

```

from huggingface_hub import hf_hub_download
path = hf_hub_download(
    repo_id = "rupesh002/pothole_dataset_2",
    repo_type = "dataset",
    filename = "pothole_yolo_dataset.zip"
)

/usr/local/lib/python3.12/dist-packages/huggingface_hub/utils/_auth.py:94: UserWarning:
The secret `HF_TOKEN` does not exist in your Colab secrets.
To authenticate with the Hugging Face Hub, create a token in your settings tab (https://huggingface.co/settings/tokens), set
You will be able to reuse this secret in all of your notebooks.
Please note that authentication is recommended but still optional to access public models or datasets.
    warnings.warn(
pothole_yolo_dataset.zip: 100%                                         351M/351M [00:04<00:00, 201MB/s]

```

```
!unzip -q {path} -d /content/pothole_dataset
```

```
!pip install ultralytics
```

```

Collecting ultralytics
  Downloading ultralytics-8.3.222-py3-none-any.whl.metadata (37 kB)
Requirement already satisfied: numpy>=1.23.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics) (2.0.2)
Requirement already satisfied: matplotlib>=3.3.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics) (3.10.0)
Requirement already satisfied: opencv-python>=4.6.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics) (4.12.0.88)
Requirement already satisfied: pillow>=7.1.2 in /usr/local/lib/python3.12/dist-packages (from ultralytics) (11.3.0)
Requirement already satisfied: pyyaml>=5.3.1 in /usr/local/lib/python3.12/dist-packages (from ultralytics) (6.0.3)
Requirement already satisfied: requests>=2.23.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics) (2.32.4)
Requirement already satisfied: scipy>=1.4.1 in /usr/local/lib/python3.12/dist-packages (from ultralytics) (1.16.2)
Requirement already satisfied: torch>=1.8.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics) (2.8.0+cu126)
Requirement already satisfied: torchvision>=0.9.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics) (0.23.0+cu126)
Requirement already satisfied: psutil in /usr/local/lib/python3.12/dist-packages (from ultralytics) (5.9.5)
Requirement already satisfied: polars in /usr/local/lib/python3.12/dist-packages (from ultralytics) (1.25.2)
Collecting ultralytics-thop>=2.0.0 (from ultralytics)
  Downloading ultralytics_thop-2.0.17-py3-none-any.whl.metadata (14 kB)
Requirement already satisfied: contourpy>=1.0.1 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics) (1.1.0)
Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics) (0.17.0)
Requirement already satisfied: fonttools>=4.22.0 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics) (4.22.0)
Requirement already satisfied: kiwisolver>=1.3.1 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics) (1.3.1)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics) (20.4.0)
Requirement already satisfied: pyparsing>=2.3.1 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics) (2.3.1)
Requirement already satisfied: python-dateutil>=2.7 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics) (2.8.1)
Requirement already satisfied: charset_normalizer<4,>=2 in /usr/local/lib/python3.12/dist-packages (from requests>=2.23.0->ultralytics) (3.2.0)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.12/dist-packages (from requests>=2.23.0->ultralytics) (3.3.0)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.12/dist-packages (from requests>=2.23.0->ultralytics) (2.4.1)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.12/dist-packages (from requests>=2.23.0->ultralytics) (2023.1.17)
Requirement already satisfied: filelock in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (3.20.0)
Requirement already satisfied: typing-extensions>=4.10.0 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (4.10.0)
Requirement already satisfied: setuptools in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (57.2.0)
Requirement already satisfied: sympy>=1.13.3 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (1.17.0)
Requirement already satisfied: networkx in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (3.5)
Requirement already satisfied: jinja2 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (3.1.6)
Requirement already satisfied: fsspec in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (2025.3.0)
Requirement already satisfied: nvidia-cuda-nvrtc-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (12.6.77)
Requirement already satisfied: nvidia-cuda-runtime-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (12.6.77)
Requirement already satisfied: nvidia-cuda-cupti-cu12==12.6.80 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (12.6.80)
Requirement already satisfied: nvidia-cudnn-cu12==9.10.2.21 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (9.10.2.21)
Requirement already satisfied: nvidia-cublas-cu12==12.6.4.1 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (12.6.4.1)
Requirement already satisfied: nvidia-cufft-cu12==11.3.0.4 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (11.3.0.4)
Requirement already satisfied: nvidia-curand-cu12==10.3.7.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (10.3.7.77)
Requirement already satisfied: nvidia-cusolver-cu12==11.7.1.2 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (11.7.1.2)
Requirement already satisfied: nvidia-cusparse-cu12==12.5.4.2 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (12.5.4.2)
Requirement already satisfied: nvidia-cusparseelt-cu12==0.7.1 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (0.7.1)
Requirement already satisfied: nvidia-nccl-cu12==2.27.3 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (2.27.3)
Requirement already satisfied: nvidia-nvtx-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (12.6.77)
Requirement already satisfied: nvidia-nvjitlink-cu12==12.6.85 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (12.6.85)
Requirement already satisfied: nvidia-cufile-cu12==1.11.1.6 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (1.11.1.6)
Requirement already satisfied: triton==3.4.0 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics) (3.4.0)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.12/dist-packages (from python-dateutil>=2.7->matplotlib) (1.16.0)
Requirement already satisfied: mpmath<1.4,>=1.1.0 in /usr/local/lib/python3.12/dist-packages (from sympy>=1.13.3->torch>=1.8.0->ultralytics) (1.1.0)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.12/dist-packages (from jinja2->torch>=1.8.0->ultralytics) (2.0.1)
Downloading ultralytics-8.3.222-py3-none-any.whl (1.1 MB)
  1.1/1.1 MB 34.6 MB/s eta 0:00:00

