**D:\Software\Anaconda\envs\yolov8\python.exe F:\YOLO\yolov8-main\train.py**

**WARNING no model scale passed. Assuming scale='n'.**

**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 20672 ultralytics.nn.extra\_modules.block.RCSOSA [32, 32, 1]**

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

**4 -1 2 87616 ultralytics.nn.extra\_modules.block.RCSOSA [64, 64, 2]**

**5 -1 1 0 ultralytics.nn.extra\_modules.attention.SimAM [0.0001]**

**6 -1 1 73984 ultralytics.nn.modules.conv.Conv [64, 128, 3, 2]**

**7 -1 2 351360 ultralytics.nn.extra\_modules.block.RCSOSA [128, 128, 2, True]**

**8 -1 1 0 ultralytics.nn.extra\_modules.attention.SimAM [0.0001]**

**9 -1 1 295424 ultralytics.nn.modules.conv.Conv [128, 256, 3, 2]**

**10 -1 1 1320448 ultralytics.nn.extra\_modules.block.RCSOSA [256, 256, 1, True]**

**11 -1 1 164608 ultralytics.nn.modules.block.SPPF [256, 256, 5]**

**12 -1 1 0 ultralytics.nn.extra\_modules.attention.SimAM [0.0001]**

**13 -1 1 8224 ultralytics.nn.modules.dysample.DySample [256]**

**14 [-1, 8] 1 0 ultralytics.nn.modules.conv.Concat [1]**

**15 -1 1 1475840 ultralytics.nn.extra\_modules.block.RCSOSA [384, 128, 1]**

**16 -1 1 4128 ultralytics.nn.modules.dysample.DySample [128]**

**17 [-1, 5] 1 0 ultralytics.nn.modules.conv.Concat [1]**

**18 -1 1 369280 ultralytics.nn.extra\_modules.block.RCSOSA [192, 64, 1]**

**19 -1 1 36992 ultralytics.nn.modules.conv.Conv [64, 64, 3, 2]**

**20 [-1, 15] 1 0 ultralytics.nn.modules.conv.Concat [1]**

**21 -1 1 553856 ultralytics.nn.extra\_modules.block.RCSOSA [192, 128, 1]**

**22 -1 1 147712 ultralytics.nn.modules.conv.Conv [128, 128, 3, 2]**

**23 [-1, 12] 1 0 ultralytics.nn.modules.conv.Concat [1]**

**24 -1 1 2213632 ultralytics.nn.extra\_modules.block.RCSOSA [384, 256, 1]**

**25 [18, 21, 24] 1 2270178 ultralytics.nn.modules.ASFFhead.Detect\_ASFF [80, [64, 128, 256]]**

**YOLOv8-C2f-DWR-DRB-improvetest summary: 393 layers, 9417650 parameters, 9417634 gradients, 24.6 GFLOPs**

**New https://pypi.org/project/ultralytics/8.1.35 available Update with 'pip install -U ultralytics'**

**Ultralytics YOLOv8.0.202 Python-3.9.18 torch-2.1.1 CUDA:0 (NVIDIA GeForce RTX 3070 Ti Laptop GPU, 8192MiB)**

**engine\trainer: task=detect, mode=train, model=ultralytics/cfg/models/v8/yolov8-C2f-DWR-DRB-improvetest.yaml, data=F:/YOLO/yolov8-main/dataset/fireandsmoke/data.yaml, epochs=100, patience=300, batch=32, imgsz=640, save=True, save\_period=-1, cache=False, device=0, workers=4, 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, 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, show=False, save\_txt=False, save\_conf=False, save\_crop=False, show\_labels=True, show\_conf=True, vid\_stride=1, stream\_buffer=False, line\_width=None, visualize=False, augment=False, agnostic\_nms=False, classes=None, retina\_masks=False, boxes=True, format=torchscript, keras=False, optimize=False, int8=False, dynamic=False, simplify=False, opset=None, workspace=4, nms=False, 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=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, mosaic=1.0, mixup=0.0, copy\_paste=0.0, cfg=None, tracker=botsort.yaml, save\_dir=runs\train\exp**

