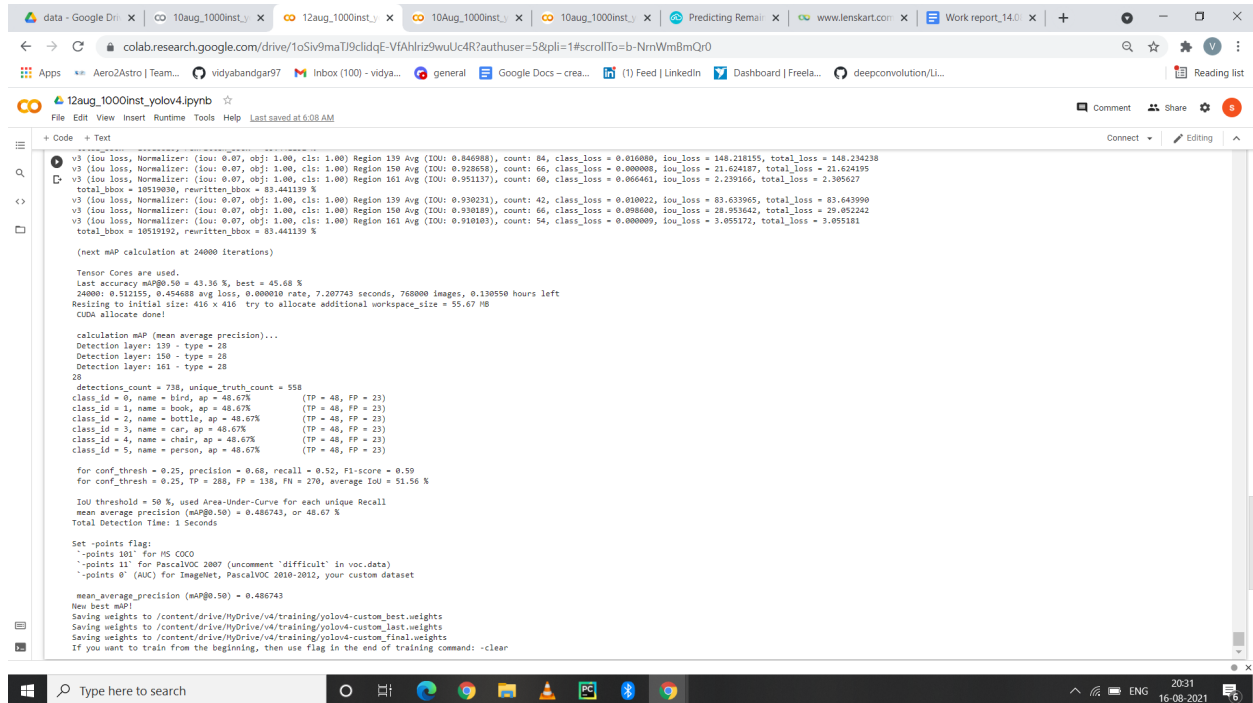


Work report

16 Aug 2021

yolov4 for 1000 instances.
Epochs 24000



```
-----
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 139 Avg (IOU: 0.846988), count: 84, class_loss = 0.016080, iou_loss = 148.218155, total_loss = 148.234238
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 150 Avg (IOU: 0.928658), count: 66, class_loss = 0.000008, iou_loss = 21.624187, total_loss = 21.624195
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 161 Avg (IOU: 0.951137), count: 60, class_loss = 0.066461, iou_loss = 2.239166, total_loss = 2.305627
total_bbox = 10519030, rewritten_bbox = 83.441139 %
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 139 Avg (IOU: 0.930211), count: 42, class_loss = 0.010822, iou_loss = 83.633965, total_loss = 83.643990
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 150 Avg (IOU: 0.930189), count: 66, class_loss = 0.008600, iou_loss = 28.953642, total_loss = 29.052242
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 161 Avg (IOU: 0.910303), count: 54, class_loss = 0.000009, iou_loss = 3.055372, total_loss = 3.055381
total_bbox = 10519192, rewritten_bbox = 83.441139 %

(next mAP calculation at 24000 iterations)

Tensor Cores are used.
Last accuracy mAP@0.50 = 43.36 %, best = 45.68 %
24000: 0.512155, 0.454688 avg loss, 0.000010 rate, 7.207743 seconds, 768000 Images, 0.130550 hours left
Resizing to initial size: 416 x 416 try to allocate additional workspace_size = 55.67 MB
CUDA allocate done!

calculation mAP (mean average precision)...
Detection layer: 139 - type = 28
Detection layer: 150 - type = 28
Detection layer: 161 - type = 28
28
detections_count = 738, unique_truth_count = 558
class_id = 0, name = bird, ap = 48.67% (TP = 48, FP = 23)
class_id = 1, name = book, ap = 48.67% (TP = 48, FP = 23)
class_id = 2, name = bottle, ap = 48.67% (TP = 48, FP = 23)
class_id = 3, name = car, ap = 48.67% (TP = 48, FP = 23)
class_id = 4, name = chair, ap = 48.67% (TP = 48, FP = 23)
class_id = 5, name = person, ap = 48.67% (TP = 48, FP = 23)

for conf_thresh = 0.25, precision = 0.68, recall = 0.52, F1-score = 0.59
for conf_thresh = 0.25, TP = 288, FP = 138, FN = 270, average IoU = 51.56 %

IoU threshold = 50 %, used Area-Under-Curve for each unique Recall
mean average precision (mAP@0.50) = 0.486743, or 48.67 %
Total Detection Time: 1 Seconds

Set -points flag:
'-points 101' for MS COCO
'-points 11' for PascalVOC 2007 (uncomment 'difficult' in voc.data)
'-points 0' (AUC) for ImageNet, PascalVOC 2010-2012, your custom dataset

mean_average_precision (mAP@0.50) = 0.486743