```

Downloading ultralytics_thop-2.0.17-py3-none-any.whl (28 kB)

Installing collected packages: ultralytics-thop, ultralytics

Successfully installed ultralytics-8.3.222 ultralytics-thop-2.0.17

```
!ls /content/pothole_dataset/pothole_yolo_dataset/train/images | head
!ls /content/pothole_dataset/pothole_yolo_dataset/valid/images | head
```

```
potholes0.png
potholes100.png
potholes101.png
potholes102.png
potholes103.png
potholes104.png
potholes105.png
potholes106.png
potholes107.png
potholes108.png
potholes116.png
potholes11.png
potholes120.png
potholes123.png
potholes124.png
potholes126.png
potholes130.png
potholes131.png
potholes139.png
potholes13.png
```

```
!ls -R /content/pothole_dataset/pothole_yolo_dataset/ |head
```

```
/content/pothole_dataset/pothole_yolo_dataset/:
data.yaml
train
valid

/content/pothole_dataset/pothole_yolo_dataset/train:
images
labels

/content/pothole_dataset/pothole_yolo_dataset/train/images:
```

```
!ls -R /content/pothole_dataset/pothole_yolo_dataset/data.yaml |head
```

```
/content/pothole_dataset/pothole_yolo_dataset/data.yaml
```

```
!yolo detect train \
  data="/content/pothole_dataset/pothole_yolo_dataset/data.yaml" \
  model=yolov8m.pt \
  epochs=120 \
  imgsz=1280 \
  batch=8 \
  hsv_h=0.02 hsv_s=0.7 hsv_v=0.4 \
  degrees=10 translate=0.1 scale=0.8 fliplr=0.5 mosaic=1.0 \
  patience=50 \
  name=pothole_strong
```

```
Ultralytics 8.3.222 🚀 Python-3.12.12 torch-2.8.0+cu126 CUDA:0 (Tesla T4, 15095MiB)
engine/trainer: agnostic_nms=False, amp=True, augment=False, auto_augment=randaugment, batch=8, bgr=0.0, box=7.5, cache=False
Downloading https://ultralytics.com/assets/Arial.ttf to '/root/.config/Ultralytics/Arial.ttf': 100% ━━━━━━━━━━ 755.1KB 2
Overriding model.yaml nc=80 with nc=1
```

