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(17/09/2021)

Today i had trained faster rcnn model upto 196500 iterations with more augmemtation. And also evaluated with both training and test data set.

Previous Checkpoint: 138000
Test :
Augmentation : Resize(1024), HFlip

```
[09/09 03:58:44 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.02 seconds.
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.384
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.565
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.415
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.232
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.503
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.552
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.221
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.541
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.581
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.404
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.688
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.819
[09/09 03:58:44 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
```

AP	AP50	AP75	APs	APm	APl
38.352	56.507	41.474	23.209	50.253	55.211

```
[09/09 03:58:44 d2.evaluation.coco_evaluation]: Per-category bbox AP:
```

category	AP	category	AP	category	AP
aeroplane	64.450	car	26.561	chair	30.293
cow	58.988	person	20.008	traffic_light	29.813

```
Total inference time: 0:02:17.554629 (0.743539 s / iter per device, on 1 devices)
Total inference pure compute time: 0:02:16 (0.740199 s / iter per device, on 1 devices)
```

Train :

```
[09/09 04:08:01 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.05 seconds.
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.656
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.865
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.733
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.565
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.743
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.825
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.306
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.717
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.756
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.667
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.827
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.912
[09/09 04:08:01 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
```

AP	AP50	AP75	APs	APm	APl
65.610	86.528	73.318	56.502	74.312	82.524

```
[09/09 04:08:01 d2.evaluation.coco_evaluation]: Per-category bbox AP:
```

category	AP	category	AP	category	AP
aeroplane	88.144	car	57.644	chair	67.827
cow	74.917	person	55.569	traffic_light	49.560

```
OrderedDict([('bbox',
```

```
Total inference time: 0:08:27.085180 (0.741353 s / iter per device, on 1 devices)
Total inference pure compute time: 0:08:24 (0.738200 s / iter per device, on 1 devices)
```

Previous Checkpoints : 159500 itr
Augmentation : Resize(1024),Hflip ,Random brightness , Random Rotation , Random crop

Test:

```
[09/12 02:03:09 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.02 seconds.
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.180
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.509
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.062
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.143
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.258
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.255
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.115
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.312
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.348
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.271
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.397
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.475
[09/12 02:03:09 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
```

AP	AP50	AP75	APs	APm	APl
17.967	50.904	6.185	14.321	25.769	25.460

```
[09/12 02:03:09 d2.evaluation.coco_evaluation]: Per-category bbox AP:
```

category	AP	category	AP	category	AP
aeroplane	22.703	car	16.018	chair	14.871
cow	21.525	person	11.191	traffic_light	21.497

```
OrderedDict([('bbox',
```

```
Total inference time: 0:02:22.004286 (0.767591 s / iter per device, on 1 devices)
Total inference pure compute time: 0:02:21 (0.764274 s / iter per device, on 1 devices)
```

Train :

```
[09/12 02:11:59 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.07 seconds.
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.282
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.785
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.064
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.278
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.332
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.347
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.146
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.372
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.408
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.377
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.438
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.470
[09/12 02:11:59 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
```

AP	AP50	AP75	APs	APm	APl
28.240	78.504	6.387	27.821	33.190	34.669

```
[09/12 02:11:59 d2.evaluation.coco_evaluation]: Per-category bbox AP:
```

category	AP	category	AP	category	AP
aeroplane	24.856	car	28.422	chair	32.137
cow	32.960	person	20.032	traffic_light	31.035

```
OrderedDict([('bbox',
```

```
Total inference time: 0:08:42.158078 (0.763389 s / iter per device, on 1 devices)
Total inference pure compute time: 0:08:39 (0.760207 s / iter per device, on 1 devices)
tion]: Preparing results for COCO format
```

Previous Checkpoints : 169500 itr

Test :

```
[09/14 02:53:59 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.02
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.167
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.500
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.055
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.129
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.240
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.236
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.109
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.290
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.326
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.251
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.374
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.428
[09/14 02:53:59 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
```

AP	AP50	AP75	APs	APm	APl
16.709	49.991	5.477	12.857	23.986	23.576

```
[09/14 02:53:59 d2.evaluation.coco_evaluation]: Per-category bbox AP:
```

category	AP	category	AP	category	AP
aeroplane	20.112	car	15.217	chair	13.859
cow	20.728	person	10.448	traffic_light	19.888

```
OrderedDict([('bbox',
```

```
Inference done 180/190. Dataloading: 0.0025 s/iter. Inference: 0.7481 s/iter. Eval: 0.0003
Inference done 187/190. Dataloading: 0.0024 s/iter. Inference: 0.7473 s/iter. Eval: 0.0003
Total inference time: 0:02:18.911336 (0.750872 s / iter per device, on 1 devices)
Total inference pure compute time: 0:02:18 (0.747379 s / iter per device, on 1 devices)
tion]: Preparing results for COCO format
```

