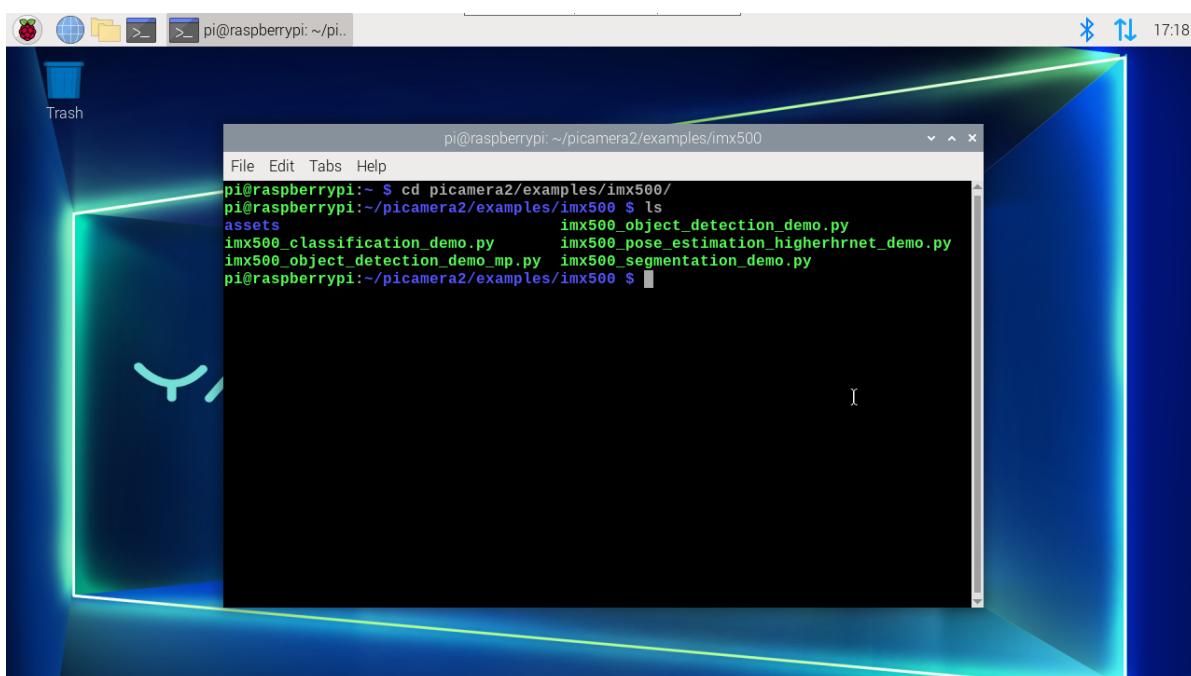


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All cases require the neural network model to be loaded successfully before the screen is displayed, otherwise the preview screen is a black interface!

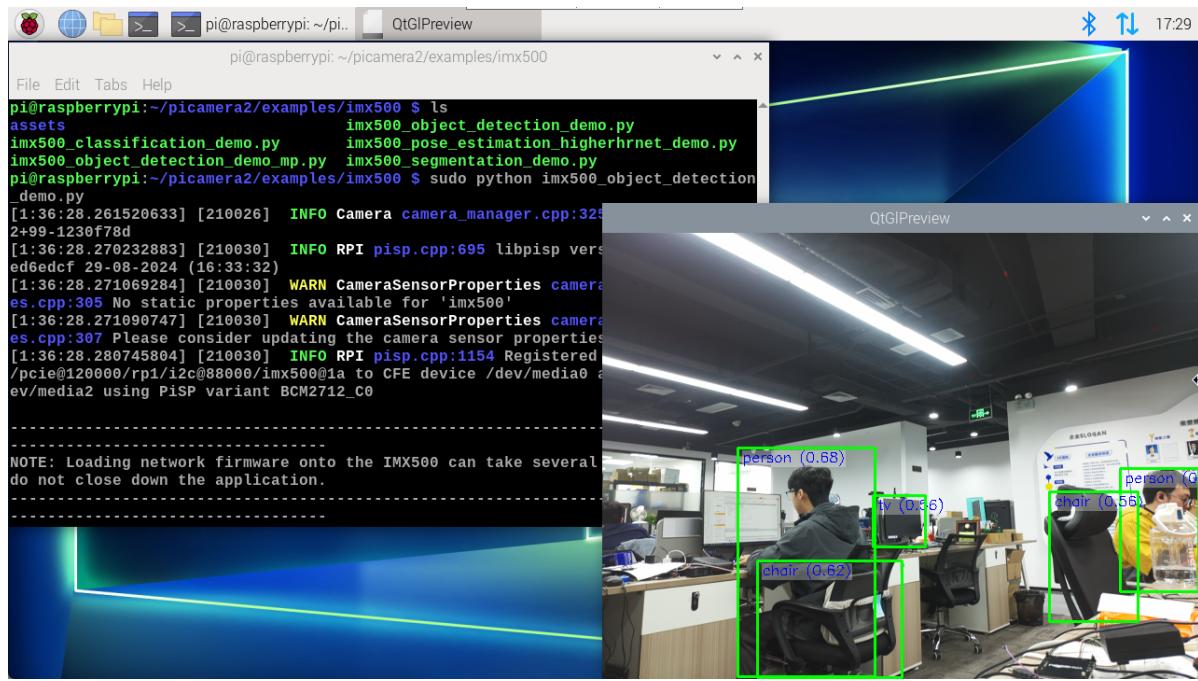
- Enter the example folder

```
cd picamera2/examples/imx500/
```



