Roboflow

ROBOFLOW
https://roboflow.com/#WatchDemo
https://docs.roboflow.com/

Welcome! Let's get started.

Create your first workspace to house all of your projects and collaborate with teammates.

Name your workspace:

Trimaran Workspace

Choose your plan:

Starter Trial

For startups and businesses.

Free 14 day trial, no credit card required,
$249 / mo to continue.

- Your Datasets and Models are Private
- Commercial Deployment License
- Outsource Labeling, Accurate Train, Model Evaluation, and Community Plan Features.

50 projects, **10** base training credits **+ 5 more / mo, 10,000** monthly hosted inference API calls.*
**You can always customize and add more limits later.*

Public Plan

For hobbyists, students, and personal use.

Free,
with public data and limited features.

- Your Datasets and Models are Public
- × No Commercial Deployment License
- Model-Assisted Labeling, Image Preprocessing and Augmentations, Dataset Health Check.

3 projects, **3** base training credits, **1,000** monthly hosted inference API calls.

Invite teammates.

Add collaborators to help with labeling, upload data, train models, and more.

Invite Teammates via Email:

dev@trimaran.com

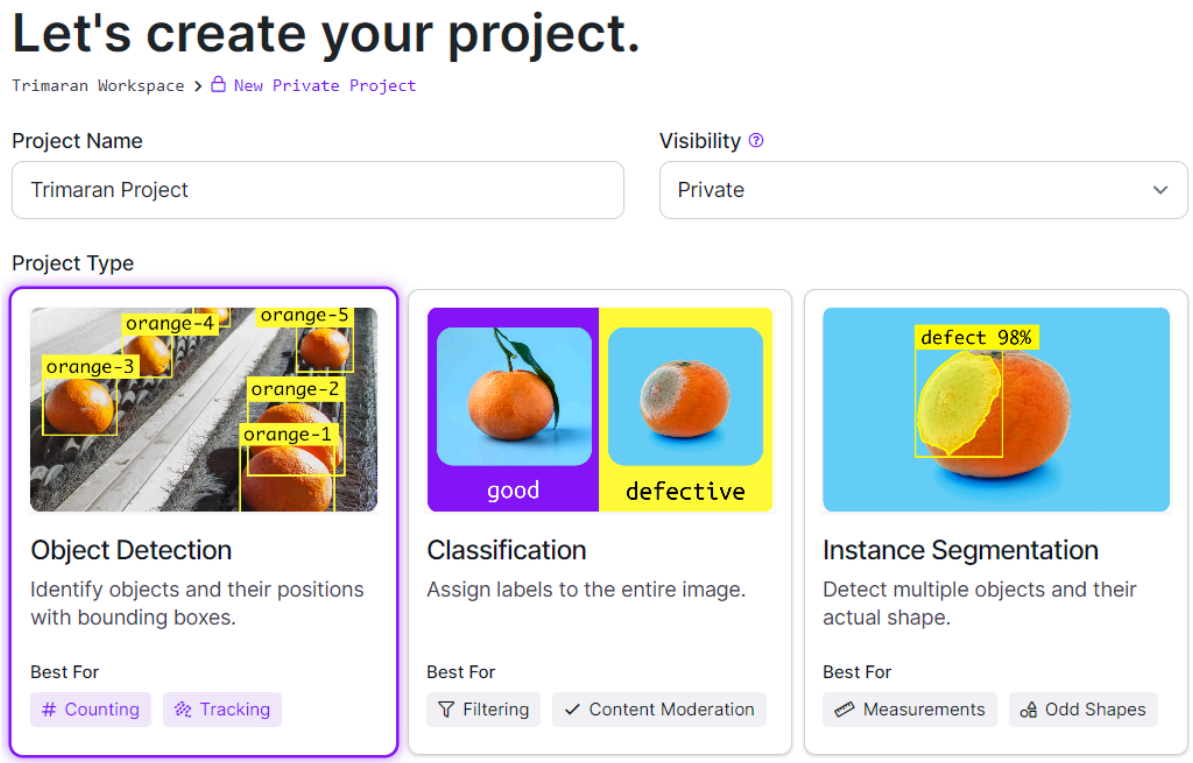
Role: Admin

You are on a Starter Plan trial!

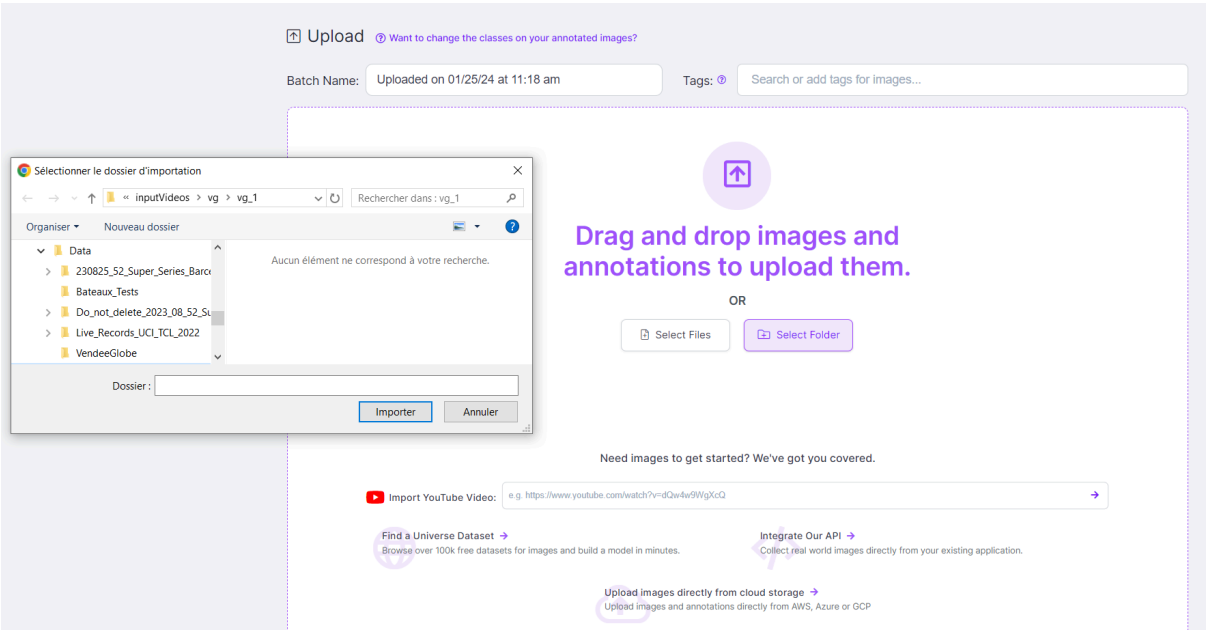
The Starter Plan comes with premium features, higher limits, and priority support.