	from	n	params	module	arguments	
0		-1	1	1392	ultralytics.nn.modules.conv.Conv	[3, 48, 3, 2]
1		-1	1	41664	ultralytics.nn.modules.conv.Conv	[48, 96, 3, 2]
2		-1	2	111360	ultralytics.nn.modules.block.C2f	[96, 96, 2, True]
3		-1	1	166272	ultralytics.nn.modules.conv.Conv	[96, 192, 3, 2]
4		-1	4	813312	ultralytics.nn.modules.block.C2f	[192, 192, 4, True]
5		-1	1	664320	ultralytics.nn.modules.conv.Conv	[192, 384, 3, 2]
6		-1	4	3248640	ultralytics.nn.modules.block.C2f	[384, 384, 4, True]
7		-1	1	1991808	ultralytics.nn.modules.conv.Conv	[384, 576, 3, 2]
8		-1	2	3985920	ultralytics.nn.modules.block.C2f	[576, 576, 2, True]
9		-1	1	831168	ultralytics.nn.modules.block.SPPF	[576, 576, 5]
10		-1	1	0	torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
11		[-1, 6]	1	0	ultralytics.nn.modules.conv.Concat	[1]
12		-1	2	1993728	ultralytics.nn.modules.block.C2f	[960, 384, 2]
13		-1	1	0	torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
14		[-1, 4]	1	0	ultralytics.nn.modules.conv.Concat	[1]
15		-1	2	517632	ultralytics.nn.modules.block.C2f	[576, 192, 2]
16		-1	1	332160	ultralytics.nn.modules.conv.Conv	[192, 192, 3, 2]
17		[-1, 12]	1	0	ultralytics.nn.modules.conv.Concat	[1]
18		-1	2	1846272	ultralytics.nn.modules.block.C2f	[576, 384, 2]
19		-1	1	1327872	ultralytics.nn.modules.conv.Conv	[384, 384, 3, 2]
20		[-1, 9]	1	0	ultralytics.nn.modules.conv.Concat	[1]
21		-1	2	4207104	ultralytics.nn.modules.block.C2f	[960, 576, 2]
22		[15, 18, 21]	1	3776275	ultralytics.nn.modules.head.Detect	[1, [192, 384, 576]]

Model summary: 169 layers, 25,856,899 parameters, 25,856,883 gradients, 79.1 GFLOPs

```

Transferred 469/475 items from pretrained weights
Freezing layer 'model.22.dfl.conv.weight'
AMP: running Automatic Mixed Precision (AMP) checks...
Downloading https://github.com/ultralytics/assets/releases/download/v8.3.0/yolo11n.pt to 'yolo11n.pt': 100% ━━━━━━━━ 5
AMP: checks passed ✓
train: Fast image access ✓ (ping: 0.0±0.0 ms, read: 3310.1±814.4 MB/s, size: 353.2 KB)
train: Scanning /content/pothole_dataset/pothole_yolo_dataset/train/labels... 532 images, 0 backgrounds, 0 corrupt: 100% -
train: New cache created: /content/pothole_dataset/pothole_yolo_dataset/train/labels.cache
albumentations: Blur(p=0.01, blur_limit=(3, 7)), MedianBlur(p=0.01, blur_limit=(3, 7)), ToGray(p=0.01, method='weighted_avg')
val: Fast image access ✓ (ping: 0.0±0.0 ms, read: 1514.2±1129.2 MB/s, size: 255.5 KB)
val: Scanning /content/pothole_dataset/pothole_yolo_dataset/valid/labels... 133 images, 0 backgrounds, 0 corrupt: 100% -
val: New cache created: /content/pothole_dataset/pothole_yolo_dataset/valid/labels.cache
Plotting labels to /content/runs/detect/pothole_strong2/labels.jpg...
optimizer: 'optimizer=auto' found, ignoring 'lr0=0.01' and 'momentum=0.937' and determining best 'optimizer', 'lr0' and 'momentum'
optimizer: AdamW(lr=0.002, momentum=0.9) with parameter groups 77 weight(decay=0.0), 84 weight(decay=0.0005), 83 bias(deca
Image sizes 1280 train, 1280 val
Using 2 dataloader workers
Logging results to /content/runs/detect/pothole_strong2
Starting training for 120 epochs...