Object detection

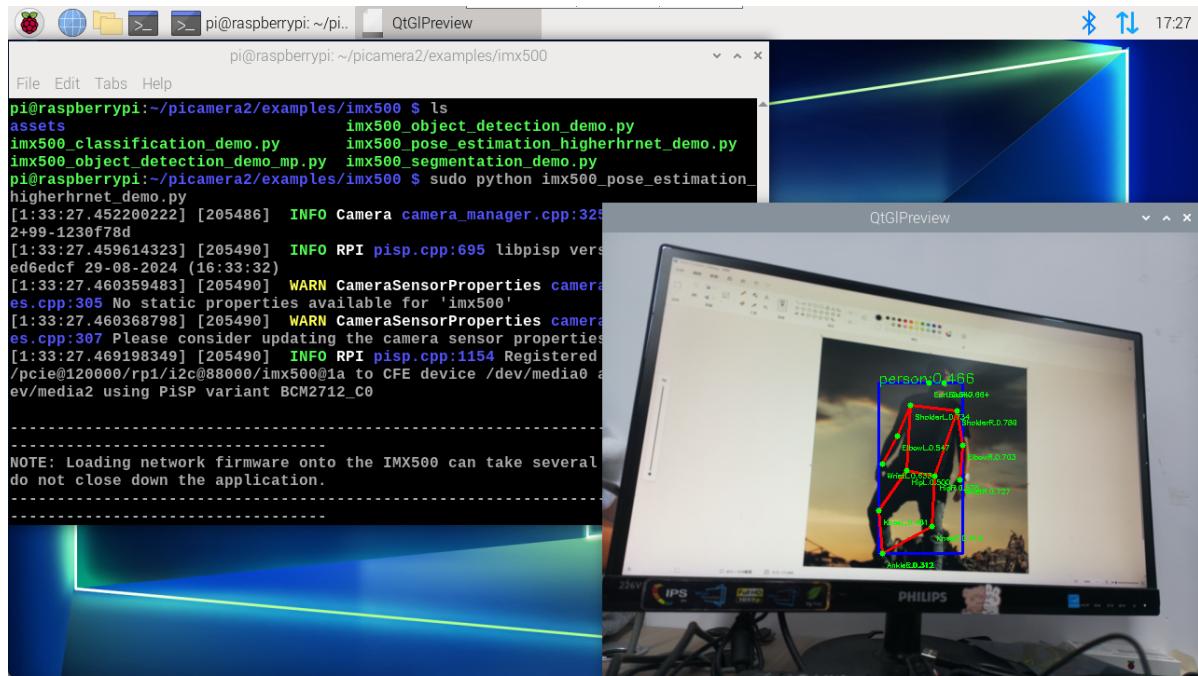
```
sudo python imx500_object_detection_demo.py
```



Use Ctrl+c shortcut key to close the program in the terminal.

