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

**6 -1 2 351360 ultralytics.nn.extra\_modules.block.RCSOSA [128, 128, 2, True]**

**7 -1 1 295424 ultralytics.nn.modules.conv.Conv [128, 256, 3, 2]**

**8 -1 1 1320448 ultralytics.nn.extra\_modules.block.RCSOSA [256, 256, 1, True]**

**9 -1 1 0 ultralytics.nn.extra\_modules.attention.SimAM [0.0001]**

**10 -1 1 164608 ultralytics.nn.modules.block.SPPF [256, 256, 5]**

**11 -1 1 8224 ultralytics.nn.modules.dysample.DySample [256]**

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

**13 -1 1 1475840 ultralytics.nn.extra\_modules.block.RCSOSA [384, 128, 1]**

**14 -1 1 4128 ultralytics.nn.modules.dysample.DySample [128]**

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

**16 -1 1 369280 ultralytics.nn.extra\_modules.block.RCSOSA [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 553856 ultralytics.nn.extra\_modules.block.RCSOSA [192, 128, 1]**

**20 -1 1 147712 ultralytics.nn.modules.conv.Conv [128, 128, 3, 2]**

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

**22 -1 1 2213632 ultralytics.nn.extra\_modules.block.RCSOSA [384, 256, 1]**

**23 [16, 19, 22] 1 751702 ultralytics.nn.modules.head.Detect [2, [64, 128, 256]]**

**YOLOv8-RCSOSA-1 summary: 322 layers, 7899174 parameters, 7899158 gradients, 21.8 GFLOPs**

**New https://pypi.org/project/ultralytics/8.1.37 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-RCSOSA-1.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**

**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]**

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

**6 -1 2 351360 ultralytics.nn.extra\_modules.block.RCSOSA [128, 128, 2, True]**

**7 -1 1 295424 ultralytics.nn.modules.conv.Conv [128, 256, 3, 2]**

**8 -1 1 1320448 ultralytics.nn.extra\_modules.block.RCSOSA [256, 256, 1, True]**

**9 -1 1 0 ultralytics.nn.extra\_modules.attention.SimAM [0.0001]**

**10 -1 1 164608 ultralytics.nn.modules.block.SPPF [256, 256, 5]**

**11 -1 1 8224 ultralytics.nn.modules.dysample.DySample [256]**

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

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

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

**22 -1 1 2213632 ultralytics.nn.extra\_modules.block.RCSOSA [384, 256, 1]**

**23 [16, 19, 22] 1 751702 ultralytics.nn.modules.head.Detect [2, [64, 128, 256]]**

**YOLOv8-RCSOSA-1 summary: 322 layers, 7899174 parameters, 7899158 gradients, 21.8 GFLOPs**

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

**Freezing layer 'model.23.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 65 weight(decay=0.0), 74 weight(decay=0.0005), 73 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 4.46G 3.543 3.642 3.858 132 640: 100%|██████████| 169/169 [00:44<00:00, 3.83it/s]**

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

**all 674 2540 0.522 0.0115 0.00595 0.00167**

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

**2/100 4.58G 2.912 2.915 3.12 115 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.241 0.276 0.158 0.051**

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

**3/100 4.49G 2.345 2.546 2.561 131 640: 100%|██████████| 169/169 [00:41<00:00, 4.05it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.35it/s]**

**all 674 2540 0.182 0.312 0.171 0.0674**

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

**4/100 4.53G 2.045 2.293 2.231 112 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.23it/s]**

**all 674 2540 0.36 0.416 0.338 0.147**

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

**5/100 4.78G 1.907 2.121 2.077 114 640: 100%|██████████| 169/169 [00:41<00:00, 4.04it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.42 0.479 0.433 0.204**

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

**6/100 4.55G 1.817 2.02 1.988 127 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.26it/s]**

**all 674 2540 0.428 0.445 0.416 0.207**

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

**7/100 4.57G 1.76 1.952 1.93 92 640: 100%|██████████| 169/169 [00:41<00:00, 4.03it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.28it/s]**