**Overriding model.yaml nc=80 with nc=2**

**WARNING no model scale passed. Assuming scale='n'.**

**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 20672 ultralytics.nn.extra\_modules.block.RCSOSA [32, 32, 1]**

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

**4 -1 2 87616 ultralytics.nn.extra\_modules.block.RCSOSA [64, 64, 2]**

**5 -1 1 0 ultralytics.nn.extra\_modules.attention.SimAM [0.0001]**

**6 -1 1 73984 ultralytics.nn.modules.conv.Conv [64, 128, 3, 2]**

**7 -1 2 351360 ultralytics.nn.extra\_modules.block.RCSOSA [128, 128, 2, True]**

**8 -1 1 0 ultralytics.nn.extra\_modules.attention.SimAM [0.0001]**

**9 -1 1 295424 ultralytics.nn.modules.conv.Conv [128, 256, 3, 2]**

**10 -1 1 1320448 ultralytics.nn.extra\_modules.block.RCSOSA [256, 256, 1, True]**

**11 -1 1 164608 ultralytics.nn.modules.block.SPPF [256, 256, 5]**

**12 -1 1 0 ultralytics.nn.extra\_modules.attention.SimAM [0.0001]**

**13 -1 1 8224 ultralytics.nn.modules.dysample.DySample [256]**

**14 [-1, 8] 1 0 ultralytics.nn.modules.conv.Concat [1]**

**15 -1 1 1475840 ultralytics.nn.extra\_modules.block.RCSOSA [384, 128, 1]**

**16 -1 1 4128 ultralytics.nn.modules.dysample.DySample [128]**

**17 [-1, 5] 1 0 ultralytics.nn.modules.conv.Concat [1]**

**18 -1 1 369280 ultralytics.nn.extra\_modules.block.RCSOSA [192, 64, 1]**

**19 -1 1 36992 ultralytics.nn.modules.conv.Conv [64, 64, 3, 2]**

**20 [-1, 15] 1 0 ultralytics.nn.modules.conv.Concat [1]**

**21 -1 1 553856 ultralytics.nn.extra\_modules.block.RCSOSA [192, 128, 1]**

**22 -1 1 147712 ultralytics.nn.modules.conv.Conv [128, 128, 3, 2]**

**23 [-1, 12] 1 0 ultralytics.nn.modules.conv.Concat [1]**

**24 -1 1 2213632 ultralytics.nn.extra\_modules.block.RCSOSA [384, 256, 1]**

**25 [18, 21, 24] 1 2124216 ultralytics.nn.modules.ASFFhead.Detect\_ASFF [2, [64, 128, 256]]**

**YOLOv8-C2f-DWR-DRB-improvetest summary: 393 layers, 9271688 parameters, 9271672 gradients, 24.0 GFLOPs**

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

**Freezing layer 'model.25.dfl.conv.weight'**

**AMP: running Automatic Mixed Precision (AMP) checks with YOLOv8n...**

**AMP: checks passed**

**train: Scanning F:\YOLO\yolov8-main\dataset\fireandsmoke\labels\train.cache... 5396 images, 0 backgrounds, 0 corrupt: 100%|██████████| 5396/5396 [00:00<?, ?it/s]**

**val: Scanning F:\YOLO\yolov8-main\dataset\fireandsmoke\labels\val.cache... 674 images, 0 backgrounds, 0 corrupt: 100%|██████████| 674/674 [00:00<?, ?it/s]**

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

**optimizer: SGD(lr=0.01, momentum=0.937) with parameter groups 86 weight(decay=0.0), 95 weight(decay=0.0005), 94 bias(decay=0.0)**

**Image sizes 640 train, 640 val**

**Using 4 dataloader workers**

**Logging results to runs\train\exp**

**Starting training for 100 epochs...**

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

**1/100 5.29G 3.596 3.765 3.881 132 640: 100%|██████████| 169/169 [00:52<00:00, 3.24it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 2.13it/s]**

**all 674 2540 0.527 0.0272 0.00909 0.00258**

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

**2/100 5.36G 3.011 2.961 3.197 115 640: 100%|██████████| 169/169 [00:51<00:00, 3.30it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.86it/s]**