Pose estimation

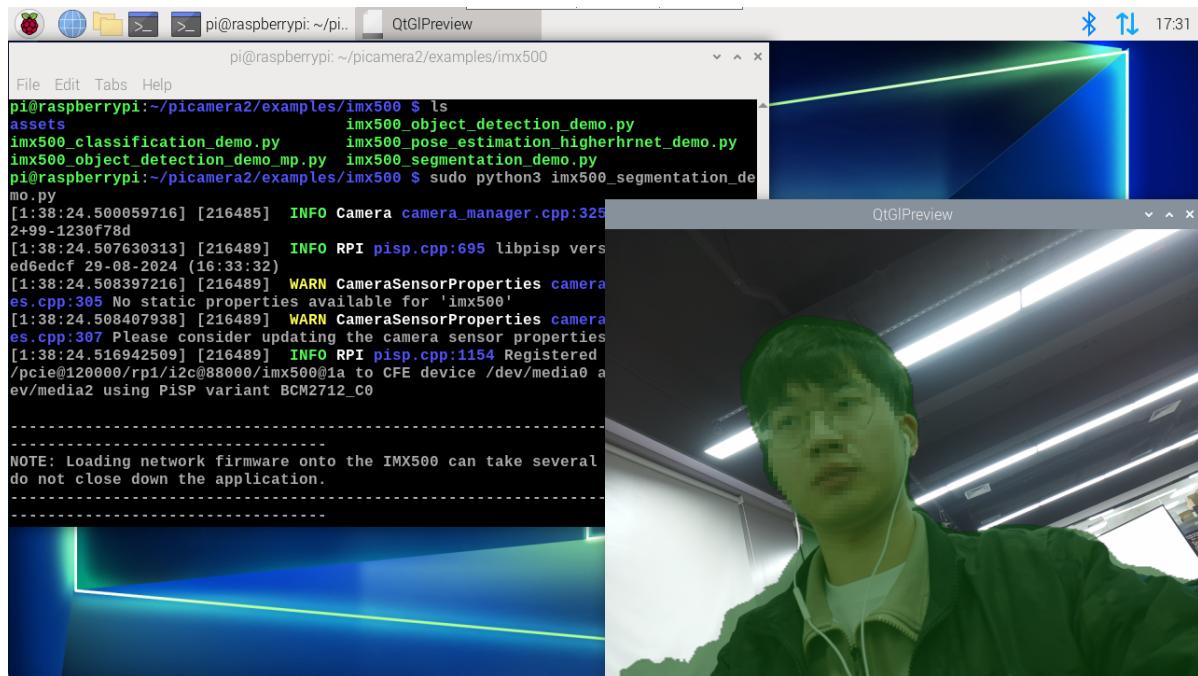
```
sudo python imx500_pose_estimation_higherhrnet_demo.py
```



Use the Ctrl+c shortcut key in the terminal to close the program.

Object segmentation

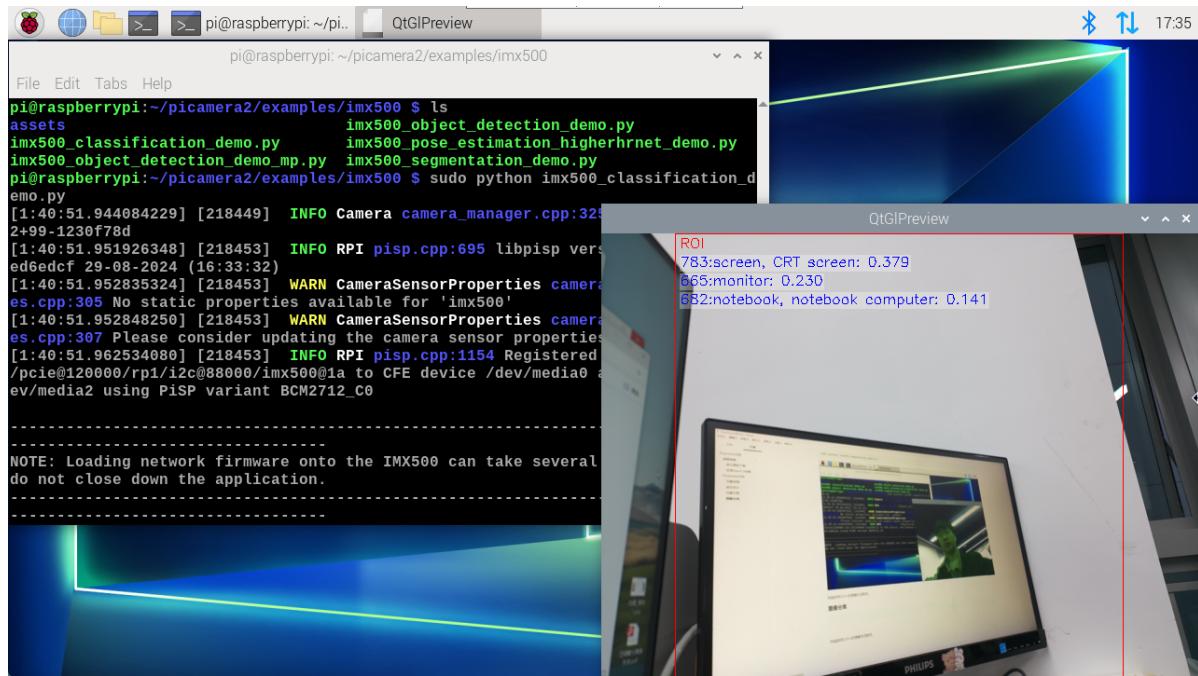
```
sudo python3 imx500_segmentation_demo.py
```



Use the Ctrl+c shortcut key in the terminal to close the program.

Image classification

```
sudo python imx500_classification_demo.py
```



Use Ctrl+c shortcut key to close the program in the terminal.