**all 674 2540 0.472 0.498 0.479 0.248**

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

**8/100 4.54G 1.726 1.899 1.886 103 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.32it/s]**

**all 674 2540 0.488 0.503 0.494 0.26**

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

**9/100 4.53G 1.688 1.851 1.859 120 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.26it/s]**

**all 674 2540 0.484 0.516 0.505 0.261**

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

**10/100 4.54G 1.664 1.802 1.828 134 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.29it/s]**

**all 674 2540 0.55 0.502 0.521 0.283**

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

**11/100 4.52G 1.632 1.762 1.799 123 640: 100%|██████████| 169/169 [00:41<00:00, 4.03it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.28it/s]**

**all 674 2540 0.539 0.544 0.547 0.307**

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

**12/100 4.57G 1.622 1.74 1.784 126 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.27it/s]**

**all 674 2540 0.533 0.538 0.55 0.303**

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

**13/100 4.53G 1.599 1.715 1.763 134 640: 100%|██████████| 169/169 [00:42<00:00, 3.99it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.566 0.505 0.523 0.292**

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

**14/100 4.53G 1.581 1.68 1.746 129 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.21it/s]**

**all 674 2540 0.567 0.548 0.581 0.325**

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

**15/100 4.5G 1.569 1.658 1.743 100 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.55 0.574 0.599 0.338**

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

**16/100 4.55G 1.544 1.623 1.711 135 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.27it/s]**

**all 674 2540 0.586 0.567 0.601 0.338**

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

**17/100 4.52G 1.528 1.599 1.693 149 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.58 0.574 0.598 0.341**

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

**18/100 4.51G 1.52 1.586 1.688 147 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.564 0.589 0.61 0.348**

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

**19/100 4.5G 1.512 1.565 1.676 168 640: 100%|██████████| 169/169 [00:42<00:00, 3.99it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.34it/s]**

**all 674 2540 0.614 0.586 0.632 0.371**

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

**20/100 4.51G 1.504 1.56 1.677 164 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.606 0.59 0.628 0.37**

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

**21/100 4.55G 1.492 1.53 1.654 109 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.605 0.608 0.642 0.375**

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

**22/100 4.51G 1.483 1.517 1.656 146 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.25it/s]**

**all 674 2540 0.599 0.61 0.641 0.379**

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

**23/100 4.54G 1.466 1.495 1.639 107 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.26it/s]**

**all 674 2540 0.594 0.633 0.651 0.385**

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

**24/100 4.52G 1.46 1.482 1.626 95 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.29it/s]**

**all 674 2540 0.611 0.629 0.654 0.394**

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

**25/100 4.55G 1.443 1.472 1.622 132 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.28it/s]**

**all 674 2540 0.581 0.647 0.663 0.394**

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

**26/100 4.55G 1.448 1.452 1.608 134 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.627 0.629 0.663 0.398**

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

**27/100 4.56G 1.433 1.434 1.6 105 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.21it/s]**

**all 674 2540 0.613 0.631 0.652 0.399**

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

**28/100 4.63G 1.433 1.426 1.601 164 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.26it/s]**

**all 674 2540 0.625 0.613 0.661 0.397**

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

**29/100 4.52G 1.419 1.407 1.591 138 640: 100%|██████████| 169/169 [00:42<00:00, 3.99it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.621 0.645 0.673 0.406**

