**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 0 torch.nn.modules.upsampling.Upsample [None, 2, 'nearest']**

**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 0 torch.nn.modules.upsampling.Upsample [None, 2, 'nearest']**

**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: 320 layers, 7886822 parameters, 7886806 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]**

**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 0 torch.nn.modules.upsampling.Upsample [None, 2, 'nearest']**

**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 0 torch.nn.modules.upsampling.Upsample [None, 2, 'nearest']**

**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: 320 layers, 7886822 parameters, 7886806 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), 72 weight(decay=0.0005), 71 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 4.42G 3.567 3.63 3.825 132 640: 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, 2.79it/s]**

**all 674 2540 0.00581 0.289 0.00584 0.00167**

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

**2/100 4.25G 2.912 2.897 3.134 115 640: 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, 3.12it/s]**

**all 674 2540 0.274 0.263 0.176 0.0604**

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

**3/100 4.5G 2.351 2.544 2.594 131 640: 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, 2.83it/s]**

**all 674 2540 0.286 0.321 0.22 0.0853**

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

**4/100 4.36G 2.042 2.294 2.243 112 640: 100%|██████████| 169/169 [00:40<00:00, 4.14it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.20it/s]**

**all 674 2540 0.316 0.4 0.288 0.123**

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

**5/100 4.76G 1.896 2.132 2.068 114 640: 100%|██████████| 169/169 [00:40<00:00, 4.15it/s]**

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

**all 674 2540 0.417 0.442 0.397 0.191**

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

**6/100 4.37G 1.816 2.031 1.987 127 640: 100%|██████████| 169/169 [00:40<00:00, 4.16it/s]**

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

**all 674 2540 0.461 0.431 0.411 0.203**

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

**7/100 4.47G 1.759 1.96 1.926 92 640: 100%|██████████| 169/169 [00:40<00:00, 4.15it/s]**

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

**all 674 2540 0.463 0.482 0.455 0.238**

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

**8/100 4.5G 1.723 1.904 1.88 103 640: 100%|██████████| 169/169 [00:40<00:00, 4.16it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.12it/s]**

**all 674 2540 0.505 0.514 0.503 0.267**

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

**9/100 4.49G 1.683 1.851 1.848 120 640: 100%|██████████| 169/169 [00:41<00:00, 4.11it/s]**

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

**all 674 2540 0.5 0.522 0.505 0.271**

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

**10/100 4.35G 1.658 1.803 1.816 134 640: 100%|██████████| 169/169 [00:40<00:00, 4.13it/s]**

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

**all 674 2540 0.53 0.505 0.505 0.27**

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

**11/100 4.34G 1.63 1.757 1.783 123 640: 100%|██████████| 169/169 [00:40<00:00, 4.13it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.19it/s]**

**all 674 2540 0.515 0.539 0.542 0.3**

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

**12/100 4.4G 1.62 1.728 1.768 126 640: 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, 3.29it/s]**

**all 674 2540 0.549 0.548 0.553 0.306**

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

**13/100 4.49G 1.594 1.709 1.744 134 640: 100%|██████████| 169/169 [00:41<00:00, 4.10it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.00it/s]**

**all 674 2540 0.552 0.529 0.536 0.299**

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

**14/100 4.35G 1.574 1.675 1.727 129 640: 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, 2.94it/s]**

**all 674 2540 0.58 0.553 0.578 0.327**

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

**15/100 4.34G 1.568 1.662 1.731 100 640: 100%|██████████| 169/169 [00:41<00:00, 4.10it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.99it/s]**

