Installing ultralytics (YOLOv9)...

Collecting ultralytics

Downloading ultralytics-8.3.176-py3-none-any.whl.metadata (37 kB)

Requirement already satisfied: numpy>=1.23.0 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (1.26.4)

Requirement already satisfied: matplotlib>=3.3.0 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (3.7.2)

Requirement already satisfied: opencv-python>=4.6.0 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (4.11.0.86)

Requirement already satisfied: pillow>=7.1.2 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (11.2.1)

Requirement already satisfied: pyyaml>=5.3.1 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (6.0.2)

Requirement already satisfied: requests>=2.23.0 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (2.32.4)

Requirement already satisfied: scipy>=1.4.1 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (1.15.3)

Requirement already satisfied: torch>=1.8.0 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (2.6.0+cu124)

Requirement already satisfied: torchvision>=0.9.0 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (0.21.0+cu124)

Requirement already satisfied: tqdm>=4.64.0 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (4.67.1)

Requirement already satisfied: psutil in /usr/local/lib/python3.11/dist-packages (from ultralytics) (7.0.0)

Requirement already satisfied: py-cpuinfo in /usr/local/lib/python3.11/dist-packages (from ultralytics) (9.0.0)

Requirement already satisfied: pandas>=1.1.4 in /usr/local/lib/python3.11/dist-packages (from ultralytics) (2.2.3)

Collecting ultralytics-thop>=2.0.0 (from ultralytics)

Downloading ultralytics\_thop-2.0.15-py3-none-any.whl.metadata (14 kB)

Requirement already satisfied: contourpy>=1.0.1 in /usr/local/lib/python3.11/dist-packages (from matplotlib>=3.3.0->ultralytics) (1.3.2)

Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.11/dist-packages (from matplotlib>=3.3.0->ultralytics) (0.12.1)

Requirement already satisfied: fonttools>=4.22.0 in /usr/local/lib/python3.11/dist-packages (from matplotlib>=3.3.0->ultralytics) (4.58.4)

Requirement already satisfied: kiwisolver>=1.0.1 in /usr/local/lib/python3.11/dist-packages (from matplotlib>=3.3.0->ultralytics) (1.4.8)

Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.11/dist-packages (from matplotlib>=3.3.0->ultralytics) (25.0)

Requirement already satisfied: pyparsing<3.1,>=2.3.1 in /usr/local/lib/python3.11/dist-packages (from matplotlib>=3.3.0->ultralytics) (3.0.9)

Requirement already satisfied: python-dateutil>=2.7 in /usr/local/lib/python3.11/dist-packages (from matplotlib>=3.3.0->ultralytics) (2.9.0.post0)

Requirement already satisfied: mkl\_fft in /usr/local/lib/python3.11/dist-packages (from numpy>=1.23.0->ultralytics) (1.3.8)

Requirement already satisfied: mkl\_random in /usr/local/lib/python3.11/dist-packages (from numpy>=1.23.0->ultralytics) (1.2.4)

Requirement already satisfied: mkl\_umath in /usr/local/lib/python3.11/dist-packages (from numpy>=1.23.0->ultralytics) (0.1.1)

Requirement already satisfied: mkl in /usr/local/lib/python3.11/dist-packages (from numpy>=1.23.0->ultralytics) (2025.2.0)

Requirement already satisfied: tbb4py in /usr/local/lib/python3.11/dist-packages (from numpy>=1.23.0->ultralytics) (2022.2.0)

Requirement already satisfied: mkl-service in /usr/local/lib/python3.11/dist-packages (from numpy>=1.23.0->ultralytics) (2.4.1)

Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.11/dist-packages (from pandas>=1.1.4->ultralytics) (2025.2)

Requirement already satisfied: tzdata>=2022.7 in /usr/local/lib/python3.11/dist-packages (from pandas>=1.1.4->ultralytics) (2025.2)

Requirement already satisfied: charset\_normalizer<4,>=2 in /usr/local/lib/python3.11/dist-packages (from requests>=2.23.0->ultralytics) (3.4.2)

Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/dist-packages (from requests>=2.23.0->ultralytics) (3.10)

Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.11/dist-packages (from requests>=2.23.0->ultralytics) (2.5.0)

Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.11/dist-packages (from requests>=2.23.0->ultralytics) (2025.6.15)

Requirement already satisfied: filelock in /usr/local/lib/python3.11/dist-packages (from torch>=1.8.0->ultralytics) (3.18.0)

