yolov5-visdrone

August 18, 2023

[2]:
```
!git clone https://github.com/ultralytics/yolov5  # clone
%cd yolov5
%pip install -qr requirements.txt comet_ml  # install

import torch
import utils
display = utils.notebook_init()  # checks
```

```
YOLOv5  v7.0-210-gdd10481 Python-3.10.12 torch-2.0.1+cu118 CUDA:0 (Tesla T4,
15102MiB)

Setup complete  (2 CPUs, 12.7 GB RAM, 26.3/78.2 GB disk)
```

[3]:
```
# Train YOLOv5s on visdrone for 20 epochs
!python train.py --img 640 --batch 16 --epochs 20 --data visdrone_.yaml␣
  ↪--weights yolov5s.pt --cache
```

```
train: weights=yolov5s.pt, cfg=, data=visdrone_.yaml,
hyp=data/hyps/hyp.scratch-low.yaml, epochs=20, batch_size=16, imgsz=640,
rect=False, resume=False, nosave=False, noval=False, noautoanchor=False,
noplots=False, evolve=None, bucket=, cache=ram, image_weights=False, device=,
multi_scale=False, single_cls=False, optimizer=SGD, sync_bn=False, workers=8,
project=runs/train, name=exp, exist_ok=False, quad=False, cos_lr=False,
label_smoothing=0.0, patience=100, freeze=[0], save_period=-1, seed=0,
local_rank=-1, entity=None, upload_dataset=False, bbox_interval=-1,
artifact_alias=latest
github: up to date with https://github.com/ultralytics/yolov5
YOLOv5  v7.0-210-gdd10481 Python-3.10.12 torch-2.0.1+cu118 CUDA:0 (Tesla T4,
15102MiB)

hyperparameters: lr0=0.01, lrf=0.01, momentum=0.937,
weight_decay=0.0005, warmup_epochs=3.0, warmup_momentum=0.8, warmup_bias_lr=0.1,
box=0.05, cls=0.5, cls_pw=1.0, obj=1.0, obj_pw=1.0, iou_t=0.2, anchor_t=4.0,
fl_gamma=0.0, hsv_h=0.015, hsv_s=0.7, hsv_v=0.4, degrees=0.0, translate=0.1,
scale=0.5, shear=0.0, perspective=0.0, flipud=0.0, fliplr=0.5, mosaic=1.0,
mixup=0.0, copy_paste=0.0
TensorBoard: Start with 'tensorboard --logdir runs/train', view at
http://localhost:6006/
COMET WARNING: Comet credentials have not been set. Comet will default to
```

```
offline logging. Please set your credentials to enable online logging.
COMET INFO: Using '/content/yolov5/.cometml-runs' path as
offline directory. Pass 'offline_directory' parameter into constructor or set
the 'COMET_OFFLINE_DIRECTORY' environment variable to manually choose where to
store offline experiment archives.
COMET WARNING: You are trying to log string value as a metric.
This is not recommended.
Downloading
https://github.com/ultralytics/yolov5/releases/download/v7.0/yolov5s.pt to
yolov5s.pt…
100%|      | 14.1M/14.1M [00:00<00:00, 244MB/s]

Overriding model.yaml nc=80 with nc=10

                 from  n    params  module
arguments
  0                -1  1      3520  models.common.Conv                      [3,
32, 6, 2, 2]
  1                -1  1     18560  models.common.Conv                      [32,
64, 3, 2]
  2                -1  1     18816  models.common.C3                        [64,
64, 1]
  3                -1  1     73984  models.common.Conv                      [64,
128, 3, 2]
  4                -1  2    115712  models.common.C3
[128, 128, 2]
  5                -1  1    295424  models.common.Conv
[128, 256, 3, 2]
  6                -1  3    625152  models.common.C3
[256, 256, 3]
  7                -1  1   1180672  models.common.Conv
[256, 512, 3, 2]
  8                -1  1   1182720  models.common.C3
[512, 512, 1]
  9                -1  1    656896  models.common.SPPF
[512, 512, 5]
 10                -1  1    131584  models.common.Conv
[512, 256, 1, 1]
 11                -1  1         0  torch.nn.modules.upsampling.Upsample
[None, 2, 'nearest']
 12           [-1, 6]  1         0  models.common.Concat                    [1]
 13                -1  1    361984  models.common.C3
[512, 256, 1, False]
 14                -1  1     33024  models.common.Conv
[256, 128, 1, 1]
 15                -1  1         0  torch.nn.modules.upsampling.Upsample
[None, 2, 'nearest']
 16           [-1, 4]  1         0  models.common.Concat                    [1]
```

```
 17                -1  1     90880  models.common.C3
[256, 128, 1, False]
 18                -1  1    147712  models.common.Conv
[128, 128, 3, 2]
 19          [-1, 14]  1         0  models.common.Concat                    [1]
 20                -1  1    296448  models.common.C3
[256, 256, 1, False]
 21                -1  1    590336  models.common.Conv
[256, 256, 3, 2]
 22          [-1, 10]  1         0  models.common.Concat                    [1]
 23                -1  1   1182720  models.common.C3
[512, 512, 1, False]
 24      [17, 20, 23]  1     40455  models.yolo.Detect                      [10,
[[10, 13, 16, 30, 33, 23], [30, 61, 62, 45, 59, 119], [116, 90, 156, 198, 373,
326]], [128, 256, 512]]
Model summary: 214 layers, 7046599 parameters, 7046599 gradients, 16.0 GFLOPs

Transferred 343/349 items from yolov5s.pt
AMP: checks passed
optimizer: SGD(lr=0.01) with parameter groups 57 weight(decay=0.0),
60 weight(decay=0.0005), 60 bias
albumentations: Blur(p=0.01, blur_limit=(3, 7)), MedianBlur(p=0.01,
blur_limit=(3, 7)), ToGray(p=0.01), CLAHE(p=0.01, clip_limit=(1, 4.0),
tile_grid_size=(8, 8))
train: Scanning
/content/drive/MyDrive/Visdrone_dataset/train/labels.cache… 400 images, 0
backgrounds, 0 corrupt: 100%|      | 400/400 [00:00<?, ?it/s]
train: Caching images (0.3GB ram): 100%|      | 400/400
[00:07<00:00, 53.25it/s]
val: Scanning
/content/drive/MyDrive/Visdrone_dataset/val/labels.cache… 100 images, 0
backgrounds, 0 corrupt: 100%|      | 100/100 [00:00<?, ?it/s]
val: Caching images (0.1GB ram): 100%|      | 100/100
[00:02<00:00, 44.22it/s]

AutoAnchor: 2.96 anchors/target, 0.955 Best Possible Recall (BPR).
Anchors are a poor fit to dataset  , attempting to improve…
AutoAnchor: WARNING  Extremely small objects found: 1988 of 29302
labels are <3 pixels in size
AutoAnchor: Running kmeans for 9 anchors on 29287 points…
AutoAnchor: Evolving anchors with Genetic Algorithm: fitness =
0.7676: 100%|      | 1000/1000 [00:10<00:00, 93.40it/s]
AutoAnchor: thr=0.25: 0.9996 best possible recall, 6.24 anchors
past thr
AutoAnchor: n=9, img_size=640, metric_all=0.393/0.767-mean/best,
past_thr=0.496-mean: 3,5, 4,10, 8,7, 7,15, 14,11, 13,19, 28,14, 24,28, 53,36
AutoAnchor: Done  (optional: update model *.yaml to use these
anchors in the future)
```

```
Plotting labels to runs/train/exp/labels.jpg…
Image sizes 640 train, 640 val
Using 2 dataloader workers
Logging results to runs/train/exp
Starting training for 20 epochs…

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       0/19       3.5G     0.1582     0.1112    0.06528       1860        640:
100%|      | 25/25 [00:39<00:00,  1.56s/it]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING   NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|         | 1/4 [00:09<00:29,  9.83s/it]WARNING   NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:15<00:00,  3.93s/it]
                   all        100       6823    0.00489     0.0134    0.00261
0.000648

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       1/19       3.5G     0.1407     0.1428    0.05599       1684        640:
100%|      | 25/25 [00:21<00:00,  1.17it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING   NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|         | 1/4 [00:02<00:06,  2.33s/it]WARNING   NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  50%|        | 2/4 [00:06<00:06,  3.13s/it]WARNING   NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:09<00:00,  2.25s/it]
                   all        100       6823      0.217     0.0257     0.0098
0.00235

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       2/19       3.5G     0.1319     0.1594    0.04816       2249        640:
100%|      | 25/25 [00:17<00:00,  1.43it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING   NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:08<00:00,  2.12s/it]
                   all        100       6823     0.0179      0.068     0.0158
0.00398
```

```
      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       3/19       3.5G     0.1265     0.1846    0.04431       1509        640:
100%|      | 25/25 [00:15<00:00,  1.58it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|         | 1/4 [00:02<00:07,  2.52s/it]WARNING  NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:08<00:00,  2.16s/it]
                   all        100       6823      0.541     0.0599     0.0278
0.0082

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       4/19       3.5G     0.1223     0.1971    0.04302       2055        640:
100%|      | 25/25 [00:16<00:00,  1.52it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:08<00:00,  2.15s/it]
                   all        100       6823      0.546     0.0851     0.0464
0.0159

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       5/19       3.5G     0.1207     0.2118    0.04189       2642        640:
100%|      | 25/25 [00:16<00:00,  1.47it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:06<00:00,  1.71s/it]
                   all        100       6823      0.548      0.132     0.0568
0.0191

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       6/19       3.5G     0.1177      0.203    0.04108       1528        640:
100%|      | 25/25 [00:18<00:00,  1.37it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:07<00:00,  1.97s/it]
                   all        100       6823      0.567      0.131     0.0723
0.0278

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
```

```
       7/19       3.5G     0.1182     0.2059     0.0405       1753        640:
100%|      | 25/25 [00:16<00:00,  1.49it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|         | 1/4 [00:02<00:07,  2.62s/it]WARNING  NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:07<00:00,  1.97s/it]
                   all        100       6823      0.578       0.12      0.074
0.0265

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       8/19       3.5G     0.1164     0.2118    0.04022       1723        640:
100%|      | 25/25 [00:16<00:00,  1.50it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|         | 1/4 [00:02<00:08,  2.85s/it]WARNING  NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:07<00:00,  1.87s/it]
                   all        100       6823      0.583       0.12     0.0784
0.0321

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       9/19       3.5G     0.1164      0.215    0.03985       2170        640:
100%|      | 25/25 [00:16<00:00,  1.49it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:05<00:00,  1.48s/it]
                   all        100       6823      0.594      0.152      0.096
0.0375

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      10/19       3.5G     0.1154     0.2103     0.0397       2059        640:
100%|      | 25/25 [00:16<00:00,  1.53it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:07<00:00,  1.85s/it]
                   all        100       6823      0.606      0.139     0.0977
0.0393

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      11/19       3.5G     0.1135     0.2048    0.03924       1901        640:
```

```
100%|     | 25/25 [00:16<00:00,  1.53it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:06<00:00,  1.56s/it]
                   all        100       6823      0.611       0.16      0.108
0.0449

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      12/19       3.5G     0.1134     0.2094    0.03884       2010        640:
100%|     | 25/25 [00:16<00:00,  1.49it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:06<00:00,  1.66s/it]
                   all        100       6823      0.606      0.162      0.111
0.0478

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      13/19       3.5G     0.1124     0.2054    0.03868       1886        640:
100%|     | 25/25 [00:16<00:00,  1.48it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.13s/it]
                   all        100       6823      0.611      0.156      0.114
0.049

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      14/19       3.5G     0.1124     0.2068    0.03889       1906        640:
100%|     | 25/25 [00:16<00:00,  1.49it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:06<00:00,  1.58s/it]
                   all        100       6823      0.624      0.157      0.124
0.0538

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      15/19       3.5G      0.111     0.2068    0.03862       1532        640:
100%|     | 25/25 [00:16<00:00,  1.51it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.21s/it]
                   all        100       6823      0.626      0.159      0.127
0.0556

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      16/19       3.5G     0.1119      0.211    0.03863       1912        640:
100%|     | 25/25 [00:15<00:00,  1.57it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:06<00:00,  1.53s/it]
                   all        100       6823      0.633      0.159      0.129
0.0565

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      17/19       3.5G     0.1109     0.2166    0.03821       2749        640:
```

```
100%|     | 25/25 [00:16<00:00,  1.55it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING   NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:05<00:00,  1.46s/it]
                   all        100       6823       0.63       0.15      0.125
0.0558

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      18/19       3.5G     0.1091     0.2083    0.03809       1899        640:
100%|     | 25/25 [00:16<00:00,  1.55it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.20s/it]
                   all        100       6823      0.635       0.16      0.133
0.0591

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      19/19       3.5G     0.1096      0.207    0.03798       1651        640:
100%|     | 25/25 [00:15<00:00,  1.57it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:06<00:00,  1.60s/it]
                   all        100       6823      0.636      0.159      0.135
0.0599

20 epochs completed in 0.144 hours.
Optimizer stripped from runs/train/exp/weights/last.pt, 14.4MB
Optimizer stripped from runs/train/exp/weights/best.pt, 14.4MB

Validating runs/train/exp/weights/best.pt…
Fusing layers…
Model summary: 157 layers, 7037095 parameters, 0 gradients, 15.8 GFLOPs
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|        | 1/4 [00:01<00:03,  1.16s/it]WARNING   NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  50%|       | 2/4 [00:10<00:11,  5.84s/it]WARNING   NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:25<00:00,  6.26s/it]
                   all        100       6823      0.628      0.134      0.115
0.0514
            pedestrian        100       1507      0.276      0.244      0.198
0.0706
                people        100        794      0.244       0.28      0.147
0.045
               bicycle        100        210          1          0     0.0116
0.00412
```

```
                   car        100        2796       0.373       0.558       0.519
0.289
                   van        100         363      0.0496      0.0358      0.0535
0.0308
                 truck        100          98           1           0      0.0129
0.00895
             tricycle         100         127           1           0      0.0301
0.0107
       awning-tricycle        100          75           1           0     0.00389
0.00233
                   bus        100          21           1           0           0
0
                 motor        100         832        0.34       0.226       0.174
0.0524
Results saved to runs/train/exp
COMET INFO: ----------------------------------------------------
-----------------------------------
COMET INFO: Comet.ml OfflineExperiment Summary
COMET INFO: ----------------------------------------------------
-----------------------------------
COMET INFO:   Data:
COMET INFO:     display_summary_level : 1
COMET INFO:     url                   : [OfflineExperiment will
get URL after upload]
COMET INFO:   Metrics [count] (min, max):
COMET INFO:     loss [42]                 : (4.970473766326904,
6.631621360778809)
COMET INFO:     metrics/mAP_0.5 [40]      :
(0.0026095242526751787, 0.13456853665439975)
COMET INFO:     metrics/mAP_0.5:0.95 [40] :
(0.0006483379652521484, 0.0599058265432442)
COMET INFO:     metrics/precision [40]    :
(0.004894845048109548, 0.6358866614359812)
COMET INFO:     metrics/recall [40]       :
(0.013365249943358795, 0.16225828743169193)
COMET INFO:     train/box_loss [40]       :
(0.10907253623008728, 0.15816821157932281)
COMET INFO:     train/cls_loss [40]       :
(0.03798039257526398, 0.06528083980083466)
COMET INFO:     train/obj_loss [40]       :
(0.11115473508834839, 0.21655718982219696)
COMET INFO:     val/box_loss [40]         :
(0.10104206949472427, 0.14409852027893066)
COMET INFO:     val/cls_loss [40]         :
(0.03600120544433594, 0.059261322021484375)
COMET INFO:     val/obj_loss [40]         :
(0.15044021606445312, 0.3651275634765625)
COMET INFO:     x/lr0 [40]                :
```

```
(0.0010899999999999998, 0.0784)
COMET INFO:     x/lr1 [40]                :
(0.0010899999999999998, 0.00842985)
COMET INFO:     x/lr2 [40]                :
(0.0010899999999999998, 0.00842985)
COMET INFO:   Others:
COMET INFO:     Name                         : exp
COMET INFO:     comet_log_batch_metrics      : False
COMET INFO:     comet_log_confusion_matrix   : True
COMET INFO:     comet_log_per_class_metrics  : False
COMET INFO:     comet_max_image_uploads      : 100
COMET INFO:     comet_mode                   : online
COMET INFO:     comet_model_name             : yolov5
COMET INFO:     hasNestedParams              : True
COMET INFO:     offline_experiment           : True
COMET INFO:   Parameters:
COMET INFO:     anchor_t            : 4.0
COMET INFO:     artifact_alias      : latest
COMET INFO:     batch_size          : 16
COMET INFO:     bbox_interval       : -1
COMET INFO:     box                 : 0.05
COMET INFO:     bucket              :
COMET INFO:     cfg                 :
COMET INFO:     cls                 : 0.0625
COMET INFO:     cls_pw              : 1.0
COMET INFO:     copy_paste          : 0.0
COMET INFO:     cos_lr              : False
COMET INFO:     degrees             : 0.0
COMET INFO:     device              :
COMET INFO:     entity              : 1
COMET INFO:     evolve              : 1
COMET INFO:     exist_ok            : False
COMET INFO:     fl_gamma            : 0.0
COMET INFO:     fliplr              : 0.5
COMET INFO:     flipud              : 0.0
COMET INFO:     freeze              : [0]
COMET INFO:     hsv_h               : 0.015
COMET INFO:     hsv_s               : 0.7
COMET INFO:     hsv_v               : 0.4
COMET INFO:     hyp|anchor_t        : 4.0
COMET INFO:     hyp|box             : 0.05
COMET INFO:     hyp|cls             : 0.5
COMET INFO:     hyp|cls_pw          : 1.0
COMET INFO:     hyp|copy_paste      : 0.0
COMET INFO:     hyp|degrees         : 0.0
COMET INFO:     hyp|fl_gamma        : 0.0
COMET INFO:     hyp|fliplr          : 0.5
COMET INFO:     hyp|flipud          : 0.0
```

```
COMET INFO:     hyp|hsv_h           : 0.015
COMET INFO:     hyp|hsv_s           : 0.7
COMET INFO:     hyp|hsv_v           : 0.4
COMET INFO:     hyp|iou_t           : 0.2
COMET INFO:     hyp|lr0             : 0.01
COMET INFO:     hyp|lrf             : 0.01
COMET INFO:     hyp|mixup           : 0.0
COMET INFO:     hyp|momentum        : 0.937
COMET INFO:     hyp|mosaic          : 1.0
COMET INFO:     hyp|obj             : 1.0
COMET INFO:     hyp|obj_pw          : 1.0
COMET INFO:     hyp|perspective     : 0.0
COMET INFO:     hyp|scale           : 0.5
COMET INFO:     hyp|shear           : 0.0
COMET INFO:     hyp|translate       : 0.1
COMET INFO:     hyp|warmup_bias_lr  : 0.1
COMET INFO:     hyp|warmup_epochs   : 3.0
COMET INFO:     hyp|warmup_momentum : 0.8
COMET INFO:     hyp|weight_decay    : 0.0005
COMET INFO:     image_weights       : False
COMET INFO:     imgsz               : 640
COMET INFO:     iou_t               : 0.2
COMET INFO:     label_smoothing     : 0.0
COMET INFO:     local_rank          : -1
COMET INFO:     lr0                 : 0.01
COMET INFO:     lrf                 : 0.01
COMET INFO:     mixup               : 0.0
COMET INFO:     momentum            : 0.937
COMET INFO:     mosaic              : 1.0
COMET INFO:     multi_scale         : False
COMET INFO:     name                : exp
COMET INFO:     noautoanchor        : False
COMET INFO:     noplots             : False
COMET INFO:     nosave              : False
COMET INFO:     noval               : False
COMET INFO:     obj                 : 1.0
COMET INFO:     obj_pw              : 1.0
COMET INFO:     optimizer           : SGD
COMET INFO:     patience            : 100
COMET INFO:     perspective         : 0.0
COMET INFO:     project             : runs/train
COMET INFO:     quad                : False
COMET INFO:     rect                : False
COMET INFO:     resume              : False
COMET INFO:     save_dir            : runs/train/exp
COMET INFO:     save_period         : -1
COMET INFO:     scale               : 0.5
COMET INFO:     seed                : 0
```

```
COMET INFO:     shear               : 0.0
COMET INFO:     single_cls          : False
COMET INFO:     sync_bn             : False
COMET INFO:     translate           : 0.1
COMET INFO:     upload_dataset      : False
COMET INFO:     val_conf_threshold  : 0.001
COMET INFO:     val_iou_threshold   : 0.6
COMET INFO:     warmup_bias_lr      : 0.1
COMET INFO:     warmup_epochs       : 3.0
COMET INFO:     warmup_momentum     : 0.8
COMET INFO:     weight_decay        : 0.0005
COMET INFO:     workers             : 8
COMET INFO:   Uploads:
COMET INFO:     asset               : 13 (1.58 MB)
COMET INFO:     confusion-matrix    : 1
COMET INFO:     environment details : 1
COMET INFO:     git metadata        : 1
COMET INFO:     images              : 78
COMET INFO:     installed packages  : 1
COMET INFO:     model graph         : 1
COMET INFO:     os packages         : 1
COMET INFO:
COMET INFO: Still saving offline stats to messages file before
program termination (may take up to 120 seconds)
COMET INFO: Starting saving the offline archive
COMET INFO: To upload this offline experiment, run:
    comet upload /content/yolov5/.cometml-
runs/6385adb459fb44ffb3d349d06bea3622.zip
```

