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Today i had tried to optimize PP-Yolo with lower learning rate . First I had tried learning rate with 0.00125 . In starting the loss is 16 and it decrease to 6. But it fluctuating in between of 6 to 8. Tried epochs is 61.

```
loss_wh: 0.522180 loss_iou: 1.573064 loss_iou_aware: 0.326139 loss_obj: 3.455695 loss_cls: 0.104752 loss: 6.490438 eta: 19:34:18 batch_cost
loss_wh: 0.541716 loss_iou: 1.607283 loss_iou_aware: 0.335971 loss_obj: 3.876277 loss_cls: 0.089165 loss: 6.887629 eta: 19:34:10 batch_cost
loss_wh: 0.438005 loss_iou: 1.509745 loss_iou_aware: 0.325704 loss_obj: 3.687231 loss_cls: 0.081818 loss: 6.750729 eta: 19:33:47 batch_cost
loss_wh: 0.375919 loss_iou: 1.548854 loss_iou_aware: 0.349175 loss_obj: 3.870726 loss_cls: 0.120248 loss: 6.856633 eta: 19:33:07 batch_cost
loss_wh: 0.517124 loss_iou: 1.606150 loss_iou_aware: 0.355118 loss_obj: 4.239605 loss_cls: 0.090612 loss: 7.320848 eta: 19:33:13 batch_cost
loss_wh: 0.422230 loss_iou: 1.409731 loss_iou_aware: 0.302958 loss_obj: 3.451325 loss_cls: 0.089877 loss: 6.093298 eta: 19:32:54 batch_cost
loss_wh: 0.408136 loss_iou: 1.485439 loss_iou_aware: 0.341938 loss_obj: 3.696226 loss_cls: 0.074008 loss: 6.440054 eta: 19:32:38 batch_cost
loss_wh: 0.501959 loss_iou: 1.622896 loss_iou_aware: 0.348902 loss_obj: 3.695256 loss_cls: 0.080703 loss: 6.644746 eta: 19:32:02 batch_cost
loss_wh: 0.473922 loss_iou: 1.596632 loss_iou_aware: 0.342470 loss_obj: 3.792677 loss_cls: 0.104636 loss: 7.223116 eta: 19:31:32 batch_cost
loss_wh: 0.609807 loss_iou: 1.714846 loss_iou_aware: 0.355125 loss_obj: 4.041124 loss_cls: 0.097489 loss: 7.265591 eta: 19:31:22 batch_cost
loss_wh: 0.702654 loss_iou: 1.681538 loss_iou_aware: 0.344211 loss_obj: 3.836987 loss_cls: 0.084471 loss: 7.310093 eta: 19:31:26 batch_cost
loss_wh: 0.601844 loss_iou: 1.707008 loss_iou_aware: 0.349353 loss_obj: 3.569147 loss_cls: 0.090731 loss: 7.064981 eta: 19:31:12 batch_cost
loss_wh: 0.460459 loss_iou: 1.541029 loss_iou_aware: 0.329621 loss_obj: 3.583277 loss_cls: 0.140976 loss: 6.640228 eta: 19:30:55 batch_cost
loss_wh: 0.445221 loss_iou: 1.645573 loss_iou_aware: 0.346792 loss_obj: 3.666065 loss_cls: 0.077045 loss: 6.866357 eta: 19:30:21 batch_cost
loss_wh: 0.447657 loss_iou: 1.545543 loss_iou_aware: 0.353911 loss_obj: 3.994629 loss_cls: 0.084220 loss: 6.991855 eta: 19:29:45 batch_cost
loss_wh: 0.486013 loss_iou: 1.680882 loss_iou_aware: 0.352857 loss_obj: 3.602498 loss_cls: 0.098362 loss: 6.934411 eta: 19:28:56 batch_cost
loss_wh: 0.449867 loss_iou: 1.519069 loss_iou_aware: 0.310928 loss_obj: 3.624304 loss_cls: 0.109840 loss: 6.292248 eta: 19:28:35 batch_cost
loss_wh: 0.357391 loss_iou: 1.350714 loss_iou_aware: 0.313335 loss_obj: 3.369994 loss_cls: 0.084614 loss: 6.103837 eta: 19:28:19 batch_cost
loss_wh: 0.458328 loss_iou: 1.656275 loss_iou_aware: 0.364735 loss_obj: 3.808830 loss_cls: 0.086059 loss: 6.986092 eta: 19:28:09 batch_cost
loss_wh: 0.487116 loss_iou: 1.565406 loss_iou_aware: 0.324238 loss_obj: 3.632711 loss_cls: 0.071564 loss: 6.728862 eta: 19:27:34 batch_cost
loss_wh: 0.504439 loss_iou: 1.565318 loss_iou_aware: 0.344361 loss_obj: 3.787549 loss_cls: 0.111679 loss: 6.596293 eta: 19:27:29 batch_cost
loss_wh: 0.680185 loss_iou: 1.747610 loss_iou_aware: 0.363785 loss_obj: 3.937334 loss_cls: 0.099660 loss: 7.440681 eta: 19:26:50 batch_cost
loss_wh: 0.706978 loss_iou: 1.757352 loss_iou_aware: 0.345771 loss_obj: 3.786595 loss_cls: 0.116755 loss: 7.301412 eta: 19:26:42 batch_cost
loss_wh: 0.381496 loss_iou: 1.518353 loss_iou_aware: 0.329068 loss_obj: 3.409259 loss_cls: 0.065525 loss: 6.201234 eta: 19:26:30 batch_cost
loss_wh: 0.440479 loss_iou: 1.538706 loss_iou_aware: 0.343301 loss_obj: 3.778569 loss_cls: 0.092623 loss: 6.554207 eta: 19:26:26 batch_cost
loss_wh: 0.482765 loss_iou: 1.528987 loss_iou_aware: 0.323227 loss_obj: 3.700803 loss_cls: 0.094409 loss: 6.537683 eta: 19:25:56 batch_cost
loss_wh: 0.579171 loss_iou: 1.694022 loss_iou_aware: 0.344557 loss_obj: 3.801324 loss_cls: 0.086011 loss: 6.996144 eta: 19:25:42 batch_cost
```

Next , I had tried to detect objects , but it not detected.

