**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 2124216 ultralytics.nn.modules.ASFFhead.Detect\_ASFF [2, [64, 128, 256]]**

**YOLOv8-RCSOSA-1 summary: 389 layers, 9271688 parameters, 9271672 gradients, 24.0 GFLOPs**

**New https://pypi.org/project/ultralytics/8.1.38 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 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]**

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

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

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**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 2124216 ultralytics.nn.modules.ASFFhead.Detect\_ASFF [2, [64, 128, 256]]**

**YOLOv8-RCSOSA-1 summary: 389 layers, 9271688 parameters, 9271672 gradients, 24.0 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 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 4.93G 3.599 3.766 3.879 132 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.549 0.0456 0.0178 0.00439**

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

**2/100 5.05G 2.972 2.954 3.166 115 640: 100%|██████████| 169/169 [00:47<00:00, 3.54it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.13it/s]**

**all 674 2540 0.23 0.272 0.154 0.0508**

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

**3/100 4.98G 2.358 2.539 2.593 131 640: 100%|██████████| 169/169 [00:47<00:00, 3.56it/s]**

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

**all 674 2540 0.277 0.316 0.213 0.0811**

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

**4/100 5.02G 2.037 2.276 2.248 112 640: 100%|██████████| 169/169 [00:47<00:00, 3.58it/s]**

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

**all 674 2540 0.383 0.395 0.341 0.153**

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

**5/100 5.26G 1.888 2.105 2.087 114 640: 100%|██████████| 169/169 [00:47<00:00, 3.58it/s]**

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

**all 674 2540 0.42 0.478 0.421 0.197**

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

**6/100 5.05G 1.804 1.997 2.003 127 640: 100%|██████████| 169/169 [00:47<00:00, 3.57it/s]**

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

**all 674 2540 0.511 0.479 0.479 0.242**

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

**7/100 4.98G 1.744 1.927 1.941 92 640: 100%|██████████| 169/169 [00:47<00:00, 3.56it/s]**

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

**all 674 2540 0.473 0.504 0.472 0.243**

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

**8/100 5.02G 1.712 1.877 1.903 103 640: 100%|██████████| 169/169 [00:47<00:00, 3.54it/s]**

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

**all 674 2540 0.512 0.479 0.481 0.253**

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

**9/100 5G 1.673 1.822 1.876 120 640: 100%|██████████| 169/169 [00:47<00:00, 3.56it/s]**

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

**all 674 2540 0.491 0.523 0.516 0.274**

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

**10/100 5G 1.643 1.773 1.842 134 640: 100%|██████████| 169/169 [00:47<00:00, 3.56it/s]**

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

**all 674 2540 0.538 0.518 0.53 0.284**

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

**11/100 4.99G 1.615 1.733 1.809 123 640: 100%|██████████| 169/169 [00:47<00:00, 3.56it/s]**

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

**all 674 2540 0.487 0.55 0.539 0.299**

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

**12/100 5.05G 1.603 1.703 1.797 126 640: 100%|██████████| 169/169 [00:47<00:00, 3.55it/s]**

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

**all 674 2540 0.555 0.555 0.574 0.32**

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

**13/100 5G 1.578 1.681 1.777 134 640: 100%|██████████| 169/169 [00:47<00:00, 3.55it/s]**

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

**all 674 2540 0.563 0.554 0.581 0.325**

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

**14/100 5.02G 1.554 1.639 1.757 129 640: 100%|██████████| 169/169 [00:48<00:00, 3.48it/s]**

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

**all 674 2540 0.566 0.563 0.574 0.33**

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

**15/100 4.99G 1.549 1.621 1.758 100 640: 100%|██████████| 169/169 [00:48<00:00, 3.51it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.11it/s]**

**all 674 2540 0.53 0.602 0.592 0.335**

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

**16/100 5.02G 1.525 1.587 1.73 135 640: 100%|██████████| 169/169 [00:48<00:00, 3.47it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.13it/s]**