```

Epoch	GPU_mem	box_loss	cls_loss	dfl_loss	Instances	Size
1/120	12.8G	1.973	2.994	2.066	23	1280: 100% ━━━━━━━━ 67/67 1.0it/s 1:06
	Class	Images	Instances	Box(P R)		mAP50 mAP50-95): 100% ━━━━━━ 9/9 1.4it/s 6.
	all	133	324	0.0276	0.309	0.0169 0.00564

Epoch	GPU_mem	box_loss	cls_loss	dfl_loss	Instances	Size
120/120	12.8G	0.000	0.000	0.000	0	1280 100% ━━━━━━ 0/0 0.0it/s 0:00

```

from google.colab import files
files.download('/content/runs/detect/pothole_strong2/weights/best.pt')
files.download('/content/runs/detect/pothole_strong2/weights/last.pt')

```

```
files.download('/content/runs/detect/pothole_strong2/weights/last.pt')
```

```

!yolo detect train \
  data="/content/pothole_dataset/pothole_yolo_dataset/data.yaml" \
  model="/content/runs/detect/pothole_strong2/weights/best.pt" \
  epochs=50 \
  batch=4 \
  imgsz=1280 \
  lr0=0.005 \
  name=pothole_finetuned

```

```

Ultralytics 8.3.222 🚀 Python-3.12.12 torch-2.8.0+cu126 CUDA:0 (Tesla T4, 15095MiB)
engine/trainer: agnostic_nms=False, amp=True, augment=False, auto_augment=randaugment, batch=4, bgr=0.0, box=7.5, cache=Fa

```

from	n	params	module	arguments
0	-1	1392	ultralytics.nn.modules.conv.Conv	[3, 48, 3, 2]
1	-1	41664	ultralytics.nn.modules.conv.Conv	[48, 96, 3, 2]
2	-1	2 111360	ultralytics.nn.modules.block.C2f	[96, 96, 2, True]
3	-1	166272	ultralytics.nn.modules.conv.Conv	[96, 192, 3, 2]
4	-1	813312	ultralytics.nn.modules.block.C2f	[192, 192, 4, True]
5	-1	664320	ultralytics.nn.modules.conv.Conv	[192, 384, 3, 2]
6	-1	3248640	ultralytics.nn.modules.block.C2f	[384, 384, 4, True]
7	-1	1991808	ultralytics.nn.modules.conv.Conv	[384, 576, 3, 2]
8	-1	2 3985920	ultralytics.nn.modules.block.C2f	[576, 576, 2, True]
9	-1	831168	ultralytics.nn.modules.block.SPPF	[576, 576, 5]
10	-1	1 0	torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
11	[-1, 6]	1 0	ultralytics.nn.modules.conv.Concat	[1]
12	-1	2 1993728	ultralytics.nn.modules.block.C2f	[960, 384, 2]
13	-1	1 0	torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
14	[-1, 4]	1 0	ultralytics.nn.modules.conv.Concat	[1]
15	-1	2 517632	ultralytics.nn.modules.block.C2f	[576, 192, 2]
16	-1	1 332160	ultralytics.nn.modules.conv.Conv	[192, 192, 3, 2]
17	[-1, 12]	1 0	ultralytics.nn.modules.conv.Concat	[1]
18	-1	2 1846272	ultralytics.nn.modules.block.C2f	[576, 384, 2]
19	-1	1 1327872	ultralytics.nn.modules.conv.Conv	[384, 384, 3, 2]
20	[-1, 9]	1 0	ultralytics.nn.modules.conv.Concat	[1]
21	-1	2 4207104	ultralytics.nn.modules.block.C2f	[960, 576, 2]
22	[15, 18, 21]	1 3776275	ultralytics.nn.modules.head.Detect	[1, [192, 384, 576]]