**all 674 2540 0.567 0.545 0.585 0.331**

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

**16/100 4.51G 1.546 1.621 1.702 135 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

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

**all 674 2540 0.569 0.595 0.606 0.344**

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

**17/100 4.48G 1.527 1.6 1.685 149 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.03it/s]**

**all 674 2540 0.586 0.557 0.593 0.342**

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

**18/100 4.35G 1.52 1.587 1.675 147 640: 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, 2.98it/s]**

**all 674 2540 0.557 0.578 0.584 0.336**

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

**19/100 4.33G 1.509 1.566 1.665 168 640: 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, 2.97it/s]**

**all 674 2540 0.612 0.588 0.625 0.37**

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

**20/100 4.49G 1.505 1.56 1.663 164 640: 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, 2.89it/s]**

**all 674 2540 0.576 0.6 0.623 0.371**

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

**21/100 4.52G 1.492 1.532 1.645 109 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.97it/s]**

**all 674 2540 0.582 0.618 0.641 0.381**

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

**22/100 4.35G 1.477 1.516 1.643 146 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.94it/s]**

**all 674 2540 0.61 0.597 0.644 0.391**

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

**23/100 4.5G 1.466 1.5 1.626 107 640: 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, 2.86it/s]**

**all 674 2540 0.575 0.61 0.622 0.362**

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

**24/100 4.35G 1.46 1.478 1.616 95 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.07it/s]**

**all 674 2540 0.603 0.647 0.657 0.396**

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

**25/100 4.35G 1.445 1.469 1.61 132 640: 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, 3.03it/s]**

**all 674 2540 0.595 0.628 0.658 0.399**

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

**26/100 4.51G 1.447 1.452 1.594 134 640: 100%|██████████| 169/169 [00:41<00:00, 4.10it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.05it/s]**

**all 674 2540 0.622 0.641 0.675 0.415**

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

**27/100 4.52G 1.429 1.434 1.587 105 640: 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, 3.02it/s]**

**all 674 2540 0.637 0.626 0.666 0.406**

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

**28/100 4.6G 1.431 1.429 1.591 164 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.99it/s]**

**all 674 2540 0.623 0.615 0.669 0.405**

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

**29/100 4.49G 1.415 1.411 1.578 138 640: 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, 2.99it/s]**

**all 674 2540 0.656 0.619 0.689 0.428**

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

**30/100 4.49G 1.407 1.397 1.571 94 640: 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, 2.81it/s]**

**all 674 2540 0.624 0.616 0.673 0.419**

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

**31/100 4.48G 1.407 1.395 1.573 111 640: 100%|██████████| 169/169 [00:41<00:00, 4.11it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.03it/s]**