Requirement already satisfied: typing-extensions>=4.10.0 in /usr/local/lib/python3.11/dist-packages (from torch>=1.8.0->ultralytics) (4.14.0)

Requirement already satisfied: networkx in /usr/local/lib/python3.11/dist-packages (from torch>=1.8.0->ultralytics) (3.5)

Requirement already satisfied: jinja2 in /usr/local/lib/python3.11/dist-packages (from torch>=1.8.0->ultralytics) (3.1.6)

Requirement already satisfied: fsspec in /usr/local/lib/python3.11/dist-packages (from torch>=1.8.0->ultralytics) (2025.5.1)

Collecting nvidia-cuda-nvrtc-cu12==12.4.127 (from torch>=1.8.0->ultralytics)

Downloading nvidia\_cuda\_nvrtc\_cu12-12.4.127-py3-none-manylinux2014\_x86\_64.whl.metadata (1.5 kB)

Collecting nvidia-cuda-runtime-cu12==12.4.127 (from torch>=1.8.0->ultralytics)

Downloading nvidia\_cuda\_runtime\_cu12-12.4.127-py3-none-manylinux2014\_x86\_64.whl.metadata (1.5 kB)

Collecting nvidia-cuda-cupti-cu12==12.4.127 (from torch>=1.8.0->ultralytics)

Downloading nvidia\_cuda\_cupti\_cu12-12.4.127-py3-none-manylinux2014\_x86\_64.whl.metadata (1.6 kB)

Collecting nvidia-cudnn-cu12==9.1.0.70 (from torch>=1.8.0->ultralytics)

Downloading nvidia\_cudnn\_cu12-9.1.0.70-py3-none-manylinux2014\_x86\_64.whl.metadata (1.6 kB)

Collecting nvidia-cublas-cu12==12.4.5.8 (from torch>=1.8.0->ultralytics)

Downloading nvidia\_cublas\_cu12-12.4.5.8-py3-none-manylinux2014\_x86\_64.whl.metadata (1.5 kB)

Collecting nvidia-cufft-cu12==11.2.1.3 (from torch>=1.8.0->ultralytics)

Downloading nvidia\_cufft\_cu12-11.2.1.3-py3-none-manylinux2014\_x86\_64.whl.metadata (1.5 kB)

Collecting nvidia-curand-cu12==10.3.5.147 (from torch>=1.8.0->ultralytics)

Downloading nvidia\_curand\_cu12-10.3.5.147-py3-none-manylinux2014\_x86\_64.whl.metadata (1.5 kB)

Collecting nvidia-cusolver-cu12==11.6.1.9 (from torch>=1.8.0->ultralytics)

Downloading nvidia\_cusolver\_cu12-11.6.1.9-py3-none-manylinux2014\_x86\_64.whl.metadata (1.6 kB)

Collecting nvidia-cusparse-cu12==12.3.1.170 (from torch>=1.8.0->ultralytics)

Downloading nvidia\_cusparse\_cu12-12.3.1.170-py3-none-manylinux2014\_x86\_64.whl.metadata (1.6 kB)

Requirement already satisfied: nvidia-cusparselt-cu12==0.6.2 in /usr/local/lib/python3.11/dist-packages (from torch>=1.8.0->ultralytics) (0.6.2)

Requirement already satisfied: nvidia-nccl-cu12==2.21.5 in /usr/local/lib/python3.11/dist-packages (from torch>=1.8.0->ultralytics) (2.21.5)

Requirement already satisfied: nvidia-nvtx-cu12==12.4.127 in /usr/local/lib/python3.11/dist-packages (from torch>=1.8.0->ultralytics) (12.4.127)

Collecting nvidia-nvjitlink-cu12==12.4.127 (from torch>=1.8.0->ultralytics)

Downloading nvidia\_nvjitlink\_cu12-12.4.127-py3-none-manylinux2014\_x86\_64.whl.metadata (1.5 kB)

Requirement already satisfied: triton==3.2.0 in /usr/local/lib/python3.11/dist-packages (from torch>=1.8.0->ultralytics) (3.2.0)

Requirement already satisfied: sympy==1.13.1 in /usr/local/lib/python3.11/dist-packages (from torch>=1.8.0->ultralytics) (1.13.1)

Requirement already satisfied: mpmath<1.4,>=1.1.0 in /usr/local/lib/python3.11/dist-packages (from sympy==1.13.1->torch>=1.8.0->ultralytics) (1.3.0)

Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.11/dist-packages (from python-dateutil>=2.7->matplotlib>=3.3.0->ultralytics) (1.17.0)

Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.11/dist-packages (from jinja2->torch>=1.8.0->ultralytics) (3.0.2)

Requirement already satisfied: intel-openmp<2026,>=2024 in /usr/local/lib/python3.11/dist-packages (from mkl->numpy>=1.23.0->ultralytics) (2024.2.0)

Requirement already satisfied: tbb==2022.\* in /usr/local/lib/python3.11/dist-packages (from mkl->numpy>=1.23.0->ultralytics) (2022.2.0)

Requirement already satisfied: tcmlib==1.\* in /usr/local/lib/python3.11/dist-packages (from tbb==2022.\*->mkl->numpy>=1.23.0->ultralytics) (1.4.0)

Requirement already satisfied: intel-cmplr-lib-rt in /usr/local/lib/python3.11/dist-packages (from mkl\_umath->numpy>=1.23.0->ultralytics) (2024.2.0)

Requirement already satisfied: intel-cmplr-lib-ur==2024.2.0 in /usr/local/lib/python3.11/dist-packages (from intel-openmp<2026,>=2024->mkl->numpy>=1.23.0->ultralytics) (2024.2.0)

Downloading ultralytics-8.3.176-py3-none-any.whl (1.0 MB)

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Downloading nvidia\_cublas\_cu12-12.4.5.8-py3-none-manylinux2014\_x86\_64.whl (363.4 MB)

━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 363.4/363.4 MB 4.7 MB/s eta 0:00:00

Downloading nvidia\_cuda\_cupti\_cu12-12.4.127-py3-none-manylinux2014\_x86\_64.whl (13.8 MB)

━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 13.8/13.8 MB 98.0 MB/s eta 0:00:00

Downloading nvidia\_cuda\_nvrtc\_cu12-12.4.127-py3-none-manylinux2014\_x86\_64.whl (24.6 MB)

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Downloading nvidia\_cuda\_runtime\_cu12-12.4.127-py3-none-manylinux2014\_x86\_64.whl (883 kB)

━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 883.7/883.7 kB 34.5 MB/s eta 0:00:00

Downloading nvidia\_cudnn\_cu12-9.1.0.70-py3-none-manylinux2014\_x86\_64.whl (664.8 MB)

━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 664.8/664.8 MB 2.3 MB/s eta 0:00:00

Downloading nvidia\_cufft\_cu12-11.2.1.3-py3-none-manylinux2014\_x86\_64.whl (211.5 MB)

━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 211.5/211.5 MB 2.1 MB/s eta 0:00:00

Downloading nvidia\_curand\_cu12-10.3.5.147-py3-none-manylinux2014\_x86\_64.whl (56.3 MB)

━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 56.3/56.3 MB 22.0 MB/s eta 0:00:00

Downloading nvidia\_cusolver\_cu12-11.6.1.9-py3-none-manylinux2014\_x86\_64.whl (127.9 MB)

━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 127.9/127.9 MB 4.5 MB/s eta 0:00:00

Downloading nvidia\_cusparse\_cu12-12.3.1.170-py3-none-manylinux2014\_x86\_64.whl (207.5 MB)

━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 207.5/207.5 MB 7.3 MB/s eta 0:00:00

Downloading nvidia\_nvjitlink\_cu12-12.4.127-py3-none-manylinux2014\_x86\_64.whl (21.1 MB)

━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 21.1/21.1 MB 31.8 MB/s eta 0:00:00

Downloading ultralytics\_thop-2.0.15-py3-none-any.whl (28 kB)

Installing collected packages: nvidia-nvjitlink-cu12, nvidia-curand-cu12, nvidia-cufft-cu12, nvidia-cuda-runtime-cu12, nvidia-cuda-nvrtc-cu12, nvidia-cuda-cupti-cu12, nvidia-cublas-cu12, nvidia-cusparse-cu12, nvidia-cudnn-cu12, nvidia-cusolver-cu12, ultralytics-thop, ultralytics

Attempting uninstall: nvidia-nvjitlink-cu12

Found existing installation: nvidia-nvjitlink-cu12 12.5.82

Uninstalling nvidia-nvjitlink-cu12-12.5.82:

Successfully uninstalled nvidia-nvjitlink-cu12-12.5.82

Attempting uninstall: nvidia-curand-cu12

Found existing installation: nvidia-curand-cu12 10.3.6.82

Uninstalling nvidia-curand-cu12-10.3.6.82:

Successfully uninstalled nvidia-curand-cu12-10.3.6.82

Attempting uninstall: nvidia-cufft-cu12

Found existing installation: nvidia-cufft-cu12 11.2.3.61

Uninstalling nvidia-cufft-cu12-11.2.3.61:

Successfully uninstalled nvidia-cufft-cu12-11.2.3.61

Attempting uninstall: nvidia-cuda-runtime-cu12

Found existing installation: nvidia-cuda-runtime-cu12 12.5.82

Uninstalling nvidia-cuda-runtime-cu12-12.5.82:

Successfully uninstalled nvidia-cuda-runtime-cu12-12.5.82

Attempting uninstall: nvidia-cuda-nvrtc-cu12

Found existing installation: nvidia-cuda-nvrtc-cu12 12.5.82

Uninstalling nvidia-cuda-nvrtc-cu12-12.5.82:

Successfully uninstalled nvidia-cuda-nvrtc-cu12-12.5.82

Attempting uninstall: nvidia-cuda-cupti-cu12

Found existing installation: nvidia-cuda-cupti-cu12 12.5.82

Uninstalling nvidia-cuda-cupti-cu12-12.5.82:

Successfully uninstalled nvidia-cuda-cupti-cu12-12.5.82

Attempting uninstall: nvidia-cublas-cu12

Found existing installation: nvidia-cublas-cu12 12.5.3.2

Uninstalling nvidia-cublas-cu12-12.5.3.2:

Successfully uninstalled nvidia-cublas-cu12-12.5.3.2

Attempting uninstall: nvidia-cusparse-cu12

Found existing installation: nvidia-cusparse-cu12 12.5.1.3

Uninstalling nvidia-cusparse-cu12-12.5.1.3:

Successfully uninstalled nvidia-cusparse-cu12-12.5.1.3

Attempting uninstall: nvidia-cudnn-cu12

Found existing installation: nvidia-cudnn-cu12 9.3.0.75

Uninstalling nvidia-cudnn-cu12-9.3.0.75:

Successfully uninstalled nvidia-cudnn-cu12-9.3.0.75

Attempting uninstall: nvidia-cusolver-cu12

Found existing installation: nvidia-cusolver-cu12 11.6.3.83

Uninstalling nvidia-cusolver-cu12-11.6.3.83:

Successfully uninstalled nvidia-cusolver-cu12-11.6.3.83

Successfully installed nvidia-cublas-cu12-12.4.5.8 nvidia-cuda-cupti-cu12-12.4.127 nvidia-cuda-nvrtc-cu12-12.4.127 nvidia-cuda-runtime-cu12-12.4.127 nvidia-cudnn-cu12-9.1.0.70 nvidia-cufft-cu12-11.2.1.3 nvidia-curand-cu12-10.3.5.147 nvidia-cusolver-cu12-11.6.1.9 nvidia-cusparse-cu12-12.3.1.170 nvidia-nvjitlink-cu12-12.4.127 ultralytics-8.3.176 ultralytics-thop-2.0.15

Creating new Ultralytics Settings v0.0.6 file ✅

View Ultralytics Settings with 'yolo settings' or at '/root/.config/Ultralytics/settings.json'

Update Settings with 'yolo settings key=value', i.e. 'yolo settings runs\_dir=path/to/dir'. For help see <https://docs.ultralytics.com/quickstart/#ultralytics-settings>.

Defining custom dataset class for wheat disease images...

Custom dataset class defined.

Preparing data loaders and splitting dataset if needed...

Loading data...

Found existing split dataset. Loading splits...

Data loaders are ready.

Data loaded. Classes: ['aphid', 'army\_worm', 'black\_rust', 'brown\_rust', 'common\_rust', 'fusarium\_head\_blight', 'healthy', 'leaf\_blight', 'powdery\_mildew\_leaf', 'spetoria', 'tan\_spot', 'yellow\_rust']

Creating YAML configuration...

Converting classification dataset to YOLO format...

Processing class aphid (index 0) in train split...

Processed 207 images for class aphid in train split

Processing class army\_worm (index 1) in train split...

Processed 194 images for class army\_worm in train split

Processing class black\_rust (index 2) in train split...

Processed 178 images for class black\_rust in train split

Processing class brown\_rust (index 3) in train split...

