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I had trained Faster Rcnn model upto 32400 iterations. And also evaluated with both train and test dataset.

Model -1 (PP-yolo v1)

ins = 1000 bs = 8 lr = 0.0002

Training Data:

```
Accumulating evaluation results...
DONE (t=0.85s)
Average Precision
                               IoU=0.50:0.95 |
                                                                 maxDets=100
 Average Precision
                      (AP) @[
                               IoU=0.50
                                                                 maxDets=100
                                                                                 = 0.751
                                                 area=
Average Precision
                      (AP) @[
                               IoU=0.75
                                                 area=
                                                          all
                                                                 maxDets=100
Average Precision
                      (AP) @[
                               IoU=0.50:0.95
                                                 area= small
                                                                 maxDets=100
                                                                                 = 0.359
Average Precision
                      (AP) @[
                               IoU=0.50:0.95
                                                 area=medium
                                                                 maxDets=100
                                                                                 = 0.588
Average Precision
                      (AP)
                               IoU=0.50:0.95
                                                                                ] = 0.579
                                                 area= large
                                                                 maxDets=100
                                                                 maxDets= 1
maxDets= 10
Average Recall
                      (AR)
                           ]
]
]
                               IoU=0.50:0.95
                                                                                 = 0.173
                                                 area=
                                                          all
Average Recall
                               IoU=0.50:0.95
                                                                               ] = 0.479
                      (AR)
                                                 area=
                                                           all
                                                                               ] = 0.580
] = 0.498
Average Recall
                           ]
]
]
                               IoU=0.50:0.95
                                                                 maxDets=100
                      (AR)
                                                 area=
                                                          all
Average Recall
                               IoU=0.50:0.95
                                                 area= small
                      (AR)
                                                                 maxDets=100
                                                                               ] = 0.699
                      (AR) @[ IoU=0.50:0.95
(AR) @[ IoU=0.50:0.95
                                               | area=medium
| area= large
Average Recall
                                                 area=medium
                                                               | maxDets=100
| maxDets=100
Average Recall
[08/15 07:11:53] ppdet.metrics.coco_utils INFO: Per-category of bbox AP:
 category | AP
                                           | category | AP
                                 | 0.315 | bottle
| 0.616 | person
            | 0.451 | book
| 0.173 | chair
                                                     | 0.601
| 0.567
 bird
[08/15 07:11:53] ppdet.metrics.coco_utils INFO: per-category PR curve has output
.
[08/15 07:11:53] ppdet.engine INFO: Total sample number: 1093, averge FPS: 18.4354342262
```

Test Data:

```
ccumulating evaluation results...
DONE (t=0.15s).
 Average Precision (AP) @[ IoU=0.50:0.95 | area=
                                                       all | maxDets=100 ] = 0.056
 Average Precision (AP) @[ IoU=0.50
                                                           | maxDets=100
                                             area=
                                                                          ] = 0.113
 Average Precision (AP) @[ IoU=0.75
                                                                          ] = 0.049
                                              area=
                                                      all
                                                           maxDets=100
Average Precision
                                                                          1 = 0.044
                                              area= small
                                                           maxDets=100
                    (AP) @[ IoU=0.50:0.95
 Average Precision
                    (AP) @[ IoU=0.50:0.95
                                            | area=medium
                                                             maxDets=100
                                                                          ] = 0.066
                                                           | maxDets=100
 Average Precision
                    (AP) @[ IoU=0.50:0.95
                                            area= large
Average Recall
                     (AR) @[ IoU=0.50:0.95
                                            area=
                                                                          ] = 0.051
                                                    all
                                                           maxDets= 1
                    (AR) @[ IoU=0.50:0.95
                                                           | maxDets= 10
| maxDets=100
                                                                          ] = 0.134
] = 0.179
 Average Recall
                                              area=
 Average Recall
                             IoU=0.50:0.95
                                              area=
Average Recall
                    (AR) @[ IoU=0.50:0.95
                                             area= small
                                                                          ] = 0.144
                                                             maxDets=100
                    (AR) @[ IoU=0.50:0.95 | area=medium (AR) @[ IoU=0.50:0.95 | area= large
                                                           | maxDets=100
| maxDets=100
Average Recall
                                                                          1 = 0.231
 Average Recall
                                                                              0.201
[08/13 14:25:45] ppdet.metrics.coco utils INFO: Per-category of bbox AP:
 category | AP
                   | category | AP
                                        | category | AP
 bird
           | 0.146 | book
                               | 0.007 | bottle
           | 0.007 | person
                               | 0.000 | chair
                                                    0.000
 car
[08/13 14:25:45] ppdet.metrics.coco_utils INFO: per-category PR curve has output to bbox_pr_curve folder.
[08/13 14:25:45] ppdet.engine INFO: Total sample number: 177, averge FPS: 18.61171957113853
```

