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1 C:\Users\User\PycharmProjects\yolov8\.venv\Scripts\python.exe C:\Users\User\PycharmProjects\yolov8\.venv\train.py
2 Downloading https://github.com/ultralytics/assets/releases/download/v8.3.0/yolov8n.pt to 'yolov8n.pt'
3 100%|██████████| 6.25M/6.25M [00:00<00:00, 75.5MB/s]
4 New https://pypi.org/project/ultralytics/8.3.77 available ▯ Update with 'pip install -U ultralytics'
5 Ultralytics 8.3.76 ▯ Python-3.12.6 torch-2.5.1+cu121 CUDA:0 (NVIDIA GeForce RTX 4050 Laptop GPU, 6140MiB)
6 engine\trainer: task=detect, mode=train, model=yolov8n.pt, data=C:\Users\User\PycharmProjects\yolov8\.venv\dataset\data.yaml, epochs=50, time=None, patience=100, batch=32, imgsz=640, save=True, save_period=-1, cache=False, device=cuda, workers=0, project=None, name=train, exist_ok=False, pretrained=True, optimizer=auto, verbose=True, seed=0, deterministic=True, single_cls=False, rect=False, cos_lr=False, close_mosaic=10, resume=False, amp=True, fraction=1.0, profile=False, freeze=None, multi_scale=False, overlap_mask=True, mask_ratio=4, dropout=0.0, val=True, split=val, save_json=False, save_hybrid=False, conf=None, iou=0.7, max_det=300, half=False, dnn=False, plots=True, source=None, vid_stride=1, stream_buffer=False, visualize=False, augment=False, agnostic_nms=False, classes=None, retina_masks=False, embed=None, show=False, save_frames=False, save_txt=False, save_conf=False, save_crop=False, show_labels=True, show_conf=True, show_boxes=True, line_width=None, format=torchscript, keras=False, optimize=False, int8=False, dynamic=False, simplify=True, opset=None, workspace=None, 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, nbs=64, hsv_h=0.015, hsv_s=0.7, hsv_v=0.4, degrees=0.0, translate=0.1, scale=0.5, shear=0.0, perspective=0.0, flipud=0.0, fliplr=0.5, bgr=0.0, mosaic=1.0, mixup=0.0, copy_paste=0.0, copy_paste_mode=flip, auto_augment=
```

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6 randaugment, erasing=0.4, crop_fraction=1.0, cfg=None
  , tracker=botsort.yaml, save_dir=runs\detect\train
7 Overriding model.yaml nc=80 with nc=2
8
9          from  n    params  module
          arguments

10   0          -1  1      464  ultralytics.nn.
      modules.conv.Conv      [3, 16, 3, 2
      ]
11   1          -1  1     4672  ultralytics.nn.
      modules.conv.Conv      [16, 32, 3, 2
      ]
12   2          -1  1     7360  ultralytics.nn.
      modules.block.C2f      [32, 32, 1, True
      ]
13   3          -1  1    18560  ultralytics.nn.
      modules.conv.Conv      [32, 64, 3, 2
      ]
14   4          -1  2    49664  ultralytics.nn.
      modules.block.C2f      [64, 64, 2, True
      ]
15   5          -1  1    73984  ultralytics.nn.
      modules.conv.Conv      [64, 128, 3, 2
      ]
16   6          -1  2   197632  ultralytics.nn.
      modules.block.C2f      [128, 128, 2, True
      ]
17   7          -1  1   295424  ultralytics.nn.
      modules.conv.Conv      [128, 256, 3, 2
      ]
18   8          -1  1   460288  ultralytics.nn.
      modules.block.C2f      [256, 256, 1, True
      ]
19   9          -1  1   164608  ultralytics.nn.
      modules.block.SPPF      [256, 256, 5
      ]
20  10          -1  1         0  torch.nn.
      modules.upsampling.Upsample      [None, 2, '
      nearest']
21  11          [-1, 6]  1         0  ultralytics.nn.

