CLI Usage

Note: If using the docker container from the factory image, you don't need to rebuild the environment. The environment is already set up, you just need to enter the docker according to the previous tutorial and run the corresponding function commands to use it.

1. Download Source Code

⚠ This step can be skipped if you are using the docker container from the factory image.

```
git clone https://github.com/ultralytics/ultralytics.git
```

2. Use CLI for Prediction

CLI (Command-Line Interface) is a way for users to interact with computers or software programs. Users run programs or execute tasks by typing text commands, rather than clicking icons or buttons through a graphical user interface (GUI).

2.1. CLI Usage Syntax

```
yolo TASK MODE ARGS

Where   TASK (optional) is one of [detect, segment, classify, pose, obb]
        MODE (required) is one of [train, val, predict, export, track,
benchmark]
        ARGS (optional) are any number of custom 'arg=value' pairs like
'imgsz=320' that override defaults.
```

2.2. Image Prediction

Use yolo11n.pt to predict images that come with the ultralytics project: If the system cannot find the corresponding model file in the directory where the command is run, it will automatically download (if download fails, you can copy the model in yourself)

Enter the project folder:

```
cd ~/ultralytics/ultralytics
```

Use yolo11n.pt to detect images in the target folder and output results:

```
#Photo path can be customized to your own photo
yolo predict model=yolo11n source='/root/ultralytics/ultralytics/assets/bus.jpg'
```
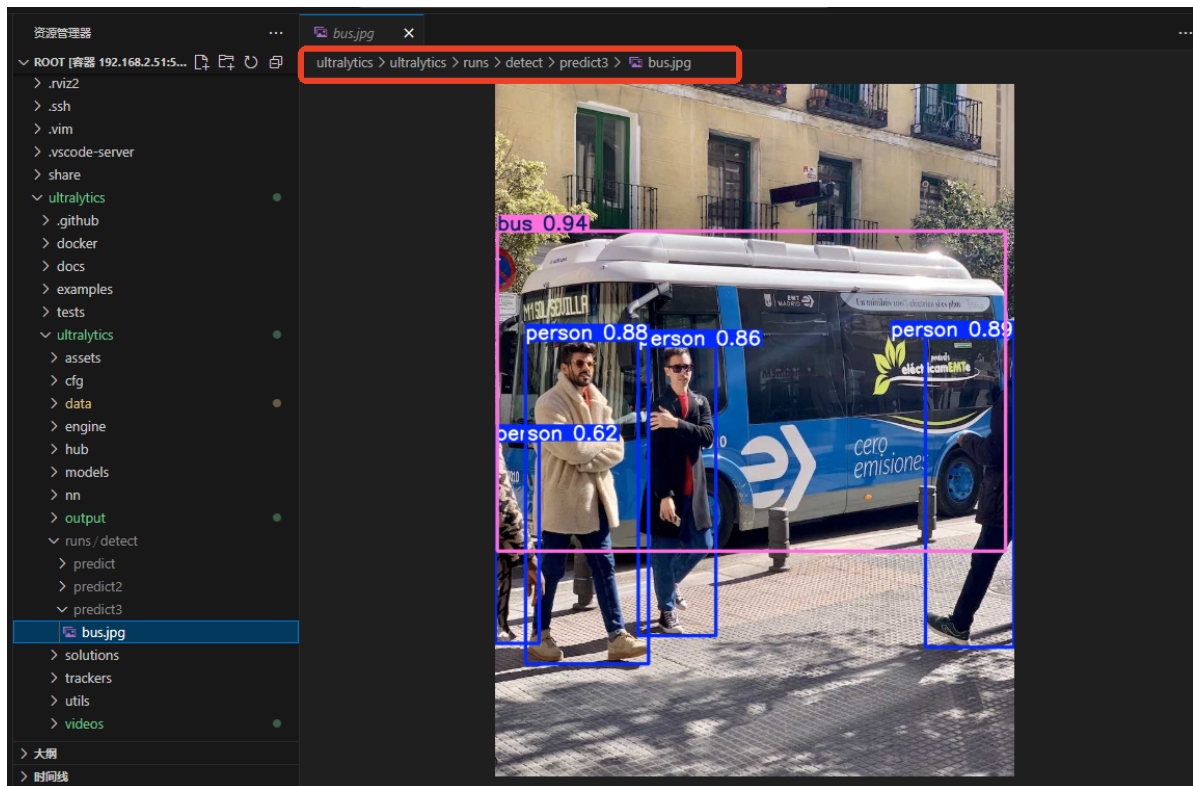