Train :

```
[09/14 03:03:23 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.08 seconds.
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.260
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.768
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.053
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.253
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.303
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.331
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.135
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.351
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.386
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.348
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.415
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.453
[09/14 03:03:23 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
```

AP	AP50	AP75	APs	APm	APl
25.977	76.821	5.261	25.308	30.270	33.084

```
[09/14 03:03:23 d2.evaluation.coco_evaluation]: Per-category bbox AP:
```

category	AP	category	AP	category	AP
aeroplane	20.833	car	26.889	chair	30.052
cow	30.904	person	18.081	traffic_light	29.104

```
OrderedDict([('bbox',
```

```
Inference done 685/689. Dataloading: 0.0025 s/iter. Inference: 0.7452 s/iter. Eval: 0.0003 s/
Total inference time: 0:08:31.961533 (0.748482 s / iter per device, on 1 devices)
Total inference pure compute time: 0:08:29 (0.745104 s / iter per device, on 1 devices)
tion]: Preparing results for COCO format
```

Previous Checkpoint : 189000 itr

Test :

```
[09/15 15:28:57 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.02 seconds.
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.146
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.469
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.044
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.117
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.211
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.195
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.099
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.264
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.297
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.236
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.335
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.401
[09/15 15:28:57 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
|   AP   |  AP50  |  AP75  |  APs   |  APm   |  APl   |
|:------:|:------:|:------:|:------:|:------:|:------:|
| 14.576 | 46.879 | 4.448  | 11.671 | 21.131 | 19.482 |
[09/15 15:28:57 d2.evaluation.coco_evaluation]: Per-category bbox AP:
| category   | AP     | category   | AP     | category      | AP     |
|:-----------|:-------|:-----------|:-------|:--------------|:-------|
| aeroplane  | 15.734 | car        | 13.776 | chair         | 12.803 |
| cow        | 17.307 | person     | 9.465  | traffic_light | 18.373 |
OrderedDict([('bbox',
```

Train :

```
[09/15 15:38:27 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.07 seconds.
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.226
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.712
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.033
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.222
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.258
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.291
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.123
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.318
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.349
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.312
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.368
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.418
[09/15 15:38:27 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
|   AP   |  AP50  |  AP75  |  APs   |  APm   |  APl   |
|:------:|:------:|:------:|:------:|:------:|:------:|
| 22.633 | 71.220 | 3.317  | 22.239 | 25.789 | 29.114 |
[09/15 15:38:27 d2.evaluation.coco_evaluation]: Per-category bbox AP:
| category   | AP     | category   | AP     | category      | AP     |
|:-----------|:-------|:-----------|:-------|:--------------|:-------|
| aeroplane  | 15.861 | car        | 24.004 | chair         | 27.587 |
| cow        | 26.799 | person     | 16.404 | traffic_light | 25.144 |
OrderedDict([('bbox',
```

Performance after removing horizontal Flip: 196500 itrs

Test :

```
[09/18 02:57:18 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.02 seconds.
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.133
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.442
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.034
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.109
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.192
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.202
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.094
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.250
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.285
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.222
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.310
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.413
[09/18 02:57:18 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
|   AP   |  AP50  |  AP75  |  APs   |  APm   |  APl   |
|:------:|:------:|:------:|:------:|:------:|:------:|
| 13.266 | 44.180 | 3.421  | 10.884 | 19.177 | 20.161 |
[09/18 02:57:18 d2.evaluation.coco_evaluation]: Per-category bbox AP:
| category   | AP     | category   | AP    | category      | AP     |
|:-----------|:-------|:-----------|:------|:--------------|:-------|
| aeroplane  | 13.545 | car        | 13.315 | chair        | 11.589 |
| cow        | 15.771 | person     | 9.389  | traffic_light | 15.983 |
```

Train:

```
[09/18 03:05:59 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.08 seconds.
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.202
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.697
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.023
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.205
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.228
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.254
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.113
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.295
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.326
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.292
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.336
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.381
[09/18 03:05:59 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
|   AP   |  AP50  |  AP75  |  APs   |  APm   |  APl   |
|:------:|:------:|:------:|:------:|:------:|:------:|
| 20.209 | 69.660 | 2.348  | 20.452 | 22.758 | 25.428 |
[09/18 03:05:59 d2.evaluation.coco_evaluation]: Per-category bbox AP:
| category   | AP     | category   | AP    | category      | AP     |
|:-----------|:-------|:-----------|:------|:--------------|:-------|
| aeroplane  | 14.132 | car        | 21.697 | chair        | 23.455 |
| cow        | 23.472 | person     | 14.922 | traffic_light | 23.574 |
OrderedDict([('bbox',
```