**all 674 2540 0.239 0.272 0.149 0.0522**

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

**3/100 5.35G 2.365 2.55 2.607 131 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.90it/s]**

**all 674 2540 0.27 0.309 0.22 0.0889**

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

**4/100 5.39G 2.04 2.268 2.259 112 640: 100%|██████████| 169/169 [00:50<00:00, 3.32it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.72it/s]**

**all 674 2540 0.374 0.4 0.33 0.148**

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

**5/100 5.64G 1.886 2.101 2.093 114 640: 100%|██████████| 169/169 [00:51<00:00, 3.28it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.95it/s]**

**all 674 2540 0.486 0.422 0.423 0.208**

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

**6/100 5.41G 1.797 1.992 2.005 127 640: 100%|██████████| 169/169 [00:51<00:00, 3.28it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.73it/s]**

**all 674 2540 0.493 0.486 0.472 0.24**

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

**7/100 5.36G 1.743 1.926 1.943 92 640: 100%|██████████| 169/169 [00:52<00:00, 3.20it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.90it/s]**

**all 674 2540 0.502 0.51 0.487 0.253**

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

**8/100 5.43G 1.706 1.875 1.903 103 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.80it/s]**

**all 674 2540 0.474 0.512 0.491 0.257**

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

**9/100 5.38G 1.676 1.817 1.877 120 640: 100%|██████████| 169/169 [00:52<00:00, 3.20it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.72it/s]**

**all 674 2540 0.497 0.56 0.534 0.284**

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

**10/100 5.38G 1.645 1.762 1.844 134 640: 100%|██████████| 169/169 [00:52<00:00, 3.20it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 2.19it/s]**

**all 674 2540 0.54 0.53 0.533 0.29**

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

**11/100 5.37G 1.611 1.717 1.806 123 640: 100%|██████████| 169/169 [00:52<00:00, 3.19it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 2.20it/s]**

**all 674 2540 0.503 0.562 0.555 0.308**

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

**12/100 5.48G 1.603 1.696 1.794 126 640: 100%|██████████| 169/169 [00:56<00:00, 3.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 2.08it/s]**

**all 674 2540 0.552 0.536 0.55 0.309**

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

**13/100 5.4G 1.576 1.674 1.77 134 640: 100%|██████████| 169/169 [00:55<00:00, 3.03it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 2.08it/s]**

**all 674 2540 0.582 0.587 0.598 0.34**

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

**14/100 5.38G 1.554 1.631 1.752 129 640: 100%|██████████| 169/169 [00:54<00:00, 3.11it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.36it/s]**

**all 674 2540 0.555 0.596 0.599 0.339**

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

**15/100 5.36G 1.547 1.616 1.752 100 640: 100%|██████████| 169/169 [00:53<00:00, 3.17it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.76it/s]**

**all 674 2540 0.574 0.585 0.606 0.346**

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

**16/100 5.38G 1.525 1.58 1.728 135 640: 100%|██████████| 169/169 [00:52<00:00, 3.24it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.71it/s]**

**all 674 2540 0.574 0.574 0.602 0.347**

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

**17/100 5.38G 1.501 1.55 1.711 149 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.87it/s]**

**all 674 2540 0.585 0.597 0.63 0.369**

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

**18/100 5.37G 1.495 1.538 1.706 147 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.65it/s]**

**all 674 2540 0.578 0.602 0.605 0.351**

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

**19/100 5.35G 1.481 1.517 1.691 168 640: 100%|██████████| 169/169 [00:52<00:00, 3.19it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.54it/s]**

**all 674 2540 0.606 0.614 0.652 0.387**

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

**20/100 5.36G 1.472 1.504 1.691 164 640: 100%|██████████| 169/169 [00:54<00:00, 3.12it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.79it/s]**

**all 674 2540 0.634 0.616 0.667 0.398**

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

**21/100 5.4G 1.467 1.479 1.673 109 640: 100%|██████████| 169/169 [00:53<00:00, 3.18it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.59it/s]**

