(alfonso1) c:\Drone-Detection\_Yolov10>python Train\_drone-detection\_Yolov10.py

C:\Users\Alfonso Blanco\.conda\envs\alfonso1\lib\site-packages\numpy\\_distributor\_init.py:30: UserWarning: loaded more than 1 DLL from .libs:

C:\Users\Alfonso Blanco\.conda\envs\alfonso1\lib\site-packages\numpy\.libs\libopenblas.FB5AE2TYXYH2IJRDKGDGQ3XBKLKTF43H.gfortran-win\_amd64.dll

C:\Users\Alfonso Blanco\.conda\envs\alfonso1\lib\site-packages\numpy\.libs\libopenblas64\_\_v0.3.21-gcc\_10\_3\_0.dll

warnings.warn("loaded more than 1 DLL from .libs:"

New https://pypi.org/project/ultralytics/8.2.77 available 😃 Update with 'pip install -U ultralytics'

Ultralytics YOLOv8.2.52 🚀 Python-3.9.16 torch-1.13.1+cpu CPU (11th Gen Intel Core(TM) i5-1155G7 2.50GHz)

WARNING ⚠️ Upgrade to torch>=2.0.0 for deterministic training.

engine\trainer: task=detect, mode=train, model=yolov10n.pt, data=data.yaml, epochs=50, time=None, patience=100, batch=-1, imgsz=640, save=True, save\_period=-1, cache=False, device=cpu, workers=8, project=runs/train, name=exp, exist\_ok=False, pretrained=True, optimizer=SGD, verbose=True, seed=0, deterministic=True, single\_cls=False, rect=False, cos\_lr=False, close\_mosaic=10, resume=False, amp=True, fraction=1.0, profile=False, freeze=None, multi\_scale=True, overlap\_mask=True, mask\_ratio=4, dropout=0.0, val=True, split=val, save\_json=False, save\_hybrid=False, conf=None, iou=0.7, max\_det=300, half=False, dnn=False, plots=True, source=None, vid\_stride=1, stream\_buffer=False, visualize=False, augment=False, agnostic\_nms=False, classes=None, retina\_masks=False, embed=None, show=False, save\_frames=False, save\_txt=False, save\_conf=False, save\_crop=False, show\_labels=True, show\_conf=True, show\_boxes=True, line\_width=None, format=torchscript, keras=False, optimize=False, int8=False, dynamic=False, simplify=False, opset=None, workspace=4, nms=False, lr0=0.01, lrf=0.1, momentum=0.937, weight\_decay=0.0005, warmup\_epochs=3.0, warmup\_momentum=0.8, warmup\_bias\_lr=0.1, box=7.5, cls=0.5, dfl=1.5, pose=12.0, kobj=1.0, label\_smoothing=0.0, nbs=64, 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, bgr=0.0, mosaic=1.0, mixup=0.0, copy\_paste=0.0, auto\_augment=randaugment, erasing=0.4, crop\_fraction=1.0, cfg=None, tracker=botsort.yaml, save\_dir=runs\train\exp

Overriding model.yaml nc=80 with nc=1

from n params module arguments

0 -1 1 464 ultralytics.nn.modules.conv.Conv [3, 16, 3, 2]

1 -1 1 4672 ultralytics.nn.modules.conv.Conv [16, 32, 3, 2]

2 -1 1 7360 ultralytics.nn.modules.block.C2f [32, 32, 1, True]

3 -1 1 18560 ultralytics.nn.modules.conv.Conv [32, 64, 3, 2]

4 -1 2 49664 ultralytics.nn.modules.block.C2f [64, 64, 2, True]

5 -1 1 9856 ultralytics.nn.modules.block.SCDown [64, 128, 3, 2]

6 -1 2 197632 ultralytics.nn.modules.block.C2f [128, 128, 2, True]

7 -1 1 36096 ultralytics.nn.modules.block.SCDown [128, 256, 3, 2]

8 -1 1 460288 ultralytics.nn.modules.block.C2f [256, 256, 1, True]

9 -1 1 164608 ultralytics.nn.modules.block.SPPF [256, 256, 5]

10 -1 1 249728 ultralytics.nn.modules.block.PSA [256, 256]