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21 modules.conv.Concat          [1
   ]
22  12          -1  1    148224  ultralytics.nn.
   modules.block.C2f          [384, 128, 1
   ]
23  13          -1  1          0  torch.nn.
   modules.upsampling.Upsample [None, 2, '
   nearest']
24  14          [-1, 4]  1          0  ultralytics.nn.
   modules.conv.Concat        [1
   ]
25  15          -1  1    37248  ultralytics.nn.
   modules.block.C2f          [192, 64, 1
   ]
26  16          -1  1    36992  ultralytics.nn.
   modules.conv.Conv          [64, 64, 3, 2
   ]
27  17          [-1, 12] 1          0  ultralytics.nn.
   modules.conv.Concat        [1
   ]
28  18          -1  1   123648  ultralytics.nn.
   modules.block.C2f          [192, 128, 1
   ]
29  19          -1  1   147712  ultralytics.nn.
   modules.conv.Conv          [128, 128, 3, 2
   ]
30  20          [-1, 9]  1          0  ultralytics.nn.
   modules.conv.Concat        [1
   ]
31  21          -1  1   493056  ultralytics.nn.
   modules.block.C2f          [384, 256, 1
   ]
32  22          [15, 18, 21] 1   751702 ultralytics.nn.
   modules.head.Detect        [2, [64, 128, 256
   ]]
33 Model summary: 129 layers, 3,011,238 parameters, 3,
   011,222 gradients, 8.2 GFLOPs
34
35 Transferred 319/355 items from pretrained weights
36 Freezing layer 'model.22.dfl.conv.weight'
37 AMP: running Automatic Mixed Precision (AMP) checks

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37 ...
38 Downloading https://github.com/ultralytics/assets/
   releases/download/v8.3.0/yolo11n.pt to 'yolo11n.pt
   ' ...
39 100%|██████████| 5.35M/5.35M [00:00<00:00, 76.7MB/s]
40 AMP: checks passed ✓
41 train: Scanning C:\Users\User\PycharmProjects\yolov8
   \.venv\dataset\train\labels.cache... 192 images, 0
   backgrounds, 0 corrupt: 100%|██████████| 192/192 [00:
   00<?, ?it/s]
42 val: Scanning C:\Users\User\PycharmProjects\yolov8\
   .venv\dataset\valid\labels.cache... 10 images, 0
   backgrounds, 0 corrupt: 100%|██████████| 10/10 [00:00
   <?, ?it/s]
43 Plotting labels to runs\detect\train\labels.jpg...
44 optimizer: 'optimizer=auto' found, ignoring 'lr0=0.01
   ' and 'momentum=0.937' and determining best '
   optimizer', 'lr0' and 'momentum' automatically...
45 optimizer: AdamW(lr=0.001667, momentum=0.9) with
   parameter groups 57 weight(decay=0.0), 64 weight(
   decay=0.0005), 63 bias(decay=0.0)
46 Image sizes 640 train, 640 val
47 Using 0 dataloader workers
48 Logging results to runs\detect\train
49 Starting training for 50 epochs...
50
51      Epoch      GPU_mem    box_loss    cls_loss
   dfl_loss Instances      Size
52      1/50      3.79G      1.751      3.531      1.
   719      69      640: 100%|██████████| 6/6 [00:
   04<00:00, 1.38it/s]
53      Class      Images  Instances      Box
   (P      R      mAP50  mAP50-95): 100
   %|██████████| 1/1 [00:00<00:00, 6.59it/s]
54      all      10      10      0.
   00597      1      0.197      0.106
55      0%|      | 0/6 [00:00<?, ?it/s]
56      Epoch      GPU_mem    box_loss    cls_loss
   dfl_loss Instances      Size
57      2/50      3.81G      1.373      3.103      1.
   582      75      640: 100%|██████████| 6/6 [00:

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57 03<00:00, 1.62it/s]
58          Class      Images  Instances      Box
   (P          R      mAP50  mAP50-95): 100
%| ██████████ | 1/1 [00:00<00:00, 9.38it/s]
59          all          10          10      0.
