```
from google.colab import drive
drive.mount('/content/drive')
    Mounted at /content/drive
!ls '/content/drive/My Drive'
    ivzi nuts-detect yolo.zip
```

## !unzip '/content/drive/My Drive/yolo.zip' -d '/content/drive/My Drive/nuts-detect'

```
intlating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train201//481mg.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/53img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/54img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/55img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/56img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/57img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/58img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/59img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/5img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/60img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/65img.txt
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inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/67img.txt
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inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/69img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/6img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/70img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/71img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/72img.txt
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inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/79img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/7img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/80img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/81img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/82img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/83img.txt
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inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/88img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/89img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/8img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/90img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/91img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/92img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/93img.txt
inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/94img.txt
```

```
INTIATING: /CONTENT/GRIVE/MY Drive/nuts-detect/yolo/coco/labels/trainz01//951mg.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/96img.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/97img.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/98img.txt
       inflating: /content/drive/My Drive/nuts-detect/volo/coco/labels/train2017/99img.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017/9img.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/train2017.cache
        creating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/val2017/
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/val2017/13img.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/val2017/14img.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/val2017/15img.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/val2017/16img.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/val2017/1img.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/val2017/241img.txt
       inflating: /content/drive/My Drive/nuts-detect/yolo/coco/labels/val2017/242img.txt
       inflating: /content/drive/My_Drive/nuts_detect/volo/coco/lahels/val2017/203img_tvt
%cd /content/drive/MyDrive/nuts-detect/yolo
%pwd
     /content/drive/MyDrive/nuts-detect/yolo
     '/content/drive/MyDrive/nuts-detect/yolo'
!pip install thop
!pip install PyYAML==5.3.1
     Collecting thop
       Downloading <a href="https://files.pythonhosted.org/packages/6c/8b/22ce44e1c71558161a8bd544711">https://files.pythonhosted.org/packages/6c/8b/22ce44e1c71558161a8bd544711</a>
     Requirement already satisfied: torch>=1.0.0 in /usr/local/lib/python3.6/dist-packages (
     Requirement already satisfied: typing-extensions in /usr/local/lib/python3.6/dist-packa
     Requirement already satisfied: numpy in /usr/local/lib/python3.6/dist-packages (from to
     Requirement already satisfied: dataclasses in /usr/local/lib/python3.6/dist-packages (f
     Requirement already satisfied: future in /usr/local/lib/python3.6/dist-packages (from t
     Installing collected packages: thop
     Successfully installed thop-0.0.31.post2005241907
     Collecting PvYAML==5.3.1
       Downloading https://files.pythonhosted.org/packages/64/c2/b80047c7ac2478f9501676c988a
                                        276kB 12.0MB/s
     Building wheels for collected packages: PyYAML
       Building wheel for PyYAML (setup.py) ... done
       Created wheel for PyYAML: filename=PyYAML-5.3.1-cp36-cp36m-linux x86 64.whl size=4462
       Stored in directory: /root/.cache/pip/wheels/a7/c1/ea/cf5bd31012e735dc1dfea3131a2d5ea
     Successfully built PyYAML
     Installing collected packages: PyYAML
       Found existing installation: PvYAML 3.13
         Uninstalling PvYAML-3.13:
           Successfully uninstalled PyYAML-3.13
     Successfully installed PyYAML-5.3.1
```

%cd yolov5

/content/drive/MyDrive/nuts-detect/yolo/yolov5

!python train.py --img 640 --batch 16 --epochs 5 --data coco128.yaml --weights yolov5s.pt

github: ⚠ WARNING: code is out of date by 1 commit. Use 'git pull' to update or 'gi' YOLOv5 v4.0-76-g17ac94b torch 1.7.0+cu101 CPU

Namespace(adam=False, batch\_size=16, bucket='', cache\_images=False, cfg='', data='./d wandb: Install Weights & Biases for YOLOv5 logging with 'pip install wandb' (recommen Start Tensorboard with "tensorboard --logdir runs/train", view at <a href="http://localhost:60/2021-02-14">http://localhost:60/2021-02-14</a> 10:46:25.549125: I tensorflow/stream\_executor/platform/default/dso\_loader. hyperparameters: lr0=0.01, lrf=0.2, momentum=0.937, weight\_decay=0.0005, warmup\_epoch Overriding model.yaml nc=80 with nc=2

