```
!git clone https://github.com/ultralytics/yolov5  # clone
%cd yolov5
%pip install -qr requirements.txt  # install

import torch
import utils
display = utils.notebook_init()  # checks
```

```
YOLOv5 🚀 v6.2-227-g78ed31c Python-3.7.15 torch-1.12.1+cu113 CPU
Setup complete ✅ (2 CPUs, 12.7 GB RAM, 23.1/107.7 GB disk)
```

```
# !pip install roboflow

# from roboflow import Roboflow
# rf = Roboflow(api_key="sxuCe3tFqXR656e7IOZ1")
# project = rf.workspace("dorpaciente").project("car_mot_cam")
# dataset = project.version(1).download("folder")

# !pip install roboflow

# from roboflow import Roboflow
# rf = Roboflow(api_key="sxuCe3tFqXR656e7IOZ1")
# project = rf.workspace("dorpaciente").project("paciente_dor")
# dataset = project.version(4).download("folder")

!pip install roboflow

from roboflow import Roboflow
rf = Roboflow(api_key="sxuCe3tFqXR656e7IOZ1")
project = rf.workspace("dorpaciente").project("car_mot_cam")
dataset = project.version(2).download("folder")
```

```
Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Requirement already satisfied: roboflow in /usr/local/lib/python3.7/dist-packages (0.2.18)
Requirement already satisfied: requests in /usr/local/lib/python3.7/dist-packages (from roboflow) (2.28.1)
Requirement already satisfied: opencv-python-headless>=4.5.1.48 in /usr/local/lib/python3.7/dist-packages (from roboflow) (4.6.
```

```
Requirement already satisfied: tqdm>=4.41.0 in /usr/local/lib/python3.7/dist-packages (from roboflow) (4.64.1)
Requirement already satisfied: glob2 in /usr/local/lib/python3.7/dist-packages (from roboflow) (0.7)
Requirement already satisfied: Pillow>=7.1.2 in /usr/local/lib/python3.7/dist-packages (from roboflow) (7.1.2)
Requirement already satisfied: python-dotenv in /usr/local/lib/python3.7/dist-packages (from roboflow) (0.21.0)
Requirement already satisfied: chardet==4.0.0 in /usr/local/lib/python3.7/dist-packages (from roboflow) (4.0.0)
Requirement already satisfied: requests-toolbelt in /usr/local/lib/python3.7/dist-packages (from roboflow) (0.10.1)
Requirement already satisfied: idna==2.10 in /usr/local/lib/python3.7/dist-packages (from roboflow) (2.10)
Requirement already satisfied: python-dateutil in /usr/local/lib/python3.7/dist-packages (from roboflow) (2.8.2)
Requirement already satisfied: pyparsing==2.4.7 in /usr/local/lib/python3.7/dist-packages (from roboflow) (2.4.7)
Requirement already satisfied: six in /usr/local/lib/python3.7/dist-packages (from roboflow) (1.15.0)
Requirement already satisfied: certifi==2021.5.30 in /usr/local/lib/python3.7/dist-packages (from roboflow) (2021.5.30)
Requirement already satisfied: numpy>=1.18.5 in /usr/local/lib/python3.7/dist-packages (from roboflow) (1.21.6)
Requirement already satisfied: urllib3==1.26.6 in /usr/local/lib/python3.7/dist-packages (from roboflow) (1.26.6)
Requirement already satisfied: wget in /usr/local/lib/python3.7/dist-packages (from roboflow) (3.2)
Requirement already satisfied: PyYAML>=5.3.1 in /usr/local/lib/python3.7/dist-packages (from roboflow) (6.0)
Requirement already satisfied: cycler==0.10.0 in /usr/local/lib/python3.7/dist-packages (from roboflow) (0.10.0)
Requirement already satisfied: matplotlib in /usr/local/lib/python3.7/dist-packages (from roboflow) (3.2.2)
Requirement already satisfied: kiwisolver>=1.3.1 in /usr/local/lib/python3.7/dist-packages (from roboflow) (1.4.4)
Requirement already satisfied: typing-extensions in /usr/local/lib/python3.7/dist-packages (from kiwisolver>=1.3.1->roboflow) (4
Requirement already satisfied: charset-normalizer<3,>=2 in /usr/local/lib/python3.7/dist-packages (from requests->roboflow) (2.
loading Roboflow workspace...
loading Roboflow project...
