

Create Conda Environment

```
conda create -n yolov8 python=3.9
```

```
conda activate yolov8
```

```
pip install ultralytics
```

```
cls
```

```
yolov8>>python
```

```
>>import torch
```

```
>>torch.cuda.is_available()
```

False

```
>>torch.__version__
```

```
'1.13.1+cpu'
```

```
(yolov8) C:\Users\zeeshan>python
Python 3.9.15 (main, Nov 24 2022, 14:39:17) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> import torch
>>> torch.cuda.is_available()
False
>>> torch.__version__
'1.13.0+cpu'
>>>
```

Install CUDA to run yolov5 on GPU.

The screenshot shows the PyTorch website's 'Get Started' page. The left sidebar contains a navigation menu with links to Shortcuts, Prerequisites, Supported Windows Distributions, Python, Package Manager, Installation, Anaconda, pip, Verification, Building from source, and Prerequisites. The main content area features a table for selecting the PyTorch build. The table has columns for 'PyTorch Build' (Stable (1.13.1) and Preview (Nightly)) and rows for 'Your OS' (Linux, Mac, Windows), 'Package' (Conda, Pip, LibTorch, Source), 'Language' (Python, C++ / Java), and 'Compute Platform' (CUDA 11.6, CUDA 11.7, ROCm 5.2, CPU). The 'Stable (1.13.1)' column is highlighted in orange. Below the table, a red box highlights the command to run in a terminal: `pip3 install torch torchvision torchaudio --extra-index-url https://download.pytorch.org/whl/cu117`. A note at the bottom states: 'NOTE: PyTorch LTS has been deprecated. For more information, see this blog.' An 'Activate Windows' watermark is visible in the bottom right corner.

PyTorch Build	Stable (1.13.1)	Preview (Nightly)
Your OS	Linux	Mac
Package	Conda	Pip
Language	Python	C++ / Java
Compute Platform	CUDA 11.6	CUDA 11.7

Run this Command:

```
pip3 install torch torchvision torchaudio --extra-index-url https://download.pytorch.org/whl/cu117
```

NOTE: PyTorch LTS has been deprecated. For more information, see this blog.

But I don't have GPU so I will use yolov8 on CPU. If you have GPU then install CUDA using the above mentioned line in the screenshot.

Object Detection:

Here I am using Nano model (YOLOv8n.pt)

Model	size (pixels)	mAP ^{val} 50-95	Speed CPU ONNX (ms)	Speed A100 TensorRT (ms)	params (M)	FLOPs (B)
YOLOv8n	640	37.3	80.4	0.99	3.2	8.7
YOLOv8s	640	44.9	128.4	1.20	11.2	28.6
YOLOv8m	640	50.2	234.7	1.83	25.9	78.9
YOLOv8l	640	52.9	375.2	2.39	43.7	165.2
YOLOv8x	640	53.9	479.1	3.53	68.2	257.8

```
>>yolo task=detect mode=predict model=yolov8n.pt source=img.jpg
```

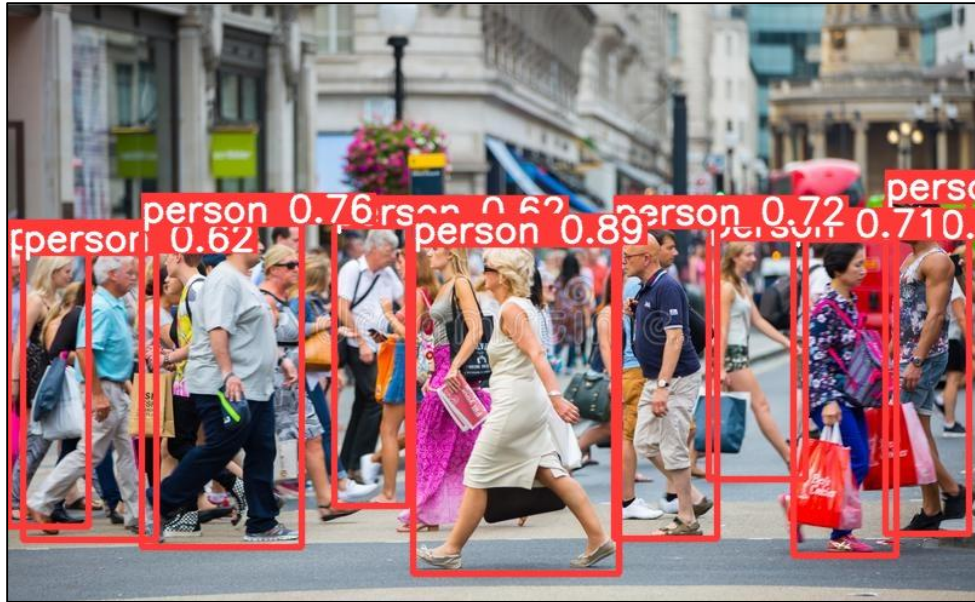
Result: C:\Users\zeeshan\runs\detect\predict



Set the confidence level at 0.5:

```
>> yolo task=detect mode=predict model=yolov8n.pt source=1.jpg conf=0.5
```

Result: C:\Users\zeeshan\runs\detect\predict



Show output in real-time:

```
>> yolo task=detect mode=predict model=yolov8n.pt source=1.jpg conf=0.5 show=true
```

It will show output at real-time and it will close automatically in 1 millisecond.