After further I had decreased model learning rate 0.000156245 , initial loss is 509 and decreased to 6 in time of 98 epochs. This method also fluctuating it's loss in between of 6 to 7. Next I had tried to detect objects , as usual it not detected.

```
.678516 loss_iou_aware: 0.362107 loss_obj: 4.143132 loss_cls: 0.110078 loss: 7.375812 eta: 18:21:39 batch_cost: 0.8028 data_cost: 0.0016 i
.642023 loss_iou_aware: 0.352085 loss_obj: 4.238691 loss_cls: 0.134719 loss: 7.520534 eta: 18:21:31 batch_cost: 0.8311 data_cost: 0.0026 i
.481504 loss_iou_aware: 0.315392 loss_obj: 4.205930 loss_cls: 0.113856 loss: 7.154528 eta: 18:21:15 batch_cost: 0.7819 data_cost: 0.0304 i
.438458 loss_iou_aware: 0.323914 loss_obj: 3.934369 loss_cls: 0.135084 loss: 6.718769 eta: 18:21:08 batch_cost: 0.8441 data_cost: 0.0021 i
.521071 loss_iou_aware: 0.346284 loss_obj: 4.273851 loss_cls: 0.154051 loss: 7.425015 eta: 18:20:59 batch_cost: 0.8223 data_cost: 0.0012 i
.555725 loss_iou_aware: 0.332141 loss_obj: 4.000115 loss_cls: 0.110241 loss: 6.955544 eta: 18:20:54 batch_cost: 0.8557 data_cost: 0.0016 i
.550248 loss_iou_aware: 0.342507 loss_obj: 4.155432 loss_cls: 0.165569 loss: 7.202610 eta: 18:20:43 batch_cost: 0.8142 data_cost: 0.0033 i
.700847 loss_iou_aware: 0.360964 loss_obj: 4.044876 loss_cls: 0.130342 loss: 7.202982 eta: 18:20:29 batch_cost: 0.7916 data_cost: 0.0018 i

.683177 loss_iou_aware: 0.377940 loss_obj: 4.175265 loss_cls: 0.130157 loss: 7.387443 eta: 18:20:01 batch_cost: 0.7154 data_cost: 0.0018 i
.558173 loss_iou_aware: 0.347463 loss_obj: 4.124431 loss_cls: 0.164568 loss: 7.243571 eta: 18:19:39 batch_cost: 0.7363 data_cost: 0.0025 i
.658495 loss_iou_aware: 0.367637 loss_obj: 4.250302 loss_cls: 0.177614 loss: 7.343540 eta: 18:19:28 batch_cost: 0.8169 data_cost: 0.0023 i
.584286 loss_iou_aware: 0.348091 loss_obj: 3.684246 loss_cls: 0.109868 loss: 6.979902 eta: 18:19:10 batch_cost: 0.7671 data_cost: 0.0033 i
.477244 loss_iou_aware: 0.332059 loss_obj: 4.120701 loss_cls: 0.129654 loss: 7.154079 eta: 18:18:54 batch_cost: 0.7785 data_cost: 0.0037 i
.773852 loss_iou_aware: 0.361690 loss_obj: 4.189625 loss_cls: 0.097049 loss: 7.581573 eta: 18:18:32 batch_cost: 0.7416 data_cost: 0.0021 i
.670174 loss_iou_aware: 0.365564 loss_obj: 4.215744 loss_cls: 0.150927 loss: 7.727049 eta: 18:18:16 batch_cost: 0.7559 data_cost: 0.0154 i
.622269 loss_iou_aware: 0.342169 loss_obj: 3.821401 loss_cls: 0.132802 loss: 6.884515 eta: 18:17:55 batch_cost: 0.7476 data_cost: 0.0016 i
.540464 loss_iou_aware: 0.349362 loss_obj: 4.045590 loss_cls: 0.176316 loss: 7.068377 eta: 18:17:45 batch_cost: 0.8178 data_cost: 0.0016 i
.721588 loss_iou_aware: 0.358975 loss_obj: 4.012815 loss_cls: 0.154393 loss: 7.365590 eta: 18:17:25 batch_cost: 0.7579 data_cost: 0.0029 i
.605647 loss_iou_aware: 0.343683 loss_obj: 4.242987 loss_cls: 0.137636 loss: 7.226707 eta: 18:17:16 batch_cost: 0.8244 data_cost: 0.0008 i
.713844 loss_iou_aware: 0.350070 loss_obj: 3.896193 loss_cls: 0.153885 loss: 7.182347 eta: 18:16:50 batch_cost: 0.7148 data_cost: 0.0024 i
.729567 loss_iou_aware: 0.348874 loss_obj: 4.118232 loss_cls: 0.156196 loss: 7.346605 eta: 18:16:20 batch_cost: 0.6368 data_cost: 0.0172 i
```

So , I am decided to take another one dataset and to chech model is forming good on that data. For that I had downloaded chess dataset from roboflow . It was already annotated with coco format. But while try to train, colab shows GPU timeout. But I am not used GPU for 12 hrs continuously. Next tried train with CPU , but It take very long time for single epoch.

Dataset link : <https://public.roboflow.com/object-detection/chess-full>