11 -1 1 0 torch.nn.modules.upsampling.Upsample [None, 2, 'nearest']

12 [-1, 6] 1 0 ultralytics.nn.modules.conv.Concat [1]

13 -1 1 148224 ultralytics.nn.modules.block.C2f [384, 128, 1]

14 -1 1 0 torch.nn.modules.upsampling.Upsample [None, 2, 'nearest']

15 [-1, 4] 1 0 ultralytics.nn.modules.conv.Concat [1]

16 -1 1 37248 ultralytics.nn.modules.block.C2f [192, 64, 1]

17 -1 1 36992 ultralytics.nn.modules.conv.Conv [64, 64, 3, 2]

18 [-1, 13] 1 0 ultralytics.nn.modules.conv.Concat [1]

19 -1 1 123648 ultralytics.nn.modules.block.C2f [192, 128, 1]

20 -1 1 18048 ultralytics.nn.modules.block.SCDown [128, 128, 3, 2]

21 [-1, 10] 1 0 ultralytics.nn.modules.conv.Concat [1]

22 -1 1 282624 ultralytics.nn.modules.block.C2fCIB [384, 256, 1, True, True]

23 [16, 19, 22] 1 861718 ultralytics.nn.modules.head.v10Detect [1, [64, 128, 256]]

YOLOv10n summary: 385 layers, 2707430 parameters, 2707414 gradients, 8.4 GFLOPs

Transferred 493/595 items from pretrained weights

TensorBoard: Start with 'tensorboard --logdir runs\train\exp', view at http://localhost:6006/

Freezing layer 'model.23.dfl.conv.weight'

AutoBatch: Computing optimal batch size for imgsz=640 at 60.0% CUDA memory utilization.

AutoBatch: ⚠️ intended for CUDA devices, using default batch-size 16

train: Scanning C:\Drone-Detection\_Yolov10\Drone-Detection-data-set(yolov7)-1\train\labels... 2969 images, 0 backgr

train: New cache created: C:\Drone-Detection\_Yolov10\Drone-Detection-data-set(yolov7)-1\train\labels.cache

C:\Users\Alfonso Blanco\.conda\envs\alfonso1\lib\site-packages\paramiko\transport.py:219: CryptographyDeprecationWarning: Blowfish has been deprecated

"class": algorithms.Blowfish,

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))

val: Scanning C:\Drone-Detection\_Yolov10\Drone-Detection-data-set(yolov7)-1\valid\labels... 300 images, 0 backgroun

val: New cache created: C:\Drone-Detection\_Yolov10\Drone-Detection-data-set(yolov7)-1\valid\labels.cache

Plotting labels to runs\train\exp\labels.jpg...

optimizer: SGD(lr=0.01, momentum=0.937) with parameter groups 95 weight(decay=0.0), 108 weight(decay=0.0005), 107 bias(decay=0.0)

TensorBoard: model graph visualization added ✅

Image sizes 640 train, 640 val

Using 0 dataloader workers

Logging results to runs\train\exp

Starting training for 50 epochs...

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

1/50 0G 2.721 5.535 3.351 27 448: 100%|██████████| 186/186 [2:45:27<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.54 0.398 0.406 0.205

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

2/50 0G 2.87 4.006 3.405 21 928: 100%|██████████| 186/186 [1:03:33<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.44 0.35 0.312 0.143

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

3/50 0G 3.092 3.882 3.603 20 672: 100%|██████████| 186/186 [1:56:25<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.437 0.373 0.301 0.119

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

4/50 0G 3.237 3.873 3.725 26 896: 100%|██████████| 186/186 [1:08:38<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.423 0.424 0.332 0.132

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

5/50 0G 3.193 3.745 3.702 18 416: 100%|██████████| 186/186 [23:08:28<0

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.421 0.389 0.342 0.137

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

6/50 0G 3.15 3.502 3.625 23 384: 100%|██████████| 186/186 [1:08:29<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.537 0.545 0.511 0.253

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

7/50 0G 3.089 3.355 3.6 28 960: 100%|██████████| 186/186 [10:42:13<0

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.608 0.564 0.567 0.304

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

8/50 0G 3.033 3.21 3.559 24 384: 100%|██████████| 186/186 [2:49:26<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.528 0.592 0.502 0.266

