# Aero2Astro Panneerselvam N (28/08/2021)

I had trained Faster Rcnn model upto 53500 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: 46000 itrs.

Threshold: 0.85

### Test:

```
08/27 14:54:37 d2.evaluation.fast_eval_api]: COCOeval opt.accumulate() finished in 0.02 seconds.
                    (AP) @[ IoU=0.50:0.95 |
(AP) @[ IoU=0.50 |
Average Precision
                                              area=
                                                       all
                                                             maxDets=100 ] = 0.394
Average Precision
                                                                            = 0.568
                                              area=
                                                       all
                                                             maxDets=100
Average Precision (AP) @[ IoU=0.75
                                              area=
                                                             maxDets=100 1 = 0.428
Average Precision (AP) @[ IoU=0.50:0.95
                                              area= small
                                                             maxDets=100 ]
                                                                            = 0.246
Average Precision (AP) @[ IoU=0.50:0.95
                                                             maxDets=100
                                                                            = 0.511
                                              area=medium
Average Precision (AP) @[
                             IoU=0.50:0.95
                                              area= large
                                                             maxDets=100
                                                                            = 0.590
Average Recall
                    (AR) @[ IoU=0.50:0.95
                                              area=
                                                             maxDets= 1
                                                                           1 = 0.226
Average Recall
                    (AR) @[ IoU=0.50:0.95
                                                             maxDets= 10
                                                                           ] = 0.557
                                              area=
                    (AR) @[ IoU=0.50:0.95
                                                             maxDets=100
Average Recall
                                                                            = 0.602
                                              area=
                    (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
                                                                            = 0.440
Average Recall
                                                             maxDets=100
                                                                            = 0.703
Average Recall
                                                             maxDets=100 ] = 0.850
08/27 14:54:37 d2.evaluation.coco evaluation]: Evaluation results for bbox:
        | AP50 | AP75
  AP
                            APs
                                     APm
                                                  API
39.399 | 56.794 | 42.810 | 24.648 | 51.133 | 59.015
08/27 14:54:37 d2.evaluation.coco evaluation]: Per-category bbox AP:
              AP
                                     I AP
                                                category
                                                                 AP
category
                        category
 aeroplane
              66.907
                                      27.094
                                                                  32.051
                        car
                                                chair
               57.985
                                      22.072
                                                 traffic light
                                                                  30.283
                        person
```

```
eval api]: COCOeval opt.accumulate() finished in 0.05 seconds.
Average Precision
                   (AP) @[ IoU=0.50:0.95
                                            | area=
                                                            maxDets=100
                                                                            = 0.613
                    (AP) @[ IoU=0.50
                                                             maxDets=100
Average Precision
                                             area=
                                                       all
                                                                           = 0.820
Average Precision
                    (AP) @[
                            IoU=0.75
                                             area=
                                                      all
                                                             maxDets=100
                                                                            = 0.678
                    (AP) @[ IoU=0.50:0.95
                                             area= small
Average Precision
                                                             maxDets=100
                                                                            = 0.515
Average Precision
                    (AP) @[ IoU=0.50:0.95
                                             area=medium
                                                             maxDets=100
                                                                            = 0.711
                    (AP) @[
Average Precision
                            IoU=0.50:0.95
                                                                           = 0.794
                                             area= large
                                                             maxDets=100
Average Recall
                    (AR) @[
                            IoU=0.50:0.95
                                                             maxDets= 1
                                                                            = 0.302
                                             area=
                                                             maxDets= 10
                    (AR) @[
Average Recall
                            IoU=0.50:0.95
                                             area=
                                                      all
                    (AR) @[
Average Recall
                            IoU=0.50:0.95
                                                             maxDets=100
                                                                           = 0.739
                                             area=
                                                      all
                    (AR) @[ IoU=0.50:0.95
                                                                           = 0.646
Average Recall
                                             area= small
                                                             maxDets=100
Average Recall
                    (AR) @[
                             IoU=0.50:0.95
                                             area=medium
                                                             maxDets=100
                                                                              0.811
Average Recall
                    (AR) @[ IoU=0.50:0.95
                                           | area= large
                                                            maxDets=100
                                                                           = 0.898
08/27 15:05:29 d2.evaluation.coco evaluation]: Evaluation results for bbox:
          AP50
                   AP75
                              APs
                                                  API
61.289 | 82.036 | 67.792 | 51.464 | 71.061 | 79.403 |
08/27 15:05:29 d2.evaluation.coco_evaluation]: Per-category bbox AP:
                                      AP
               AP
 category
                        category
                                                category
                                                                 AP
 aeroplane
               86.584
                                      52.557
                                                chair
                                                                 63.802
                        car
               72.699
                                      46.718
                                                traffic light
                                                                 45.374
                        person
```