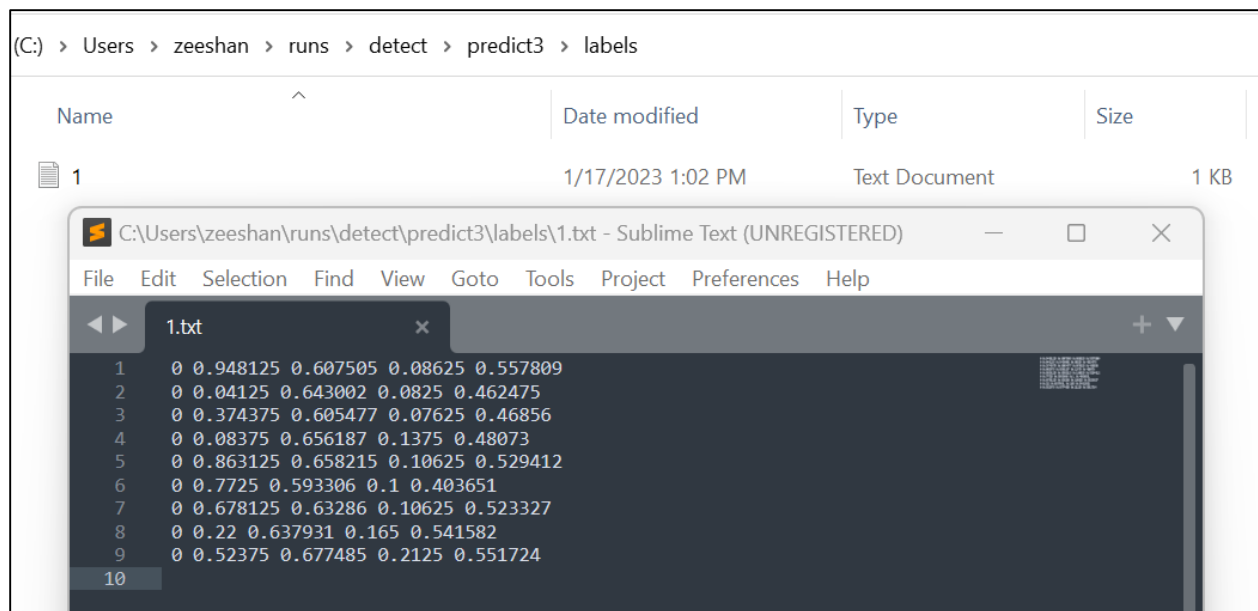


Save the bounding boxes information:

```
>>yolo task=detect mode=predict model=yolov8n.pt source=1.jpg conf=0.5 save_txt=true
```

It will save the image and its bounding boxes information.

Result: C:\Users\zeeshan\runs\detect\predict3\labels



Save cropped objects:

```
>>yolo task=detect mode=predict model=yolov8n.pt source=1.jpg conf=0.5 save_crop=true
```

Results: C:\Users\zeeshan\runs\detect\predict4

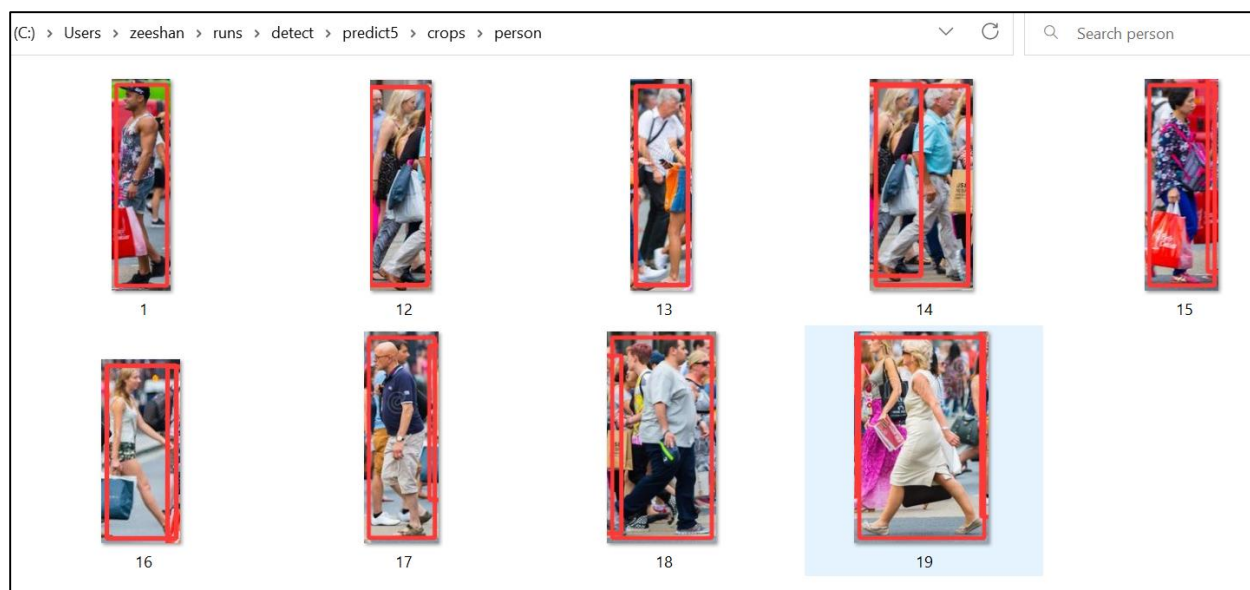


Remove the label and confidence level:

We will use two flags. (hide_labels=true & hide_conf=true)

```
>yolo task=detect mode=predict model=yolov8n.pt source=1.jpg conf=0.5 save_crop=true
hide_labels=true hide_conf=true
```

Results:



Object Detection on webcam:

Now I am using small model (YOLOv8s.pt)

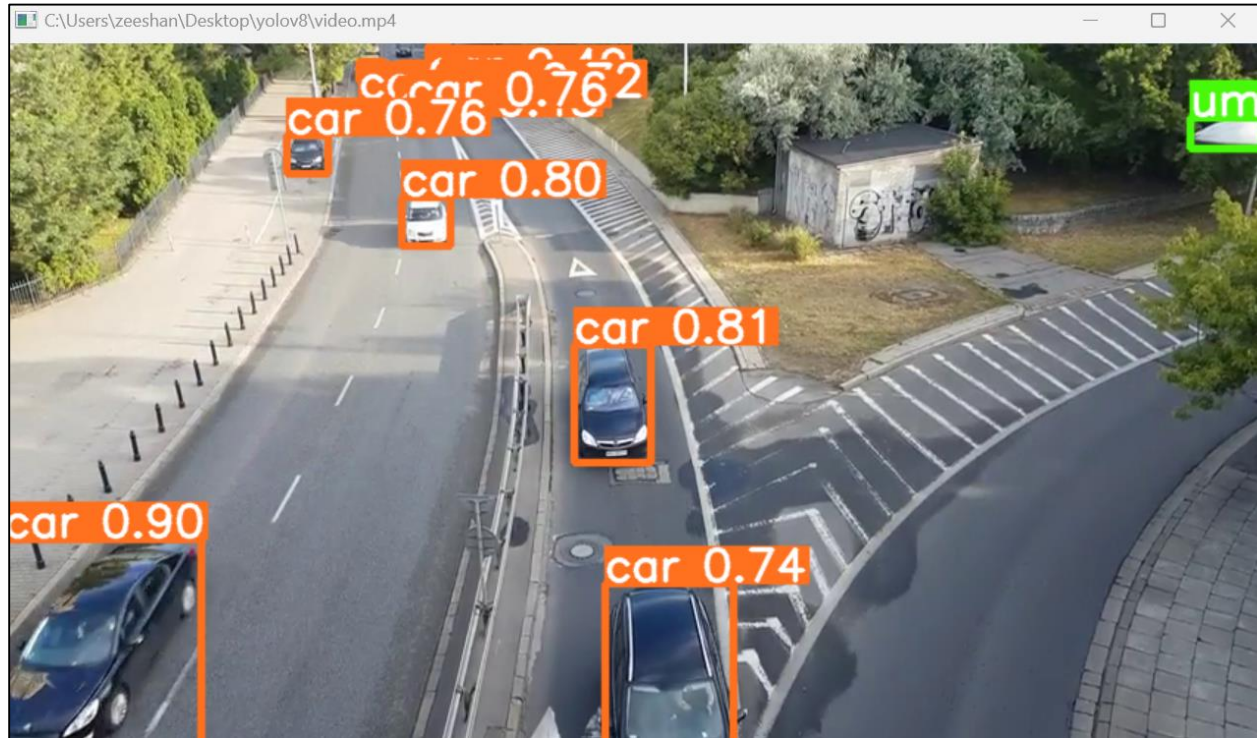
```
>>yolo task=detect mode=predict model=yolov8s.pt source=0
```

Model	size (pixels)	mAP ^{val} 50-95	Speed CPU ONNX (ms)	Speed A100 TensorRT (ms)	params (M)	FLOPs (B)
YOLOv8n	640	37.3	80.4	0.99	3.2	8.7
YOLOv8s	640	44.9	128.4	1.20	11.2	28.6
YOLOv8m	640	50.2	234.7	1.83	25.9	78.9
YOLOv8l	640	52.9	375.2	2.39	43.7	165.2
YOLOv8x	640	53.9	479.1	3.53	68.2	257.8

Object Detection on MP4 Video:

```
>>yolo task=detect mode=predict model=yolov8s.pt source=video.mp4 show=true
```

Result:



Object Detection on directory:

```
yolo task=detect mode=predict model=yolov8s.pt source='C:\Users\zeeshan\Desktop\yolov8'
```

It will save the results in one go.

Result:



Image Segmentation using YOLO



v8



Image Classification

Export models into ONNX and TFlite