Model summary: 169 layers, 25,856,899 parameters, 25,856,883 gradients, 79.1 GFLOPs

```

Transferred 475/475 items from pretrained weights
Freezing layer 'model.22.dfl.conv.weight'
AMP: running Automatic Mixed Precision (AMP) checks...
AMP: checks passed ✓
train: Fast image access ✓ (ping: 0.0±0.0 ms, read: 3427.4±941.0 MB/s, size: 353.2 KB)
train: Scanning /content/pothole_dataset/pothole_yolo_dataset/train/labels.cache... 532 images, 0 backgrounds, 0 corrupt: 100% -
albumentations: Blur(p=0.01, blur_limit=(3, 7)), MedianBlur(p=0.01, blur_limit=(3, 7)), ToGray(p=0.01, method='weighted_avg')
val: Fast image access ✓ (ping: 0.0±0.0 ms, read: 1693.5±1632.6 MB/s, size: 255.5 KB)
val: Scanning /content/pothole_dataset/pothole_yolo_dataset/valid/labels.cache... 133 images, 0 backgrounds, 0 corrupt: 100% -
Plotting labels to /content/runs/detect/pothole_finetuned/labels.jpg...

```

```
optimizer: 'optimizer=auto' found, ignoring 'lr0=0.005' and 'momentum=0.937' and determining best 'optimizer', 'lr0' and 'optimizer': AdamW(lr=0.002, momentum=0.9) with parameter groups 77 weight(decay=0.0), 84 weight(decay=0.0005), 83 bias(deca
Image sizes 1280 train, 1280 val
Using 2 dataloader workers
Logging results to /content/runs/detect/pothole_finetuned
Starting training for 50 epochs...
```

Epoch	GPU_mem	box_loss	cls_loss	dfl_loss	Instances	Size
1/50	6.59G	1.12	0.8259	1.398	13	1280: 100% 133/133 1.9it/s 1:09
	Class	Images	Instances	Box(P	R	mAP50 mAP50-95): 100% 17/17 2.9it/s
	all	133	324	0.785	0.657	0.74 0.441
Epoch	GPU_mem	box_loss	cls_loss	dfl_loss	Instances	Size
2/50	6.9G	1.155	1.032	1.435	9	1280: 100% 133/133 1.9it/s 1:10
	Class	Images	Instances	Box(P	R	mAP50 mAP50-95): 100% 17/17 3.1it/s
	all	133	324	0.685	0.614	0.677 0.393
Epoch	GPU_mem	box_loss	cls_loss	dfl_loss	Instances	Size

```
files.download('/content/runs/detect/pothole_finetuned/weights/best.pt')
```

```
files.download('/content/runs/detect/pothole_finetuned/weights/last.pt')
```

```
!yolo detect predict \
model="/content/runs/detect/pothole_finetuned/weights/best.pt" \
source="//content/Dashcam_pothole3.mp4" \
conf=0.35 \
iou=0.6 \
save=True

File "/tmp/ipython-input-3612024288.py", line 2
    model="/content/runs/detect/pothole_finetuned/weights/best.pt"
    ^
IndentationError: unexpected indent
```

```
!yolo detect predict \
model="/content/runs/detect/pothole_finetuned/weights/best.pt" \
source="//content/Dashcam_pothole2.mp4" \
conf=0.35 \
iou=0.6 \
save=True
```