**all 674 2540 0.571 0.59 0.612 0.354**

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

**17/100 4.99G 1.505 1.56 1.716 149 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.02it/s]**

**all 674 2540 0.525 0.565 0.576 0.331**

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

**18/100 5G 1.497 1.547 1.708 147 640: 100%|██████████| 169/169 [00:48<00:00, 3.48it/s]**

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

**all 674 2540 0.567 0.624 0.63 0.373**

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

**19/100 4.99G 1.486 1.521 1.696 168 640: 100%|██████████| 169/169 [00:48<00:00, 3.48it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 3.17it/s]**

**all 674 2540 0.593 0.616 0.645 0.388**

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

**20/100 5G 1.477 1.515 1.693 164 640: 100%|██████████| 169/169 [00:48<00:00, 3.50it/s]**

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

**all 674 2540 0.609 0.633 0.649 0.392**

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

**21/100 5.03G 1.465 1.483 1.673 109 640: 100%|██████████| 169/169 [00:48<00:00, 3.48it/s]**

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

**all 674 2540 0.598 0.618 0.646 0.379**

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

**22/100 5G 1.449 1.465 1.669 146 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.599 0.628 0.656 0.396**

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

**23/100 4.97G 1.438 1.451 1.661 107 640: 100%|██████████| 169/169 [00:49<00:00, 3.41it/s]**

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

**all 674 2540 0.602 0.637 0.662 0.404**

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

**24/100 5.01G 1.434 1.427 1.652 95 640: 100%|██████████| 169/169 [00:49<00:00, 3.40it/s]**

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

**all 674 2540 0.613 0.648 0.674 0.41**

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

**25/100 5.04G 1.416 1.419 1.645 132 640: 100%|██████████| 169/169 [00:48<00:00, 3.46it/s]**

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

**all 674 2540 0.638 0.651 0.693 0.425**

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

**26/100 5.05G 1.414 1.395 1.627 134 640: 100%|██████████| 169/169 [00:49<00:00, 3.44it/s]**

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

**all 674 2540 0.615 0.646 0.672 0.408**

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

**27/100 5.03G 1.398 1.385 1.616 105 640: 100%|██████████| 169/169 [00:49<00:00, 3.44it/s]**

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

**all 674 2540 0.629 0.652 0.687 0.43**

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

**28/100 5.06G 1.398 1.37 1.622 164 640: 100%|██████████| 169/169 [00:49<00:00, 3.41it/s]**

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

**all 674 2540 0.653 0.657 0.705 0.435**

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

**29/100 5G 1.388 1.354 1.616 138 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.642 0.654 0.704 0.434**

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

**30/100 5.01G 1.371 1.328 1.603 94 640: 100%|██████████| 169/169 [00:48<00:00, 3.48it/s]**

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

**all 674 2540 0.637 0.655 0.695 0.433**

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

**31/100 5G 1.372 1.333 1.606 111 640: 100%|██████████| 169/169 [00:48<00:00, 3.47it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.91it/s]**