Downloading Dataset Version Zip in car_mot_cam-2 to folder: 100% [24278125 / 24278125] bytes
Extracting Dataset Version Zip to car_mot_cam-2 in folder:: 100%|██████████| 503/503 [00:00<00:00, 1120.68it/s]
```

```
# Weights & Biases  (optional)
%pip install -q wandb
import os
import wandb
os.environ['WANDB_NOTEBOOK_NAME'] = 'CESAR JAM'
wandb.init()
```

```
ERROR: pip's dependency resolver does not currently take into account all the packages
roboflow 0.2.18 requires urllib3==1.26.6, but you have urllib3 1.26.12 which is incompa
Finishing last run (ID:1mbk4rxc) before initializing another...
Waiting for W&B process to finish... (success).
Synced driven-puddle-5: https://wandb.ai/jamcabral/yolov5/runs/1mbk4rxc
Synced 5 W&B file(s), 0 media file(s), 0 artifact file(s) and 0 other file(s)
Find logs at: ./wandb/run-20221106_145323-1mbk4rxc/logs
Successfully finished last run (ID:1mbk4rxc). Initializing new run:
```

```
import sys
def wandb_colab_login():
  """Temporary hack to prevent colab from hanging"""
  sys.modules["google.colab2"] = sys.modules["google.colab"]
  del sys.modules["google.colab"]
  wandb.login()
  sys.modules["google.colab"] = sys.modules["google.colab2"]
wandb_colab_login()
```

```
wandb: WARNING Calling wandb.login() after wandb.init() has no effect.
```

```
%cd ../yolov5
from utils.downloads import attempt_download

p5 = ['n', 's', 'm', 'l', 'x']  # P5 models
cls = [f'{x}-cls' for x in p5]  # classification models

for x in cls:
    attempt_download(f'weights/yolov5{x}.pt')
```

```
/content/yolov5
```

```
#Save the dataset name to the environment so we can use it in a system call later
import os
dataset_name = dataset.location.split(os.sep)[-1]
os.environ["DATASET_NAME"] = dataset_name
```

```
!python classify/train.py --model yolov5s-cls.pt --data $DATASET_NAME --epochs 100 --img 128 --pretrained weights/yolov5s-cls.pt
```

```
52/100      0G      0.704       1.61      0.0172          1: 100% 5/5 [00:13<00:00,  2.75s/it]
53/100      0G      0.686       1.32      0.0345          1: 100% 5/5 [00:13<00:00,  2.74s/it]
54/100      0G      0.705        1.5      0.0862          1: 100% 5/5 [00:13<00:00,  2.71s/it]
55/100      0G      0.701        1.5      0.0345          1: 100% 5/5 [00:13<00:00,  2.72s/it]
56/100      0G      0.633       1.45      0.0862          1: 100% 5/5 [00:13<00:00,  2.73s/it]
57/100      0G      0.718       1.75      0.0517          1: 100% 5/5 [00:13<00:00,  2.74s/it]
58/100      0G      0.753       1.66      0.0517          1: 100% 5/5 [00:13<00:00,  2.73s/it]
59/100      0G      0.709        1.1       0.397          1: 100% 5/5 [00:13<00:00,  2.74s/it]
60/100      0G      0.665       1.42        0.19          1: 100% 5/5 [00:13<00:00,  2.73s/it]
61/100      0G      0.659      0.871        0.69          1: 100% 5/5 [00:13<00:00,  2.73s/it]
62/100      0G      0.665      0.842       0.672          1: 100% 5/5 [00:13<00:00,  2.72s/it]
63/100      0G      0.676      0.845       0.707          1: 100% 5/5 [00:13<00:00,  2.73s/it]
64/100      0G      0.648       1.03       0.552          1: 100% 5/5 [00:13<00:00,  2.74s/it]
65/100      0G      0.604      0.774       0.776          1: 100% 5/5 [00:13<00:00,  2.76s/it]
66/100      0G      0.656       1.31       0.431          1: 100% 5/5 [00:13<00:00,  2.75s/it]
67/100      0G      0.574        1.8       0.172          1: 100% 5/5 [00:13<00:00,  2.75s/it]
68/100      0G      0.617      0.886       0.672          1: 100% 5/5 [00:13<00:00,  2.76s/it]
69/100      0G      0.604       1.24       0.397          1: 100% 5/5 [00:13<00:00,  2.74s/it]
70/100      0G      0.562       1.64       0.328          1: 100% 5/5 [00:13<00:00,  2.76s/it]