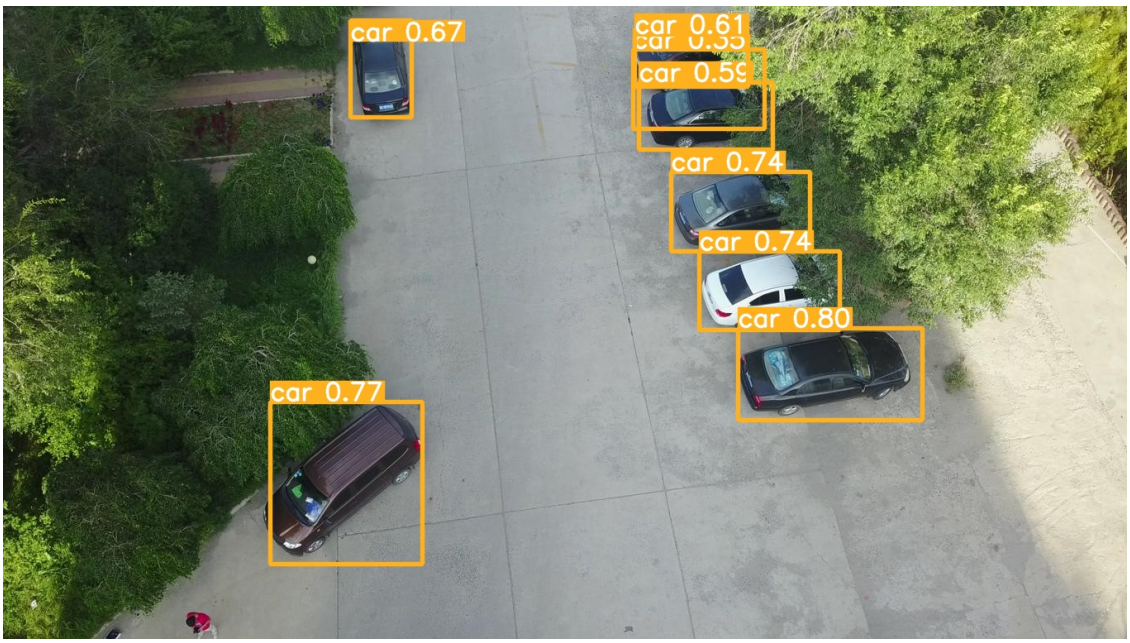
[4]:
```
!python detect.py --weights runs/train/exp/weights/last.pt --img 640 --conf 0.
↪25 --source /content/drive/MyDrive/Visdrone_dataset/01.jpg
```

```
detect: weights=['runs/train/exp/weights/last.pt'],
source=/content/drive/MyDrive/Visdrone_dataset/01.jpg, data=data/coco128.yaml,
imgsz=[640, 640], conf_thres=0.25, iou_thres=0.45, max_det=1000, device=,
view_img=False, save_txt=False, save_conf=False, save_crop=False, nosave=False,
classes=None, agnostic_nms=False, augment=False, visualize=False, update=False,
project=runs/detect, name=exp, exist_ok=False, line_thickness=3,
hide_labels=False, hide_conf=False, half=False, dnn=False, vid_stride=1
YOLOv5   v7.0-210-gdd10481 Python-3.10.12 torch-2.0.1+cu118 CUDA:0 (Tesla T4,
15102MiB)

Fusing layers…
Model summary: 157 layers, 7037095 parameters, 0 gradients, 15.8 GFLOPs
image 1/1 /content/drive/MyDrive/Visdrone_dataset/01.jpg: 384x640 8 cars, 41.6ms
Speed: 0.5ms pre-process, 41.6ms inference, 91.9ms NMS per image at shape (1, 3,
640, 640)
Results saved to runs/detect/exp
```

[5]:
```
display.Image(filename='/content/yolov5/runs/detect/exp/01.jpg', width=600)
```

[5]:



[6]:
```
# Train YOLOv5s on visdrone for 100 epochs
!python train.py --img 640 --batch 16 --epochs 100 --data visdrone_.yaml␣
↪--weights yolov5s.pt --cache
```

```
train: weights=yolov5s.pt, cfg=, data=visdrone_.yaml,
hyp=data/hyps/hyp.scratch-low.yaml, epochs=100, batch_size=16, imgsz=640,
rect=False, resume=False, nosave=False, noval=False, noautoanchor=False,
noplots=False, evolve=None, bucket=, cache=ram, image_weights=False, device=,
multi_scale=False, single_cls=False, optimizer=SGD, sync_bn=False, workers=8,
project=runs/train, name=exp, exist_ok=False, quad=False, cos_lr=False,
label_smoothing=0.0, patience=100, freeze=[0], save_period=-1, seed=0,
local_rank=-1, entity=None, upload_dataset=False, bbox_interval=-1,
artifact_alias=latest
github: up to date with https://github.com/ultralytics/yolov5
YOLOv5  v7.0-210-gdd10481 Python-3.10.12 torch-2.0.1+cu118 CUDA:0 (Tesla T4,
15102MiB)

hyperparameters: lr0=0.01, lrf=0.01, momentum=0.937,
weight_decay=0.0005, warmup_epochs=3.0, warmup_momentum=0.8, warmup_bias_lr=0.1,
box=0.05, cls=0.5, cls_pw=1.0, obj=1.0, obj_pw=1.0, iou_t=0.2, anchor_t=4.0,
fl_gamma=0.0, hsv_h=0.015, hsv_s=0.7, hsv_v=0.4, degrees=0.0, translate=0.1,
scale=0.5, shear=0.0, perspective=0.0, flipud=0.0, fliplr=0.5, mosaic=1.0,
mixup=0.0, copy_paste=0.0
TensorBoard: Start with 'tensorboard --logdir runs/train', view at
http://localhost:6006/
```

```
COMET WARNING: Comet credentials have not been set. Comet will default to
offline logging. Please set your credentials to enable online logging.
COMET INFO: Using '/content/yolov5/.cometml-runs' path as
offline directory. Pass 'offline_directory' parameter into constructor or set
the 'COMET_OFFLINE_DIRECTORY' environment variable to manually choose where to
store offline experiment archives.
COMET WARNING: You are trying to log string value as a metric.
This is not recommended.
Overriding model.yaml nc=80 with nc=10

                 from  n    params  module
arguments
  0                -1  1      3520  models.common.Conv                      [3,
32, 6, 2, 2]
  1                -1  1     18560  models.common.Conv                      [32,
64, 3, 2]
  2                -1  1     18816  models.common.C3                        [64,
64, 1]
  3                -1  1     73984  models.common.Conv                      [64,
128, 3, 2]
  4                -1  2    115712  models.common.C3
[128, 128, 2]
  5                -1  1    295424  models.common.Conv
[128, 256, 3, 2]
  6                -1  3    625152  models.common.C3
[256, 256, 3]
  7                -1  1   1180672  models.common.Conv
[256, 512, 3, 2]
  8                -1  1   1182720  models.common.C3
[512, 512, 1]
  9                -1  1    656896  models.common.SPPF
[512, 512, 5]
 10                -1  1    131584  models.common.Conv
[512, 256, 1, 1]
 11                -1  1         0  torch.nn.modules.upsampling.Upsample
[None, 2, 'nearest']
 12           [-1, 6]  1         0  models.common.Concat                    [1]
 13                -1  1    361984  models.common.C3
[512, 256, 1, False]
 14                -1  1     33024  models.common.Conv
[256, 128, 1, 1]
 15                -1  1         0  torch.nn.modules.upsampling.Upsample
[None, 2, 'nearest']
 16           [-1, 4]  1         0  models.common.Concat                    [1]
 17                -1  1     90880  models.common.C3
[256, 128, 1, False]
 18                -1  1    147712  models.common.Conv
[128, 128, 3, 2]
```

```
 19          [-1, 14]  1         0  models.common.Concat                    [1]
 20                -1  1    296448  models.common.C3
[256, 256, 1, False]
 21                -1  1    590336  models.common.Conv
[256, 256, 3, 2]
 22          [-1, 10]  1         0  models.common.Concat                    [1]
 23                -1  1   1182720  models.common.C3
[512, 512, 1, False]
 24      [17, 20, 23]  1     40455  models.yolo.Detect                      [10,
[[10, 13, 16, 30, 33, 23], [30, 61, 62, 45, 59, 119], [116, 90, 156, 198, 373,
326]], [128, 256, 512]]
Model summary: 214 layers, 7046599 parameters, 7046599 gradients, 16.0 GFLOPs

Transferred 343/349 items from yolov5s.pt
AMP: checks passed
optimizer: SGD(lr=0.01) with parameter groups 57 weight(decay=0.0),
60 weight(decay=0.0005), 60 bias
albumentations: Blur(p=0.01, blur_limit=(3, 7)), MedianBlur(p=0.01,
blur_limit=(3, 7)), ToGray(p=0.01), CLAHE(p=0.01, clip_limit=(1, 4.0),
tile_grid_size=(8, 8))
train: Scanning
/content/drive/MyDrive/Visdrone_dataset/train/labels.cache… 400 images, 0
backgrounds, 0 corrupt: 100%|      | 400/400 [00:00<?, ?it/s]
train: Caching images (0.3GB ram): 100%|      | 400/400
[00:05<00:00, 75.47it/s]
val: Scanning
/content/drive/MyDrive/Visdrone_dataset/val/labels.cache… 100 images, 0
backgrounds, 0 corrupt: 100%|      | 100/100 [00:00<?, ?it/s]
val: Caching images (0.1GB ram): 100%|      | 100/100
[00:04<00:00, 20.48it/s]

AutoAnchor: 2.96 anchors/target, 0.955 Best Possible Recall (BPR).
Anchors are a poor fit to dataset  , attempting to improve…
AutoAnchor: WARNING  Extremely small objects found: 1988 of 29302
labels are <3 pixels in size
AutoAnchor: Running kmeans for 9 anchors on 29287 points…
AutoAnchor: Evolving anchors with Genetic Algorithm: fitness =
0.7676: 100%|      | 1000/1000 [00:06<00:00, 145.45it/s]
AutoAnchor: thr=0.25: 0.9996 best possible recall, 6.24 anchors
past thr
AutoAnchor: n=9, img_size=640, metric_all=0.393/0.767-mean/best,
past_thr=0.496-mean: 3,5, 4,10, 8,7, 7,15, 14,11, 13,19, 28,14, 24,28, 53,36
AutoAnchor: Done  (optional: update model *.yaml to use these
anchors in the future)
Plotting labels to runs/train/exp2/labels.jpg…
Image sizes 640 train, 640 val
Using 2 dataloader workers
Logging results to runs/train/exp2
```

```
Starting training for 100 epochs…

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       0/99       3.5G     0.1582     0.1112    0.06528       1860        640:
100%|      | 25/25 [00:34<00:00,  1.38s/it]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|         | 1/4 [00:03<00:11,  3.80s/it]WARNING  NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  50%|        | 2/4 [00:14<00:15,  7.73s/it]WARNING  NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:18<00:00,  4.67s/it]
                   all        100       6823    0.00449     0.0109    0.00239
0.000579

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       1/99       3.5G     0.1405      0.143    0.05585       1684        640:
100%|      | 25/25 [00:17<00:00,  1.43it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|         | 1/4 [00:02<00:07,  2.42s/it]WARNING  NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  50%|        | 2/4 [00:04<00:04,  2.40s/it]WARNING  NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:07<00:00,  1.90s/it]
                   all        100       6823      0.217     0.0283     0.0101
0.00244

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       2/99       3.5G     0.1317     0.1606      0.048       2249        640:
100%|      | 25/25 [00:17<00:00,  1.45it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:07<00:00,  1.80s/it]
                   all        100       6823      0.119     0.0677     0.0154
0.00429

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
```

```
       3/99       3.5G     0.1261     0.1872    0.04413       1509        640:
100%|      | 25/25 [00:16<00:00,  1.51it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING   NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|         | 1/4 [00:02<00:07,  2.57s/it]WARNING   NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:07<00:00,  1.94s/it]
                   all        100       6823      0.541     0.0727     0.0363
0.0107

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       4/99       3.5G      0.122        0.2    0.04289       2055        640:
100%|      | 25/25 [00:16<00:00,  1.51it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING   NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|         | 1/4 [00:02<00:08,  2.77s/it]WARNING   NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:07<00:00,  1.86s/it]
                   all        100       6823      0.545     0.0649     0.0403
0.0139

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       5/99       3.5G     0.1204     0.2149    0.04173       2642        640:
100%|      | 25/25 [00:16<00:00,  1.47it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING   NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:06<00:00,  1.71s/it]
                   all        100       6823      0.564     0.0837     0.0575
0.0184

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       6/99       3.5G     0.1177     0.2057    0.04095       1528        640:
100%|      | 25/25 [00:16<00:00,  1.52it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING   NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95:  25%|         | 1/4 [00:02<00:07,  2.61s/it]WARNING   NMS time limit
2.100s exceeded
                 Class     Images  Instances          P          R      mAP50
```

```
mAP50-95: 100%|     | 4/4 [00:07<00:00,  1.75s/it]
                 all        100       6823      0.563      0.103     0.0589
0.0222

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       7/99       3.5G     0.1188      0.207    0.04039       1753        640:
100%|     | 25/25 [00:17<00:00,  1.47it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.02s/it]
                 all        100       6823      0.578      0.132     0.0712
0.0247

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       8/99       3.5G     0.1169     0.2133    0.04017       1723        640:
100%|     | 25/25 [00:16<00:00,  1.49it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:05<00:00,  1.41s/it]
                 all        100       6823       0.58      0.141     0.0858
0.0342

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
       9/99       3.5G      0.117     0.2165    0.03975       2170        640:
100%|     | 25/25 [00:16<00:00,  1.52it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:05<00:00,  1.26s/it]
                 all        100       6823      0.589      0.137     0.0889
0.0318

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      10/99       3.5G     0.1159     0.2113    0.03964       2059        640:
100%|     | 25/25 [00:19<00:00,  1.25it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.08s/it]
                 all        100       6823      0.601      0.145     0.0956
0.0377

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      11/99       3.5G     0.1147     0.2071    0.03909       1901        640:
100%|     | 25/25 [00:16<00:00,  1.54it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.23s/it]
                 all        100       6823        0.6      0.145     0.0999
0.0423

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
```

```
      12/99       3.5G     0.1141     0.2107    0.03866       2010        640:
100%|      | 25/25 [00:17<00:00,  1.44it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.19s/it]
                   all        100       6823      0.605      0.153      0.108
0.0474

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      13/99       3.5G     0.1131     0.2088     0.0384       1886        640:
100%|      | 25/25 [00:19<00:00,  1.27it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.36it/s]
                   all        100       6823       0.61      0.147      0.105
0.044

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      14/99       3.5G     0.1126     0.2102    0.03854       1906        640:
100%|      | 25/25 [00:16<00:00,  1.48it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:05<00:00,  1.43s/it]
                   all        100       6823      0.627      0.153      0.121
0.0498

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      15/99       3.5G     0.1124     0.2098    0.03823       1532        640:
100%|      | 25/25 [00:16<00:00,  1.54it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.17it/s]
                   all        100       6823       0.62       0.15      0.118
0.0481

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      16/99       3.5G      0.113      0.213     0.0382       1912        640:
100%|      | 25/25 [00:16<00:00,  1.54it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.21s/it]
                   all        100       6823       0.63      0.156      0.127
0.0545

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      17/99       3.5G      0.112     0.2177    0.03765       2749        640:
100%|      | 25/25 [00:16<00:00,  1.56it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
```

```
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:05<00:00,  1.37s/it]
                   all        100       6823      0.614      0.144      0.113
0.0465

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      18/99       3.5G     0.1099     0.2113    0.03741       1899        640:
100%|     | 25/25 [00:16<00:00,  1.51it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:03<00:00,  1.16it/s]
                   all        100       6823      0.634      0.155      0.134
0.0584

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      19/99       3.5G     0.1099     0.2105    0.03725       1651        640:
100%|     | 25/25 [00:16<00:00,  1.54it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.01s/it]
                   all        100       6823       0.63       0.15      0.126
0.0542

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      20/99       3.5G     0.1119     0.2197    0.03717       1645        640:
100%|     | 25/25 [00:17<00:00,  1.41it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.24s/it]
                   all        100       6823      0.524      0.156      0.126
0.0538

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      21/99       3.5G     0.1113     0.2049    0.03651       1732        640:
100%|     | 25/25 [00:16<00:00,  1.52it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.15s/it]
                   all        100       6823      0.525      0.159      0.132
0.0575

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      22/99       3.5G     0.1109     0.2052    0.03687       2122        640:
100%|     | 25/25 [00:17<00:00,  1.44it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:03<00:00,  1.29it/s]
                   all        100       6823      0.638      0.161      0.138
0.0596

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      23/99       3.5G     0.1113     0.1994    0.03733       2005        640:
100%|     | 25/25 [00:18<00:00,  1.39it/s]
```

```
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:05<00:00,  1.27s/it]
                   all        100       6823      0.645      0.154       0.14
0.0603

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      24/99       3.5G     0.1101      0.205     0.0363       2001        640:
100%|     | 25/25 [00:16<00:00,  1.48it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:02<00:00,  1.51it/s]
                   all        100       6823      0.654      0.153       0.14
0.0601

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      25/99       3.5G     0.1109     0.2111    0.03614       2028        640:
100%|     | 25/25 [00:17<00:00,  1.45it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:03<00:00,  1.09it/s]
                   all        100       6823      0.655      0.155      0.148
0.0658

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      26/99       3.5G      0.109     0.2085    0.03608       1621        640:
100%|     | 25/25 [00:16<00:00,  1.51it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.22s/it]
                   all        100       6823      0.639      0.157       0.14
0.0636

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      27/99       3.5G     0.1101     0.2128    0.03538       1919        640:
100%|     | 25/25 [00:18<00:00,  1.36it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:03<00:00,  1.29it/s]
                   all        100       6823      0.645      0.157      0.146
0.0658

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      28/99       3.5G     0.1091     0.2054    0.03561       1256        640:
100%|     | 25/25 [00:16<00:00,  1.52it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:02<00:00,  1.41it/s]
                   all        100       6823       0.61      0.168      0.154
0.0691

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      29/99       3.5G     0.1097     0.2092    0.03535       1649        640:
100%|     | 25/25 [00:17<00:00,  1.42it/s]
```

```
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:04<00:00,  1.20s/it]
                   all        100       6823      0.654      0.153      0.156
0.0723

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      30/99       3.5G     0.1092     0.2115    0.03558       1677        640:
100%|     | 25/25 [00:20<00:00,  1.22it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:03<00:00,  1.23it/s]
                   all        100       6823      0.653      0.155       0.15
0.0708

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      31/99       3.5G     0.1095     0.1979    0.03476       1536        640:
100%|     | 25/25 [00:16<00:00,  1.48it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:03<00:00,  1.13it/s]
                   all        100       6823      0.576      0.159      0.154
0.0707

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      32/99       3.5G     0.1093     0.2093      0.035       1577        640:
100%|     | 25/25 [00:18<00:00,  1.38it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:06<00:00,  1.58s/it]
                   all        100       6823      0.549      0.144      0.131
0.0578

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      33/99       3.5G     0.1092     0.2089    0.03499       2078        640:
100%|     | 25/25 [00:17<00:00,  1.39it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:02<00:00,  1.36it/s]
                   all        100       6823      0.559      0.154      0.158
0.0739

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      34/99       3.5G     0.1081     0.2095    0.03511       1861        640:
100%|     | 25/25 [00:17<00:00,  1.46it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|     | 4/4 [00:03<00:00,  1.10it/s]
                   all        100       6823      0.711      0.151      0.157
0.0723
```

```
      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      35/99       3.5G     0.1084     0.2124    0.03457       2815        640:
100%|      | 25/25 [00:17<00:00,  1.41it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95:   0%|          | 0/4 [00:00<?, ?it/s]WARNING  NMS time limit 2.100s
exceeded
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:05<00:00,  1.27s/it]
                   all        100       6823      0.656      0.147      0.156
0.0701

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      36/99       3.5G     0.1083     0.2117    0.03471       2255        640:
100%|      | 25/25 [00:17<00:00,  1.44it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.33it/s]
                   all        100       6823      0.576      0.162      0.163
0.0766

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      37/99       3.5G     0.1081     0.2001    0.03457       1386        640:
100%|      | 25/25 [00:16<00:00,  1.55it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.09it/s]
                   all        100       6823      0.589      0.167      0.167
0.0763

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      38/99       3.5G     0.1077     0.2065    0.03464       1963        640:
100%|      | 25/25 [00:20<00:00,  1.22it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.18s/it]
                   all        100       6823      0.566      0.183      0.164
0.0774

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      39/99       3.5G     0.1068     0.2037    0.03448       1674        640:
100%|      | 25/25 [00:16<00:00,  1.55it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.15it/s]
                   all        100       6823      0.579      0.161      0.166
0.0751

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      40/99       3.5G     0.1087     0.2093    0.03382       2532        640:
100%|      | 25/25 [00:17<00:00,  1.41it/s]
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.36it/s]
```

```
                 all        100       6823      0.579      0.169      0.165
0.0755

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      41/99       3.5G     0.1073     0.2069    0.03438       2458        640:
100%|      | 25/25 [00:16<00:00,  1.56it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:05<00:00,  1.40s/it]
                 all        100       6823      0.587      0.172      0.171
0.08

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      42/99       3.5G     0.1077     0.2028    0.03413       1866        640:
100%|      | 25/25 [00:16<00:00,  1.49it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.18it/s]
                 all        100       6823      0.579      0.165      0.174
0.0818

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      43/99       3.5G     0.1073     0.1976    0.03405       1686        640:
100%|      | 25/25 [00:16<00:00,  1.53it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.27it/s]
                 all        100       6823      0.547      0.202      0.171
0.0794

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      44/99       3.5G     0.1075      0.201    0.03413       1833        640:
100%|      | 25/25 [00:16<00:00,  1.51it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.14s/it]
                 all        100       6823      0.594      0.161      0.166
0.0775

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      45/99       3.5G     0.1074     0.2045    0.03398       2231        640:
100%|      | 25/25 [00:16<00:00,  1.51it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.22it/s]
                 all        100       6823      0.555      0.217      0.174
0.0814

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      46/99       3.5G     0.1072     0.2001     0.0334       1367        640:
100%|      | 25/25 [00:16<00:00,  1.50it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.76it/s]
```

```
                 all        100       6823      0.579      0.187      0.172
0.0798

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      47/99       3.5G     0.1076      0.202    0.03393       2271        640:
100%|      | 25/25 [00:20<00:00,  1.21it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.88it/s]
                 all        100       6823      0.354       0.22      0.176
0.0826

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      48/99       3.5G     0.1077     0.2005    0.03321       1946        640:
100%|      | 25/25 [00:16<00:00,  1.48it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.19s/it]
                 all        100       6823      0.464      0.222      0.181
0.086

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      49/99       3.5G     0.1081     0.2052    0.03316       1547        640:
100%|      | 25/25 [00:16<00:00,  1.51it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.18it/s]
                 all        100       6823      0.541      0.223      0.183
0.0877

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      50/99       3.5G     0.1058     0.2033    0.03306       1822        640:
100%|      | 25/25 [00:16<00:00,  1.53it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.38it/s]
                 all        100       6823      0.399      0.233       0.18
0.0853

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      51/99       3.5G     0.1068     0.2052    0.03362       2501        640:
100%|      | 25/25 [00:17<00:00,  1.44it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.26it/s]
                 all        100       6823      0.471      0.231      0.181
0.0842

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      52/99       3.5G     0.1068     0.2064    0.03267       1729        640:
100%|      | 25/25 [00:17<00:00,  1.43it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.13s/it]
```

```
                 all        100       6823      0.589      0.165       0.18
0.085

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      53/99       3.5G     0.1082     0.1927    0.03342       1782        640:
100%|      | 25/25 [00:17<00:00,  1.47it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.57it/s]
                 all        100       6823      0.426      0.216      0.177
0.0803

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      54/99       3.5G     0.1075     0.2099    0.03334       1837        640:
100%|      | 25/25 [00:17<00:00,  1.42it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.41it/s]
                 all        100       6823      0.385      0.209      0.178
0.0816

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      55/99       3.5G     0.1055     0.1994    0.03326       1535        640:
100%|      | 25/25 [00:16<00:00,  1.49it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.05it/s]
                 all        100       6823       0.39      0.232      0.181
0.0849

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      56/99       3.5G     0.1058     0.2038    0.03303       1563        640:
100%|      | 25/25 [00:22<00:00,  1.11it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.09it/s]
                 all        100       6823      0.394      0.211      0.181
0.0828

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      57/99       3.5G     0.1069     0.2092    0.03302       2067        640:
100%|      | 25/25 [00:20<00:00,  1.22it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.70it/s]
                 all        100       6823      0.401      0.226      0.187
0.0861

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      58/99       3.5G      0.106     0.2023    0.03292       1504        640:
100%|      | 25/25 [00:16<00:00,  1.49it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.45it/s]
```

```
                 all        100       6823      0.387      0.226       0.18
0.0854

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      59/99       3.5G     0.1059     0.2001    0.03272       2046        640:
100%|      | 25/25 [00:16<00:00,  1.53it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.19s/it]
                 all        100       6823      0.466       0.21      0.183
0.0859

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      60/99       3.5G     0.1065     0.1972    0.03285       1620        640:
100%|      | 25/25 [00:16<00:00,  1.48it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.14it/s]
                 all        100       6823      0.365        0.2      0.179
0.0848

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      61/99       3.5G     0.1058     0.2004    0.03264       2790        640:
100%|      | 25/25 [00:16<00:00,  1.50it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.09it/s]
                 all        100       6823      0.717      0.172      0.186
0.0873

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      62/99       3.5G     0.1062     0.1961     0.0323       1748        640:
100%|      | 25/25 [00:16<00:00,  1.55it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.01s/it]
                 all        100       6823        0.4      0.225      0.186
0.0866

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      63/99       3.5G     0.1064     0.2023     0.0321       2135        640:
100%|      | 25/25 [00:16<00:00,  1.52it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.21s/it]
                 all        100       6823        0.4      0.236      0.189
0.0889

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      64/99       3.5G     0.1057     0.1959    0.03203       1912        640:
100%|      | 25/25 [00:16<00:00,  1.52it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.24it/s]
```

```
                 all        100       6823      0.422       0.23      0.191
0.0892

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      65/99       3.5G     0.1057     0.2034     0.0324       2142        640:
100%|      | 25/25 [00:19<00:00,  1.29it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.50it/s]
                 all        100       6823      0.389      0.226      0.188
0.0875

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      66/99       3.5G      0.105     0.1889    0.03265       2234        640:
100%|      | 25/25 [00:16<00:00,  1.48it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.36it/s]
                 all        100       6823       0.31      0.232       0.19
0.09

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      67/99       3.5G      0.105     0.1963    0.03217       1825        640:
100%|      | 25/25 [00:20<00:00,  1.22it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.20it/s]
                 all        100       6823      0.634      0.181      0.185
0.0868

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      68/99       3.5G     0.1058     0.1934    0.03269       1734        640:
100%|      | 25/25 [00:16<00:00,  1.48it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.46it/s]
                 all        100       6823       0.39      0.223      0.186
0.0893

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      69/99       3.5G     0.1056     0.2049    0.03197       1836        640:
100%|      | 25/25 [00:20<00:00,  1.24it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.15s/it]
                 all        100       6823      0.398      0.223      0.188
0.0905

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      70/99       3.5G     0.1052     0.2012    0.03183       2074        640:
100%|      | 25/25 [00:17<00:00,  1.41it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.72it/s]
```

```
                 all        100       6823       0.41      0.218      0.188
0.0907

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      71/99       3.5G     0.1067     0.2008    0.03201       1862        640:
100%|      | 25/25 [00:17<00:00,  1.47it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.34it/s]
                 all        100       6823      0.415      0.221      0.192
0.0922

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      72/99       3.5G     0.1059     0.1994    0.03152       2128        640:
100%|      | 25/25 [00:17<00:00,  1.45it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.51it/s]
                 all        100       6823      0.413      0.226      0.191
0.0922

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      73/99       3.5G     0.1049     0.1996    0.03174       2233        640:
100%|      | 25/25 [00:20<00:00,  1.21it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.05s/it]
                 all        100       6823      0.392      0.242       0.19
0.0919

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      74/99       3.5G     0.1052     0.2006    0.03213       1675        640:
100%|      | 25/25 [00:18<00:00,  1.39it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.51it/s]
                 all        100       6823      0.394      0.238      0.195
0.0928

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      75/99       3.5G      0.104     0.1929    0.03184       1936        640:
100%|      | 25/25 [00:17<00:00,  1.44it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.63it/s]
                 all        100       6823      0.393      0.239      0.199
0.0942

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      76/99       3.5G     0.1044     0.1991    0.03178       2594        640:
100%|      | 25/25 [00:17<00:00,  1.46it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.06it/s]
```

```
                 all        100       6823      0.394      0.234      0.194
0.0931

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      77/99       3.5G     0.1043     0.1961    0.03154       2337        640:
100%|      | 25/25 [00:16<00:00,  1.50it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.06s/it]
                 all        100       6823      0.396      0.228      0.193
0.0927

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      78/99       3.5G     0.1044     0.1941    0.03176       1847        640:
100%|      | 25/25 [00:17<00:00,  1.39it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.06s/it]
                 all        100       6823      0.402      0.225      0.195
0.0923

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      79/99       3.5G     0.1049     0.2001    0.03167       1959        640:
100%|      | 25/25 [00:16<00:00,  1.50it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.19it/s]
                 all        100       6823      0.403      0.236      0.198
0.0945

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      80/99       3.5G     0.1064     0.1956     0.0313       1870        640:
100%|      | 25/25 [00:17<00:00,  1.46it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:05<00:00,  1.35s/it]
                 all        100       6823      0.402      0.237      0.195
0.0926

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      81/99       3.5G     0.1027     0.1928    0.03208       1425        640:
100%|      | 25/25 [00:16<00:00,  1.52it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.48it/s]
                 all        100       6823      0.309      0.238      0.195
0.0944

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      82/99       3.5G     0.1038     0.1968     0.0312       1490        640:
100%|      | 25/25 [00:18<00:00,  1.32it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.30it/s]
```

```
                 all        100       6823      0.399      0.235      0.195
0.0949

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      83/99       3.5G      0.104     0.1982    0.03121       2248        640:
100%|      | 25/25 [00:16<00:00,  1.51it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.20it/s]
                 all        100       6823      0.406       0.23      0.195
0.0953

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      84/99       3.5G     0.1048     0.1936     0.0318       2229        640:
100%|      | 25/25 [00:17<00:00,  1.46it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.01s/it]
                 all        100       6823      0.423      0.224      0.196
0.0954

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      85/99       3.5G     0.1054     0.1989    0.03157       1784        640:
100%|      | 25/25 [00:17<00:00,  1.43it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.66it/s]
                 all        100       6823      0.404      0.235      0.196
0.0948

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      86/99       3.5G     0.1042     0.1938    0.03128       1520        640:
100%|      | 25/25 [00:17<00:00,  1.46it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.56it/s]
                 all        100       6823      0.412      0.237        0.2
0.0963

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      87/99       3.5G     0.1041     0.2043    0.03132       2287        640:
100%|      | 25/25 [00:17<00:00,  1.42it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:05<00:00,  1.37s/it]
                 all        100       6823      0.413      0.235        0.2
0.0964

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      88/99       3.5G     0.1023     0.1909    0.03129       1647        640:
100%|      | 25/25 [00:17<00:00,  1.47it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.51it/s]
```

```
                 all        100       6823      0.422      0.228      0.198
0.0954

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      89/99       3.5G     0.1039     0.1985    0.03102       1785        640:
100%|      | 25/25 [00:20<00:00,  1.24it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.50it/s]
                 all        100       6823      0.397      0.236      0.197
0.0964

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      90/99       3.5G     0.1034     0.1887    0.03124       1972        640:
100%|      | 25/25 [00:16<00:00,  1.54it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:05<00:00,  1.43s/it]
                 all        100       6823      0.411       0.23      0.199
0.0973

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      91/99       3.5G     0.1033     0.2009    0.03134       1521        640:
100%|      | 25/25 [00:17<00:00,  1.40it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.23it/s]
                 all        100       6823      0.292      0.245      0.202
0.0992

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      92/99       3.5G      0.104      0.194    0.03178       1860        640:
100%|      | 25/25 [00:16<00:00,  1.48it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.33it/s]
                 all        100       6823      0.421      0.227      0.203
0.0982

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      93/99       3.5G     0.1027     0.1907     0.0311       1840        640:
100%|      | 25/25 [00:16<00:00,  1.50it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:05<00:00,  1.44s/it]
                 all        100       6823      0.416      0.224      0.199
0.097

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      94/99       3.5G     0.1037     0.1962    0.03081       1924        640:
100%|      | 25/25 [00:16<00:00,  1.48it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:04<00:00,  1.08s/it]
```

```
                 all        100       6823      0.413      0.221      0.197
0.0962

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      95/99       3.5G     0.1037     0.1905    0.03059       1882        640:
100%|      | 25/25 [00:16<00:00,  1.47it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:02<00:00,  1.51it/s]
                 all        100       6823       0.42       0.22      0.197
0.096

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      96/99       3.5G      0.104     0.2027     0.0313       2358        640:
100%|      | 25/25 [00:17<00:00,  1.44it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.28it/s]
                 all        100       6823      0.432      0.221      0.198
0.0971

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      97/99       3.5G     0.1049     0.1952    0.03157       1916        640:
100%|      | 25/25 [00:16<00:00,  1.49it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.08it/s]
                 all        100       6823      0.432      0.218      0.198
0.097

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      98/99       3.5G     0.1039     0.1924    0.03132       1877        640:
100%|      | 25/25 [00:17<00:00,  1.46it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:03<00:00,  1.06it/s]
                 all        100       6823       0.43       0.22      0.197
0.0962

      Epoch    GPU_mem   box_loss   obj_loss   cls_loss  Instances       Size
      99/99       3.5G      0.105     0.1952    0.03143       2286        640:
100%|      | 25/25 [00:16<00:00,  1.50it/s]
                Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:05<00:00,  1.32s/it]
                 all        100       6823      0.434       0.22        0.2
0.0974

100 epochs completed in 0.617 hours.
Optimizer stripped from runs/train/exp2/weights/last.pt, 14.4MB
Optimizer stripped from runs/train/exp2/weights/best.pt, 14.4MB

Validating runs/train/exp2/weights/best.pt…
```

```
Fusing layers…
Model summary: 157 layers, 7037095 parameters, 0 gradients, 15.8 GFLOPs
                 Class     Images  Instances          P          R      mAP50
mAP50-95: 100%|      | 4/4 [00:16<00:00,  4.13s/it]
                   all        100       6823      0.292      0.245      0.202
0.0992
            pedestrian        100       1507      0.255      0.381       0.31
0.127
                people        100        794      0.243      0.463      0.305
0.105
               bicycle        100        210          0          0      0.023
0.00822
                   car        100       2796      0.434      0.747      0.688
0.428
                   van        100        363      0.117     0.0992     0.0883
0.0521
                 truck        100         98      0.259      0.194      0.112
0.0695
             tricycle        100        127      0.343      0.134      0.121
0.0551
       awning-tricycle        100         75          1          0     0.0318
0.0196
                   bus        100         21          0          0     0.0478
0.0198
                 motor        100        832      0.272      0.433      0.297
0.108
Results saved to runs/train/exp2
COMET INFO: ------------------------------------------------------
----------------------------------
COMET INFO: Comet.ml OfflineExperiment Summary
COMET INFO: ------------------------------------------------------
----------------------------------
COMET INFO:   Data:
COMET INFO:     display_summary_level : 1
COMET INFO:     url                   : [OfflineExperiment will
get URL after upload]
COMET INFO:   Metrics [count] (min, max):
COMET INFO:     loss [210]                 : (4.378499984741211,
6.737311363220215)
COMET INFO:     metrics/mAP_0.5 [200]      :
(0.0023869332778213353, 0.2034769405027299)
COMET INFO:     metrics/mAP_0.5:0.95 [200] :
(0.000578584179428197, 0.09921157791674132)
COMET INFO:     metrics/precision [200]    :
(0.004487146270080318, 0.7165896865616356)
COMET INFO:     metrics/recall [200]       :
(0.01093661666900152, 0.24513439262031395)
COMET INFO:     train/box_loss [200]       :
```

```
(0.10227375477552414, 0.15816821157932281)
COMET INFO:     train/cls_loss [200]       :
(0.03059367649257183, 0.06528083980083466)
COMET INFO:     train/obj_loss [200]       :
(0.11115473508834839, 0.2196904867887497)
COMET INFO:     val/box_loss [200]         :
(0.09643524885177612, 0.14409852027893066)
COMET INFO:     val/cls_loss [200]         :
(0.032497406005859375, 0.059261322021484375)
COMET INFO:     val/obj_loss [200]         :
(0.15044021606445312, 0.3753814697265625)
COMET INFO:     x/lr0 [200]                :
(0.0002980000000000002, 0.0784)
COMET INFO:     x/lr1 [200]                :
(0.0002980000000000002, 0.00960597)
COMET INFO:     x/lr2 [200]                :
(0.0002980000000000002, 0.00960597)
COMET INFO:   Others:
COMET INFO:     Name                         : exp
COMET INFO:     comet_log_batch_metrics      : False
COMET INFO:     comet_log_confusion_matrix   : True
COMET INFO:     comet_log_per_class_metrics : False
COMET INFO:     comet_max_image_uploads      : 100
COMET INFO:     comet_mode                   : online
COMET INFO:     comet_model_name             : yolov5
COMET INFO:     hasNestedParams              : True
COMET INFO:     offline_experiment           : True
COMET INFO:   Parameters:
COMET INFO:     anchor_t            : 4.0
COMET INFO:     artifact_alias      : latest
COMET INFO:     batch_size          : 16
COMET INFO:     bbox_interval       : -1
COMET INFO:     box                 : 0.05
COMET INFO:     bucket              :
COMET INFO:     cfg                 :
COMET INFO:     cls                 : 0.0625
COMET INFO:     cls_pw              : 1.0
COMET INFO:     copy_paste          : 0.0
COMET INFO:     cos_lr              : False
COMET INFO:     degrees             : 0.0
COMET INFO:     device              :
COMET INFO:     entity              : 1
COMET INFO:     evolve              : 1
COMET INFO:     exist_ok            : False
COMET INFO:     fl_gamma            : 0.0
COMET INFO:     fliplr              : 0.5
COMET INFO:     flipud              : 0.0
COMET INFO:     freeze              : [0]
```

```
COMET INFO:     hsv_h               : 0.015
COMET INFO:     hsv_s               : 0.7
COMET INFO:     hsv_v               : 0.4
COMET INFO:     hyp|anchor_t        : 4.0
COMET INFO:     hyp|box             : 0.05
COMET INFO:     hyp|cls             : 0.5
COMET INFO:     hyp|cls_pw          : 1.0
COMET INFO:     hyp|copy_paste      : 0.0
COMET INFO:     hyp|degrees         : 0.0
COMET INFO:     hyp|fl_gamma        : 0.0
COMET INFO:     hyp|fliplr          : 0.5
COMET INFO:     hyp|flipud          : 0.0
COMET INFO:     hyp|hsv_h           : 0.015
COMET INFO:     hyp|hsv_s           : 0.7
COMET INFO:     hyp|hsv_v           : 0.4
COMET INFO:     hyp|iou_t           : 0.2
COMET INFO:     hyp|lr0             : 0.01
COMET INFO:     hyp|lrf             : 0.01
COMET INFO:     hyp|mixup           : 0.0
COMET INFO:     hyp|momentum        : 0.937
COMET INFO:     hyp|mosaic          : 1.0
COMET INFO:     hyp|obj             : 1.0
COMET INFO:     hyp|obj_pw          : 1.0
COMET INFO:     hyp|perspective     : 0.0
COMET INFO:     hyp|scale           : 0.5
COMET INFO:     hyp|shear           : 0.0
COMET INFO:     hyp|translate       : 0.1
COMET INFO:     hyp|warmup_bias_lr  : 0.1
COMET INFO:     hyp|warmup_epochs   : 3.0
COMET INFO:     hyp|warmup_momentum : 0.8
COMET INFO:     hyp|weight_decay    : 0.0005
COMET INFO:     image_weights       : False
COMET INFO:     imgsz               : 640
COMET INFO:     iou_t               : 0.2
COMET INFO:     label_smoothing     : 0.0
COMET INFO:     local_rank          : -1
COMET INFO:     lr0                 : 0.01
COMET INFO:     lrf                 : 0.01
COMET INFO:     mixup               : 0.0
COMET INFO:     momentum            : 0.937
COMET INFO:     mosaic              : 1.0
COMET INFO:     multi_scale         : False
COMET INFO:     name                : exp
COMET INFO:     noautoanchor        : False
COMET INFO:     noplots             : False
COMET INFO:     nosave              : False
COMET INFO:     noval               : False
COMET INFO:     obj                 : 1.0
```

```
COMET INFO:     obj_pw              : 1.0
COMET INFO:     optimizer           : SGD
COMET INFO:     patience            : 100
COMET INFO:     perspective         : 0.0
COMET INFO:     project             : runs/train
COMET INFO:     quad                : False
COMET INFO:     rect                : False
COMET INFO:     resume              : False
COMET INFO:     save_dir            : runs/train/exp2
COMET INFO:     save_period         : -1
COMET INFO:     scale               : 0.5
COMET INFO:     seed                : 0
COMET INFO:     shear               : 0.0
COMET INFO:     single_cls          : False
COMET INFO:     sync_bn             : False
COMET INFO:     translate           : 0.1
COMET INFO:     upload_dataset      : False
COMET INFO:     val_conf_threshold  : 0.001
COMET INFO:     val_iou_threshold   : 0.6
COMET INFO:     warmup_bias_lr      : 0.1
COMET INFO:     warmup_epochs       : 3.0
COMET INFO:     warmup_momentum     : 0.8
COMET INFO:     weight_decay        : 0.0005
COMET INFO:     workers             : 8
COMET INFO:   Uploads:
COMET INFO:     asset               : 13 (1.83 MB)
COMET INFO:     confusion-matrix    : 1
COMET INFO:     environment details : 1
COMET INFO:     git metadata        : 1
COMET INFO:     images              : 6
COMET INFO:     installed packages  : 1
COMET INFO:     model graph         : 1
COMET INFO:     os packages         : 1
COMET INFO:
COMET INFO: Still saving offline stats to messages file before
program termination (may take up to 120 seconds)
COMET INFO: Starting saving the offline archive
COMET INFO: To upload this offline experiment, run:
    comet upload /content/yolov5/.cometml-
runs/f303700133054e3c9d9064eef8efe8e6.zip
```