**all 674 2540 0.625 0.645 0.688 0.433**

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

**32/100 4.33G 1.386 1.36 1.556 125 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.08it/s]**

**all 674 2540 0.647 0.654 0.691 0.431**

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

**33/100 4.5G 1.387 1.359 1.55 119 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.94it/s]**

**all 674 2540 0.652 0.642 0.693 0.44**

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

**34/100 4.37G 1.384 1.351 1.551 124 640: 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, 2.94it/s]**

**all 674 2540 0.651 0.653 0.71 0.448**

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

**35/100 4.36G 1.377 1.329 1.54 154 640: 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, 2.98it/s]**

**all 674 2540 0.639 0.656 0.692 0.431**

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

**36/100 4.36G 1.361 1.321 1.532 123 640: 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, 2.97it/s]**

**all 674 2540 0.643 0.666 0.706 0.443**

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

**37/100 4.51G 1.353 1.301 1.52 139 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.99it/s]**

**all 674 2540 0.654 0.657 0.707 0.448**

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

**38/100 4.36G 1.351 1.296 1.517 171 640: 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, 2.93it/s]**

**all 674 2540 0.667 0.665 0.715 0.457**

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

**39/100 4.33G 1.347 1.286 1.514 110 640: 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, 3.01it/s]**

**all 674 2540 0.671 0.66 0.718 0.456**

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

**40/100 4.51G 1.336 1.288 1.511 162 640: 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, 3.00it/s]**

**all 674 2540 0.668 0.692 0.735 0.467**

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

**41/100 4.34G 1.338 1.272 1.511 120 640: 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, 3.02it/s]**

**all 674 2540 0.679 0.667 0.726 0.469**

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

**42/100 4.36G 1.321 1.263 1.497 121 640: 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, 2.97it/s]**

**all 674 2540 0.684 0.67 0.73 0.47**

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

**43/100 4.49G 1.321 1.251 1.496 133 640: 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, 2.98it/s]**

**all 674 2540 0.682 0.699 0.747 0.484**

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

**44/100 4.33G 1.32 1.245 1.489 123 640: 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, 2.94it/s]**

**all 674 2540 0.691 0.674 0.74 0.473**

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

**45/100 4.49G 1.319 1.24 1.484 136 640: 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, 2.95it/s]**

**all 674 2540 0.696 0.683 0.746 0.483**

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

**46/100 4.34G 1.306 1.228 1.477 122 640: 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, 2.95it/s]**

**all 674 2540 0.683 0.689 0.742 0.485**

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

**47/100 4.5G 1.299 1.213 1.476 131 640: 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, 3.11it/s]**

**all 674 2540 0.691 0.705 0.762 0.499**

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

**48/100 4.35G 1.298 1.212 1.475 125 640: 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, 3.02it/s]**

**all 674 2540 0.701 0.711 0.757 0.494**

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

**49/100 4.34G 1.288 1.201 1.468 149 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.93it/s]**

**all 674 2540 0.705 0.71 0.766 0.506**

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

**50/100 4.38G 1.279 1.184 1.45 124 640: 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, 2.97it/s]**

**all 674 2540 0.715 0.714 0.772 0.51**

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

**51/100 4.35G 1.275 1.178 1.444 125 640: 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, 2.92it/s]**

**all 674 2540 0.717 0.721 0.778 0.513**

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

**52/100 4.49G 1.266 1.16 1.444 126 640: 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, 2.91it/s]**

**all 674 2540 0.71 0.719 0.77 0.51**

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

**53/100 4.35G 1.263 1.165 1.438 161 640: 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, 2.94it/s]**

**all 674 2540 0.695 0.721 0.773 0.515**

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

**54/100 4.49G 1.261 1.157 1.441 114 640: 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, 2.93it/s]**

**all 674 2540 0.695 0.741 0.783 0.525**

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

**55/100 4.49G 1.255 1.15 1.436 99 640: 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, 2.98it/s]**

**all 674 2540 0.741 0.728 0.789 0.525**

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

**56/100 4.51G 1.258 1.155 1.438 122 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.01it/s]**

**all 674 2540 0.729 0.73 0.795 0.537**

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

**57/100 4.35G 1.244 1.135 1.429 142 640: 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, 2.93it/s]**

**all 674 2540 0.747 0.713 0.785 0.533**

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

**58/100 4.37G 1.245 1.13 1.427 158 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.97it/s]**

**all 674 2540 0.746 0.724 0.795 0.538**

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

**59/100 4.48G 1.235 1.118 1.42 113 640: 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, 2.93it/s]**

**all 674 2540 0.736 0.724 0.796 0.537**

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

**60/100 4.57G 1.237 1.113 1.418 123 640: 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, 3.02it/s]**

**all 674 2540 0.73 0.747 0.802 0.548**

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

**61/100 4.33G 1.223 1.105 1.41 139 640: 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, 2.92it/s]**

**all 674 2540 0.752 0.739 0.812 0.554**

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

**62/100 4.37G 1.219 1.088 1.405 139 640: 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, 2.99it/s]**

**all 674 2540 0.768 0.736 0.817 0.56**

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

**63/100 4.35G 1.218 1.092 1.405 165 640: 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, 3.04it/s]**

**all 674 2540 0.761 0.725 0.806 0.55**

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

**64/100 4.7G 1.207 1.082 1.405 136 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

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

**all 674 2540 0.748 0.74 0.808 0.555**

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

**65/100 4.53G 1.209 1.069 1.396 108 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.99it/s]**

**all 674 2540 0.761 0.745 0.817 0.563**

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

**66/100 4.56G 1.195 1.056 1.383 126 640: 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, 2.92it/s]**

**all 674 2540 0.777 0.72 0.814 0.566**

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

**67/100 4.35G 1.197 1.066 1.386 137 640: 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, 3.01it/s]**

**all 674 2540 0.758 0.756 0.824 0.569**

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

**68/100 4.35G 1.199 1.056 1.382 111 640: 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, 3.06it/s]**

**all 674 2540 0.776 0.744 0.825 0.573**

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

**69/100 4.34G 1.185 1.032 1.375 101 640: 100%|██████████| 169/169 [00:41<00:00, 4.10it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.07it/s]**

**all 674 2540 0.795 0.748 0.833 0.582**

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

**70/100 4.48G 1.181 1.036 1.371 131 640: 100%|██████████| 169/169 [00:41<00:00, 4.08it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.04it/s]**