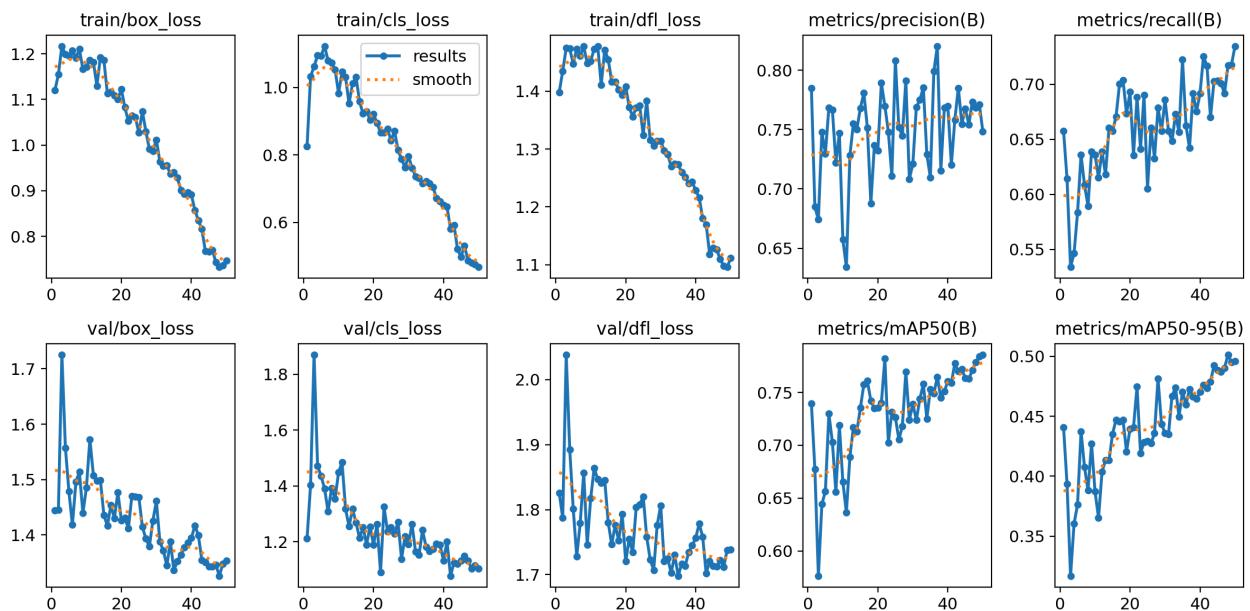
Ultralytics 8.3.222 🚀 Python-3.12.12 torch-2.8.0+cu126 CUDA:0 (Tesla T4, 15095MiB)
Model summary (fused): 92 layers, 25,840,339 parameters, 0 gradients, 78.7 GFLOPs

```
video 1/1 (frame 1/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 60.6ms
video 1/1 (frame 2/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 58.2ms
video 1/1 (frame 3/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 58.1ms
video 1/1 (frame 4/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 44.6ms
video 1/1 (frame 5/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 43.4ms
video 1/1 (frame 6/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 40.1ms
video 1/1 (frame 7/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 39.3ms
video 1/1 (frame 8/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 39.4ms
video 1/1 (frame 9/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.8ms
video 1/1 (frame 10/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.5ms
video 1/1 (frame 11/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.2ms
video 1/1 (frame 12/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.9ms
video 1/1 (frame 13/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.8ms
video 1/1 (frame 14/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.4ms
video 1/1 (frame 15/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.3ms
video 1/1 (frame 16/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.4ms
video 1/1 (frame 17/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.2ms
video 1/1 (frame 18/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.0ms
video 1/1 (frame 19/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.2ms
video 1/1 (frame 20/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.8ms
video 1/1 (frame 21/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 38.0ms
video 1/1 (frame 22/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.5ms
video 1/1 (frame 23/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.6ms
video 1/1 (frame 24/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.1ms
video 1/1 (frame 25/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.2ms
video 1/1 (frame 26/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.1ms
video 1/1 (frame 27/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.8ms
video 1/1 (frame 28/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.7ms
video 1/1 (frame 29/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.3ms
video 1/1 (frame 30/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.0ms
video 1/1 (frame 31/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.1ms
video 1/1 (frame 32/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.5ms
video 1/1 (frame 33/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.5ms
video 1/1 (frame 34/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.7ms
```

```
video 1/1 (frame 35/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.3ms
video 1/1 (frame 36/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.6ms
video 1/1 (frame 37/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.1ms
video 1/1 (frame 38/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.2ms
video 1/1 (frame 39/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.4ms
video 1/1 (frame 40/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.3ms
video 1/1 (frame 41/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.4ms
video 1/1 (frame 42/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.6ms
video 1/1 (frame 43/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.5ms
video 1/1 (frame 44/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.2ms
video 1/1 (frame 45/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 41.8ms
video 1/1 (frame 46/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.0ms
video 1/1 (frame 47/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.0ms
video 1/1 (frame 48/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.0ms
video 1/1 (frame 49/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.5ms
video 1/1 (frame 50/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.2ms
video 1/1 (frame 51/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.9ms
video 1/1 (frame 52/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 37.2ms
video 1/1 (frame 53/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 36.5ms
video 1/1 (frame 54/832) //content/Dashcam_pothole2.mp4: 736x1280 (no detections), 38.0ms
video 1/1 (frame 55/832) //content/Dashcam_nothole2.mp4: 736x1280 1 nothole. 37.7ms
```

```
files.download('/content/runs/detect/predict2/Dashcam_pothole2.avi')
```

```
from IPython.display import Image
Image(filename='/content/runs/detect/pothole_finetuned/results.png', width=2000)
```



```
!yolo detect predict \
  model="/content/runs/detect/pothole_finetuned/weights/best.pt" \
  source="/content/Dashcam_Pothole1.mp4" \
  conf=0.35 \
  iou=0.6 \
  save=True
```