[7]:
```
!python detect.py --weights runs/train/exp2/weights/last.pt --img 640 --conf 0.
↪25 --source /content/drive/MyDrive/Visdrone_dataset/01.jpg
```

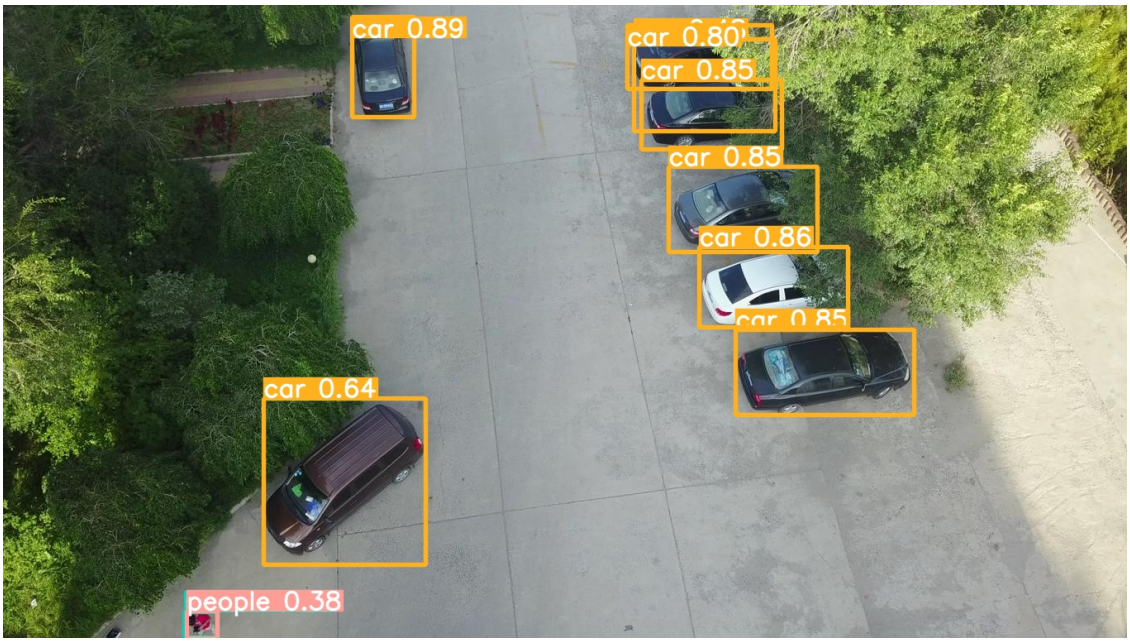
```
detect: weights=['runs/train/exp2/weights/last.pt'],
source=/content/drive/MyDrive/Visdrone_dataset/01.jpg, data=data/coco128.yaml,
imgsz=[640, 640], conf_thres=0.25, iou_thres=0.45, max_det=1000, device=,
view_img=False, save_txt=False, save_conf=False, save_crop=False, nosave=False,
```

```
classes=None, agnostic_nms=False, augment=False, visualize=False, update=False,
project=runs/detect, name=exp, exist_ok=False, line_thickness=3,
hide_labels=False, hide_conf=False, half=False, dnn=False, vid_stride=1
YOLOv5   v7.0-210-gdd10481 Python-3.10.12 torch-2.0.1+cu118 CUDA:0 (Tesla T4,
15102MiB)

Fusing layers…
Model summary: 157 layers, 7037095 parameters, 0 gradients, 15.8 GFLOPs
image 1/1 /content/drive/MyDrive/Visdrone_dataset/01.jpg: 384x640 1 people, 8
cars, 1 motor, 42.6ms
Speed: 0.5ms pre-process, 42.6ms inference, 86.4ms NMS per image at shape (1, 3,
640, 640)
Results saved to runs/detect/exp2
```