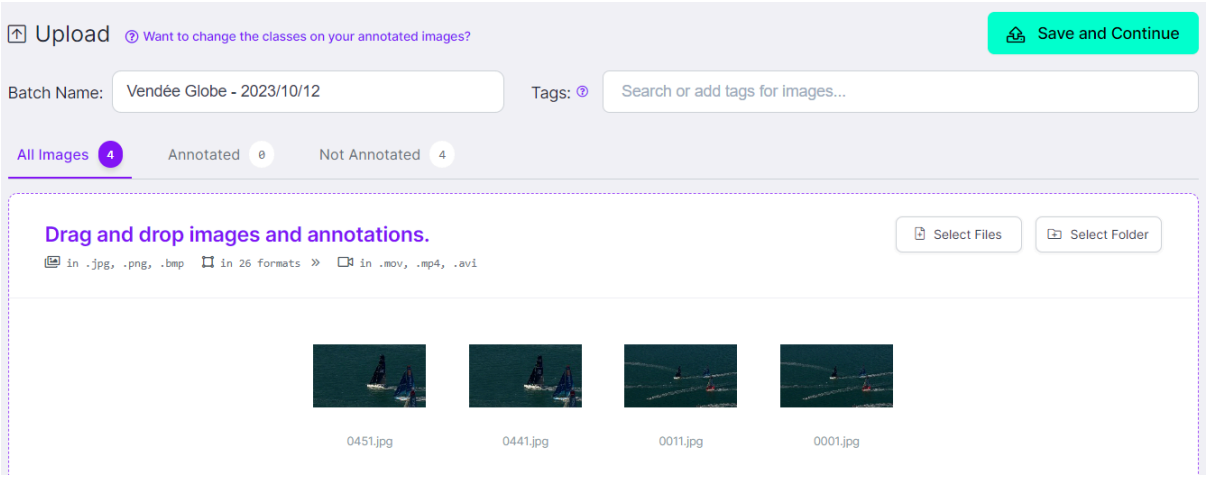
After 14 days, you will have the option of remaining on the Starter Plan for $249 per month. Email us at starter-plan@roboflow.com with any questions!

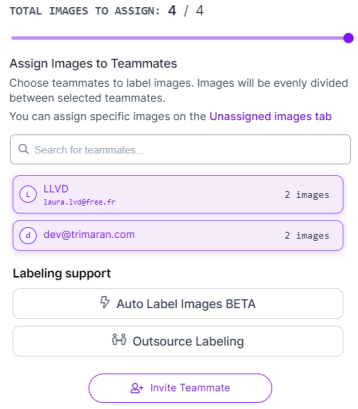
Continue!

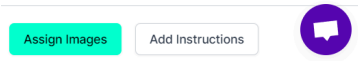


Object Detection: Find the location of objects in an image.
Single-Label Classification: Given a limited set of categories, assign a label to an image.
Multi-Label Classification: Given a limited set of categories, assign an arbitrary number of labels that are relevant to the image.
Instance Segmentation: To the pixel level, find the location of objects in an image.
Semantic Segmentation: To the pixel level, find the location of objects in an image and create unique references for each object found.
Keypoint Detection: Find the location of objects and their keypoints in an image. Commonly used for determining the pose of an object.

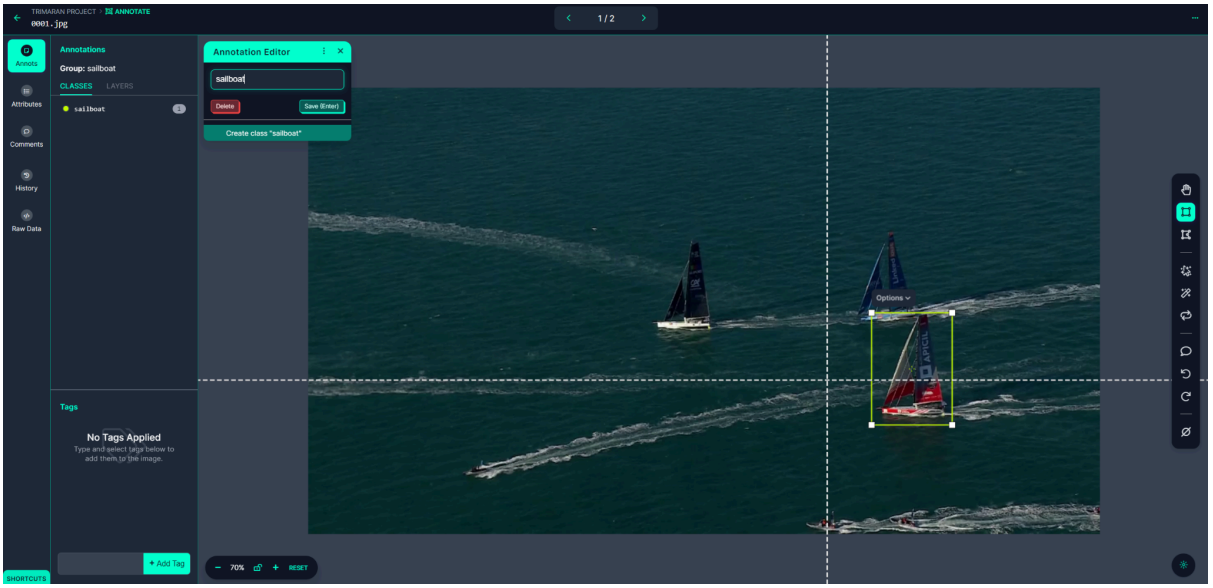

Upload
Want to change the classes on your annotated images?
Batch Name:
Uploaded on 01/25/24 at 11:18 am
Tags:
Search or add tags for images...
Sélectionner le dossier d'importation
inputVideos > vg > vg_1
Rechercher dans : vg_1
Organiser
Nouveau dossier
Data
230825_52_Super_Series_Barc
Bateaux_Tests
Do_not_delete_2023_08_52_Su
Live_Records_UCI_TCL_2022
VendeeGlobe
Aucun élément ne correspond à votre recherche.
Dossier :
Importer
Annuler
Drag and drop images and annotations to upload them.
OR
Select Files
Select Folder
Need images to get started? We've got you covered.
Import YouTube Video:
e.g. https://www.youtube.com/watch?v=dQw4w9WgXcQ
Find a Universe Dataset
Browse over 100k free datasets for images and build a model in minutes.
Integrate Our API
Collect real world images directly from your existing application.
Upload images directly from cloud storage
Upload images and annotations directly from AWS, Azure or GCP

