File - test

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C:\Users\tjoy\AppData\Local\Programs\Python\Python312\python.exe D:\Projects\Code\python-projects\yolo-gfl\test\test.py
STARTING COMPREHENSIVE MODEL EVALUATION
Data config: ../dataset/HOME-FIRE/data.yaml
Test images: ../dataset/HOME-FIRE/test/images
Models to evaluate: 2

Evaluating Model: YOLOv12
Model Info:
YOLOv12 summary: 272 layers, 2,538,486 parameters, 0 gradients, 6.0 GFLOPs
(272, 2538486, 0, 6.0090368)
Model Size: 5.21 MB

Standard Ultralytics Evaluation
Ultralytics 8.3.170  Python-3.12.10 torch-2.7.1+cu126 CUDA:0 (NVIDIA GeForce RTX 4060 Laptop GPU, 8188MiB)
YOLOv12 summary (fused): 159 layers, 2,527,166 parameters, 0 gradients, 5.8 GFLOPs
val: Fast image access  (ping: 0.00.0 ms, read: 1161.0682.5 MB/s, size: 216.3 KB)
val: Scanning D:\Projects\Code\python-projects\yolo-gfl\dataset\HOME-FIRE\test\labels.cache... 1300 images, 15 backgrounds, 0 corrupt: 100%|██████████| 1300/
1300 [00:00<?, ?it/s]
                 Class     Images  Instances      Box(P          R      mAP50  mAP50-95): 100%|██████████| 82/82 [00:08<00:00,  9.83it/s]
                   all       1300       1586      0.901      0.834      0.894       0.57
                  Fire        852        897      0.924      0.851      0.917      0.592
                 Smoke        618        689      0.878      0.816      0.872      0.547
Speed: 0.2ms preprocess, 2.1ms inference, 0.0ms loss, 1.0ms postprocess per image
Saving runs\evaluation\YOLOv12\predictions.json...
Results saved to runs\evaluation\YOLOv12
Ultralytics evaluation completed in 31.14 seconds

Real-world Performance Analysis with Inference Saving
Calculating real-world performance metrics...
Found 1300 test images
Inference results will be saved to: runs/inference_output\YOLOv12
Warming up model...
Measuring inference performance...
Processing images: 100%|██████████| 1300/1300 [00:37<00:00, 34.28it/s]
  Processed 1300 images
  Average inference time: 18.86 ms
  FPS: 53.04
  Saved 1300 inference results to runs/inference_output\YOLOv12

Evaluating Model: YOLO-GFL
Model Info:
YOLO-gfl summary: 198 layers, 1,616,270 parameters, 0 gradients, 4.7 GFLOPs
(198, 1616270, 0, 4.7103232)
Model Size: 3.36 MB

Standard Ultralytics Evaluation
Ultralytics 8.3.170  Python-3.12.10 torch-2.7.1+cu126 CUDA:0 (NVIDIA GeForce RTX 4060 Laptop GPU, 8188MiB)
YOLO-gfl summary (fused): 118 layers, 1,611,126 parameters, 0 gradients, 4.6 GFLOPs
val: Fast image access  (ping: 0.00.0 ms, read: 1473.6567.8 MB/s, size: 218.0 KB)
val: Scanning D:\Projects\Code\python-projects\yolo-gfl\dataset\HOME-FIRE\test\labels.cache... 1300 images, 15 backgrounds, 0 corrupt: 100%|██████████| 1300/
1300 [00:00<?, ?it/s]
                 Class     Images  Instances      Box(P          R      mAP50  mAP50-95): 100%|██████████| 82/82 [00:07<00:00, 10.67it/s]
                   all       1300       1586      0.908      0.816      0.891      0.564
                  Fire        852        897      0.929      0.818      0.914       0.59
                 Smoke        618        689      0.887      0.813      0.868      0.538
Speed: 0.2ms preprocess, 1.5ms inference, 0.0ms loss, 1.0ms postprocess per image
Saving runs\evaluation\YOLO-GFL\predictions.json...
Results saved to runs\evaluation\YOLO-GFL
Ultralytics evaluation completed in 27.20 seconds

Real-world Performance Analysis with Inference Saving
Calculating real-world performance metrics...
Found 1300 test images
Inference results will be saved to: runs/inference_output\YOLO-GFL
Warming up model...
Measuring inference performance...
Processing images: 100%|██████████| 1300/1300 [00:31<00:00, 41.61it/s]
  Processed 1300 images
  Average inference time: 13.67 ms
  FPS: 73.15
  Saved 1300 inference results to runs/inference_output\YOLO-GFL

COMPREHENSIVE PERFORMANCE SUMMARY
Model           Size(MB)   Avg Time(ms)    Std Time(ms)    FPS      Images
YOLOv12         5.21       18.86           3.58            53.04    1300
YOLO-GFL        3.36       13.67           2.31            73.15    1300

Best FPS: YOLO-GFL (73.15 FPS)
Fastest Inference: YOLO-GFL (13.67 ms)

Generating performance visualizations...
Performance visualization saved to: runs/performance_analysis\performance_comparison.png
Time vs FPS comparison saved to: runs/performance_analysis\time_vs_fps_comparison.png

Saving inference results summary...
Inference summary saved to: runs/inference_output\inference_summary.txt

Creating inference comparison grid...
Creating inference comparison grid...
Inference comparison grid saved to: runs/inference_output\model_comparison_grid.png
EVALUATION COMPLETE!
Check the following directories for results:
  - Performance analysis: runs/performance_analysis/
  - Inference outputs: runs/inference_output/
  - Ultralytics evaluation: runs/evaluation/

Process finished with exit code 0

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