[8]:
```
display.Image(filename='/content/yolov5/runs/detect/exp2/01.jpg', width=600)
```

[8]:



As above with 20 epochs traing, the man is not showing, but with 100 epochs traing the man come under observation. and the class probablities are increse.

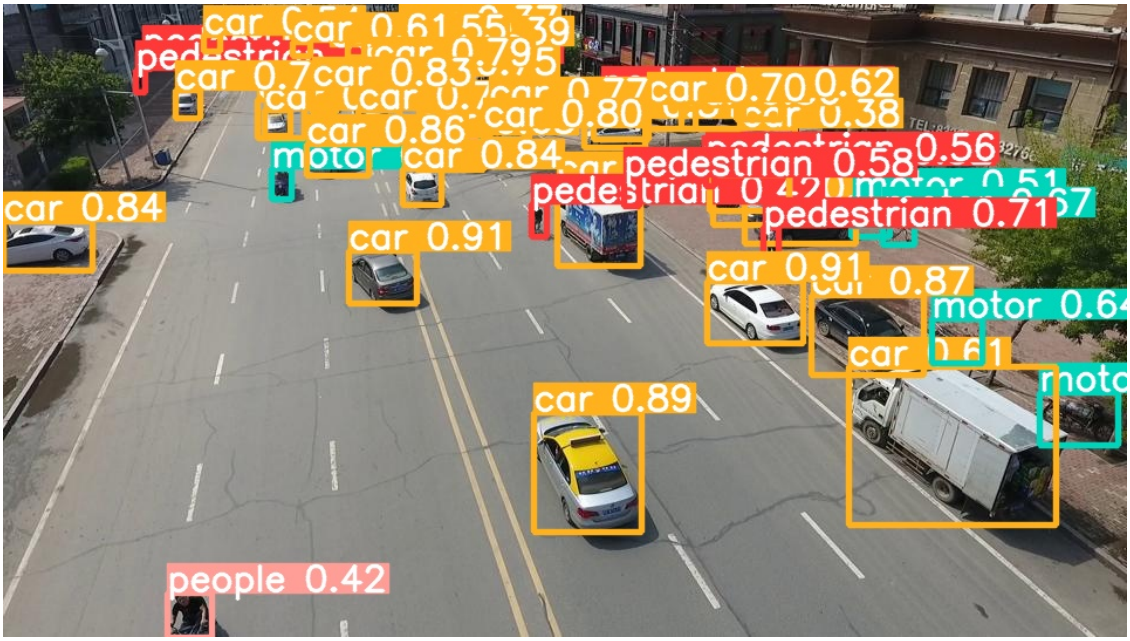
[10]:
```
!python detect.py --weights runs/train/exp2/weights/last.pt --img 640 --conf 0.
↪25 --source /content/drive/MyDrive/Visdrone_dataset/02.jpg
display.Image(filename='/content/yolov5/runs/detect/exp3/02.jpg', width=600)
```

```
detect: weights=['runs/train/exp2/weights/last.pt'],
source=/content/drive/MyDrive/Visdrone_dataset/02.jpg, data=data/coco128.yaml,
imgsz=[640, 640], conf_thres=0.25, iou_thres=0.45, max_det=1000, device=,
view_img=False, save_txt=False, save_conf=False, save_crop=False, nosave=False,
```

```
classes=None, agnostic_nms=False, augment=False, visualize=False, update=False,
project=runs/detect, name=exp, exist_ok=False, line_thickness=3,
hide_labels=False, hide_conf=False, half=False, dnn=False, vid_stride=1
YOLOv5   v7.0-210-gdd10481 Python-3.10.12 torch-2.0.1+cu118 CUDA:0 (Tesla T4,
15102MiB)

Fusing layers…
Model summary: 157 layers, 7037095 parameters, 0 gradients, 15.8 GFLOPs
image 1/1 /content/drive/MyDrive/Visdrone_dataset/02.jpg: 384x640 9 pedestrians,
3 peoples, 39 cars, 7 motors, 43.9ms
Speed: 0.5ms pre-process, 43.9ms inference, 83.8ms NMS per image at shape (1, 3,
640, 640)
Results saved to runs/detect/exp4
```

[10]:



[12]:
```
display.Image(filename='/content/yolov5/runs/detect/exp5/03.jpg', width=600)
```

[12]:

[13]:
```
!python detect.py --weights runs/train/exp2/weights/last.pt --img 640 --conf 0.
↪25 --source /content/drive/MyDrive/Visdrone_dataset/04.jpg
display.Image(filename='/content/yolov5/runs/detect/exp6/04.jpg', width=600)
```

```
detect: weights=['runs/train/exp2/weights/last.pt'],
source=/content/drive/MyDrive/Visdrone_dataset/04.jpg, data=data/coco128.yaml,
imgsz=[640, 640], conf_thres=0.25, iou_thres=0.45, max_det=1000, device=,
view_img=False, save_txt=False, save_conf=False, save_crop=False, nosave=False,
classes=None, agnostic_nms=False, augment=False, visualize=False, update=False,
project=runs/detect, name=exp, exist_ok=False, line_thickness=3,
hide_labels=False, hide_conf=False, half=False, dnn=False, vid_stride=1
YOLOv5  v7.0-210-gdd10481 Python-3.10.12 torch-2.0.1+cu118 CUDA:0 (Tesla T4,
15102MiB)

Fusing layers…
Model summary: 157 layers, 7037095 parameters, 0 gradients, 15.8 GFLOPs
image 1/1 /content/drive/MyDrive/Visdrone_dataset/04.jpg: 384x640 1 pedestrian,
2 cars, 43.7ms
Speed: 0.5ms pre-process, 43.7ms inference, 93.3ms NMS per image at shape (1, 3,
640, 640)
Results saved to runs/detect/exp6
```

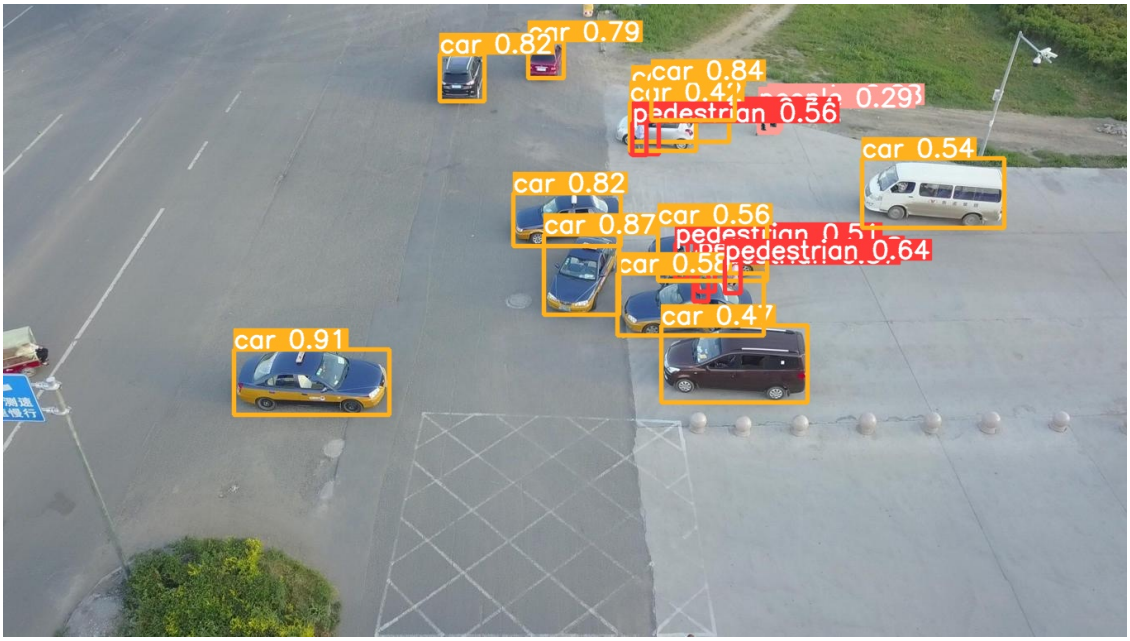
[13]:

[14]:
```
!python detect.py --weights runs/train/exp2/weights/last.pt --img 640 --conf 0.
↪25 --source /content/drive/MyDrive/Visdrone_dataset/05.jpg
display.Image(filename='/content/yolov5/runs/detect/exp7/05.jpg', width=600)
```

```
detect: weights=['runs/train/exp2/weights/last.pt'],
source=/content/drive/MyDrive/Visdrone_dataset/05.jpg, data=data/coco128.yaml,
imgsz=[640, 640], conf_thres=0.25, iou_thres=0.45, max_det=1000, device=,
view_img=False, save_txt=False, save_conf=False, save_crop=False, nosave=False,
classes=None, agnostic_nms=False, augment=False, visualize=False, update=False,
project=runs/detect, name=exp, exist_ok=False, line_thickness=3,
hide_labels=False, hide_conf=False, half=False, dnn=False, vid_stride=1
YOLOv5  v7.0-210-gdd10481 Python-3.10.12 torch-2.0.1+cu118 CUDA:0 (Tesla T4,
15102MiB)

Fusing layers…
Model summary: 157 layers, 7037095 parameters, 0 gradients, 15.8 GFLOPs
image 1/1 /content/drive/MyDrive/Visdrone_dataset/05.jpg: 384x640 6 pedestrians,
2 peoples, 12 cars, 44.0ms
Speed: 0.5ms pre-process, 44.0ms inference, 83.4ms NMS per image at shape (1, 3,
640, 640)
Results saved to runs/detect/exp7
```

[14]:

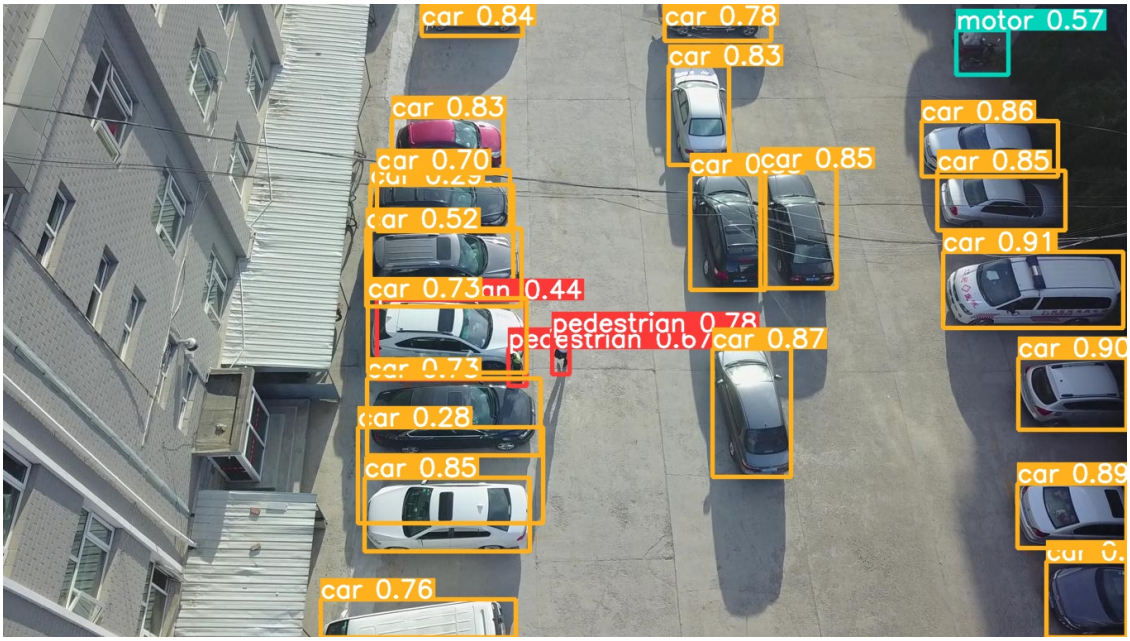


[15]:
```
!python detect.py --weights runs/train/exp2/weights/last.pt --img 640 --conf 0.
↪25 --source /content/drive/MyDrive/Visdrone_dataset/06.jpg
display.Image(filename='/content/yolov5/runs/detect/exp8/06.jpg', width=600)
```

```
detect: weights=['runs/train/exp2/weights/last.pt'],
source=/content/drive/MyDrive/Visdrone_dataset/06.jpg, data=data/coco128.yaml,
imgsz=[640, 640], conf_thres=0.25, iou_thres=0.45, max_det=1000, device=,
view_img=False, save_txt=False, save_conf=False, save_crop=False, nosave=False,
classes=None, agnostic_nms=False, augment=False, visualize=False, update=False,
project=runs/detect, name=exp, exist_ok=False, line_thickness=3,
hide_labels=False, hide_conf=False, half=False, dnn=False, vid_stride=1
YOLOv5  v7.0-210-gdd10481 Python-3.10.12 torch-2.0.1+cu118 CUDA:0 (Tesla T4,
15102MiB)

Fusing layers…
Model summary: 157 layers, 7037095 parameters, 0 gradients, 15.8 GFLOPs
image 1/1 /content/drive/MyDrive/Visdrone_dataset/06.jpg: 384x640 3 pedestrians,
21 cars, 1 motor, 43.2ms
Speed: 0.5ms pre-process, 43.2ms inference, 76.6ms NMS per image at shape (1, 3,
640, 640)
Results saved to runs/detect/exp8
```

[15]:



[16]:
```
!python detect.py --weights runs/train/exp2/weights/last.pt --img 640 --conf 0.
↪25 --source /content/drive/MyDrive/Visdrone_dataset/07.jpg
display.Image(filename='/content/yolov5/runs/detect/exp9/07.jpg', width=600)
```

```
detect: weights=['runs/train/exp2/weights/last.pt'],
source=/content/drive/MyDrive/Visdrone_dataset/07.jpg, data=data/coco128.yaml,
imgsz=[640, 640], conf_thres=0.25, iou_thres=0.45, max_det=1000, device=,
view_img=False, save_txt=False, save_conf=False, save_crop=False, nosave=False,
classes=None, agnostic_nms=False, augment=False, visualize=False, update=False,
project=runs/detect, name=exp, exist_ok=False, line_thickness=3,
hide_labels=False, hide_conf=False, half=False, dnn=False, vid_stride=1
YOLOv5  v7.0-210-gdd10481 Python-3.10.12 torch-2.0.1+cu118 CUDA:0 (Tesla T4,
15102MiB)

Fusing layers…
Model summary: 157 layers, 7037095 parameters, 0 gradients, 15.8 GFLOPs
image 1/1 /content/drive/MyDrive/Visdrone_dataset/07.jpg: 384x640 15
pedestrians, 7 peoples, 37 cars, 17 motors, 43.6ms
Speed: 0.5ms pre-process, 43.6ms inference, 76.0ms NMS per image at shape (1, 3,
640, 640)
Results saved to runs/detect/exp9
```

[16]:


pedestrian 0.41
motor 0.58
pedestrian 0.48
pedestrian 0.71
car 0.79
car 0.82
car 0.88
car 0.87
car 0.90
car 0.86
car 0.78
people 0.36
car 0.88
car 0.90
car 0.80
car 0.88
car 0.89
car 0.89
car 0.88
car 0.76
car 0.73
pedestrian 0.77
pedestrian 0.33
car 0.88
car 0.76
motor 0.65