The appearance of the above image indicates successful prediction.

Effect Preview

yolo recognition output image location:

```
/root/ultralytics/ultralytics/runs/detect
```

Each time you run, the predict under this folder automatically increments by 1

2.3. Video Prediction

Use yolo11n.pt to predict videos in the ultralytics project (not videos that come with ultralytics): If the system cannot find the corresponding model file in the directory where the command is run, it will automatically download (if download fails, you can copy the model in yourself)

Enter the project folder:

```
cd ~/ultralytics/ultralytics
```

Use yolo11n.pt to detect videos in the target folder and output results:

```
#Video path can be customized to your own path
yolo predict model=yolo11n
source='/root/ultralytics/ultralytics/videos/people_animals.mp4'
```

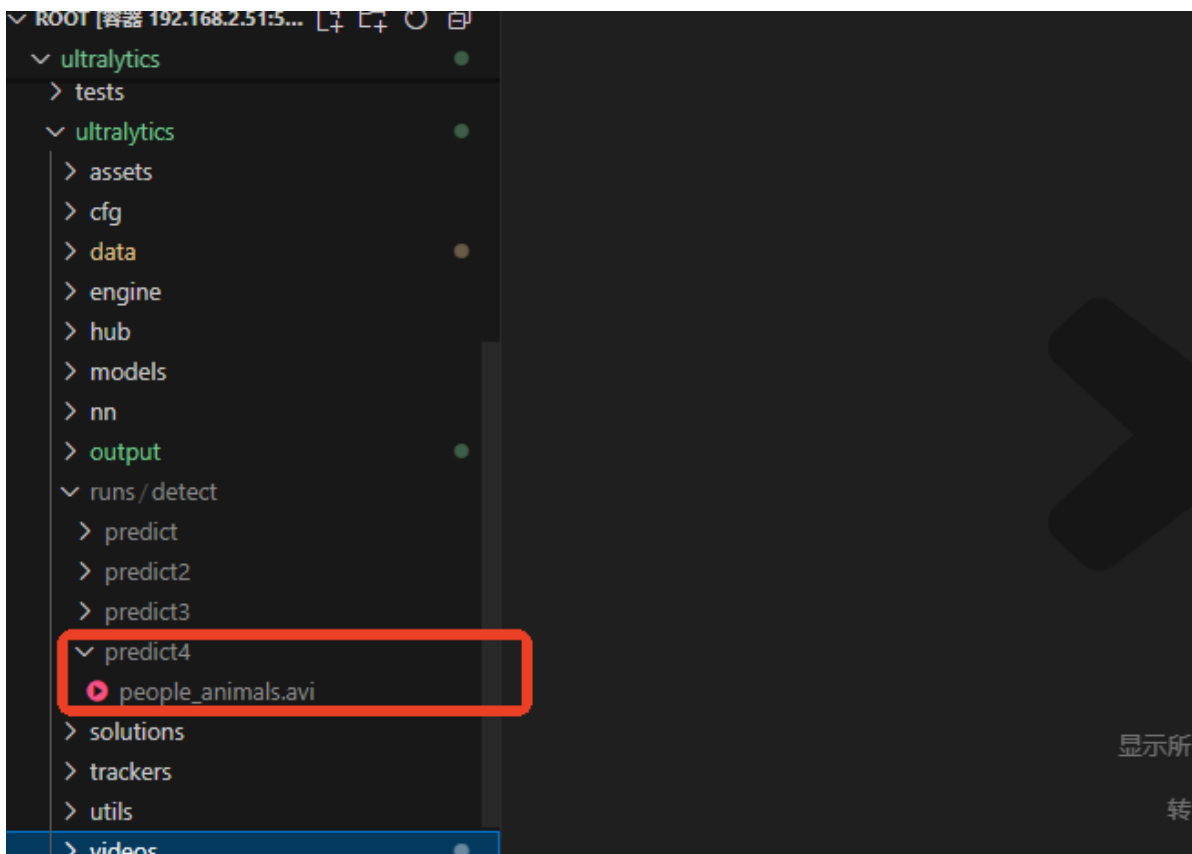The appearance of the above image indicates successful prediction.