Processed 211 images for class brown\_rust in train split

Processing class common\_rust (index 4) in train split...

Processed 205 images for class common\_rust in train split

Processing class fusarium\_head\_blight (index 5) in train split...

Processed 192 images for class fusarium\_head\_blight in train split

Processing class healthy (index 6) in train split...

Processed 412 images for class healthy in train split

Processing class leaf\_blight (index 7) in train split...

Processed 207 images for class leaf\_blight in train split

Processing class powdery\_mildew\_leaf (index 8) in train split...

Processed 198 images for class powdery\_mildew\_leaf in train split

Processing class spetoria (index 9) in train split...

Processed 220 images for class spetoria in train split

Processing class tan\_spot (index 10) in train split...

Processed 193 images for class tan\_spot in train split

Processing class yellow\_rust (index 11) in train split...

Processed 204 images for class yellow\_rust in train split

Processing class aphid (index 0) in val split...

Processed 44 images for class aphid in val split

Processing class army\_worm (index 1) in val split...

Processed 48 images for class army\_worm in val split

Processing class black\_rust (index 2) in val split...

Processed 50 images for class black\_rust in val split

Processing class brown\_rust (index 3) in val split...

Processed 44 images for class brown\_rust in val split

Processing class common\_rust (index 4) in val split...

Processed 41 images for class common\_rust in val split

Processing class fusarium\_head\_blight (index 5) in val split...

Processed 30 images for class fusarium\_head\_blight in val split

Processing class healthy (index 6) in val split...

Processed 81 images for class healthy in val split

Processing class leaf\_blight (index 7) in val split...

Processed 37 images for class leaf\_blight in val split

Processing class powdery\_mildew\_leaf (index 8) in val split...

Processed 48 images for class powdery\_mildew\_leaf in val split

Processing class spetoria (index 9) in val split...

Processed 39 images for class spetoria in val split

Processing class tan\_spot (index 10) in val split...

Processed 51 images for class tan\_spot in val split

Processing class yellow\_rust (index 11) in val split...

Processed 49 images for class yellow\_rust in val split

Processing class aphid (index 0) in test split...

Processed 44 images for class aphid in test split

Processing class army\_worm (index 1) in test split...

Processed 43 images for class army\_worm in test split

Processing class black\_rust (index 2) in test split...

Processed 46 images for class black\_rust in test split

Processing class brown\_rust (index 3) in test split...

Processed 44 images for class brown\_rust in test split

Processing class common\_rust (index 4) in test split...

Processed 53 images for class common\_rust in test split

Processing class fusarium\_head\_blight (index 5) in test split...

Processed 35 images for class fusarium\_head\_blight in test split

Processing class healthy (index 6) in test split...

Processed 72 images for class healthy in test split

Processing class leaf\_blight (index 7) in test split...

Processed 47 images for class leaf\_blight in test split

Processing class powdery\_mildew\_leaf (index 8) in test split...

Processed 54 images for class powdery\_mildew\_leaf in test split

Processing class spetoria (index 9) in test split...

Processed 41 images for class spetoria in test split

Processing class tan\_spot (index 10) in test split...

Processed 37 images for class tan\_spot in test split

Processing class yellow\_rust (index 11) in test split...

Processed 47 images for class yellow\_rust in test split

YOLO format conversion completed.

YAML configuration created: ../saved\_models\_and\_data/wheat\_yolov9.yaml

Classes (12): ['aphid', 'army\_worm', 'black\_rust', 'brown\_rust', 'common\_rust', 'fusarium\_head\_blight', 'healthy', 'leaf\_blight', 'powdery\_mildew\_leaf', 'spetoria', 'tan\_spot', 'yellow\_rust']

Initializing YOLOv9 model...

Model initialized. Starting training...

Using device: cuda

CUDA device count: 2

Current CUDA device: 0

CUDA device name: Tesla T4

Starting YOLOv9 training...