**all 674 2540 0.656 0.655 0.716 0.451**

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

**32/100 5G 1.356 1.3 1.589 125 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.668 0.665 0.712 0.447**

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

**33/100 5G 1.353 1.298 1.583 119 640: 100%|██████████| 169/169 [00:49<00:00, 3.44it/s]**

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

**all 674 2540 0.663 0.656 0.713 0.446**

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

**34/100 4.99G 1.342 1.291 1.584 124 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.685 0.665 0.723 0.456**

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

**35/100 5.02G 1.342 1.266 1.574 154 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.66 0.686 0.724 0.459**

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

**36/100 5.05G 1.322 1.258 1.564 123 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.701 0.678 0.747 0.469**

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

**37/100 5.02G 1.317 1.23 1.548 139 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.66it/s]**

**all 674 2540 0.699 0.674 0.734 0.475**

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

**38/100 5.01G 1.316 1.227 1.551 171 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.702 0.702 0.762 0.491**

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

**39/100 4.99G 1.306 1.221 1.549 110 640: 100%|██████████| 169/169 [00:48<00:00, 3.49it/s]**

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

**all 674 2540 0.695 0.697 0.747 0.477**

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

**40/100 4.99G 1.298 1.209 1.547 162 640: 100%|██████████| 169/169 [00:48<00:00, 3.50it/s]**

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

**all 674 2540 0.736 0.7 0.774 0.506**

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

**41/100 5.03G 1.301 1.2 1.549 120 640: 100%|██████████| 169/169 [00:48<00:00, 3.49it/s]**

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

**all 674 2540 0.703 0.701 0.758 0.49**

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

**42/100 5.02G 1.28 1.193 1.53 121 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.711 0.699 0.765 0.501**

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

**43/100 5.03G 1.273 1.177 1.522 133 640: 100%|██████████| 169/169 [00:49<00:00, 3.40it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.74it/s]**

**all 674 2540 0.727 0.709 0.78 0.514**

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

**44/100 5G 1.276 1.167 1.521 123 640: 100%|██████████| 169/169 [00:49<00:00, 3.41it/s]**

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

**all 674 2540 0.719 0.703 0.772 0.5**

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

**45/100 5.03G 1.27 1.169 1.516 136 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.82it/s]**

**all 674 2540 0.728 0.721 0.785 0.518**

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

**46/100 5G 1.263 1.151 1.512 122 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.727 0.717 0.785 0.52**

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

**47/100 5.04G 1.252 1.139 1.507 131 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.73 0.695 0.776 0.514**

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

**48/100 5G 1.255 1.139 1.509 125 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.73 0.726 0.795 0.528**

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

**49/100 4.99G 1.246 1.122 1.498 149 640: 100%|██████████| 169/169 [00:48<00:00, 3.46it/s]**

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

**all 674 2540 0.76 0.714 0.803 0.538**

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

**50/100 5.03G 1.233 1.105 1.484 124 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.749 0.715 0.796 0.535**

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

**51/100 4.97G 1.225 1.101 1.478 125 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.752 0.737 0.806 0.541**

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

**52/100 5.15G 1.22 1.091 1.478 126 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.75 0.73 0.8 0.542**

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

**53/100 5.01G 1.216 1.084 1.469 161 640: 100%|██████████| 169/169 [00:49<00:00, 3.44it/s]**

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

**all 674 2540 0.774 0.731 0.817 0.558**

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

**54/100 5.01G 1.21 1.076 1.47 114 640: 100%|██████████| 169/169 [00:49<00:00, 3.44it/s]**

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

**all 674 2540 0.765 0.745 0.815 0.557**

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

**55/100 4.99G 1.207 1.073 1.47 99 640: 100%|██████████| 169/169 [00:48<00:00, 3.45it/s]**

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

**all 674 2540 0.779 0.725 0.821 0.563**

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

**56/100 5.03G 1.206 1.069 1.471 122 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.774 0.729 0.82 0.565**

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

**57/100 4.97G 1.197 1.057 1.465 142 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.769 0.756 0.829 0.573**

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

**58/100 5.04G 1.194 1.05 1.461 158 640: 100%|██████████| 169/169 [00:49<00:00, 3.44it/s]**

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

**all 674 2540 0.789 0.738 0.831 0.57**

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

**59/100 4.99G 1.185 1.043 1.454 113 640: 100%|██████████| 169/169 [00:49<00:00, 3.41it/s]**

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

**all 674 2540 0.783 0.756 0.836 0.577**

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

**60/100 5.23G 1.185 1.036 1.451 123 640: 100%|██████████| 169/169 [00:49<00:00, 3.45it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.82it/s]**