**all 674 2540 0.617 0.634 0.66 0.387**

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

**22/100 5.37G 1.448 1.46 1.67 146 640: 100%|██████████| 169/169 [00:52<00:00, 3.20it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.58it/s]**

**all 674 2540 0.621 0.628 0.668 0.403**

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

**23/100 5.35G 1.437 1.444 1.661 107 640: 100%|██████████| 169/169 [00:53<00:00, 3.18it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.84it/s]**

**all 674 2540 0.591 0.646 0.665 0.4**

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

**24/100 5.38G 1.43 1.423 1.647 95 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.75it/s]**

**all 674 2540 0.648 0.63 0.676 0.414**

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

**25/100 5.42G 1.413 1.409 1.641 132 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.54it/s]**

**all 674 2540 0.631 0.621 0.682 0.417**

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

**26/100 5.43G 1.414 1.394 1.628 134 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.57it/s]**

**all 674 2540 0.59 0.628 0.657 0.405**

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

**27/100 5.41G 1.398 1.383 1.62 105 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.54it/s]**

**all 674 2540 0.632 0.644 0.677 0.424**

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

**28/100 5.49G 1.396 1.367 1.621 164 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.44it/s]**

**all 674 2540 0.668 0.657 0.712 0.446**

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

**29/100 5.38G 1.384 1.354 1.614 138 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.68it/s]**

**all 674 2540 0.667 0.649 0.713 0.439**

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

**30/100 5.38G 1.374 1.331 1.602 94 640: 100%|██████████| 169/169 [00:53<00:00, 3.19it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.72it/s]**

**all 674 2540 0.627 0.653 0.695 0.434**

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

**31/100 5.37G 1.368 1.324 1.606 111 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.69it/s]**

**all 674 2540 0.68 0.655 0.715 0.452**

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

**32/100 5.37G 1.351 1.295 1.589 125 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.63it/s]**

**all 674 2540 0.643 0.682 0.716 0.447**

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

**33/100 5.38G 1.354 1.29 1.582 119 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.88it/s]**

**all 674 2540 0.669 0.672 0.721 0.455**

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

**34/100 5.34G 1.343 1.289 1.587 124 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.54it/s]**

**all 674 2540 0.671 0.679 0.733 0.467**

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

**35/100 5.39G 1.342 1.264 1.575 154 640: 100%|██████████| 169/169 [00:53<00:00, 3.18it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.58it/s]**

**all 674 2540 0.679 0.676 0.73 0.468**

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

**36/100 5.41G 1.32 1.256 1.565 123 640: 100%|██████████| 169/169 [00:53<00:00, 3.16it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.65it/s]**

**all 674 2540 0.675 0.701 0.742 0.471**

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

**37/100 5.4G 1.317 1.231 1.551 139 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.54it/s]**

**all 674 2540 0.707 0.679 0.745 0.482**

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

**38/100 5.38G 1.313 1.229 1.55 171 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.51it/s]**

**all 674 2540 0.691 0.69 0.751 0.488**

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

**39/100 5.36G 1.303 1.217 1.546 110 640: 100%|██████████| 169/169 [00:53<00:00, 3.18it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.71it/s]**

**all 674 2540 0.693 0.713 0.759 0.493**

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

**40/100 5.36G 1.298 1.212 1.55 162 640: 100%|██████████| 169/169 [00:52<00:00, 3.19it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.78it/s]**

**all 674 2540 0.684 0.708 0.758 0.492**

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

**41/100 5.38G 1.298 1.196 1.549 120 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.62it/s]**

**all 674 2540 0.71 0.702 0.765 0.494**

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

**42/100 5.39G 1.28 1.184 1.532 121 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.56it/s]**

**all 674 2540 0.693 0.691 0.754 0.495**

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

**43/100 5.4G 1.275 1.179 1.524 133 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.56it/s]**

**all 674 2540 0.701 0.72 0.772 0.508**

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

**44/100 5.36G 1.274 1.172 1.522 123 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.71it/s]**

**all 674 2540 0.72 0.685 0.769 0.505**

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

**45/100 5.4G 1.272 1.17 1.52 136 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.70it/s]**

**all 674 2540 0.73 0.708 0.778 0.517**

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

**46/100 5.37G 1.26 1.153 1.511 122 640: 100%|██████████| 169/169 [00:52<00:00, 3.20it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.62it/s]**