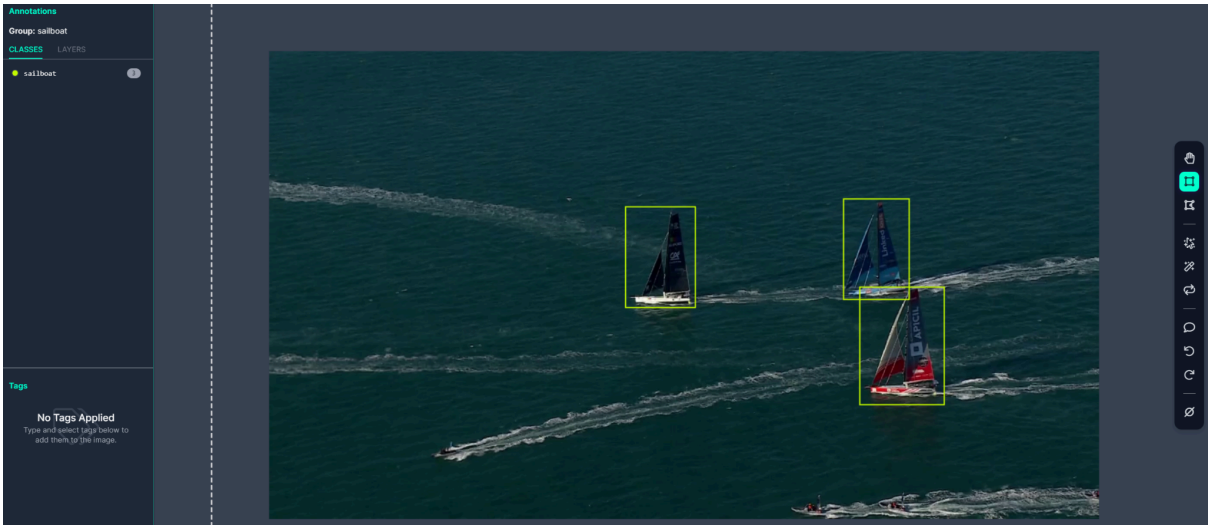

Upload
Want to change the classes on your annotated images?
Save and Continue
Batch Name:
Vendée Globe - 2023/10/12
Tags:
Search or add tags for images...
All Images 4
Annotated 0
Not Annotated 4
Drag and drop images and annotations.
in .jpg, .png, .bmp
in 26 formats
in .mov, .mp4, .avi
Select Files
Select Folder
0451.jpg
0441.jpg
0011.jpg
0001.jpg


TOTAL IMAGES TO ASSIGN: 4 / 4
Assign Images to Teammates
Choose teammates to label images. Images will be evenly divided between selected teammates.
You can assign specific images on the Unassigned images tab
Search for teammates...
LLVD
laura.lvd@free.fr
2 images
dev@trimaran.com
2 images
Labeling support
Auto Label Images BETA
Outsource Labeling
Invite Teammate

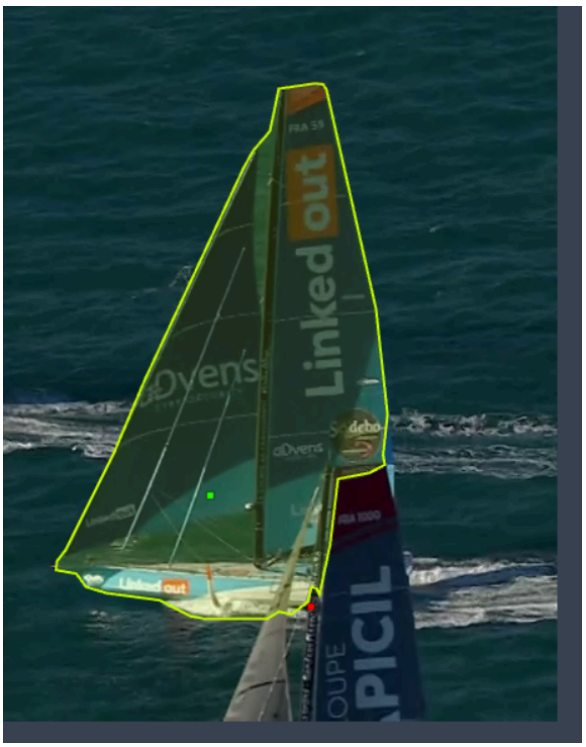

Assign Images
Add Instructions

Annotation : rectangle bounding box



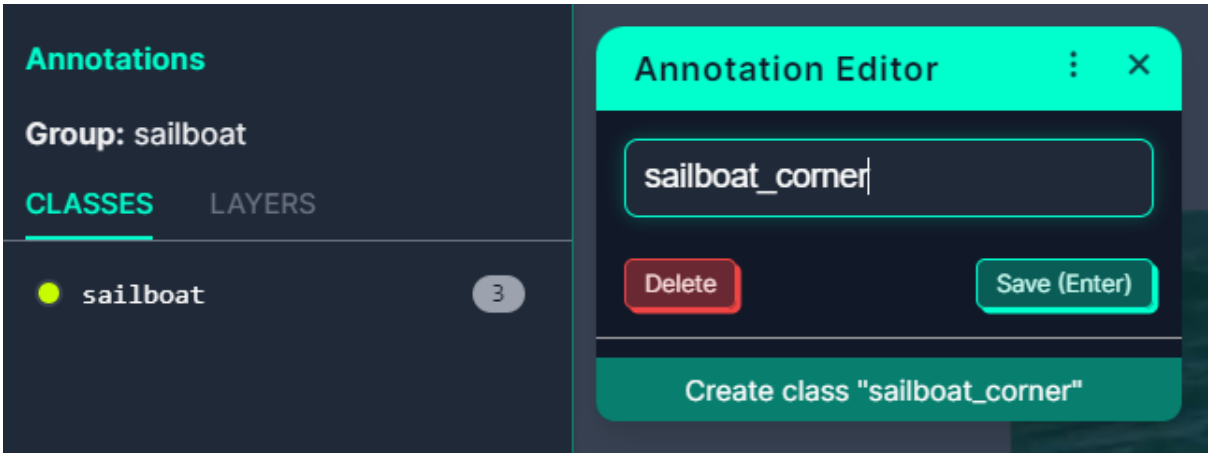


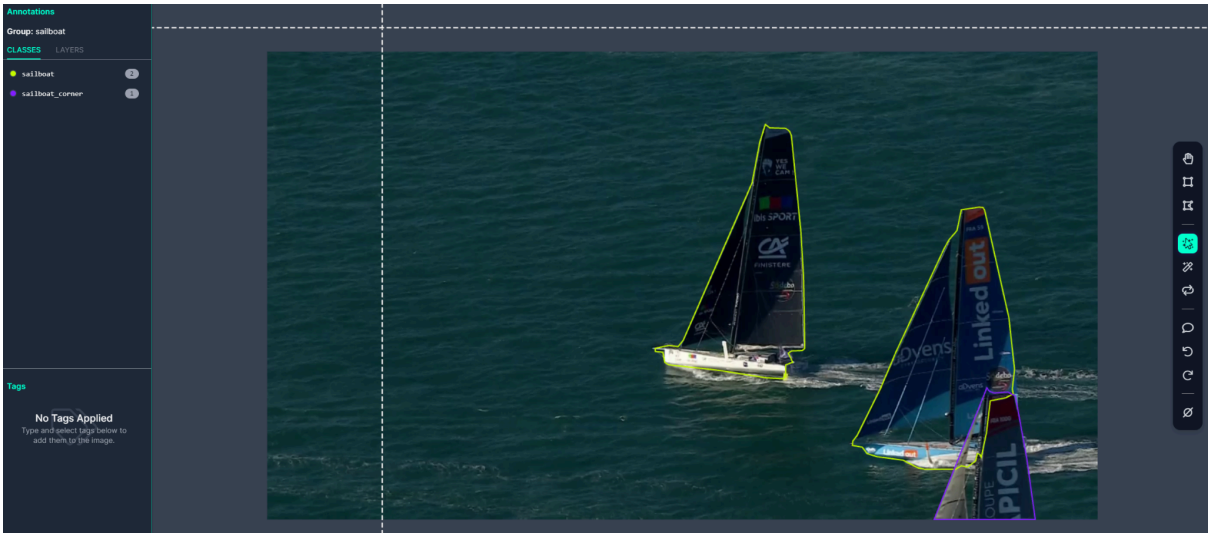
Annotation : segmentation with smart polygone
Left click outside the green zone : expand the zone to this point and to similar pixels around
Left click inside the green zone : limits the zone to get out this point and similar pixels around