**all 674 2540 0.761 0.767 0.829 0.575**

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

**71/100 4.34G 1.173 1.032 1.37 163 640: 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, 2.97it/s]**

**all 674 2540 0.792 0.741 0.827 0.576**

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

**72/100 4.57G 1.171 1.02 1.364 161 640: 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, 2.95it/s]**

**all 674 2540 0.764 0.767 0.83 0.582**

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

**73/100 4.35G 1.167 1.009 1.359 143 640: 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, 2.87it/s]**

**all 674 2540 0.793 0.755 0.835 0.585**

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

**74/100 4.34G 1.159 1.001 1.351 145 640: 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, 2.95it/s]**

**all 674 2540 0.786 0.754 0.835 0.586**

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

**75/100 4.48G 1.155 0.9966 1.35 139 640: 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, 3.04it/s]**

**all 674 2540 0.785 0.773 0.845 0.596**

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

**76/100 4.39G 1.152 0.9974 1.348 104 640: 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, 2.95it/s]**

**all 674 2540 0.802 0.76 0.847 0.597**

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

**77/100 4.35G 1.144 0.982 1.347 110 640: 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, 2.92it/s]**

**all 674 2540 0.8 0.753 0.84 0.598**

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

**78/100 4.34G 1.139 0.9717 1.343 123 640: 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, 2.87it/s]**

**all 674 2540 0.811 0.763 0.845 0.602**

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

**79/100 4.33G 1.137 0.974 1.341 120 640: 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, 2.93it/s]**

**all 674 2540 0.806 0.763 0.849 0.603**

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

**80/100 4.52G 1.131 0.9653 1.334 133 640: 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, 3.31it/s]**

**all 674 2540 0.791 0.778 0.848 0.604**

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

**81/100 4.35G 1.128 0.9643 1.324 132 640: 100%|██████████| 169/169 [00:40<00:00, 4.19it/s]**

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

**all 674 2540 0.799 0.773 0.851 0.606**

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

**82/100 4.35G 1.134 0.9615 1.335 121 640: 100%|██████████| 169/169 [00:40<00:00, 4.20it/s]**

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

**all 674 2540 0.792 0.782 0.851 0.606**

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

**83/100 4.35G 1.114 0.9437 1.322 109 640: 100%|██████████| 169/169 [00:40<00:00, 4.20it/s]**

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

**all 674 2540 0.815 0.774 0.857 0.613**

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

**84/100 4.5G 1.117 0.9467 1.322 130 640: 100%|██████████| 169/169 [00:40<00:00, 4.19it/s]**

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

**all 674 2540 0.807 0.778 0.857 0.615**

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

**85/100 4.5G 1.111 0.9407 1.316 133 640: 100%|██████████| 169/169 [00:40<00:00, 4.19it/s]**

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

**all 674 2540 0.801 0.791 0.86 0.62**

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

**86/100 4.37G 1.103 0.9256 1.306 125 640: 100%|██████████| 169/169 [00:40<00:00, 4.20it/s]**

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

**all 674 2540 0.805 0.798 0.865 0.622**

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

**87/100 4.32G 1.102 0.9271 1.308 111 640: 100%|██████████| 169/169 [00:40<00:00, 4.19it/s]**

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

**all 674 2540 0.816 0.791 0.864 0.625**

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