**all 674 2540 0.738 0.699 0.782 0.517**

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

**47/100 5.4G 1.256 1.136 1.506 131 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.68it/s]**

**all 674 2540 0.732 0.722 0.785 0.526**

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

**48/100 5.39G 1.251 1.134 1.505 125 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.72it/s]**

**all 674 2540 0.704 0.731 0.779 0.523**

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

**49/100 5.37G 1.24 1.116 1.493 149 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.65it/s]**

**all 674 2540 0.736 0.722 0.79 0.531**

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

**50/100 5.41G 1.23 1.101 1.485 124 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.67it/s]**

**all 674 2540 0.743 0.706 0.789 0.534**

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

**51/100 5.34G 1.224 1.095 1.48 125 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.83it/s]**

**all 674 2540 0.763 0.721 0.805 0.548**

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

**52/100 5.51G 1.216 1.081 1.477 126 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.70it/s]**

**all 674 2540 0.732 0.731 0.791 0.539**

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

**53/100 5.37G 1.215 1.086 1.466 161 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.77it/s]**

**all 674 2540 0.732 0.749 0.8 0.545**

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

**54/100 5.38G 1.212 1.076 1.47 114 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.70it/s]**

**all 674 2540 0.76 0.741 0.824 0.564**

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

**55/100 5.4G 1.209 1.074 1.471 99 640: 100%|██████████| 169/169 [00:52<00:00, 3.24it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.78it/s]**

**all 674 2540 0.749 0.758 0.818 0.561**

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

**56/100 5.39G 1.202 1.068 1.465 122 640: 100%|██████████| 169/169 [00:52<00:00, 3.24it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.89it/s]**

**all 674 2540 0.768 0.756 0.825 0.569**

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

**57/100 5.34G 1.194 1.053 1.462 142 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.85it/s]**

**all 674 2540 0.772 0.753 0.829 0.573**

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

**58/100 5.4G 1.193 1.046 1.455 158 640: 100%|██████████| 169/169 [00:52<00:00, 3.19it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.64it/s]**

**all 674 2540 0.787 0.757 0.831 0.572**

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

**59/100 5.36G 1.185 1.038 1.452 113 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.73it/s]**

**all 674 2540 0.769 0.756 0.83 0.573**

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

**60/100 5.6G 1.185 1.036 1.449 123 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.55it/s]**

**all 674 2540 0.773 0.769 0.84 0.582**

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

**61/100 5.4G 1.169 1.023 1.439 139 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.71it/s]**

**all 674 2540 0.767 0.763 0.835 0.581**

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

**62/100 5.4G 1.166 1.01 1.438 139 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.54it/s]**

**all 674 2540 0.784 0.754 0.839 0.589**

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

**63/100 5.41G 1.167 1.01 1.438 165 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.62it/s]**

**all 674 2540 0.78 0.759 0.838 0.589**

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

**64/100 5.6G 1.15 0.9963 1.43 136 640: 100%|██████████| 169/169 [00:52<00:00, 3.24it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.73it/s]**

**all 674 2540 0.787 0.754 0.841 0.59**

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

**65/100 5.56G 1.15 0.9817 1.422 108 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.62it/s]**

**all 674 2540 0.807 0.757 0.85 0.601**

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

**66/100 5.6G 1.137 0.9724 1.413 126 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.65it/s]**

**all 674 2540 0.778 0.79 0.842 0.594**

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

**67/100 5.38G 1.139 0.9765 1.415 137 640: 100%|██████████| 169/169 [00:53<00:00, 3.16it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.53it/s]**

**all 674 2540 0.798 0.765 0.852 0.607**

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

**68/100 5.38G 1.145 0.9749 1.414 111 640: 100%|██████████| 169/169 [00:54<00:00, 3.12it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.61it/s]**

**all 674 2540 0.801 0.775 0.852 0.608**

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

**69/100 5.37G 1.126 0.9466 1.399 101 640: 100%|██████████| 169/169 [00:52<00:00, 3.19it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.63it/s]**