Model - 2 : (PP-Yolo v2)

```
ins = 500
bs = 8
lr = 0.0002
```

Training Data:

Test data:

Current Model:(Faster Rcnn)

```
Backbone = Faster_rcnn_X_101_32x8d_FPN_3x
bs = 4
lr = 0.001
ins = 500
```

Previous Checkpoint: 26000 its

Threshold: 0.85

Test:

```
03:29:53 d2.evaluation.fast eval api]: COCOeval opt.accumulate() finished in 0.02
Average Precision (AP) @[ IoU=0.50:0.95 | area=
                                                                                       all | maxDets=100 ] = 0.393
Average Precision (AP) @[ IoU=0.50
                                                                                       all
                                                                                                 maxDets=100 ] = 0.572
                                                                         area=
Average Precision (AP) @[ IoU=0.75
                                                                                       all
                                                                                                 maxDets=100 ] = 0.427
                                                                         area=
Average Precision (AP) @[ IoU=0.50:0.95
                                                                       | area= small | maxDets=100 ] = 0.245
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.245
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.515
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.591
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.225
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=10 ] = 0.554
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.601
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.437
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.708
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.840
[08/22 03:29:53 d2.evaluation.coco evaluation]: Evaluation results for bbox:
    AP | AP50 | AP75 | APs | APm | APl
  39.268 | 57.179 | 42.705 | 24.506 | 51.460 | 59.133
08/22 03:29:53 d2.evaluation.coco evaluation]: Per-category bbox AP:
  category | AP | category
                                                                            category
                     | 67.237 | car
                                                              26.394
  aeroplane
                                                                            chair
                                                                                                        31.870
                        57.215 | person
                                                              22.758 | traffic light
                                                                                                        30.134
```

```
Total inference time: 0:00:50.160103 (0.271136 s / iter per device, on 1 devices)

Total inference pure compute time: 0:00:49 (0.268279 s / iter per device, on 1 devices)
```

```
47:48 d2.evaluation.fast_eval_api]: Accumulating evaluation results.
[08/22 03:47:48 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.04 seconds.
[08/22 03:47:48 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.597 Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.807 Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.663 Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.499 Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.696 Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.778 Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.299 Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.636 Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.731 Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.636 Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.636
                                            (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100
(AR) @[ IoU=0.50:0.95 | area= large | maxDets=100
                                                                                                                                                               ] = 0.806
] = 0.888
 Average Recall
[08/22 03:47:48 d2.evaluation.coco_evaluation]: Evaluation results for bbox:

AP | AP50 | AP75 | APs | APm | AP3
 Average Recall
                   | AP50 | AP75 | APs | APm |
  59.714 | 80.673 | 66.265 | 49.898 | 69.599 | 77.833
 08/22 03:47:48 d2.evaluation.coco evaluation]: Per-category bbox AP:
  category
                                                 category
                                                                                                    category
   aeroplane |
                               86.043
                                                                                   50.530
                                                  car
                                                                                                        chair
                                                                                                                                             61.988
                                 71.296
                                                     person
                                                                                  44.628
                                                                                                        traffic light
```

```
Total inference time: 0:03:03.624267 (0.268457 s / iter per device, on 1 devices)

Total inference pure compute time: 0:03:02 (0.266105 s / iter per device, on 1 devices)
```

Threshold: 0.65 Test:

Current Checkpoint: 32500 itr

Threshold = 0.65

Test:

```
[08/23 13:24:19 d2.evaluation.fast_eval_api]: COCOeval opt.accumulate() finished in 0.02 seconds.
Average Precision (AP) @[ IoU=0.50:0.95 | area=
                                                           maxDets=100 ] = 0.393
                                                                         = 0.572
Average Precision
                   (AP) @[ IoU=0.50
                                            area=
                                                     all
                                                           maxDets=100
                   (AP) @[ IoU=0.75 |
(AP) @[ IoU=0.50:0.95 |
Average Precision
                                                           maxDets=100
                                                                         = 0.424
                                            area=
                                                    all
Average Precision
                                           area= small
                                                          maxDets=100
                                                                         = 0.245
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium |
                                                          maxDets=100
                                                                         = 0.512
Average Precision (AP) @[ IoU=0.50:0.95
                                          | area= large |
                                                           maxDets=100
                                                                         = 0.596
Average Recall
                   (AR) @[ IoU=0.50:0.95
                                           area=
                                                           maxDets= 1
                                                                         = 0.223
                                                    all
                           IoU=0.50:0.95
                                                           maxDets= 10
Average Recall
                   (AR) @[
                                            area=
                                                                         = 0.554
Average Recall
                   (AR) @[ IoU=0.50:0.95
                                                           maxDets=100
                                                                        1 = 0.601
                                          l area=
                                          | area= small
Average Recall
                   (AR) @[ IoU=0.50:0.95
                                                           maxDets=100
                                                                        ] = 0.439
                   (AR) @[ IoU=0.50:0.95 | area=medium (AR) @[ IoU=0.50:0.95 | area= large
                                                                        ] = 0.706
Average Recall
                                                          maxDets=100
Average Recall
                                                         | maxDets=100
                                                                       1 = 0.848
[08/23 13:24:19 d2.evaluation.coco evaluation]: Evaluation results for bbox:
                                               APl
  AP | AP50 | AP75 | APs | APm
 39.259 | 57.161 | 42.414 | 24.473 | 51.185 | 59.607
08/23 13:24:19 d2.evaluation.coco evaluation]: Per-category bbox AP:
              AP
                                    AP
                                                              I AP
 category
                      category
                                              category
              66.681
                                     26.725
 aeroplane
                                                               32.219
                       car
                                              chair
              57.374
                                     23.005
                                                             29.550
                       person
                                              traffic light
```

```
13:28:16 d2.evaluation.fast_eval_api]: COCOeval opt.accumulate() finished in 0.04 seconds.
ge Precision (AP) @[ IoU=0.50:0.95
                                      area=
                                               all |
                                                     maxDets=100 ] = 0.601
             (AP) @[ IoU=0.50
ge Precision
                                       area=
                                               all
                                                     maxDets=100 ] = 0.811
             (AP) @[ IoU=0.75
                                                     maxDets=100 ] = 0.665
ge Precision
                                       area=
                                               all
             (AP) @[ IoU=0.50:0.95
                                                                   = 0.504
ge Precision
                                       area= small
                                                     maxDets=100
ge Precision
              (AP) @[ IoU=0.50:0.95
                                                     maxDets=100
                                                                    = 0.699
                                       area=medium
ge Precision
              (AP) @[ IoU=0.50:0.95
                                       area= large
                                                     maxDets=100
                                                                    = 0.780
ge Recall
              (AR) @[
                      IoU=0.50:0.95
                                                     maxDets= 1
                                                                  1 = 0.300
                                       area=
                                               all
                                                     maxDets= 10
                                                                  ] = 0.690
ge Recall
              (AR) @[ IoU=0.50:0.95
                                       area=
ge Recall
              (AR) @[ IoU=0.50:0.95
                                                     maxDets=100
                                                                  1 = 0.733
                                       area=
ge Recall
              (AR) @[ IoU=0.50:0.95
                                       area= small
                                                     maxDets=100
                                                                  ] = 0.641
ge Recall
              (AR) @[ IoU=0.50:0.95
                                       area=medium
                                                     maxDets=100
                                                                  ] = 0.807
ge Recall
              (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.891
 13:28:16 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
    AP50 | AP75 | APs | APm
                                          APl
--:|:----:|:----:|:----:|:----:
12 | 81.069 | 66.455 | 50.441 | 69.893 | 78.028
13:28:16 d2.evaluation.coco evaluation]: Per-category bbox AP:
         AP
                               AP
                                         category
                                                         AP
gory
                  category
         85.631
                               51.210
                                                         62.558
plane
                                         chair
                  car
         71.646
                               45.255
                                         traffic light
                                                          44.373
                  person
```