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

9/50 0G 2.974 3.043 3.473 18 864: 100%|██████████| 186/186 [1:11:54<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.681 0.557 0.609 0.317

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

10/50 0G 2.962 2.967 3.461 20 800: 100%|██████████| 186/186 [1:21:58<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.714 0.567 0.646 0.309

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

11/50 0G 2.915 2.868 3.396 22 608: 100%|██████████| 186/186 [3:32:24<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.724 0.65 0.714 0.374

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

12/50 0G 2.905 2.762 3.41 23 736: 100%|██████████| 186/186 [1:04:47<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.755 0.621 0.717 0.408

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

13/50 0G 2.875 2.677 3.35 28 928: 100%|██████████| 186/186 [2:01:26<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.733 0.629 0.68 0.38

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

14/50 0G 2.797 2.602 3.324 23 512: 100%|██████████| 186/186 [1:17:49<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.755 0.666 0.769 0.38

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

15/50 0G 2.827 2.623 3.299 21 448: 100%|██████████| 186/186 [10:14:04<0

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.763 0.615 0.718 0.388

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

16/50 0G 2.795 2.507 3.246 15 864: 100%|██████████| 186/186 [2:40:58<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.695 0.669 0.707 0.354

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

17/50 0G 2.759 2.401 3.239 22 704: 100%|██████████| 186/186 [2:09:26<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.797 0.662 0.738 0.382

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

18/50 0G 2.789 2.458 3.242 30 480: 100%|██████████| 186/186 [3:14:02<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.745 0.727 0.774 0.428

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

19/50 0G 2.709 2.342 3.168 24 800: 100%|██████████| 186/186 [1:01:06<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.769 0.647 0.704 0.395

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

20/50 0G 2.681 2.353 3.206 16 320: 100%|██████████| 186/186 [2:07:09<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.757 0.694 0.747 0.376

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

21/50 0G 2.689 2.283 3.13 20 896: 100%|██████████| 186/186 [1:00:51<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [2

all 300 314 0.807 0.681 0.763 0.439

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

22/50 0G 2.62 2.246 3.156 23 352: 100%|██████████| 186/186 [10:38:56<0

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.854 0.701 0.803 0.465

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

23/50 0G 2.622 2.257 3.11 22 896: 100%|██████████| 186/186 [1:04:04<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.878 0.708 0.81 0.411

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

24/50 0G 2.581 2.12 3.144 19 704: 100%|██████████| 186/186 [3:53:51<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.874 0.707 0.821 0.452

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

25/50 0G 2.57 2.125 3.073 19 928: 100%|██████████| 186/186 [1:04:33<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.784 0.79 0.845 0.453

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

26/50 0G 2.563 2.103 3.074 20 832: 100%|██████████| 186/186 [2:53:23<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.81 0.721 0.798 0.46

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

27/50 0G 2.531 2.046 3.056 24 736: 100%|██████████| 186/186 [1:37:49<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.87 0.768 0.864 0.504

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

28/50 0G 2.531 2.013 3.056 27 960: 100%|██████████| 186/186 [1:06:19<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.839 0.726 0.837 0.464

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

29/50 0G 2.531 2.074 3.059 23 832: 100%|██████████| 186/186 [1:06:50<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.901 0.764 0.868 0.48

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

30/50 0G 2.499 1.975 3.023 18 640: 100%|██████████| 186/186 [1:13:11<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.803 0.703 0.799 0.443

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

31/50 0G 2.484 1.931 2.996 27 320: 100%|██████████| 186/186 [15:17:03<0

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.858 0.803 0.862 0.474

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

32/50 0G 2.447 1.931 3.003 22 672: 100%|██████████| 186/186 [1:11:18<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.851 0.694 0.813 0.478

Epoch GPU\_mem box\_loss cls\_loss dfl\_loss Instances Size

33/50 0G 2.421 1.901 3.026 23 896: 100%|██████████| 186/186 [2:50:22<00

Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 10/10 [0

all 300 314 0.861 0.768 0.868 0.501