**all 674 2540 0.804 0.787 0.859 0.611**

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

**70/100 5.36G 1.123 0.954 1.4 131 640: 100%|██████████| 169/169 [00:55<00:00, 3.06it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.52it/s]**

**all 674 2540 0.807 0.785 0.86 0.616**

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

**71/100 5.4G 1.118 0.9507 1.403 163 640: 100%|██████████| 169/169 [00:55<00:00, 3.07it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.45it/s]**

**all 674 2540 0.811 0.784 0.859 0.617**

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

**72/100 5.6G 1.116 0.9418 1.399 161 640: 100%|██████████| 169/169 [00:54<00:00, 3.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 2.09it/s]**

**all 674 2540 0.801 0.789 0.854 0.61**

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

**73/100 5.38G 1.108 0.9279 1.385 143 640: 100%|██████████| 169/169 [00:56<00:00, 2.97it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.21it/s]**

**all 674 2540 0.814 0.775 0.855 0.61**

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

**74/100 5.37G 1.099 0.9194 1.38 145 640: 100%|██████████| 169/169 [00:55<00:00, 3.03it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.45it/s]**

**all 674 2540 0.814 0.786 0.859 0.618**

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

**75/100 5.37G 1.095 0.9163 1.377 139 640: 100%|██████████| 169/169 [00:55<00:00, 3.05it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.44it/s]**

**all 674 2540 0.81 0.803 0.865 0.625**

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

**76/100 5.47G 1.095 0.9176 1.377 104 640: 100%|██████████| 169/169 [00:56<00:00, 2.99it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 2.04it/s]**

**all 674 2540 0.825 0.786 0.865 0.624**

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

**77/100 5.38G 1.089 0.8988 1.377 110 640: 100%|██████████| 169/169 [00:56<00:00, 3.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 1.89it/s]**

**all 674 2540 0.815 0.801 0.867 0.629**

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

**78/100 5.37G 1.078 0.8927 1.371 123 640: 100%|██████████| 169/169 [00:56<00:00, 3.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.31it/s]**

**all 674 2540 0.811 0.809 0.869 0.633**

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

**79/100 5.39G 1.076 0.8911 1.372 120 640: 100%|██████████| 169/169 [00:56<00:00, 3.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.31it/s]**

**all 674 2540 0.832 0.785 0.87 0.632**

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

**80/100 5.39G 1.07 0.8848 1.358 133 640: 100%|██████████| 169/169 [00:54<00:00, 3.07it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 2.14it/s]**

**all 674 2540 0.821 0.801 0.871 0.64**

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

**81/100 5.39G 1.068 0.8836 1.355 132 640: 100%|██████████| 169/169 [00:54<00:00, 3.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.36it/s]**

**all 674 2540 0.818 0.81 0.875 0.639**

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

**82/100 5.41G 1.069 0.8782 1.362 121 640: 100%|██████████| 169/169 [00:55<00:00, 3.05it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 2.19it/s]**

**all 674 2540 0.839 0.792 0.872 0.638**

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

**83/100 5.42G 1.053 0.8623 1.349 109 640: 100%|██████████| 169/169 [00:55<00:00, 3.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.24it/s]**

**all 674 2540 0.826 0.806 0.874 0.641**

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

**84/100 5.42G 1.049 0.8639 1.343 130 640: 100%|██████████| 169/169 [00:53<00:00, 3.16it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.67it/s]**

**all 674 2540 0.841 0.799 0.874 0.641**

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

**85/100 5.37G 1.046 0.8563 1.343 133 640: 100%|██████████| 169/169 [00:52<00:00, 3.19it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.67it/s]**

**all 674 2540 0.844 0.806 0.879 0.649**

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

**86/100 5.32G 1.038 0.8413 1.333 125 640: 100%|██████████| 169/169 [00:53<00:00, 3.16it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.72it/s]**

**all 674 2540 0.816 0.821 0.876 0.646**

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

**87/100 5.35G 1.038 0.8472 1.337 111 640: 100%|██████████| 169/169 [00:52<00:00, 3.21it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.87it/s]**