Enter + click on white points in the line to move the selection borders

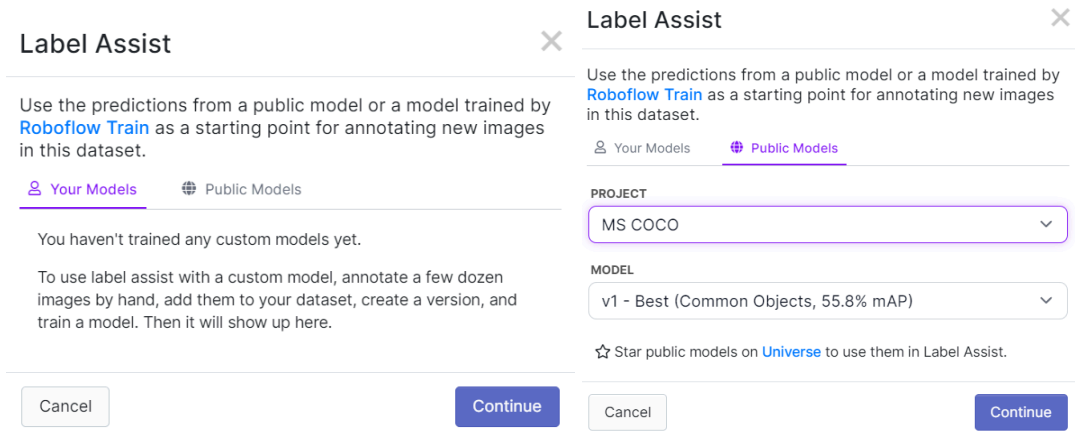
Enter x2 → capture the selection as an object of the class specified in the left top corner

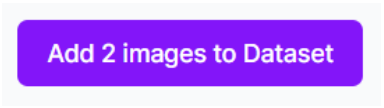


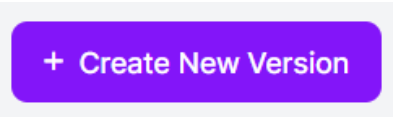


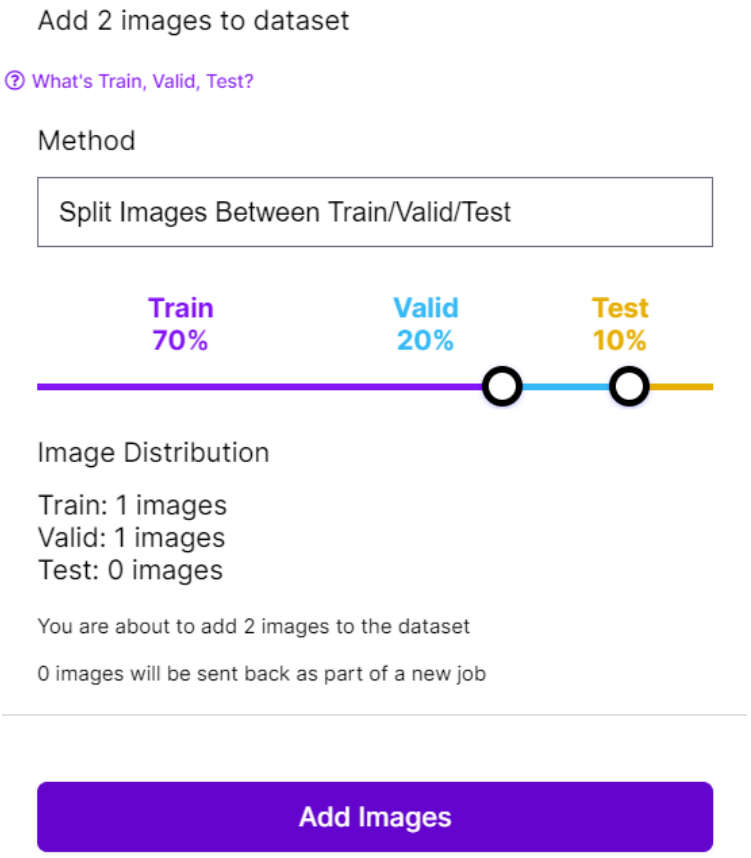
Mark Null : indicates that there is no object to detect on the image. Very useful to the learning process to have many views of what is not one of the objects to detect

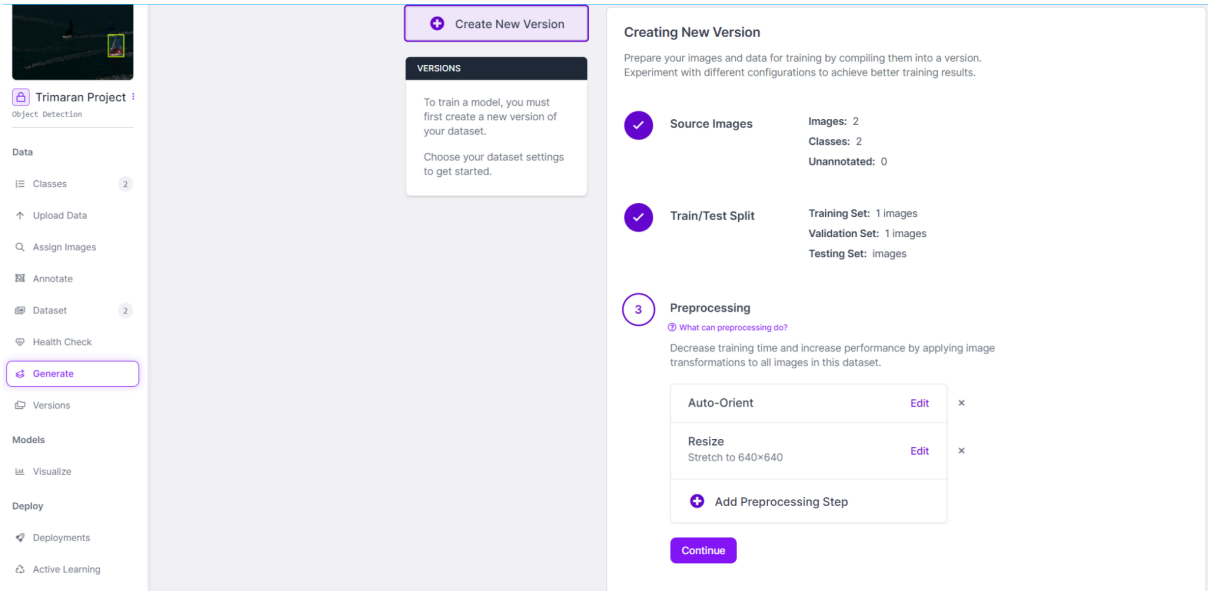
To use an existing model to help labeling process, use one public model, or train a custom model on parts of your annotated dataset. If you want to use a model trained on another project or account, the model may need to be deployed and considered as public.