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

**30/100 4.51G 1.414 1.391 1.587 94 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.29it/s]**

**all 674 2540 0.631 0.634 0.687 0.432**

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

**31/100 4.52G 1.405 1.394 1.581 111 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.32it/s]**

**all 674 2540 0.619 0.645 0.68 0.416**

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

**32/100 4.52G 1.39 1.364 1.567 125 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.26it/s]**

**all 674 2540 0.64 0.666 0.696 0.429**

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

**33/100 4.52G 1.391 1.354 1.565 119 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.37it/s]**

**all 674 2540 0.673 0.632 0.7 0.434**

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

**34/100 4.55G 1.381 1.35 1.562 124 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.628 0.655 0.681 0.42**

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

**35/100 4.54G 1.381 1.331 1.553 154 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.29it/s]**

**all 674 2540 0.663 0.654 0.706 0.44**

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

**36/100 4.54G 1.364 1.326 1.545 123 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.33it/s]**

**all 674 2540 0.697 0.659 0.729 0.449**

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

**37/100 4.55G 1.356 1.299 1.532 139 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.25it/s]**

**all 674 2540 0.682 0.666 0.726 0.455**

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

**38/100 4.54G 1.354 1.299 1.53 171 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.26it/s]**

**all 674 2540 0.663 0.682 0.729 0.463**

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

**39/100 4.5G 1.348 1.285 1.525 110 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.67 0.684 0.729 0.459**

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

**40/100 4.55G 1.337 1.292 1.526 162 640: 100%|██████████| 169/169 [00:42<00:00, 3.99it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.699 0.656 0.728 0.462**

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

**41/100 4.52G 1.34 1.269 1.524 120 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.34it/s]**

**all 674 2540 0.699 0.667 0.742 0.47**

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

**42/100 4.52G 1.32 1.264 1.504 121 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.27it/s]**

**all 674 2540 0.684 0.675 0.73 0.464**

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

**43/100 4.53G 1.321 1.248 1.509 133 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.35it/s]**

**all 674 2540 0.711 0.691 0.758 0.487**

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

**44/100 4.52G 1.322 1.244 1.504 123 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.685 0.697 0.757 0.482**

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

**45/100 4.53G 1.317 1.241 1.494 136 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.25it/s]**

**all 674 2540 0.716 0.689 0.755 0.491**

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

**46/100 4.57G 1.307 1.226 1.489 122 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.33it/s]**

**all 674 2540 0.707 0.688 0.74 0.476**

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

**47/100 4.53G 1.299 1.211 1.487 131 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.32it/s]**

**all 674 2540 0.735 0.694 0.767 0.497**

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

**48/100 4.52G 1.305 1.208 1.489 125 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.21it/s]**

**all 674 2540 0.717 0.697 0.763 0.493**

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

**49/100 4.51G 1.293 1.197 1.481 149 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.27it/s]**

**all 674 2540 0.718 0.698 0.761 0.491**

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

**50/100 4.55G 1.279 1.178 1.46 124 640: 100%|██████████| 169/169 [00:42<00:00, 3.99it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.34it/s]**

**all 674 2540 0.72 0.714 0.781 0.514**

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

**51/100 4.49G 1.274 1.173 1.458 125 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.732 0.716 0.783 0.516**

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

**52/100 4.66G 1.266 1.161 1.457 126 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.707 0.723 0.773 0.503**

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

**53/100 4.54G 1.266 1.158 1.454 161 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.18it/s]**

**all 674 2540 0.726 0.719 0.787 0.519**

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

**54/100 4.52G 1.261 1.151 1.453 114 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.29it/s]**

**all 674 2540 0.771 0.696 0.801 0.534**

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

**55/100 4.51G 1.259 1.147 1.453 99 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.27it/s]**

**all 674 2540 0.73 0.741 0.804 0.536**

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

**56/100 4.54G 1.259 1.147 1.45 122 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.29it/s]**

**all 674 2540 0.746 0.722 0.797 0.53**

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

**57/100 4.54G 1.245 1.131 1.441 142 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.776 0.72 0.808 0.547**

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

**58/100 4.54G 1.245 1.128 1.438 158 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.742 0.735 0.803 0.539**

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

**59/100 4.5G 1.237 1.118 1.432 113 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.733 0.749 0.811 0.546**

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

**60/100 4.75G 1.24 1.112 1.433 123 640: 100%|██████████| 169/169 [00:42<00:00, 3.98it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.35it/s]**