**all 674 2540 0.82 0.822 0.88 0.647**

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

**88/100 5.58G 1.035 0.8417 1.331 125 640: 100%|██████████| 169/169 [00:53<00:00, 3.13it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.84it/s]**

**all 674 2540 0.818 0.817 0.88 0.65**

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

**89/100 5.35G 1.032 0.8406 1.334 167 640: 100%|██████████| 169/169 [00:53<00:00, 3.16it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.98it/s]**

**all 674 2540 0.857 0.794 0.883 0.651**

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

**90/100 5.45G 1.019 0.8222 1.324 151 640: 100%|██████████| 169/169 [00:52<00:00, 3.20it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.75it/s]**

**all 674 2540 0.837 0.818 0.881 0.652**

**Closing dataloader mosaic**

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

**91/100 5.3G 0.9312 0.7086 1.265 62 640: 100%|██████████| 169/169 [00:51<00:00, 3.30it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.96it/s]**

**all 674 2540 0.833 0.818 0.887 0.658**

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

**92/100 5.32G 0.9014 0.6646 1.241 60 640: 100%|██████████| 169/169 [00:52<00:00, 3.22it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.95it/s]**

**all 674 2540 0.858 0.8 0.891 0.664**

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

**93/100 5.31G 0.8926 0.6496 1.233 67 640: 100%|██████████| 169/169 [00:51<00:00, 3.26it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.92it/s]**

**all 674 2540 0.854 0.815 0.891 0.666**

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

**94/100 5.38G 0.8761 0.6349 1.221 55 640: 100%|██████████| 169/169 [00:52<00:00, 3.23it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.81it/s]**

**all 674 2540 0.861 0.812 0.892 0.668**

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

**95/100 5.32G 0.8705 0.6332 1.222 55 640: 100%|██████████| 169/169 [00:53<00:00, 3.18it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.87it/s]**

**all 674 2540 0.857 0.824 0.895 0.673**

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

**96/100 5.4G 0.8714 0.6343 1.222 58 640: 100%|██████████| 169/169 [00:55<00:00, 3.07it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:05<00:00, 1.86it/s]**

**all 674 2540 0.859 0.825 0.895 0.675**

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

**97/100 5.31G 0.8619 0.6201 1.216 59 640: 100%|██████████| 169/169 [00:54<00:00, 3.11it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.68it/s]**

**all 674 2540 0.859 0.822 0.894 0.674**

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

**98/100 5.31G 0.8518 0.611 1.205 53 640: 100%|██████████| 169/169 [00:51<00:00, 3.26it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.64it/s]**

**all 674 2540 0.865 0.819 0.896 0.677**

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

**99/100 5.31G 0.84 0.607 1.191 71 640: 100%|██████████| 169/169 [00:52<00:00, 3.19it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.50it/s]**

**all 674 2540 0.873 0.815 0.897 0.678**

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

**100/100 5.35G 0.8451 0.6075 1.2 72 640: 100%|██████████| 169/169 [00:53<00:00, 3.16it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.68it/s]**

**all 674 2540 0.87 0.817 0.898 0.679**

**100 epochs completed in 1.620 hours.**

**Optimizer stripped from runs\train\exp\weights\last.pt, 18.9MB**

**Optimizer stripped from runs\train\exp\weights\best.pt, 18.9MB**

**Validating runs\train\exp\weights\best.pt...**

**Ultralytics YOLOv8.0.202 Python-3.9.18 torch-2.1.1 CUDA:0 (NVIDIA GeForce RTX 3070 Ti Laptop GPU, 8192MiB)**

**YOLOv8-C2f-DWR-DRB-improvetest summary: 240 layers, 8627080 parameters, 0 gradients, 22.1 GFLOPs**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.37it/s]**

**all 674 2540 0.873 0.815 0.897 0.679**

**fire 674 1086 0.912 0.885 0.948 0.729**

**smoke 674 1454 0.834 0.745 0.846 0.629**

**Speed: 0.1ms preprocess, 1.4ms inference, 0.0ms loss, 0.8ms postprocess per image**

**Results saved to runs\train\exp**

**进程已结束,退出代码0**