00484          1      0.207      0.095
60  0%|          | 0/6 [00:00<?, ?it/s]
61      Epoch      GPU_mem  box_loss  cls_loss
dfl_loss  Instances      Size
62          3/50          3.81G      0.6101      1.668      1.
103          79          640: 100%| ██████████ | 6/6 [00:
03<00:00, 1.71it/s]
63          Class      Images  Instances      Box
   (P          R      mAP50  mAP50-95): 100
%| ██████████ | 1/1 [00:00<00:00, 8.64it/s]
64          all          10          10      0.
00632          1      0.821      0.541
65
66      Epoch      GPU_mem  box_loss  cls_loss
dfl_loss  Instances      Size
67          4/50          3.81G      0.6386      1.344      1.
076          67          640: 100%| ██████████ | 6/6 [00:
03<00:00, 1.70it/s]
68          Class      Images  Instances      Box
   (P          R      mAP50  mAP50-95): 100
%| ██████████ | 1/1 [00:00<00:00, 10.00it/s]
69          all          10          10      0.
00831          1      0.995      0.516
70  0%|          | 0/6 [00:00<?, ?it/s]
71      Epoch      GPU_mem  box_loss  cls_loss
dfl_loss  Instances      Size
72          5/50          3.81G      0.5945      1.179      1.
058          67          640: 100%| ██████████ | 6/6 [00:
03<00:00, 1.70it/s]
73          Class      Images  Instances      Box
   (P          R      mAP50  mAP50-95): 100
%| ██████████ | 1/1 [00:00<00:00, 9.51it/s]
74          all          10          10      0.
00943          1      0.986      0.761
75  0%|          | 0/6 [00:00<?, ?it/s]
76      Epoch      GPU_mem  box_loss  cls_loss

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76 dfl_loss Instances      Size
77      6/50      3.81G      0.5401      1.15      1.
    037      67      640: 100%|██████████| 6/6 [00:
    03<00:00,  1.64it/s]
78      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00,  8.93it/s]
79      all      10      10      0.
    00873      1      0.995      0.889
80      0%|      | 0/6 [00:00<?, ?it/s]
81      Epoch      GPU_mem      box_loss      cls_loss
    dfl_loss Instances      Size
82      7/50      3.81G      0.5959      1.097      1.
    045      60      640: 100%|██████████| 6/6 [00:
    03<00:00,  1.60it/s]
83      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00,  9.91it/s]
84      all      10      10      0.
    897      0.872      0.95      0.815
85
86      Epoch      GPU_mem      box_loss      cls_loss
    dfl_loss Instances      Size
87      8/50      3.81G      0.5574      1.018      1.
    035      60      640: 100%|██████████| 6/6 [00:
    03<00:00,  1.71it/s]
88      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00,  9.90it/s]
89      all      10      10      0.
    995      1      0.995      0.82
90      0%|      | 0/6 [00:00<?, ?it/s]
91      Epoch      GPU_mem      box_loss      cls_loss
    dfl_loss Instances      Size
92      9/50      3.81G      0.5453      0.8879      0.
    9999      77      640: 100%|██████████| 6/6 [00
    :03<00:00,  1.63it/s]
93      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00,  8.74it/s]
94      all      10      10      0.

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94 996          1      0.995      0.921
95  0%|          | 0/6 [00:00<?, ?it/s]
96      Epoch      GPU_mem      box_loss      cls_loss
    dfl_loss Instances      Size
97      10/50      3.81G      0.5688      0.945      1.
    057          60          640: 100%|██████████| 6/6 [00:
    03<00:00,  1.62it/s]
98      Class      Images Instances
    Box(P          R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00,  9.64it/s]
99      all          10          10          0.
    993          1      0.995      0.957
100  0%|          | 0/6 [00:00<?, ?it/s]
101      Epoch      GPU_mem      box_loss      cls_loss
    dfl_loss Instances      Size
102      11/50      3.81G      0.5203      0.8799      1.