**88/100 4.7G 1.096 0.9264 1.307 125 640: 100%|██████████| 169/169 [00:40<00:00, 4.20it/s]**

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

**all 674 2540 0.796 0.792 0.862 0.622**

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

**89/100 4.5G 1.097 0.9184 1.304 167 640: 100%|██████████| 169/169 [00:40<00:00, 4.18it/s]**

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

**all 674 2540 0.823 0.775 0.864 0.621**

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

**90/100 4.53G 1.084 0.9038 1.297 151 640: 100%|██████████| 169/169 [00:40<00:00, 4.18it/s]**

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

**all 674 2540 0.836 0.762 0.862 0.62**

**Closing dataloader mosaic**

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

**91/100 4.5G 1.001 0.7954 1.232 62 640: 100%|██████████| 169/169 [00:40<00:00, 4.15it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.38it/s]**

**all 674 2540 0.831 0.779 0.866 0.625**

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

**92/100 4.34G 0.9684 0.7503 1.208 60 640: 100%|██████████| 169/169 [00:39<00:00, 4.25it/s]**

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

**all 674 2540 0.819 0.796 0.87 0.633**

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

**93/100 4.47G 0.9592 0.7341 1.204 67 640: 100%|██████████| 169/169 [00:39<00:00, 4.26it/s]**

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

**all 674 2540 0.846 0.786 0.873 0.638**

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

**94/100 4.35G 0.9496 0.7241 1.195 55 640: 100%|██████████| 169/169 [00:39<00:00, 4.25it/s]**

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

**all 674 2540 0.839 0.794 0.876 0.643**

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

**95/100 4.35G 0.9447 0.7213 1.192 55 640: 100%|██████████| 169/169 [00:39<00:00, 4.24it/s]**

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

**all 674 2540 0.847 0.794 0.877 0.644**

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

**96/100 4.35G 0.9364 0.7099 1.189 58 640: 100%|██████████| 169/169 [00:39<00:00, 4.26it/s]**

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

**all 674 2540 0.851 0.792 0.88 0.647**

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

**97/100 4.32G 0.9328 0.7056 1.188 59 640: 100%|██████████| 169/169 [00:39<00:00, 4.25it/s]**

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

**all 674 2540 0.852 0.793 0.88 0.649**

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

**98/100 4.36G 0.9252 0.6907 1.179 53 640: 100%|██████████| 169/169 [00:39<00:00, 4.23it/s]**

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

**all 674 2540 0.861 0.795 0.882 0.651**

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

**99/100 4.36G 0.9139 0.6802 1.169 71 640: 100%|██████████| 169/169 [00:39<00:00, 4.23it/s]**

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

**all 674 2540 0.855 0.795 0.883 0.649**

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

**100/100 4.49G 0.918 0.6898 1.174 72 640: 100%|██████████| 169/169 [00:39<00:00, 4.23it/s]**

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

**all 674 2540 0.859 0.793 0.882 0.649**

**100 epochs completed in 1.264 hours.**

**Optimizer stripped from runs\train\exp\weights\last.pt, 16.0MB**

**Optimizer stripped from runs\train\exp\weights\best.pt, 16.0MB**

**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): 155 layers, 7241446 parameters, 0 gradients, 19.9 GFLOPs**

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

**all 674 2540 0.861 0.793 0.881 0.65**

**fire 674 1086 0.896 0.855 0.935 0.703**

**smoke 674 1454 0.826 0.731 0.827 0.598**

**Speed: 0.1ms preprocess, 1.1ms inference, 0.0ms loss, 0.7ms postprocess per image**

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

**进程已结束,退出代码0**