**engine/trainer:** agnostic\_nms=False, amp=True, augment=False, auto\_augment=randaugment, batch=32, bgr=0.0, box=7.5, cache=False, cfg=None, classes=None, close\_mosaic=10, cls=0.5, conf=None, copy\_paste=0.0, copy\_paste\_mode=flip, cos\_lr=False, cutmix=0.0, data=../saved\_models\_and\_data/wheat\_yolov9.yaml, degrees=45, deterministic=True, device=None, dfl=1.5, dnn=False, dropout=0.0, dynamic=False, embed=None, epochs=10, erasing=0.4, exist\_ok=True, fliplr=0.5, flipud=0.5, format=torchscript, fraction=1.0, freeze=None, half=False, hsv\_h=0.1, hsv\_s=0.2, hsv\_v=0.2, imgsz=224, int8=False, iou=0.7, keras=False, kobj=1.0, line\_width=None, lr0=0.0001, lrf=0.01, mask\_ratio=4, max\_det=300, mixup=0.0, mode=train, model=yolov9c.pt, momentum=0.937, mosaic=0.0, multi\_scale=False, name=yolov9\_wheat\_disease, nbs=64, nms=False, opset=None, optimize=False, optimizer=auto, overlap\_mask=True, patience=5, perspective=0.0, plots=True, pose=12.0, pretrained=True, profile=False, project=../saved\_models\_and\_data, rect=False, resume=False, retina\_masks=False, save=True, save\_conf=False, save\_crop=False, save\_dir=../saved\_models\_and\_data/yolov9\_wheat\_disease, save\_frames=False, save\_json=False, save\_period=5, save\_txt=False, scale=0.1, seed=0, shear=0.0, show=False, show\_boxes=True, show\_conf=True, show\_labels=True, simplify=True, single\_cls=False, source=None, split=val, stream\_buffer=False, task=detect, time=None, tracker=botsort.yaml, translate=0.1, val=True, verbose=True, vid\_stride=1, visualize=False, warmup\_bias\_lr=0.1, warmup\_epochs=3.0, warmup\_momentum=0.8, weight\_decay=0.0005, workers=0, workspace=None

Downloading https://ultralytics.com/assets/Arial.ttf to '/root/.config/Ultralytics/Arial.ttf': 100%|██████████| 755k/755k [00:00<00:00, 16.8MB/s]

Overriding model.yaml nc=80 with nc=12

from n params module arguments

0 -1 1 1856 ultralytics.nn.modules.conv.Conv [3, 64, 3, 2]

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

2 -1 1 212864 ultralytics.nn.modules.block.RepNCSPELAN4 [128, 256, 128, 64, 1]

3 -1 1 164352 ultralytics.nn.modules.block.ADown [256, 256]

4 -1 1 847616 ultralytics.nn.modules.block.RepNCSPELAN4 [256, 512, 256, 128, 1]

5 -1 1 656384 ultralytics.nn.modules.block.ADown [512, 512]

6 -1 1 2857472 ultralytics.nn.modules.block.RepNCSPELAN4 [512, 512, 512, 256, 1]

7 -1 1 656384 ultralytics.nn.modules.block.ADown [512, 512]

8 -1 1 2857472 ultralytics.nn.modules.block.RepNCSPELAN4 [512, 512, 512, 256, 1]

9 -1 1 656896 ultralytics.nn.modules.block.SPPELAN [512, 512, 256]

10 -1 1 0 torch.nn.modules.upsampling.Upsample [None, 2, 'nearest']

11 [-1, 6] 1 0 ultralytics.nn.modules.conv.Concat [1]

12 -1 1 3119616 ultralytics.nn.modules.block.RepNCSPELAN4 [1024, 512, 512, 256, 1]

13 -1 1 0 torch.nn.modules.upsampling.Upsample [None, 2, 'nearest']

14 [-1, 4] 1 0 ultralytics.nn.modules.conv.Concat [1]

15 -1 1 912640 ultralytics.nn.modules.block.RepNCSPELAN4 [1024, 256, 256, 128, 1]

16 -1 1 164352 ultralytics.nn.modules.block.ADown [256, 256]

17 [-1, 12] 1 0 ultralytics.nn.modules.conv.Concat [1]

18 -1 1 2988544 ultralytics.nn.modules.block.RepNCSPELAN4 [768, 512, 512, 256, 1]

19 -1 1 656384 ultralytics.nn.modules.block.ADown [512, 512]

20 [-1, 9] 1 0 ultralytics.nn.modules.conv.Concat [1]

21 -1 1 3119616 ultralytics.nn.modules.block.RepNCSPELAN4 [1024, 512, 512, 256, 1]

22 [15, 18, 21] 1 5592052 ultralytics.nn.modules.head.Detect [12, [256, 512, 512]]

YOLOv9c summary: 358 layers, 25,538,484 parameters, 25,538,468 gradients, 103.7 GFLOPs

Transferred 931/937 items from pretrained weights

Freezing layer 'model.22.dfl.conv.weight'

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