Ultralytics 8.3.222 🚀 Python-3.12.12 torch-2.8.0+cu126 CUDA:0 (Tesla T4, 15095MiB)
Model summary (fused): 92 layers, 25,840,339 parameters, 0 gradients, 78.7 GFLOPs

```
video 1/1 (frame 1/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 76.7ms
video 1/1 (frame 2/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 72.4ms
video 1/1 (frame 3/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 72.4ms
video 1/1 (frame 4/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 45.7ms
video 1/1 (frame 5/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 44.8ms
video 1/1 (frame 6/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 42.1ms
video 1/1 (frame 7/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 41.6ms
video 1/1 (frame 8/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 41.4ms
video 1/1 (frame 9/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.5ms
```

```
video 1/1 (frame 10/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 38.0ms
video 1/1 (frame 11/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.3ms
video 1/1 (frame 12/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.8ms
video 1/1 (frame 13/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.8ms
video 1/1 (frame 14/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.2ms
video 1/1 (frame 15/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.3ms
video 1/1 (frame 16/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.4ms
video 1/1 (frame 17/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.2ms
video 1/1 (frame 18/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.5ms
video 1/1 (frame 19/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.3ms
video 1/1 (frame 20/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.4ms
video 1/1 (frame 21/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.9ms
video 1/1 (frame 22/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.9ms
video 1/1 (frame 23/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.3ms
video 1/1 (frame 24/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.8ms
video 1/1 (frame 25/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 38.0ms
video 1/1 (frame 26/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.7ms
video 1/1 (frame 27/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.4ms
video 1/1 (frame 28/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.6ms
video 1/1 (frame 29/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.8ms
video 1/1 (frame 30/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.7ms
video 1/1 (frame 31/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 38.0ms
video 1/1 (frame 32/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.8ms
video 1/1 (frame 33/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.0ms
video 1/1 (frame 34/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.3ms
video 1/1 (frame 35/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.3ms
video 1/1 (frame 36/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.4ms
video 1/1 (frame 37/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.7ms
video 1/1 (frame 38/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.9ms
video 1/1 (frame 39/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 41.4ms
video 1/1 (frame 40/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.0ms
video 1/1 (frame 41/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 39.5ms
video 1/1 (frame 42/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 38.8ms
video 1/1 (frame 43/814) /content/Dashcam_Pothole1.mp4: 736x1280 1 pothole, 36.4ms
video 1/1 (frame 44/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 35.4ms
video 1/1 (frame 45/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.7ms
video 1/1 (frame 46/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 38.8ms
video 1/1 (frame 47/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.8ms
video 1/1 (frame 48/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 38.4ms
video 1/1 (frame 49/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.4ms
video 1/1 (frame 50/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.6ms
video 1/1 (frame 51/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.3ms
video 1/1 (frame 52/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 37.3ms
video 1/1 (frame 53/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 36.0ms
video 1/1 (frame 54/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections), 39.7ms
video 1/1 (frame 55/814) /content/Dashcam_Pothole1.mp4: 736x1280 (no detections). 40.2ms
```

```
files.download('/content/runs/detect/predict3/Dashcam_Pothole1.avi')
```

```
from IPython.display import Image
Image(filename='/content/runs/detect/predict/Pothole-002.jpg', width=600)
```