# Threshold: 0.65

#### Test:

```
plj: cocoeval opi.accumulale() iinisned in 0.02 seco
Average Precision (AP) @[ IoU=0.50:0.95
                                                    | area= all | maxDets=100 ] = 0.394
Average Precision (AP) @[ IoU=0.50
                                                      area=
                                                                all |
                                                                       maxDets=100 ] = 0.568
Average Precision (AP) @[ IoU=0.75
                                                      area= all | maxDets=100 ] = 0.428
Average Precision (AP) @[ IoU=0.50:0.95
                                                     area= small | maxDets=100 ] = 0.246
                                                     area=medium | maxDets=100 ] = 0.511
area= large | maxDets=100 ] = 0.590
area= all | maxDets= 1 ] = 0.226
area= all | maxDets= 10 ] = 0.557
Average Precision (AP) @[ IoU=0.50:0.95
Average Precision (AP) @[ 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
                                                     area= all | maxDets=100
Average Recall
                                                                                       ] = 0.602
Average Recall
                                                    | area= small | maxDets=100 ] = 0.440
                    (AR) @[ IoU=0.50:0.95
Average Recall
                       (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.703 (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.850
Average Recall
[08/27 15:09:14 d2.evaluation.coco evaluation]: Evaluation results for bbox:
AP | AP50 | AP75 | APs | APm | APl
:----:|:----:|:----:|:----:|:----:
39.399 | 56.794 | 42.810 | 24.648 | 51.133 | 59.015
[08/27 15:09:14 d2.evaluation.coco evaluation]: Per-category bbox AP:
category | AP | category | AP | category
                                                      category
                                                                            AP
 aeroplane | 66.907 | car
                                           | 27.094 | chair
                                                                            32.051
 COW
                | 57.985 | person
                                           22.072 | traffic_light
                                                                          30.283
```

```
[08/27 15:19:00 d2.evaluation.fast eval api]: Accumulating evaluation results...
[08/27 15:19:00 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 ] = 0.613
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.820
Average Precision (AP) @[ IoU=0.75
                                            area= all
                                                         | maxDets=100 ] = 0.678
Average Precision
                                                                        ] = 0.515
                   (AP) @[ IoU=0.50:0.95
                                            area= small
                                                         | maxDets=100
                   (AP) @[ IoU=0.50:0.95 |
Average Precision
                                                          maxDets=100
                                            area=medium
                                                                        1 = 0.711
Average Precision (AP) @[ IoU=0.50:0.95 |
                                            area= large
                                                          maxDets=100
                                                                        ] = 0.794
                    (AR) @[ IoU=0.50:0.95
                                                          maxDets= 1
Average Recall
                                                                        ] = 0.302
                    (AR) @[ IoU=0.50:0.95
(AR) @[ IoU=0.50:0.95
                                            area= all
area= all
Average Recall
                                                          maxDets= 10
                                                                        1 = 0.739
                                                           maxDets=100
Average Recall
Average Recall
                    (AR) @[ IoU=0.50:0.95 |
                                            area= small | maxDets=100
                                                                        ] = 0.646
                                                                        ] = 0.811
                                            area=medium | maxDets=100
area= large | maxDets=100
Average Recall
                   (AR) @[ IoU=0.50:0.95
                    (AR) @[ IoU=0.50:0.95 |
                                                                        1 = 0.898
Average Recall
[08/27 15:19:00 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
 AP | AP50 | AP75 | APs | APm
                                                APl
08/27 15:19:00 d2.evaluation.coco evaluation]: Per-category bbox AP:
 category
              AP
                      category
                                   | AP
                                              category
                                                             | AP
              86.584 | car
                                     52.557
 aeroplane
                                             chair
                                                               63.802
               72.699 | person
                                     46.718
                                              traffic light | 45.374
 COW
```