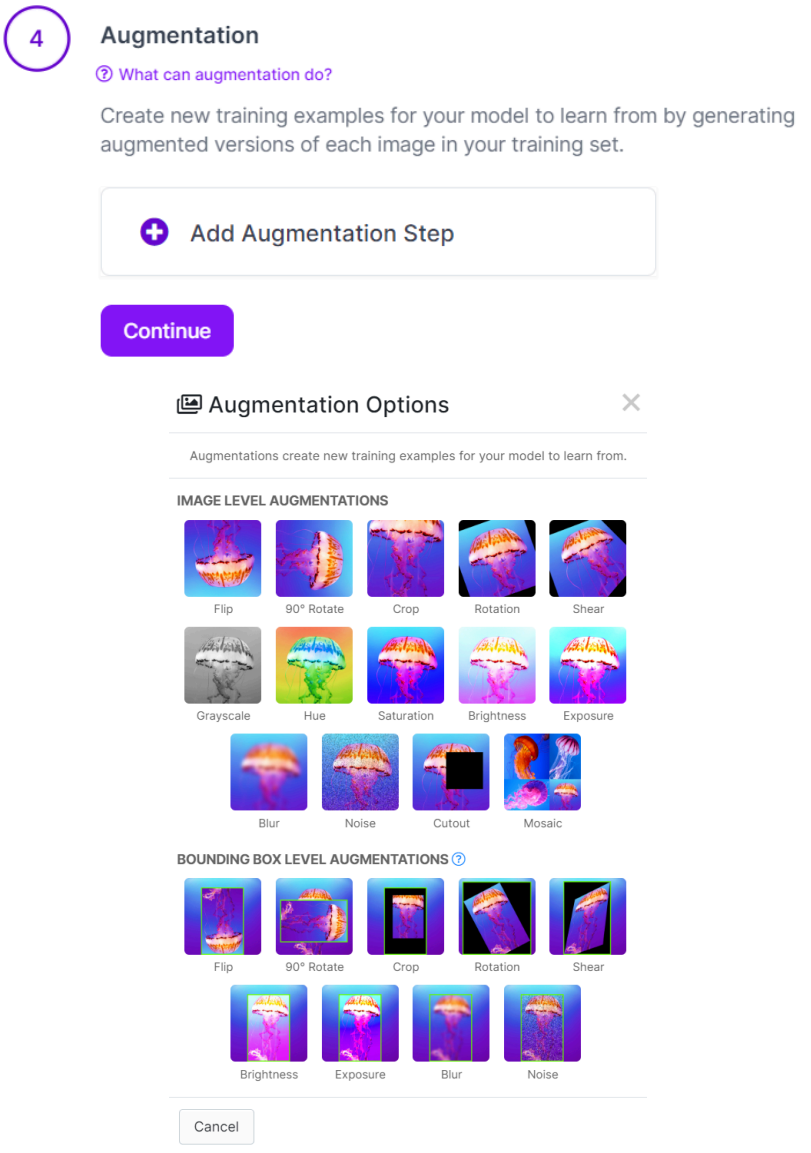


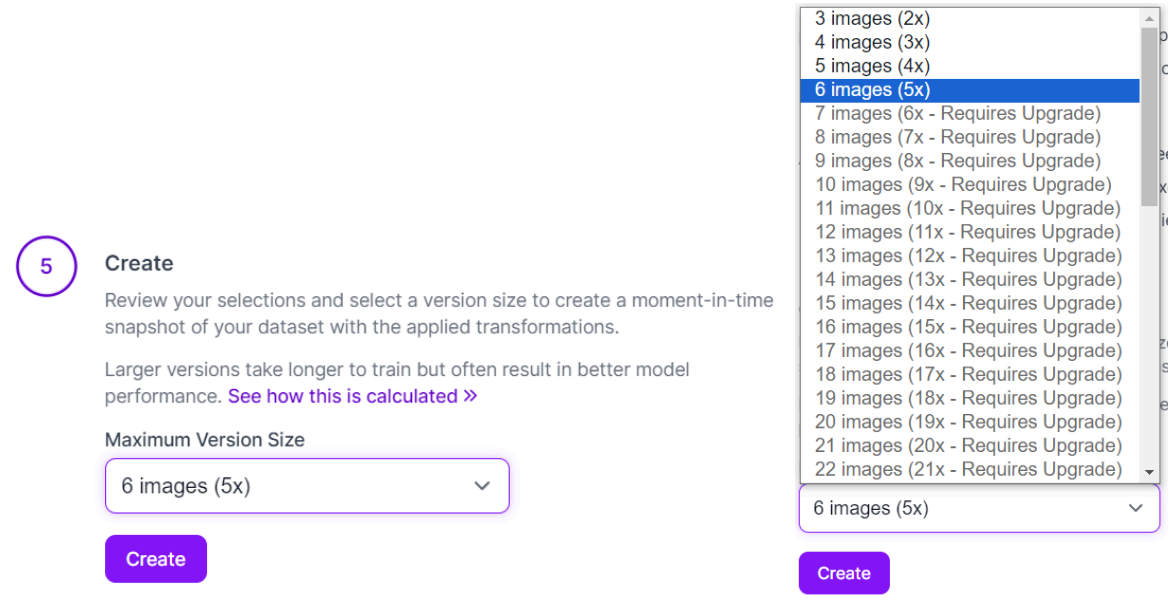


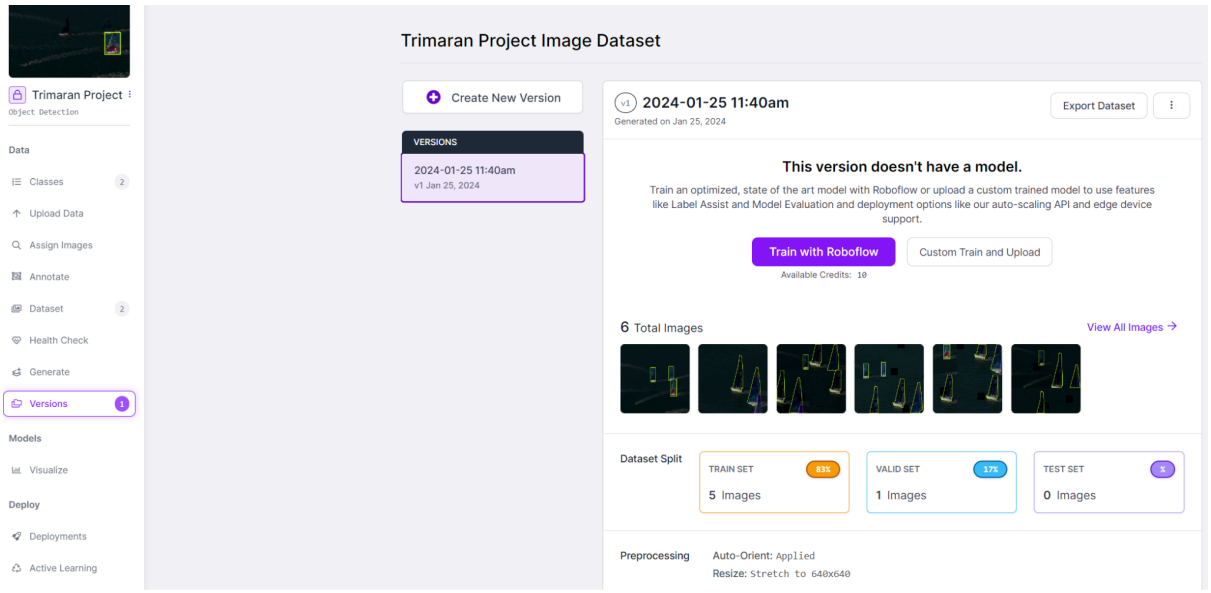


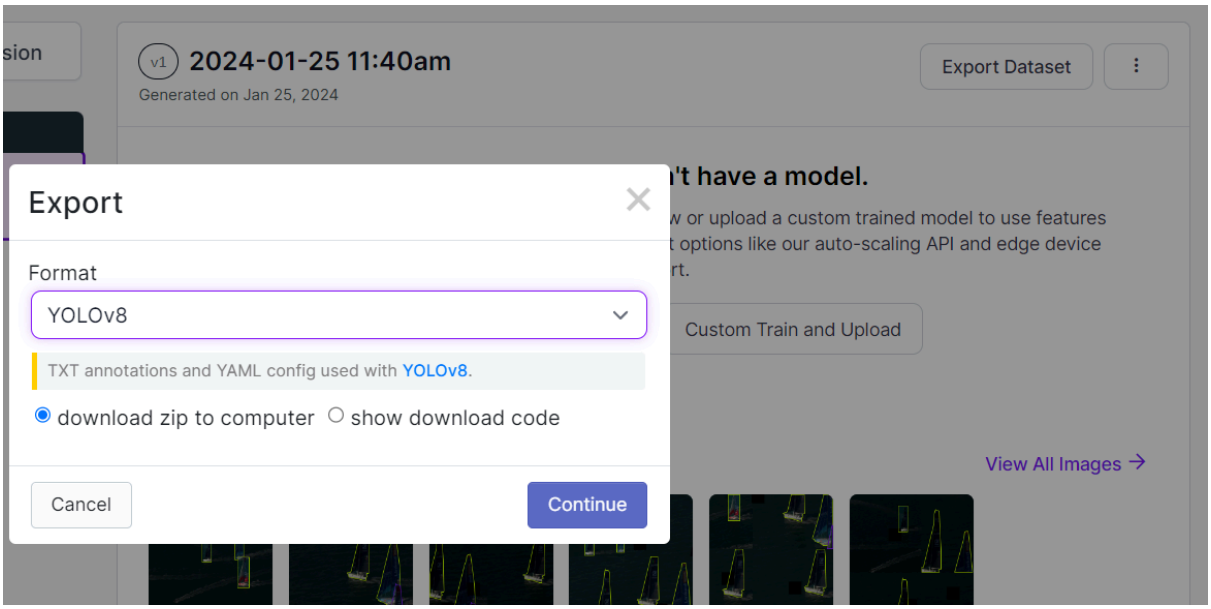


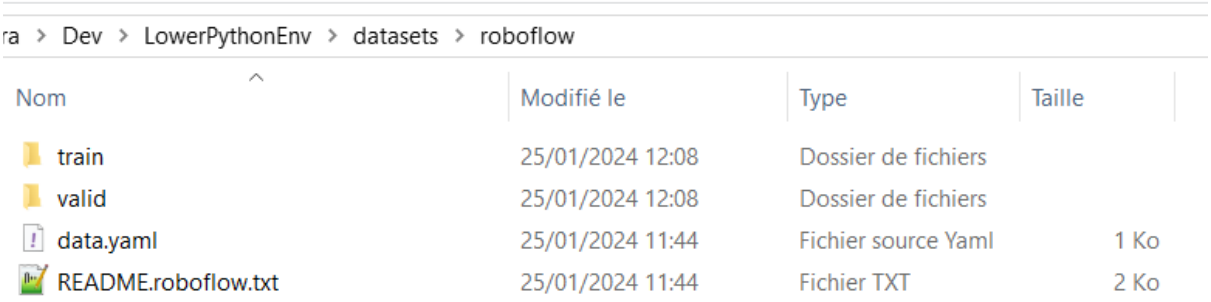

Trimaran Project
Object Detection
Data
Classes 2
Upload Data
Assign Images
Annotate
Dataset 2
Health Check
Generate
Versions
Models
Visualize
Deploy
Deployments
Active Learning
Create New Version
VERSIONS
To train a model, you must first create a new version of your dataset.
Choose your dataset settings to get started.
Creating New Version
Prepare your images and data for training by compiling them into a version. Experiment with different configurations to achieve better training results.
Source Images
Images: 2
Classes: 2
Unannotated: 0
Train/Test Split
Training Set: 1 images
Validation Set: 1 images
Testing Set: images
3
Preprocessing
What can preprocessing do?
Decrease training time and increase performance by applying image transformations to all images in this dataset.
Auto-Orient Edit
Resize Edit
Stretch to 640×640
Add Preprocessing Step
Continue


4
Augmentation
What can augmentation do?
Create new training examples for your model to learn from by generating augmented versions of each image in your training set.
Add Augmentation Step