**all 674 2540 0.743 0.749 0.817 0.552**

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

**61/100 4.5G 1.224 1.097 1.424 139 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.34it/s]**

**all 674 2540 0.758 0.743 0.813 0.548**

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

**62/100 4.54G 1.219 1.086 1.418 139 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.26it/s]**

**all 674 2540 0.766 0.742 0.822 0.558**

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

**63/100 4.55G 1.214 1.087 1.413 165 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.28it/s]**

**all 674 2540 0.775 0.73 0.817 0.559**

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

**64/100 4.73G 1.207 1.078 1.416 136 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.34it/s]**

**all 674 2540 0.767 0.746 0.82 0.556**

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

**65/100 4.7G 1.207 1.06 1.406 108 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.29it/s]**

**all 674 2540 0.77 0.749 0.83 0.568**

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

**66/100 4.75G 1.195 1.053 1.393 126 640: 100%|██████████| 169/169 [00:42<00:00, 3.99it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.772 0.732 0.825 0.563**

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

**67/100 4.51G 1.194 1.057 1.399 137 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.21it/s]**

**all 674 2540 0.765 0.753 0.833 0.572**

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

**68/100 4.53G 1.198 1.055 1.395 111 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.33it/s]**

**all 674 2540 0.799 0.727 0.83 0.573**

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

**69/100 4.5G 1.184 1.029 1.384 101 640: 100%|██████████| 169/169 [00:42<00:00, 3.99it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.22it/s]**

**all 674 2540 0.769 0.762 0.836 0.581**

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

**70/100 4.5G 1.184 1.036 1.382 131 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.792 0.769 0.843 0.58**

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

**71/100 4.53G 1.176 1.028 1.384 163 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.772 0.78 0.84 0.584**

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

**72/100 4.74G 1.174 1.018 1.378 161 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.773 0.783 0.844 0.587**

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

**73/100 4.53G 1.167 1.009 1.37 143 640: 100%|██████████| 169/169 [00:42<00:00, 4.00it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.35it/s]**

**all 674 2540 0.778 0.789 0.848 0.592**

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

**74/100 4.53G 1.156 0.9943 1.364 145 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.28it/s]**

**all 674 2540 0.803 0.762 0.847 0.587**

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

**75/100 4.5G 1.151 0.9934 1.36 139 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.37it/s]**

**all 674 2540 0.797 0.773 0.85 0.592**

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

**76/100 4.56G 1.154 0.9967 1.361 104 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.33it/s]**

**all 674 2540 0.793 0.774 0.85 0.594**

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

**77/100 4.53G 1.144 0.9812 1.36 110 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.32it/s]**

**all 674 2540 0.782 0.777 0.849 0.595**

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

**78/100 4.53G 1.137 0.9703 1.355 123 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.35it/s]**

**all 674 2540 0.825 0.754 0.858 0.605**

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

**79/100 4.5G 1.139 0.9712 1.354 120 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.30it/s]**

**all 674 2540 0.808 0.774 0.859 0.607**

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

**80/100 4.55G 1.132 0.9627 1.342 133 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.28it/s]**

**all 674 2540 0.787 0.793 0.86 0.609**

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

**81/100 4.51G 1.127 0.9608 1.337 132 640: 100%|██████████| 169/169 [00:41<00:00, 4.03it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.29it/s]**

**all 674 2540 0.816 0.773 0.861 0.61**

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

**82/100 4.52G 1.134 0.9616 1.345 121 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.25it/s]**

**all 674 2540 0.819 0.775 0.861 0.609**

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

**83/100 4.55G 1.115 0.9423 1.333 109 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.32it/s]**

**all 674 2540 0.821 0.776 0.866 0.614**

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

**84/100 4.54G 1.113 0.9437 1.329 130 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.24it/s]**

**all 674 2540 0.808 0.792 0.865 0.614**

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

**85/100 4.53G 1.108 0.9333 1.327 133 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.32it/s]**

**all 674 2540 0.844 0.773 0.869 0.62**

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

**86/100 4.53G 1.104 0.9225 1.321 125 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.27it/s]**

**all 674 2540 0.814 0.796 0.867 0.62**

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

**87/100 4.56G 1.104 0.9242 1.32 111 640: 100%|██████████| 169/169 [00:42<00:00, 4.01it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.28it/s]**