    019          74          640: 100%|██████████| 6/6 [00:
    03<00:00,  1.73it/s]
103      Class      Images Instances
    Box(P          R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00,  9.91it/s]
104      all          10          10          0
    .99          1      0.995      0.912
105  0%|          | 0/6 [00:00<?, ?it/s]
106      Epoch      GPU_mem      box_loss      cls_loss
    dfl_loss Instances      Size
107      12/50      3.81G      0.549      0.8606      1.
    014          76          640: 100%|██████████| 6/6 [00:
    03<00:00,  1.66it/s]
108      Class      Images Instances
    Box(P          R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00,  9.98it/s]
109      all          10          10
          1      0.991      0.995      0.858
110  0%|          | 0/6 [00:00<?, ?it/s]
111      Epoch      GPU_mem      box_loss      cls_loss
    dfl_loss Instances      Size
112      13/50      3.81G      0.5551      0.8628      1.
    037          66          640: 100%|██████████| 6/6 [00:
    03<00:00,  1.61it/s]
113      Class      Images Instances

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113 Box(P          R          mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 10.82it/s]
114          all          10          10          0.
    991          1          0.995          0.959
115
116      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
117      14/50      3.82G      0.5312      0.7906      0.
    9982          67      640: 100%|██████████| 6/6 [00:
    :03<00:00, 1.73it/s]
118          Class      Images  Instances
    Box(P          R          mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 11.57it/s]
119          all          10          10          0.
    883          1          0.986          0.937
120
121      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
122      15/50      3.82G      0.5872      0.7805      1
    .03          71      640: 100%|██████████| 6/6 [00:
    03<00:00, 1.64it/s]
123          Class      Images  Instances
    Box(P          R          mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 9.68it/s]
124          all          10          10          0.
    969          1          0.995          0.911
125  0%|          | 0/6 [00:00<?, ?it/s]
126      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
127      16/50      3.81G      0.5759      0.7709      1.
    017          63      640: 100%|██████████| 6/6 [00:
    03<00:00, 1.50it/s]
128          Class      Images  Instances
    Box(P          R          mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 9.81it/s]
129          all          10          10
          1          0.993          0.995          0.665
130  0%|          | 0/6 [00:00<?, ?it/s]
131      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
132      17/50      3.82G      0.5271      0.7863      1.

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132 013          58          640: 100%|██████████| 6/6 [00:
    03<00:00,  1.66it/s]
133          Class      Images  Instances
    Box(P          R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 10.92it/s]
134          all          10          10
          1          0.997          0.995          0.915
135
136      Epoch      GPU_mem  box_loss  cls_loss
    dfl_loss  Instances      Size
137      18/50      3.82G      0.5038      0.7266      0.
    9884          76          640: 100%|██████████| 6/6 [00
    :03<00:00,  1.71it/s]
138          Class      Images  Instances
    Box(P          R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 10.81it/s]
139          all          10          10      0.
    993          1          0.995          0.912
140  0%|          | 0/6 [00:00<?, ?it/s]
141      Epoch      GPU_mem  box_loss  cls_loss
    dfl_loss  Instances      Size
142      19/50      3.82G      0.4809      0.692      0.
    9797          70          640: 100%|██████████| 6/6 [00
    :03<00:00,  1.58it/s]
143          Class      Images  Instances
    Box(P          R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00,  8.60it/s]
144          all          10          10      0.
    982          1          0.995          0.956
145
146      Epoch      GPU_mem  box_loss  cls_loss
    dfl_loss  Instances      Size
147      20/50      3.81G      0.4962      0.6966      0.
    9845          76          640: 100%|██████████| 6/6 [00
    :03<00:00,  1.61it/s]
148          Class      Images  Instances
    Box(P          R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 11.39it/s]
149          all          10          10      0.
    995          1          0.995          0.934
150  0%|          | 0/6 [00:00<?, ?it/s]

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151      Epoch      GPU_mem    box_loss    cls_loss
      dfl_loss Instances      Size
152      21/50      3.82G      0.484      0.7016      1.
      008      63      640: 100%|██████████| 6/6 [00:
      03<00:00, 1.70it/s]
153      Class      Images Instances
      Box(P      R      mAP50  mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 11.58it/s]
154      all      10      10      0.