Continue
Augmentation Options
Augmentations create new training examples for your model to learn from.
IMAGE LEVEL AUGMENTATIONS
Flip
90° Rotate
Crop
Rotation
Shear
Grayscale
Hue
Saturation
Brightness
Exposure
Blur
Noise
Cutout
Mosaic
BOUNDING BOX LEVEL AUGMENTATIONS
Flip
90° Rotate
Crop
Rotation
Shear
Brightness
Exposure
Blur
Noise
Cancel


5
Create
Review your selections and select a version size to create a moment-in-time snapshot of your dataset with the applied transformations.
Larger versions take longer to train but often result in better model performance. See how this is calculated »
Maximum Version Size
6 images (5x)
Create
3 images (2x)
4 images (3x)
5 images (4x)
6 images (5x)
7 images (6x - Requires Upgrade)
8 images (7x - Requires Upgrade)
9 images (8x - Requires Upgrade)
10 images (9x - Requires Upgrade)
11 images (10x - Requires Upgrade)
12 images (11x - Requires Upgrade)
13 images (12x - Requires Upgrade)
14 images (13x - Requires Upgrade)
15 images (14x - Requires Upgrade)
16 images (15x - Requires Upgrade)
17 images (16x - Requires Upgrade)
18 images (17x - Requires Upgrade)
19 images (18x - Requires Upgrade)
20 images (19x - Requires Upgrade)
21 images (20x - Requires Upgrade)
22 images (21x - Requires Upgrade)
6 images (5x)
Create