Last Checkpoint: 53499

Threshold: 0.85

Test:

```
[08/28 15:33:56 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 ] = 0.392
                                                         area=
 Average Precision (AP) @[ IoU=0.50
                                                                               maxDets=100 ] = 0.567
 Average Precision (AP) @[ IoU=0.75
                                                                               maxDets=100 ] = 0.428
                                                         | area= all |
Average Precision (AP) @[ IoU=0.50:0.95 | area= small |
                                                                               maxDets=100 ] = 0.241
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium |
                                                                               maxDets=100] = 0.513
Average Precision (AP) @[ IoU=0.50:0.95 | area= large |
                                                                               maxDets=100 ] = 0.584
Average Recall (AR) @[ IoU=0.50:0.95 | area= targe | maxDets=100 ] = 0.364

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 ] = 0.555

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 ] = 0.434

Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.705

Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.835

[08/28 15:33:57 d2.evaluation.coco_evaluation]: Evaluation results for bbox:
39.245 | 56.724 | 42.816 | 24.146 | 51.267 | 58.418
[08/28 15:33:57 d2.evaluation.coco evaluation]: Per-category bbox AP:
                 | AP | category | AP | category
AP
 aeroplane | 66.618 | car | 27.145 | chair
                                                                                     31.760
                 58.161 | person
                                               | 21.778 | traffic light
                                                                                  30.010
```

```
08./28 15:44:21 d2.evaluation.fast eval api]: COCOeval opt.accumulate() finished in 0.0
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.618
Average Precision (AP) @[ IoU=0.50
                                                                 all | maxDets=100 ] = 0.824
                                               area=
Average Precision (AP) @[ IoU=0.75
                                                     | area= | all | maxDets=100 ] = 0.682
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.521
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.716
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.799

Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.302

Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.699

Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.742
                       (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.650
Average Recall
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.816
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.898
[08/28 15:44:21 d2.evaluation.coco evaluation]: Evaluation results for bbox:
  AP | AP50 | AP75 | APS | APM | APl
:----:|:----:|:----:|:----:|:----:|:----:|:----:|:61.815 | 82.411 | 68.194 | 52.149 | 71.634 | 79.852
[08/28 15:44:21 d2.evaluation.coco evaluation]: Per-category bbox AP:
                | AP
                           category
                                            | AP
                                                   category
                                                                             AP
category
                1:---
 aeroplane
                86.636
                                            | 53.264 | chair
                                                                             64.601
                 72.933
                           person
                                            | 47.411 | traffic light | 46.042
```

Threshold: 0.65

Test:

```
[08/28 15:48:42 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 ] = 0.392
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=100 ] = 0.555

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 ] = 0.434

Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.705
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.8
[08/28 15:48:42 d2.evaluation.coco evaluation]: Evaluation results for bbox:
                          (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.835
   AP | AP50 | AP75 | APs | APm | APl
-----:|:-----:|:-----:
  39.245 | 56.724 | 42.816 | 24.146 | 51.267 | 58.418
 08/28 15:48:42 d2.evaluation.coco_evaluation]: Per-category bbox AP:
 category | AP | category | AP | category
                 | 66.618 | car
                                               | 27.145 | chair | 31.760
| 21.778 | traffic_light | 30.010
  aeroplane
                    58.161 | person
  COW
OrderedDict([('bbox'
```

```
eval api]: COCOeval opt.accumulate() finished in 0.05 seconds.
 Average Precision (AP) @[ IoU=0.50:0.95 | area= all |
                                                                                                                                                                                   maxDets=100 ] = 0.618
Average Precision (AP) @[ IoU=0.50
Average Precision (AP) @[ IoU=0.75
                                                                                                                                       area=
                                                                                                                                                               all |
                                                                                                                                                                                  maxDets=100
                                                                                                                                                                                                                         ] = 0.824
                                                                                                                                                                                  maxDets=100
                                                                                                                                                                                                                         1 = 0.682
 Average Precision (AP) @[ IoU=0.50:0.95 | area= small |
                                                                                                                                                                                   maxDets=100 ] = 0.521
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 | Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 | Average Recall (AR) @[ IoU=0.50:0.95 | area= all | average Recall (AR) @[ IoU=0.50:0.95 | area= all | average Recall (AR) @[ IoU=0.50:0.95 | area= all | average Recall (AR) @[ IoU=0.50:0.95 | area= all | average Recall (AR) @[ IoU=0.50:0.95 | area= all | average Recall (AR) @[ IoU=0.50:0.95 | average Recal
                                                                                                                                                                                                                         ] = 0.716
                                                                                                                                                                                                                             = 0.799
                                                                                                                                                                                                                         ] = 0.302
                                                                                                                                                                                                                        ] = 0.699
                                                                                                                                                                                                                             = 0.742
 Average Recall
                                                            (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.650
                                                           (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.816
(AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.898
 Average Recall
AP | AP50 | AP75 | APs | APm | APl
:----:|:----:|:----::
61.815 | 82.411 | 68.194 | 52.149 | 71.634 | 79.852
 08/28 15:59:13 d2.evaluation.coco evaluation]: Per-category bbox AP:
  category | AP | category | AP | category
                                                                                                            aeroplane | 86.636 | car
                                            72.933 | person
   COW
OrderedDict([('bbox',
```