Effect Preview

yolo recognition output video location:

```
/root/ultralytics/ultralytics/runs/detect/
```

Each time you run, the predict under this folder automatically increments by 1

You can use ffmpeg to view videos, use the following command to install:
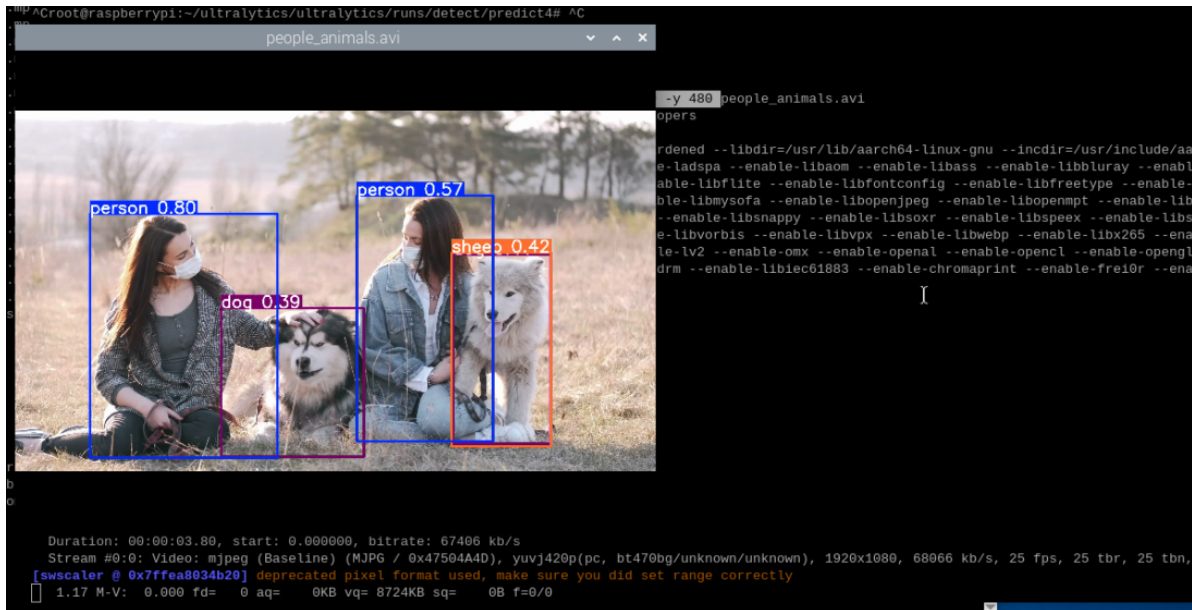
```
sudo apt update
sudo apt install ffmpeg -y
```

Play video:

```
#Need to go to the corresponding path, here is people_animals.avi in the predict4
folder
cd /root/ultralytics/ultralytics/runs/detect/predict4/
#Play video
ffplay -x 640 -y 480 people_animals.avi
```


2.4. Real-time Prediction

⚠ **This function only supports USB cameras, depth cameras are not suitable for CLI**

Use yolo11n.pt to predict USB camera feed. If the system cannot find the corresponding model file in the directory where the command is run, it will automatically download