Trimaran Project
Object Detection
Data
Classes
Upload Data
Assign Images
Annotate
Dataset
Health Check
Generate
Versions
Models
Visualize
Deploy
Deployments
Active Learning
Trimaran Project Image Dataset
Create New Version
VERSIONS
2024-01-25 11:40am
v1 Jan 25, 2024
v1 2024-01-25 11:40am
Generated on Jan 25, 2024
Export Dataset
This version doesn't have a model.
Train an optimized, state of the art model with Roboflow or upload a custom trained model to use features like Label Assist and Model Evaluation and deployment options like our auto-scaling API and edge device support.
Train with Roboflow
Custom Train and Upload
Available Credits: 10
6 Total Images
View All Images
Dataset Split
TRAIN SET 83%
5 Images
VALID SET 17%
1 Images
TEST SET 1%
0 Images
Preprocessing
Auto-Orient: Applied
Resize: Stretch to 640x640


v1 2024-01-25 11:40am
Generated on Jan 25, 2024
Export Dataset
Export
Format
YOLOv8
TXT annotations and YAML config used with YOLOv8.
download zip to computer
show download code
Cancel
Continue
Custom Train and Upload
View All Images


ra > Dev > LowerPythonEnv > datasets > roboflow
Nom
Modifié le
Type
Taille
train
25/01/2024 12:08
Dossier de fichiers
valid
25/01/2024 12:08
Dossier de fichiers
data.yaml
25/01/2024 11:44
Fichier source Yaml
1 Ko
README.roboflow.txt
25/01/2024 11:44
Fichier TXT
2 Ko

Train a model

https://docs.ultralytics.com/fr/
https://pypi.org/project/ultralytics/

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

Microsoft Windows [version 10.0.19045.3930]
(c) Microsoft Corporation. Tous droits réservés.

(.venv) D:\LEVRAUDLaura\Dev\LowerPythonEnv>python
Python 3.11.6 (tags/v3.11.6:8b6ee5b, Oct  2 2023, 14:57:12) [MSC v.1935 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> exit()

(.venv) D:\LEVRAUDLaura\Dev\LowerPythonEnv>pip3 install ultralytics
Requirement already satisfied: ultralytics in d:\levraudlaura\dev\lowerpythonenv\.venv\lib\site-packages (8.0.199)
```

Device is determined automatically. If a GPU is available then it will be used, otherwise training will start on CPU.

Python CLI

```
# Build a new model from YAML and start training from scratch
yolo detect train data=coco128.yaml model=yolov8n.yaml epochs=100 imgsz=640

# Start training from a pretrained *.pt model
yolo detect train data=coco128.yaml model=yolov8n.pt epochs=100 imgsz=640

# Build a new model from YAML, transfer pretrained weights to it and start training
yolo detect train data=coco128.yaml model=yolov8n.yaml pretrained=yolov8n.pt epochs=100 imgsz=640
```

coco128.yaml → Dataset COCO used to train yolov8n (.yaml / .pt / .onnx). Common objects to replace with the custom dataset : data.yaml

```
(.venv) D:\LEVRAUDLaura\Dev\LowerPythonEnv\datasets\roboflow>yolo detect train
```

```
data=data.yaml model=yolov8n.yaml pretrained=yolov8n.pt epochs=100 imgsz=640
```

```
(.venv) D:\LEVRAUDLaura\Dev\LowerPythonEnv\datasets\roboflow>yolo detect train data=data.yaml model=yolov8n.yaml pretrained=yolov8n.pt epochs=100 imgsz=640

                   from  n    params  module                                       arguments
  0                  -1  1       464  ultralytics.nn.modules.conv.Conv             [3, 16, 3, 2]
  1                  -1  1      4672  ultralytics.nn.modules.conv.Conv             [16, 32, 3, 2]
  2                  -1  1      7360  ultralytics.nn.modules.block.C2f             [32, 32, 1, True]
  3                  -1  1     18560  ultralytics.nn.modules.conv.Conv             [32, 64, 3, 2]
  4                  -1  2     49664  ultralytics.nn.modules.block.C2f             [64, 64, 2, True]
  5                  -1  1     73984  ultralytics.nn.modules.conv.Conv             [64, 128, 3, 2]
  6                  -1  2    197632  ultralytics.nn.modules.block.C2f             [128, 128, 2, True]
  7                  -1  1    295424  ultralytics.nn.modules.conv.Conv             [128, 256, 3, 2]
  8                  -1  1    460288  ultralytics.nn.modules.block.C2f             [256, 256, 1, True]
  9                  -1  1    164608  ultralytics.nn.modules.block.SPPF            [256, 256, 5]
 10                  -1  1         0  torch.nn.modules.upsampling.Upsample         [None, 2, 'nearest']
 11            [-1, 6]  1         0  ultralytics.nn.modules.conv.Concat           [1]
 12                  -1  1    148224  ultralytics.nn.modules.block.C2f             [384, 128, 1]
 13                  -1  1         0  torch.nn.modules.upsampling.Upsample         [None, 2, 'nearest']
 14            [-1, 4]  1         0  ultralytics.nn.modules.conv.Concat           [1]
 15                  -1  1     37248  ultralytics.nn.modules.block.C2f             [192, 64, 1]
 16                  -1  1     36992  ultralytics.nn.modules.conv.Conv             [64, 64, 3, 2]
 17           [-1, 12]  1         0  ultralytics.nn.modules.conv.Concat           [1]
 18                  -1  1    123648  ultralytics.nn.modules.block.C2f             [192, 128, 1]
 19                  -1  1    147712  ultralytics.nn.modules.conv.Conv             [128, 128, 3, 2]
 20            [-1, 9]  1         0  ultralytics.nn.modules.conv.Concat           [1]
 21                  -1  1    493056  ultralytics.nn.modules.block.C2f             [384, 256, 1]
 22       [15, 18, 21]  1    897664  ultralytics.nn.modules.head.Detect           [80, [64, 128, 256]]
YOLOv8n summary: 225 layers, 3157200 parameters, 3157184 gradients, 8.9 GFLOPs

Downloading https://github.com/ultralytics/assets/releases/download/v0.0.0/yolov8n.pt to 'yolov8n.pt'...
```

```
      Epoch    GPU_mem   box_loss   cls_loss   dfl_loss  Instances       Size
     87/100         0G     0.9851      1.121      1.154         32        640: 100%|██████████| 1/1 [00:00<00:00,  2.21it/s]
                 Class     Images  Instances      Box(P          R      mAP50  mAP50-95): 100%|██████████| 1/1 [00:00<00:00, 15.15it/s]
                   all          1          3      0.746        0.5      0.621      0.278

      Epoch    GPU_mem   box_loss   cls_loss   dfl_loss  Instances       Size
     88/100         0G      1.042      1.091      1.107         49        640: 100%|██████████| 1/1 [00:00<00:00,  2.05it/s]
                 Class     Images  Instances      Box(P          R      mAP50  mAP50-95): 100%|██████████| 1/1 [00:00<00:00, 15.38it/s]
                   all          1          3      0.746        0.5      0.538      0.311
Stopping training early as no improvement observed in last 50 epochs. Best results observed at epoch 38, best model saved as best.pt.
To update EarlyStopping(patience=50) pass a new patience value, i.e. `patience=300` or use `patience=0` to disable EarlyStopping.