New best mAP!
Saving weights to /content/drive/MyDrive/v4/training/yolov4-custom_best.weights
Saving weights to /content/drive/MyDrive/v4/training/yolov4-custom_last.weights
Saving weights to /content/drive/MyDrive/v4/training/yolov4-custom_final.weights
If you want to train from the beginning, then use flag in the end of training command: -clear
```

MAP

```
detections_count = 738, unique_truth_count = 558
class_id = 0, name = bird, ap = 48.67% (TP = 48, FP = 23)
class_id = 1, name = book, ap = 48.67% (TP = 48, FP = 23)
class_id = 2, name = bottle, ap = 48.67% (TP = 48, FP = 23)
class_id = 3, name = car, ap = 48.67% (TP = 48, FP = 23)
class_id = 4, name = chair, ap = 48.67% (TP = 48, FP = 23)
class_id = 5, name = person, ap = 48.67% (TP = 48, FP = 23)

for conf_thresh = 0.25, precision = 0.68, recall = 0.52, F1-score = 0.59
for conf_thresh = 0.25, TP = 288, FP = 138, FN = 270, average IoU = 51.56 %

IoU threshold = 50 %, used Area-Under-Curve for each unique Recall
mean average precision (mAP@0.50) = 0.486743, or 48.67 %
Total Detection Time: 1 Seconds
```

Notebook:

https://github.com/vidyabandgar97/A2A/blob/main/16aug_1000inst_yolov4.ipynb

Pp-yolo for 1000 instances

```
DONE (t=0.07s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=7.72s).
Accumulating evaluation results...
DONE (t=1.40s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.039
Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.111
Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.017
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.037
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.051
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.031
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.047
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.147
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.210
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = 0.160
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.260
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.243
[08/14 05:42:22] ppdet.metrics.coco_utils INFO: Per-category of bbox AP:
+-----+-----+-----+-----+-----+
| category | AP   | category | AP   | category | AP   |
+-----+-----+-----+-----+-----+
| bird     | 0.011 | book     | 0.015 | bottle   | 0.124 |
| car      | 0.002 | chair    | 0.016 | person   | 0.064 |
+-----+-----+-----+-----+-----+
[08/14 05:42:22] ppdet.metrics.coco_utils INFO: per-category PR curve has output to bbox_pr_curve folder.
[08/14 05:42:23] ppdet.engine INFO: Total sample number: 1093, averge FPS: 13.546782759184328
```