Threshold: 0.85

Test:

```
08/23 13:33:02 d2.evaluation.fast_eval_api]: COCOeval_opt.accumulate() finished in 0.02 secon
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.393
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.572
Average Precision (AP) @[ IoU=0.75
                                                                     all | maxDets=100 ] = 0.424
                                                           area=
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.245
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.512
                                                          area= large | maxDets=100 ] = 0.596
area= all | maxDets= 1 ] = 0.223
area= all | maxDets= 10 ] = 0.554
area= all | maxDets=100 ] = 0.601
area= small | maxDets=100 ] = 0.439
Average Precision (AP) @[ IoU=0.50:0.95 |
Average Recall
                         (AR) @[ IoU=0.50:0.95
                          (AR) @[ IoU=0.50:0.95 |
Average Recall
                         (AR) @[ IoU=0.50:0.95 |
(AR) @[ IoU=0.50:0.95 |
(AR) @[ IoU=0.50:0.95 |
Average Recall
Average Recall
                         (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.706
(AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.848
Average Recall
Average Recall
[08/23 13:33:02 d2.evaluation.coco evaluation]: Evaluation results for bbox:
  AP | AP50 | AP75 | APS | APm | APl
 39.259 | 57.161 | 42.414 | 24.473 | 51.185 | 59.607
08/23 13:33:02 d2.evaluation.coco evaluation]: Per-category bbox AP:
                                               AP
                                                                                 | AP
 category
                   AP
                               category
                                                           category
                 | 66.681 | car
 aeroplane
                                                 26.725 | chair
                                                                                   32.219
                                                 23.005 | traffic light | 29.550
                   57.374
                                person
  COW
```

```
23 13:37:59 d2.evaluation.fast eval api]: COCOeval opt.accumulate() finished in 0.04 seconds.
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.601
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.811
Average Precision (AP) @[ IoU=0.75
                                                 area=
                                                                 maxDets=100 ]
                                                                                 = 0.665
Average Precision (AP) @[ IoU=0.50:0.95
Average Precision (AP) @[ IoU=0.50:0.95
                                                 area= small
                                                                maxDets=100
                                                                                 = 0.504
                                               | area=medium
                                                               maxDets=100 ] = 0.699
Average Precision (AP) @[ IoU=0.50:0.95
                                                               maxDets=100 ]
                                               area= large
                                                                                 = 0.780
Average Recall
                      (AR) @[ IoU=0.50:0.95
                                                 area= all
                                                                maxDets= 1
                                                                               1 = 0.300
                                                               maxDets= 10 ] = 0.690
Average Recall
                     (AR) @[ IoU=0.50:0.95
                                               area=
Average Recall
                     (AR) @[ IoU=0.50:0.95
                                               area=
                                                                maxDets=100
                                                                               ] = 0.733
                                               area= small
Average Recall
                     (AR) @[ IoU=0.50:0.95
                                                               | maxDets=100 | = 0.641
                     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.807 (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.891
Average Recall
Average Recall
08/23 13:37:59 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
 AP | AP50 | AP75 | APS | APm | APl
60.112 | 81.069 | 66.455 | 50.441 | 69.893 | 78.028 |
08/23 13:37:59 d2.evaluation.coco evaluation]: Per-category bbox AP:
 category
                        category
                                                   category
aeroplane | 85.631
cow | 71.646
                                       | 51.210 | chair
| 45.255 | traffi
                85.631 | car
71.646 | person
                                                                      62.558
                                                   traffic light | 44.373
```