Aero2Astro Panneerselvam N (06/09/2021)

I had trained Faster Rcnn model upto 1020000 iterations. And also evaluated with both train and test dataset.

Model:(Faster Rcnn)

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

Previous Checkpoint: 83500

Threshold: 0.85

Test:

```
(AP) @[ IoU=0.50:0.95 |
Average Precision
                                maxDets=100
                        area=
                       area=
Average Precision
          (AP) @[
               IoU=0.50
                                maxDets=100 ]
                                        = 0.563
| category
           -|:----
aeroplane
       66.686
                    25.895
                         chair
                                  31.846
        57.283
                    20.700
                         traffic light
```

Total inference time: 0:02:15.337548 (0.731554 s / iter per device, on 1 devices)
Total inference pure compute time: 0:02:14 (0.728070 s / iter per device, on 1 devices)

```
finished in 0.05 second
09/01 11:13:20 d2.evaluation.
Average Precision (AP) @[ Id
                                                  api]: COCOeval_opt.accumulate()
                       (AP) @[ IoU=0.50:0.95 | area= all (AP) @[ IoU=0.50 | area= all (AP) @[ IoU=0.75 | area= all (AP) @[ IoU=0.50:0.95 | area= small (AP) @[ IoU=0.50:0.95 | area=medium
                                                                all | maxDets=100
all | maxDets=100
                                                                                        ] = 0.641
Average Precision
                                                                         maxDets=100 ] = 0.845
Average Precision
                                                                        maxDets=100
                                                                                         1 = 0.709
Average Precision
                                                                         maxDets=100
Average Precision
                                                                         maxDets=100
Average Precision
                                                       area= large
                                                                         maxDets=100
                                                                                         1 = 0.822
                                                                       | maxDets= 1
| maxDets= 10
Average Recall
                                  IoU=0.50:0.95
                                                       area=
Average Recall
                                  IoU=0.50:0.95
                                                       area=
Average Recall
                                                       area=
                                                                         maxDets=100
                        (AR) @[ IoU=0.50:0.95 | area= small (AR) @[ IoU=0.50:0.95 | area=medium (AR) @[ IoU=0.50:0.95 | area= large
Average Recall
                                                                         maxDets=100
                                                                                        ] = 0.665
                                                                                         ] = 0.827
Average Recall
                                                                         maxDets=100
category
                                              55.989 | chair
51.198 | traffic_light
 aeroplane
                  88.188
                                                                              67.044
                  73.846
                                                                              48.340
                             person
```

```
Total inference time: 0:08:20.223715 (0.731321 s / iter per device, on 1 devices)

Total inference pure compute time: 0:08:18 (0.728191 s / iter per device, on 1 devices)
```

Threshold: 0.65

Test:

```
: Total inference time: 0:02:16.642567 (0.738608 s / iter per device, on 1 devices)
: Total inference pure compute time: 0:02:15 (0.735123 s / iter per device, on 1 devices)
```

```
Total inference time: 0:08:12.162782 (0.719536 s / iter per device, on 1 devices)
Total inference pure compute time: 0:08:10 (0.716395 s / iter per device, on 1 devices)
ionl: Preparing results for COCO format
```

Previous checkpoints: 109999 itr (with Horizontal flip augmentation)

Threshold: 0.85

Test:

```
eval api]: COCOeval opt.accumulate() finished in 0.02 seconds
 Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.387
                                                                                                  area=
 Average Precision (AP) @[ IoU=0.50
                                                                                                                                          all
                                                                                                                                                          maxDets=100 ] = 0.573
Average Precision (AP) @[ IOU=0.50 | area= att |
Average Precision (AP) @[ IOU=0.75 | area= att |
Average Precision (AP) @[ IOU=0.50:0.95 | area= small |
Average Precision (AP) @[ IOU=0.50:0.95 | area=medium |
Average Precision (AP) @[ IOU=0.50:0.95 | area= att |
Average Recall (AR) @[ IOU=0.50:0.95 | area= att |
Average Recall (AR) @[ IOU=0.50:0.95 | area= att |
Average Recall (AR) @[ IOU=0.50:0.95 | area= small |
Average Recall (AR) @[ IOU=0.50:0.95 | area= small |
Average Recall (AP) @[ IOU=0.50:0.95 | area=medium |
Average Pecall (AP) @[ IOU=0.50:0.95 | area=medium |
                                                                                                                                                                                            ] = 0.421
                                                                                                                                                          maxDets=100
                                                                                                                                                                                            ] = 0.239
                                                                                                                                                          maxDets=100
                                                                                                                                                          maxDets=100
                                                                                                                                                                                            1 = 0.505
                                                                                                                                                          maxDets=100
                                                                                                                                                                                            1 = 0.588
                                                                                                                                                                                            ] = 0.222
                                                                                                                                                          maxDets= 1
                                                                                                                                                                                            ] = 0.547
                                                                                                                                                          maxDets= 10
                                                                                                                                                                                            ] = 0.591
                                                                                                                                                          maxDets=100
                                                                                                                                                          maxDets=100
                                                                                                                                                                                            ] = 0.432
Average Recall
                                                   (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.693
(AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.824
 Average Recall
[09/05 01:03:45 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
 AP | AP50 | AP75 | APs | APm | APl :----:|:-----:|:-----:
  38.740 | 57.349 | 42.095 | 23.868 | 50.457 | 58.834
09/05 01:03:45 d2.evaluation.coco evaluation]: Per-category bbox AP:
   category | AP | category | AP | category
                                                                                                                                                                 I AP
                                                                                             | 27.135 | chair
                                     65.832 | car
                                                                                                                                                                     31.566
   aeroplane
                                                                                             | 20.150 | traffic light
                                      57.669 | person
                                                                                                                                                                     30.084
    COW
```

```
Total inference time: 0:02:26.242037 (0.790497 s / iter per device, on 1 devices)
Total inference pure compute time: 0:02:25 (0.787103 s / iter per device, on 1 devices)
```

