

AERO2ASTRO

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Today i had trained PP-Yolo v2 model upto 1103 epochs. The minimum loss is 21 , but still loss fluctuates in between 21 to 36.

Previous model Result: (PP-Yolo v1 with 1000 ins)

```
Accumulating evaluation results...
DONE (t=0.17s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.056
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.113
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.049
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.044
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.066
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.130
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.051
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.134
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.179
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.144
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.231
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.201
[07/28 15:03:42] ppdet.engine INFO: Total sample number: 177, averge FPS: 18.516652787753493
```

Evaluation:(Training data – current training model)

```
Accumulating evaluation results...
DONE (t=0.86s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.488
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.863
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.511
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.391
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.595
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.629
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.228
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.565
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.659
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.556
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.740
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.804
[08/11 17:20:12] ppdet.metrics.coco_utils INFO: Per-category of bbox AP:
+-----+-----+-----+-----+-----+
| category | AP   | category | AP   | category | AP   |
+-----+-----+-----+-----+-----+
| aeroplane | 0.556 | car      | 0.455 | chair    | 0.493 |
| cow       | 0.575 | person   | 0.457 | traffic_light | 0.393 |
+-----+-----+-----+-----+-----+
[08/11 17:20:12] ppdet.metrics.coco_utils INFO: per-category PR curve has output to bbox_pr_curve
[08/11 17:20:12] ppdet.engine INFO: Total sample number: 689, averge FPS: 6.426043174148782
```

Evaluation : (Test data)

```
Accumulating evaluation results...
DONE (t=0.27s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.179
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.365
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.137
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.104
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.243
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.302
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.132
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.329
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.418
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.267
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.489
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.654
[08/11 17:21:57] ppydet.metrics.coco_utils INFO: Per-category of bbox AP:
+-----+-----+-----+-----+-----+
| category | AP   | category | AP   | category | AP   |
+-----+-----+-----+-----+-----+
| aeroplane | 0.304 | car      | 0.107 | chair    | 0.108 |
| cow       | 0.338 | person   | 0.069 | traffic_light | 0.147 |
+-----+-----+-----+-----+-----+
[08/11 17:21:57] ppydet.metrics.coco_utils INFO: per-category PR curve has output to bbox_pr_cur
[08/11 17:21:57] ppydet.engine INFO: Total sample number: 190, average FPS: 6.389524985284135
```

Result is very good with compare to both previous checkpoints and model. Person category is not learned well, but I had checked with images it gives good results. I think much higher epochs will give more accuracy .

Inference Speed Evaluation :

```
save result to: output/images/COCO_val2014_000000132143.jpg
save result to: output/images/COCO_val2014_000000107087.jpg
class_id:0, confidence:0.6803, left_top:[0.16,139.44],right_bottom:[639.00,317.32]
save result to: output/images/COCO_val2014_000000078580.jpg
save result to: output/images/0000000303863.jpg
----- Inference Time Info -----
total_time(ms): 950805.2000000001, img_num: 229
average latency time(ms): 4151.99, QPS: 0.240848
preprocess_time(ms): 71.60, inference_time(ms): 4080.40, postprocess_time(ms): 0.00
```


Detection Results :