Enter the project folder:

```
cd ~/ultralytics/ultralytics
```

Use yolo11n.onnx to detect camera feed and output results:

```
yolo predict model=yolo11n.onnx source=0 save=False show # Object detection
# Instance segmentation: yolo predict model=yolo11n-seg.onnx source=0 save=False
show
# Image classification: yolo predict model=yolo11n-cls.onnx source=0 save=False
show
# Pose estimation: yolo predict model=yolo11n-pose.onnx source=0 save=False show
# Oriented object detection: yolo predict model=yolo11n-obb.onnx source=0
save=False show
```

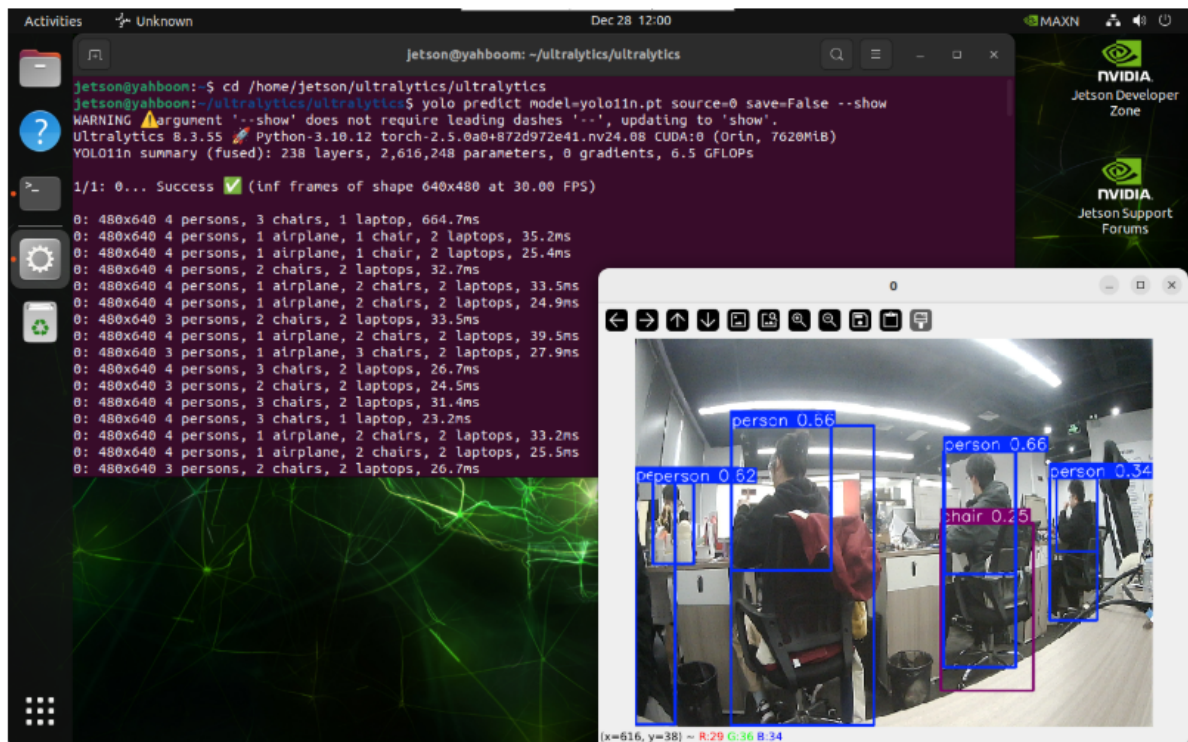Click on the terminal and press "Ctrl + C" shortcut key to terminate the program!

> **Parameter Description**

`model` : Specify YOLO model

`source` : Specify recognition source: multiple cameras can switch numbers

`save=False` : Disable saving results

`show` : Real-time display

References

https://github.com/ultralytics/ultralytics

https://docs.ultralytics.com/usage/cli/