	fro	m r	n params	module	arguments
0	-	1 1	. 3520	models.common.Focus	[3, 32, 3
1	-	1 1	. 18560	models.common.Conv	[32, 64,
2	-	1 1	. 18816	models.common.C3	[64, 64,
3	-	1 1	. 73984	models.common.Conv	[64, 128,
4	-	1 1	. 156928	models.common.C3	[128, 128
5	-	1 1	. 295424	models.common.Conv	[128, 256
6	-	1 1	. 625152	models.common.C3	[256, 256
7	-	1 1	. 1180672	models.common.Conv	[256, 512
8	-	1 1	. 656896	models.common.SPP	[512, 512
9	-	1 1	. 1182720	models.common.C3	[512, 512
10	-	1 1	. 131584	models.common.Conv	[512, 256
11	-	1 1	. 6	torch.nn.modules.upsampling.Upsample	[None, 2,
12	[-1, 6	5] 1	. 6	models.common.Concat	[1]
13	-	1 1	. 361984	models.common.C3	[512, 256
14	-	1 1	. 33024	models.common.Conv	[256, 128
15	-	1 1	. 6	torch.nn.modules.upsampling.Upsample	[None, 2,
16	[-1, 4	1] 1	. 6	models.common.Concat	[1]
17	-	1 1	. 90886	models.common.C3	[256, 128
18	-	1 1	. 147712	models.common.Conv	[128, 128
19	[-1, 14	1] 1	. 6	models.common.Concat	[1]
20	-	1 1	. 296448	models.common.C3	[256, 256
21	-	1 1	. 590336	models.common.Conv	[256, 256
22	[-1, 10	)] 1	. 6	models.common.Concat	[1]
23	-	1 1	. 1182720	models.common.C3	[512, 512
24	[17, 20, 23	3] 1	. 18879	models.yolo.Detect	[2, [[10,
M 1	dol Cummanus 202 layons 7000220 nanamatans 7000220 anadiants 10 4 CELODO				

Model Summary: 283 layers, 7066239 parameters, 7066239 gradients, 16.4 GFLOPS

```
Transferred 356/362 items from yolov5s.pt
```

Scaled weight decay = 0.0005

Optimizer groups: 62 .bias, 62 conv.weight, 59 other

train: Scanning '/content/drive/MyDrive/nuts-detect/yolo/coco/labels/train2017' for i
train: New cache created: /content/drive/MyDrive/nuts-detect/yolo/coco/labels/train20
val: Scanning '/content/drive/MyDrive/nuts-detect/yolo/coco/labels/val2017' for image
val: New cache created: /content/drive/MyDrive/nuts-detect/yolo/coco/labels/val2017.c
Plotting labels...

autoanchor: Analyzing anchors... anchors/target = 5.70, Best Possible Recall (BPR) =
Image sizes 640 train, 640 test
Using 2 dataloader workers
Logging results to runs/train/exp14
Starting training for 5 epochs...

Epoch gpu mem box obj cls total targets img size

```
0/4
                   0.1242
                                                                                640: 100
            0G
                              0.1458
                                         0.03106
                                                     0.3011
                                                                    567
         Class
                     Images
                                  Targets
                                                      P
                                                                    R
                                                                            mAP@.5
                                                                                     mAP
           all
                          44
                                      857
                                                 0.0171
                                                              0.0962
                                                                           0.00461
```

!python detect.py --img 640 --source /content/drive/MyDrive/nuts-detect/yolo/test\_nut --weigh

Namespace(agnostic\_nms=False, augment=False, classes=None, conf\_thres=0.25, device='', YOLOv5 v4.0-76-g17ac94b torch 1.7.0+cu101 CPU

```
Fusing layers...
```

```
Model Summary: 224 layers, 7056607 parameters, 0 gradients, 16.3 GFLOPS
image 1/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 025523.jpg: 640x48
image 2/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 025531.jpg: 640x48
image 3/20 /content/drive/MyDrive/nuts-detect/yolo/test_nut/20210211_025540.jpg: 640x48
image 4/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 025547.jpg: 640x48
image 5/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 025556.jpg: 640x48
image 6/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 025625.jpg: 640x48
image 7/20 /content/drive/MyDrive/nuts-detect/yolo/test_nut/20210211_102023.jpg: 640x48
image 8/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 102030.jpg: 640x48
image 9/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 102051.jpg: 480x64
image 10/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 102102.jpg: 480x6
image 11/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 102124.jpg: 640x4
image 12/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 102202.jpg: 480x6
image 13/20 /content/drive/MyDrive/nuts-detect/yolo/test_nut/20210211_102216.jpg: 480x6
image 14/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 102222.jpg: 480x6
image 15/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 201757.jpg: 640x4
image 16/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 202159.jpg: 640x4
image 17/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 202401.jpg: 640x4
image 18/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 202418.jpg: 640x4
image 19/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/20210211 202422.jpg: 480x6
image 20/20 /content/drive/MyDrive/nuts-detect/yolo/test nut/hsvtest.jpg: 640x544 10 uz
Results saved to runs/detect/exp6
Done. (21.122s)
```