**all 674 2540 0.786 0.756 0.834 0.577**

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

**61/100 4.99G 1.173 1.025 1.44 139 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.82it/s]**

**all 674 2540 0.77 0.77 0.839 0.584**

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

**62/100 5.03G 1.166 1.013 1.438 139 640: 100%|██████████| 169/169 [00:48<00:00, 3.48it/s]**

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

**all 674 2540 0.81 0.736 0.837 0.583**

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

**63/100 5.04G 1.167 1.009 1.438 165 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.82it/s]**

**all 674 2540 0.79 0.75 0.842 0.588**

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

**64/100 5.21G 1.154 0.9969 1.435 136 640: 100%|██████████| 169/169 [00:49<00:00, 3.39it/s]**

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

**all 674 2540 0.795 0.756 0.841 0.59**

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

**65/100 5.18G 1.152 0.9823 1.424 108 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.82it/s]**

**all 674 2540 0.806 0.765 0.847 0.593**

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

**66/100 5.22G 1.143 0.9755 1.416 126 640: 100%|██████████| 169/169 [00:49<00:00, 3.41it/s]**

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

**all 674 2540 0.825 0.742 0.847 0.597**

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

**67/100 5G 1.143 0.9819 1.42 137 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.802 0.77 0.852 0.603**

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

**68/100 5.01G 1.143 0.9713 1.414 111 640: 100%|██████████| 169/169 [00:49<00:00, 3.40it/s]**

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

**all 674 2540 0.822 0.768 0.857 0.608**

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

**69/100 4.99G 1.13 0.9485 1.406 101 640: 100%|██████████| 169/169 [00:49<00:00, 3.40it/s]**

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

**all 674 2540 0.797 0.8 0.869 0.621**

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

**70/100 4.99G 1.123 0.9561 1.4 131 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.809 0.769 0.857 0.612**

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

**71/100 5G 1.119 0.9498 1.405 163 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.808 0.775 0.858 0.612**

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

**72/100 5.23G 1.117 0.9422 1.401 161 640: 100%|██████████| 169/169 [00:48<00:00, 3.47it/s]**

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

**all 674 2540 0.824 0.771 0.859 0.613**

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

**73/100 5G 1.106 0.9276 1.387 143 640: 100%|██████████| 169/169 [00:49<00:00, 3.41it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.74it/s]**

**all 674 2540 0.818 0.791 0.86 0.618**

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

**74/100 5G 1.099 0.9172 1.382 145 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.818 0.781 0.861 0.62**

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

**75/100 5G 1.096 0.9169 1.378 139 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.821 0.792 0.87 0.628**

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

**76/100 5.05G 1.092 0.9153 1.378 104 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.827 0.782 0.867 0.626**

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

**77/100 5G 1.087 0.8973 1.379 110 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.822 0.79 0.866 0.626**

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

**78/100 5G 1.076 0.8896 1.371 123 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.74it/s]**

**all 674 2540 0.838 0.79 0.875 0.632**

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

**79/100 4.98G 1.075 0.8951 1.371 120 640: 100%|██████████| 169/169 [00:49<00:00, 3.41it/s]**

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

**all 674 2540 0.829 0.805 0.879 0.64**

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

**80/100 5.01G 1.071 0.8833 1.361 133 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.74it/s]**

**all 674 2540 0.841 0.784 0.876 0.638**

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

**81/100 4.99G 1.068 0.8804 1.353 132 640: 100%|██████████| 169/169 [00:49<00:00, 3.41it/s]**

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

**all 674 2540 0.847 0.789 0.877 0.638**

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

**82/100 5G 1.068 0.872 1.362 121 640: 100%|██████████| 169/169 [00:49<00:00, 3.44it/s]**

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

**all 674 2540 0.835 0.793 0.877 0.638**

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

**83/100 5.04G 1.055 0.8621 1.353 109 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.845 0.798 0.882 0.644**

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

**84/100 5.02G 1.054 0.8677 1.352 130 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.86 0.793 0.884 0.652**

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

**85/100 5.01G 1.046 0.8543 1.346 133 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.86 0.798 0.888 0.651**

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

**86/100 5.02G 1.04 0.8454 1.336 125 640: 100%|██████████| 169/169 [00:49<00:00, 3.39it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.75it/s]**