**all 674 2540 0.827 0.789 0.87 0.622**

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

**88/100 4.71G 1.095 0.9217 1.314 125 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.29it/s]**

**all 674 2540 0.825 0.79 0.87 0.624**

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

**89/100 4.53G 1.099 0.9189 1.317 167 640: 100%|██████████| 169/169 [00:41<00:00, 4.03it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.33it/s]**

**all 674 2540 0.833 0.776 0.87 0.623**

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

**90/100 4.55G 1.082 0.9033 1.305 151 640: 100%|██████████| 169/169 [00:42<00:00, 4.02it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.23it/s]**

**all 674 2540 0.841 0.777 0.871 0.625**

**Closing dataloader mosaic**

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

**91/100 4.53G 1 0.791 1.244 62 640: 100%|██████████| 169/169 [00:41<00:00, 4.05it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.31it/s]**

**all 674 2540 0.837 0.792 0.877 0.631**

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

**92/100 4.5G 0.963 0.742 1.216 60 640: 100%|██████████| 169/169 [00:41<00:00, 4.09it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.33it/s]**

**all 674 2540 0.847 0.787 0.879 0.636**

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

**93/100 4.53G 0.956 0.7281 1.211 67 640: 100%|██████████| 169/169 [00:41<00:00, 4.09it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.33it/s]**

**all 674 2540 0.847 0.795 0.88 0.639**

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

**94/100 4.52G 0.9459 0.7187 1.204 55 640: 100%|██████████| 169/169 [00:41<00:00, 4.06it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.29it/s]**

**all 674 2540 0.842 0.8 0.884 0.643**

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

**95/100 4.53G 0.9403 0.7109 1.2 55 640: 100%|██████████| 169/169 [00:41<00:00, 4.07it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.34it/s]**

**all 674 2540 0.835 0.811 0.885 0.644**

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

**96/100 4.52G 0.9358 0.7121 1.199 58 640: 100%|██████████| 169/169 [00:41<00:00, 4.07it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.36it/s]**

**all 674 2540 0.854 0.803 0.886 0.647**

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

**97/100 4.53G 0.9281 0.7022 1.195 59 640: 100%|██████████| 169/169 [00:41<00:00, 4.04it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.33it/s]**

**all 674 2540 0.837 0.816 0.886 0.647**

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

**98/100 4.53G 0.9185 0.6876 1.183 53 640: 100%|██████████| 169/169 [00:41<00:00, 4.07it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.28it/s]**

**all 674 2540 0.839 0.819 0.89 0.65**

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

**99/100 4.53G 0.9118 0.6804 1.178 71 640: 100%|██████████| 169/169 [00:41<00:00, 4.06it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.27it/s]**

**all 674 2540 0.838 0.826 0.889 0.65**

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

**100/100 4.5G 0.9126 0.6806 1.181 72 640: 100%|██████████| 169/169 [00:41<00:00, 4.06it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.24it/s]**

**all 674 2540 0.836 0.823 0.889 0.651**

**100 epochs completed in 1.280 hours.**

**Optimizer stripped from runs\train\exp\weights\last.pt, 16.1MB**

**Optimizer stripped from runs\train\exp\weights\best.pt, 16.1MB**

**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-RCSOSA-1 summary (fused): 157 layers, 7253798 parameters, 0 gradients, 20.0 GFLOPs**

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

**all 674 2540 0.831 0.828 0.889 0.651**

**fire 674 1086 0.868 0.888 0.941 0.701**

**smoke 674 1454 0.794 0.769 0.837 0.6**

**Speed: 0.2ms preprocess, 1.2ms 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**