      995      1      0.995      0.839
155      0%|      | 0/6 [00:00<?, ?it/s]
156      Epoch      GPU_mem    box_loss    cls_loss
      dfl_loss Instances      Size
157      22/50      3.81G      0.4451      0.647      0.
      9703      70      640: 100%|██████████| 6/6 [00
      :03<00:00, 1.68it/s]
158      Class      Images Instances
      Box(P      R      mAP50  mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 10.17it/s]
159      all      10      10      0.
      995      1      0.995      0.919
160
161      Epoch      GPU_mem    box_loss    cls_loss
      dfl_loss Instances      Size
162      23/50      3.82G      0.4772      0.6101      0.
      9904      66      640: 100%|██████████| 6/6 [00
      :04<00:00, 1.46it/s]
163      Class      Images Instances
      Box(P      R      mAP50  mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 8.71it/s]
164      all      10      10      0.
      995      1      0.995      0.933
165
166      Epoch      GPU_mem    box_loss    cls_loss
      dfl_loss Instances      Size
167      24/50      3.82G      0.4174      0.5719      0.
      9678      57      640: 100%|██████████| 6/6 [00
      :04<00:00, 1.37it/s]
168      Class      Images Instances
      Box(P      R      mAP50  mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 8.33it/s]

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169          all          10          10          0.
      995          1          0.995          0.977
170
171      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss Instances          Size
172      25/50      3.82G          0.43          0.5949          0.
      9632          49          640: 100%|██████████| 6/6 [00
      :03<00:00, 1.57it/s]
173          Class      Images Instances
      Box(P          R          mAP50 mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 11.26it/s]
174          all          10          10          0.
      995          1          0.995          0.982
175      0%|          | 0/6 [00:00<?, ?it/s]
176      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss Instances          Size
177      26/50      3.82G          0.4749          0.5616          1.
      002          74          640: 100%|██████████| 6/6 [00:
      03<00:00, 1.71it/s]
178          Class      Images Instances
      Box(P          R          mAP50 mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 10.44it/s]
179          all          10          10          0
      .99          1          0.995          0.95
180      0%|          | 0/6 [00:00<?, ?it/s]
181      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss Instances          Size
182      27/50      3.82G          0.4252          0.5305          0.
      9696          77          640: 100%|██████████| 6/6 [00
      :03<00:00, 1.74it/s]
183          Class      Images Instances
      Box(P          R          mAP50 mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 11.44it/s]
184          all          10          10          0.
      985          1          0.995          0.927
185
186      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss Instances          Size
187      28/50      3.82G          0.3985          0.512          0.
      9641          55          640: 100%|██████████| 6/6 [00
      :03<00:00, 1.53it/s]

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188          Class      Images  Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 9.16it/s]
189          all          10          10          0.
    995          1          0.995          0.871
190
191      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances          Size
192      29/50      3.81G      0.4262      0.559      0.
    9659          73      640: 100%|██████████| 6/6 [00
    :04<00:00, 1.41it/s]
193          Class      Images  Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 8.23it/s]
194          all          10          10          0.
    991          1          0.995          0.995
195      0%|          | 0/6 [00:00<?, ?it/s]
196      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances          Size
197      30/50      3.82G      0.406      0.5235      0.
    9447          63      640: 100%|██████████| 6/6 [00
    :03<00:00, 1.58it/s]
198          Class      Images  Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 9.70it/s]
199          all          10          10          0.
    994          1          0.995          0.979
200
201      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances          Size
202      31/50      3.82G      0.416      0.5225      0.
    9683          61      640: 100%|██████████| 6/6 [00
    :03<00:00, 1.72it/s]
203          Class      Images  Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 11.57it/s]
204          all          10          10          0.
    995          1          0.995          0.995
205      0%|          | 0/6 [00:00<?, ?it/s]
206      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances          Size

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207      32/50      3.82G      0.3809      0.4717      0.