**all 674 2540 0.842 0.801 0.885 0.654**

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

**87/100 4.98G 1.037 0.8472 1.337 111 640: 100%|██████████| 169/169 [00:48<00:00, 3.46it/s]**

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

**all 674 2540 0.863 0.785 0.886 0.652**

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

**88/100 5.22G 1.035 0.842 1.333 125 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.844 0.813 0.889 0.658**

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

**89/100 4.97G 1.034 0.8375 1.337 167 640: 100%|██████████| 169/169 [00:48<00:00, 3.49it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.91it/s]**

**all 674 2540 0.858 0.809 0.888 0.654**

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

**90/100 5.04G 1.017 0.8231 1.324 151 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:03<00:00, 2.75it/s]**

**all 674 2540 0.847 0.813 0.888 0.657**

**Closing dataloader mosaic**

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

**91/100 5.14G 0.9363 0.7092 1.271 62 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.74it/s]**

**all 674 2540 0.838 0.828 0.891 0.659**

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

**92/100 5.16G 0.9047 0.6653 1.246 60 640: 100%|██████████| 169/169 [00:48<00:00, 3.47it/s]**

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

**all 674 2540 0.86 0.814 0.896 0.665**

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

**93/100 5.01G 0.8933 0.6505 1.237 67 640: 100%|██████████| 169/169 [00:49<00:00, 3.44it/s]**

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

**all 674 2540 0.876 0.818 0.898 0.667**

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

**94/100 5.01G 0.8766 0.6374 1.226 55 640: 100%|██████████| 169/169 [00:48<00:00, 3.47it/s]**

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

**all 674 2540 0.867 0.826 0.899 0.674**

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

**95/100 5.14G 0.8756 0.6379 1.228 55 640: 100%|██████████| 169/169 [00:49<00:00, 3.45it/s]**

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

**all 674 2540 0.877 0.823 0.9 0.677**

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

**96/100 5.01G 0.8677 0.6318 1.221 58 640: 100%|██████████| 169/169 [00:49<00:00, 3.43it/s]**

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

**all 674 2540 0.883 0.819 0.902 0.677**

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

**97/100 5.01G 0.8658 0.6241 1.221 59 640: 100%|██████████| 169/169 [00:49<00:00, 3.42it/s]**

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

**all 674 2540 0.876 0.826 0.904 0.681**

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

**98/100 5.02G 0.8562 0.6102 1.212 53 640: 100%|██████████| 169/169 [00:49<00:00, 3.44it/s]**

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

**all 674 2540 0.873 0.831 0.905 0.682**

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

**99/100 5.01G 0.8495 0.6047 1.203 71 640: 100%|██████████| 169/169 [00:48<00:00, 3.45it/s]**

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

**all 674 2540 0.885 0.82 0.905 0.683**

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

**100/100 5.02G 0.8456 0.604 1.204 72 640: 100%|██████████| 169/169 [00:48<00:00, 3.46it/s]**

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

**all 674 2540 0.89 0.814 0.904 0.684**

**100 epochs completed in 1.490 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-RCSOSA-1 summary: 236 layers, 8627080 parameters, 0 gradients, 22.1 GFLOPs**

**Class Images Instances Box(P R mAP50 mAP50-95): 100%|██████████| 11/11 [00:04<00:00, 2.40it/s]**

**all 674 2540 0.888 0.815 0.904 0.684**

**fire 674 1086 0.932 0.867 0.955 0.736**

**smoke 674 1454 0.844 0.762 0.854 0.632**

**Speed: 0.1ms preprocess, 1.3ms 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**