71/100      0G      0.592       1.09       0.517          1: 100% 5/5 [00:13<00:00,  2.76s/it]
72/100      0G      0.537       1.35       0.414          1: 100% 5/5 [00:13<00:00,  2.75s/it]
73/100      0G      0.573       1.26       0.397          1: 100% 5/5 [00:13<00:00,  2.78s/it]
74/100      0G      0.576       1.06       0.534          1: 100% 5/5 [00:13<00:00,  2.78s/it]
75/100      0G      0.576       1.13       0.517          1: 100% 5/5 [00:13<00:00,  2.77s/it]
76/100      0G      0.558       1.35       0.414          1: 100% 5/5 [00:13<00:00,  2.74s/it]
77/100      0G      0.577       1.86       0.155          1: 100% 5/5 [00:13<00:00,  2.75s/it]
78/100      0G      0.612       1.12       0.517          1: 100% 5/5 [00:13<00:00,  2.74s/it]
79/100      0G      0.574       1.12       0.552          1: 100% 5/5 [00:13<00:00,  2.75s/it]
80/100      0G      0.583        1.9       0.224          1: 100% 5/5 [00:13<00:00,  2.78s/it]
81/100      0G       0.57       1.25       0.397          1: 100% 5/5 [00:13<00:00,  2.74s/it]
82/100      0G      0.548      0.609        0.81          1: 100% 5/5 [00:13<00:00,  2.72s/it]
83/100      0G      0.552       1.21       0.534          1: 100% 5/5 [00:13<00:00,  2.73s/it]
84/100      0G      0.564       1.54       0.397          1: 100% 5/5 [00:13<00:00,  2.73s/it]
85/100      0G      0.535       1.54       0.414          1: 100% 5/5 [00:13<00:00,  2.72s/it]
86/100      0G      0.549       1.34       0.483          1: 100% 5/5 [00:13<00:00,  2.75s/it]
87/100      0G      0.499        1.1       0.534          1: 100% 5/5 [00:13<00:00,  2.73s/it]
88/100      0G      0.555       1.01       0.569          1: 100% 5/5 [00:13<00:00,  2.73s/it]
89/100      0G      0.504       1.02       0.603          1: 100% 5/5 [00:13<00:00,  2.72s/it]
90/100      0G      0.521       1.05       0.552          1: 100% 5/5 [00:13<00:00,  2.72s/it]
91/100      0G      0.568       1.19         0.5          1: 100% 5/5 [00:13<00:00,  2.70s/it]
```

```
      92/100        0G       0.475        1.22       0.552           1: 100% 5/5 [00:13<00:00,  2.73s/it]
      93/100        0G       0.482        1.32       0.483           1: 100% 5/5 [00:13<00:00,  2.74s/it]
      94/100        0G       0.507        1.24         0.5           1: 100% 5/5 [00:13<00:00,  2.74s/it]
      95/100        0G        0.48        1.03       0.603           1: 100% 5/5 [00:13<00:00,  2.75s/it]
      96/100        0G       0.509        1.02       0.603           1: 100% 5/5 [00:13<00:00,  2.73s/it]
      97/100        0G       0.484        1.07       0.603           1: 100% 5/5 [00:13<00:00,  2.75s/it]
      98/100        0G       0.512        1.16       0.586           1: 100% 5/5 [00:13<00:00,  2.77s/it]
      99/100        0G       0.449        1.21       0.517           1: 100% 5/5 [00:13<00:00,  2.77s/it]
     100/100        0G       0.506        1.19       0.534           1: 100% 5/5 [00:13<00:00,  2.73s/it]

Training complete (0.385 hours)
Results saved to runs/train-cls/exp4
Predict:         python classify/predict.py --weights runs/train-cls/exp4/weights/best.pt --source im.jpg
Validate:        python classify/val.py --weights runs/train-cls/exp4/weights/best.pt --data car_mot_cam-2
Export:          python export.py --weights runs/train-cls/exp4/weights/best.pt --include onnx
PyTorch Hub:     model = torch.hub.load('ultralytics/yolov5', 'custom', 'runs/train-cls/exp4/weights/best.pt')
Visualize:       https://netron.app
```

```
!python classify/val.py --weights runs/train-cls/exp/weights/best.pt --data ../datasets/$DATASET_NAME
```

Produtos pagos do Colab - Cancelar contratos

✓ 4s conclusão: 12:36