      9522      75      640: 100%|██████████| 6/6 [00:
      :03<00:00, 1.57it/s]
208      Class      Images      Instances
      Box(P      R      mAP50      mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 9.60it/s]
209      all      10      10      0.
      995      1      0.995      0.995
210      0%|      | 0/6 [00:00<?, ?it/s]
211      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss      Instances      Size
212      33/50      3.82G      0.3657      0.4585      0.
      934      65      640: 100%|██████████| 6/6 [00:
      04<00:00, 1.45it/s]
213      Class      Images      Instances
      Box(P      R      mAP50      mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 8.58it/s]
214      all      10      10      0.
      995      1      0.995      0.976
215
216      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss      Instances      Size
217      34/50      3.82G      0.4095      0.4816      0.
      9676      66      640: 100%|██████████| 6/6 [00
      :03<00:00, 1.54it/s]
218      Class      Images      Instances
      Box(P      R      mAP50      mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 10.24it/s]
219      all      10      10      0.
      995      1      0.995      0.985
220      0%|      | 0/6 [00:00<?, ?it/s]
221      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss      Instances      Size
222      35/50      3.82G      0.3767      0.4535      0.
      9348      63      640: 100%|██████████| 6/6 [00
      :03<00:00, 1.69it/s]
223      Class      Images      Instances
      Box(P      R      mAP50      mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 11.19it/s]
224      all      10      10      0.
      995      1      0.995      0.995

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225
226      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
227      36/50      3.81G      0.3614      0.4248      0.
    9346      78      640: 100%|██████████| 6/6 [00
    :05<00:00, 1.01it/s]
228      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 9.13it/s]
229      all      10      10      0.
    994      1      0.995      0.995
230      0%|      | 0/6 [00:00<?, ?it/s]
231      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
232      37/50      3.82G      0.3407      0.4089      0.
    9318      59      640: 100%|██████████| 6/6 [00
    :04<00:00, 1.43it/s]
233      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 7.54it/s]
234      all      10      10      0.
    994      1      0.995      0.995
235      0%|      | 0/6 [00:00<?, ?it/s]
236      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
237      38/50      3.81G      0.3644      0.4306      0.
    9361      65      640: 100%|██████████| 6/6 [00
    :04<00:00, 1.42it/s]
238      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 7.74it/s]
239      all      10      10      0.
    995      1      0.995      0.995
240      0%|      | 0/6 [00:00<?, ?it/s]
241      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
242      39/50      3.81G      0.3301      0.3981      0.
    9268      71      640: 100%|██████████| 6/6 [00
    :04<00:00, 1.37it/s]
243      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100

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243 %|██████████| 1/1 [00:00<00:00, 8.16it/s]
244          all          10          10          0.
      989          1          0.995          0.995
245 0%|          | 0/6 [00:00<?, ?it/s]
246      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss Instances          Size
247      40/50      3.82G      0.3483      0.3949      0.
      9296          78      640: 100%|██████████| 6/6 [00
      :04<00:00, 1.46it/s]
248          Class      Images Instances
      Box(P          R      mAP50  mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 8.32it/s]
249          all          10          10          0.
      995          1          0.995          0.995
250 0%|          | 0/6 [00:00<?, ?it/s]Closing
      dataloader mosaic
251
252      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss Instances          Size
253      41/50      3.82G      0.174      0.4102      0.
      8212          32      640: 100%|██████████| 6/6 [00
      :05<00:00, 1.15it/s]
254          Class      Images Instances
      Box(P          R      mAP50  mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 5.71it/s]
255          all          10          10          0.
      995          1          0.995          0.995
256 0%|          | 0/6 [00:00<?, ?it/s]
257      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss Instances          Size
258      42/50      3.82G      0.158      0.401      0.
      8144          32      640: 100%|██████████| 6/6 [00
      :04<00:00, 1.42it/s]
259          Class      Images Instances
      Box(P          R      mAP50  mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 8.38it/s]
260          all          10          10          0.
      995          1          0.995          0.995
261 0%|          | 0/6 [00:00<?, ?it/s]
262      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss Instances          Size

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263      43/50      3.82G      0.1741      0.3857      0.