Train:

```
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.645
Average Precision (AP) @[ IoU=0.50 | area=
                                                 all | maxDets=100 ] = 0.856
Average Precision (AP) @[ IoU=0.75
                                        | area= all | maxDets=100 ] = 0.716
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0. 09/05 01:13:33 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
AP | AP50 | AP75 | APs | APm | APl
:----:|:----:|:----:|:-----
                                         APl
64.504 | 85.629 | 71.646 | 55.846 | 73.401 | 81.655
09/05 01:13:33 d2.evaluation.coco evaluation]: Per-category bbox AP:
            | AP
                    category
                                 | AP
                                         | category
 category
                                 56.614
 aeroplane | 86.627 | car
                                           chair
                                                          67.623
             73.512 | person
                                 | 53.348 | traffic_light | 49.303
 COW
```

Total inference time: 0:08:57.177787 (0.785348 s / iter per device, on 1 devices)
Total inference pure compute time: 0:08:55 (0.782235 s / iter per device, on 1 devices)

Threshold: 0.65

Test:

```
Total inference time: 0:02:26.359061 (0.791130 s / iter per device, on 1 devices)

Total inference pure compute time: 0:02:25 (0.787750 s / iter per device, on 1 devices)
```

```
Total inference time: 0:08:57.562220 (0.785910 s / iter per device, on 1 devices)
Total inference pure compute time: 0:08:55 (0.782757 s / iter per device, on 1 devices)
```

Last checkpoints: 120000 itr

Threshold: 0.65

Test:

```
| 09/07 00:59:34 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 ] = 0.385 | average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.572 | average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.410 | average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.235 | average Precision (AP) @[ IoU=0.50:0.95 | area= medium | maxDets=100 ] = 0.502 | average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.585 | average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.585 | average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=10 ] = 0.542 | average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.586 | average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.586 | average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.688 | average Recall (AR) @[ IoU=0.50:0.95 | area= medium | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= medium | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.822 | average Recall (AR) @[ IoU=0.50:0.95 | area= large | average Recall (AR) @[ IoU=0.50:0.95 | area= large | average Recall (AR) @[ IoU=0.50:0.95 | average Recall (AR) @[ IoU=0.5
```

```
Inference done 185/190. Dataloading: 0.0024 s/iter. Inference: 0.7946 s/iter. Eval: 0.0003 Total inference time: 0:02:27.706251 (0.798412 s / iter per device, on 1 devices)

Total inference pure compute time: 0:02:27 (0.794987 s / iter per device, on 1 devices)
```

train:

```
Total inference time: 0:09:01.895398 (0.792245 s / iter per device, on 1 devices)
Total inference pure compute time: 0:08:59 (0.789189 s / iter per device, on 1 devices)
```

Threshold: 0.85

Test:

```
Average Precision (AP) @[ IoU=0.50:0.95 | area=
                                                                                                        all |
                                                                                                                    maxDets=100 ] = 0.385
 Average Precision (AP) @[ IoU=0.50 | area = all | maxDets=100 ] = 0.572
                                                                                                                 maxDets=100 ] = 0.410
 Average Precision (AP) @[ IoU=0.75
                                                                                     area= all
 Average Precision (AP) @[ IoU=0.50:0.95 | area= small
                                                                                                                 maxDets=100 ] = 0.235
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.235

Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.502

Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.585

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 ] = 0.542

Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.586

Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.422

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 ] = 0.822

[09/07 01:13:58 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
 AP | AP50 | AP75 | APs | APm | APl
:----:|:----:|:----:
 38.474 | 57.228 | 41.044 | 23.479 | 50.171 | 58.548 | 09/07 01:13:58 d2.evaluation.coco_evaluation]: Per-category bbox AP:
  category | AP | category | AP | category | AP
                          | 65.017 | car
| 58.209 | person
                                                                       | 26.816 | chair
   aeroplane | 65.017
                                                                                                                            30.921
                                                                       | 20.015 | traffic light | 29.863
   COW
```

```
Total inference time: 0:02:27.606294 (0.797872 s / iter per device, on 1 devices)

Total inference pure compute time: 0:02:26 (0.794421 s / iter per device, on 1 devices)
```

```
Total inference time: 0:09:02.484650 (0.793106 s / iter per device, on 1 devices)

Total inference pure compute time: 0:09:00 (0.789906 s / iter per device, on 1 devices)
```