      8116      32      640: 100%|██████████| 6/6 [00:
      :05<00:00, 1.12it/s]
264      Class      Images      Instances
      Box(P      R      mAP50      mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 4.84it/s]
265      all      10      10      0.
      995      1      0.995      0.995
266
267      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss      Instances      Size
268      44/50      3.82G      0.1569      0.3559      0.
      814      32      640: 100%|██████████| 6/6 [00:
      04<00:00, 1.21it/s]
269      Class      Images      Instances
      Box(P      R      mAP50      mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 8.20it/s]
270      all      10      10      0.
      995      1      0.995      0.995
271      0%|      | 0/6 [00:00<?, ?it/s]
272      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss      Instances      Size
273      45/50      3.82G      0.154      0.3503      0.
      8066      32      640: 100%|██████████| 6/6 [00
      :05<00:00, 1.15it/s]
274      Class      Images      Instances
      Box(P      R      mAP50      mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 7.65it/s]
275      all      10      10      0.
      995      1      0.995      0.984
276      0%|      | 0/6 [00:00<?, ?it/s]
277      Epoch      GPU_mem      box_loss      cls_loss
      dfl_loss      Instances      Size
278      46/50      3.82G      0.1612      0.3453      0.
      8144      32      640: 100%|██████████| 6/6 [00
      :04<00:00, 1.26it/s]
279      Class      Images      Instances
      Box(P      R      mAP50      mAP50-95): 100
      %|██████████| 1/1 [00:00<00:00, 6.40it/s]
280      all      10      10      0.
      995      1      0.995      0.995

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281
282      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
283      47/50      3.82G      0.1532      0.3407      0.
    7945      32      640: 100%|██████████| 6/6 [00
    :05<00:00, 1.18it/s]
284      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 8.24it/s]
285      all      10      10      0.
    995      1      0.995      0.995
286
287      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
288      48/50      3.82G      0.1265      0.318      0.
    8169      32      640: 100%|██████████| 6/6 [00
    :04<00:00, 1.21it/s]
289      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 7.30it/s]
290      all      10      10      0.
    995      1      0.995      0.995
291      0%|      | 0/6 [00:00<?, ?it/s]
292      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
293      49/50      3.82G      0.122      0.3064      0.
    7939      32      640: 100%|██████████| 6/6 [00
    :04<00:00, 1.39it/s]
294      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 7.54it/s]
295      all      10      10      0.
    995      1      0.995      0.995
296      0%|      | 0/6 [00:00<?, ?it/s]
297      Epoch      GPU_mem    box_loss    cls_loss
    dfl_loss Instances      Size
298      50/50      3.82G      0.1208      0.2962      0.
    8062      32      640: 100%|██████████| 6/6 [00
    :03<00:00, 1.52it/s]
299      Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100

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299 %|██████████| 1/1 [00:00<00:00, 8.42it/s]
300           all           10           10           0.
      995           1           0.995           0.995
301
302 50 epochs completed in 0.063 hours.
303 Optimizer stripped from runs\detect\train\weights\
    last.pt, 6.2MB
304 Optimizer stripped from runs\detect\train\weights\
    best.pt, 6.2MB
305
306 Validating runs\detect\train\weights\best.pt...
307 Ultralytics 8.3.76 Python-3.12.6 torch-2.5.1+cu121
    CUDA:0 (NVIDIA GeForce RTX 4050 Laptop GPU, 6140MiB
    )
308 Model summary (fused): 72 layers, 3,006,038
    parameters, 0 gradients, 8.1 GFLOPs
309           Class      Images Instances
    Box(P      R      mAP50  mAP50-95): 100
    %|██████████| 1/1 [00:00<00:00, 6.40it/s]
310           all           10           10           0.
      995           1           0.995           0.995
311           A           10           10           0.
      995           1           0.995           0.995
312 Speed: 0.8ms preprocess, 2.6ms inference, 0.0ms loss
    , 1.8ms postprocess per image
313 Results saved to runs\detect\train
314
315 Process finished with exit code 0
316

```