88 epochs completed in 0.017 hours.
Optimizer stripped from runs\detect\train\weights\last.pt, 6.3MB
Optimizer stripped from runs\detect\train\weights\best.pt, 6.3MB

Validating runs\detect\train\weights\best.pt...
Ultralytics YOLOv8.0.199  Python-3.11.6 torch-2.1.0+cpu CPU (AMD Ryzen 9 7950X 16-Core Processor)
YOLOv8n summary (fused): 168 layers, 3006038 parameters, 0 gradients, 8.1 GFLOPs
                 Class     Images  Instances      Box(P          R      mAP50  mAP50-95): 100%|██████████| 1/1 [00:00<00:00, 18.51it/s]
                   all          1          3       0.82        0.5      0.912      0.862
              sailboat          1          2      0.639          1      0.828      0.729
       sailboat_corner          1          1          1          0      0.995      0.995
Speed: 1.0ms preprocess, 43.0ms inference, 0.0ms loss, 5.0ms postprocess per image
Results saved to runs\detect\train
 Learn more at https://docs.ultralytics.com/modes/train
```

Resume the training if interrupted (last epoch completed < total epochs ordered) :

https://docs.ultralytics.com/fr/modes/train/

Python CLI

```
# Resume an interrupted training
yolo train resume model=path/to/last.pt
```

Retrain with new dataset :

Select the last best weights and start a new training on the new dataset.

```
yolo detect train data=..\..\inputTrain15\data.yaml model=.\runs\detect\train\weights\best.pt epochs=100
```

BE CAREFUL !

Through the epochs of a model training process, the goal of the model evolution is to perform with the lowest number of errors on the dataset the model is CURRENTLY training. Imagine you have trained model 1, whose best weights are best1.pt, on dataset 1. You want to keep training this model with new data, stored in dataset 2. You use this command :

```
yolo detect train data=data2.yaml model=best1.pt epochs=100 imgsz=640
```

Then you will create a new model, initialized with best1.pt weights, that will evolve during the newt epochs as last2.pt. The goal of this training process is to save best2.pt, the weights that perform the lowest error rate on the dataset 2.
It may produce very different results from retraining best1.pt on the whole dataset formed by dataset 1 + dataset 2.
With the command :

```
yolo detect train data=data1+2.yaml model=best1.pt epochs=100 imgsz=640
```

It may take longer to train, but the model accuracy on the whole dataset (1 + 2) will be the first concern of the process. So you should retrain your model on your whole dataset, or at least on dataset based on parts of dataset 1 + whole dataset 2, from time to time. Except if you judge that the new data is more representative of the objects you want to detect now, than the old data that may become outdated.
So be careful of the choice of your dataset for the training process : it may lead to the creation of biased models.

Test your model in python :

https://docs.ultralytics.com/fr/modes/predict/

Return a list with `stream=False` | Return a generator with `stream=True`

```python
from ultralytics import YOLO

# Load a model
model = YOLO('yolov8n.pt')  # pretrained YOLOv8n model

# Run batched inference on a list of images
results = model(['im1.jpg', 'im2.jpg'])  # return a list of Results objects

# Process results list
for result in results:
    boxes = result.boxes  # Boxes object for bbox outputs
    masks = result.masks  # Masks object for segmentation masks outputs
    keypoints = result.keypoints  # Keypoints object for pose outputs
    probs = result.probs  # Probs object for classification outputs
```

Use model.predict arguments :

```python
from ultralytics import YOLO

# Load a pretrained YOLOv8n model
model = YOLO('yolov8n.pt')

# Run inference on 'bus.jpg' with arguments
model.predict('bus.jpg', save=True, imgsz=320, conf=0.5)
```

Name	Type	Default	Description
`source`	`str`	`'ultralytics/assets'`	source directory for images or videos
`conf`	`float`	`0.25`	object confidence threshold for detection
`iou`	`float`	`0.7`	intersection over union (IoU) threshold for NMS
`imgsz`	`int or tuple`	`640`	image size as scalar or (h, w) list, i.e. (640, 480)
`half`	`bool`	`False`	use half precision (FP16)
`device`	`None or str`	`None`	device to run on, i.e. cuda device=0/1/2/3 or device=cpu
`max_det`	`int`	`300`	maximum number of detections per image
`vid_stride`	`bool`	`False`	video frame-rate stride
`stream_buffer`	`bool`	`False`	buffer all streaming frames (True) or return the most recent frame (False)
`visualize`	`bool`	`False`	visualize model features
`augment`	`bool`	`False`	apply image augmentation to prediction sources
`agnostic_nms`	`bool`	`False`	class-agnostic NMS
`classes`	`list[int]`	`None`	filter results by class, i.e. classes=0, or classes=[0,2,3]

Name	Type	Default	Description
`show`	`bool`	`False`	show predicted images and videos if environment allows
`save`	`bool`	`False`	save predicted images and videos
`save_frames`	`bool`	`False`	save predicted individual video frames
`save_txt`	`bool`	`False`	save results as `.txt` file
`save_conf`	`bool`	`False`	save results with confidence scores
`save_crop`	`bool`	`False`	save cropped images with results
`show_labels`	`bool`	`True`	show prediction labels, i.e. 'person'
`show_conf`	`bool`	`True`	show prediction confidence, i.e. '0.99'
`show_boxes`	`bool`	`True`	show prediction boxes
`line_width`	`None or int`	`None`	line width of the bounding boxes. Scaled to image size if None.

The below table contains valid Ultralytics image formats.

Image Suffixes	Example Predict Command	Reference
`.bmp`	`yolo predict source=image.bmp`	Microsoft BMP File Format
`.dng`	`yolo predict source=image.dng`	Adobe DNG
`.jpeg`	`yolo predict source=image.jpeg`	JPEG
`.jpg`	`yolo predict source=image.jpg`	JPEG
`.mpo`	`yolo predict source=image.mpo`	Multi Picture Object
`.png`	`yolo predict source=image.png`	Portable Network Graphics
`.tif`	`yolo predict source=image.tif`	Tag Image File Format
`.tiff`	`yolo predict source=image.tiff`	Tag Image File Format
`.webp`	`yolo predict source=image.webp`	WebP
`.pfm`	`yolo predict source=image.pfm`	Portable FloatMap

The below table contains valid Ultralytics video formats.

Video Suffixes	Example Predict Command	Reference
`.asf`	`yolo predict source=video.asf`	Advanced Systems Format
`.avi`	`yolo predict source=video.avi`	Audio Video Interleave
`.gif`	`yolo predict source=video.gif`	Graphics Interchange Format
`.m4v`	`yolo predict source=video.m4v`	MPEG-4 Part 14
`.mkv`	`yolo predict source=video.mkv`	Matroska
`.mov`	`yolo predict source=video.mov`	QuickTime File Format
`.mp4`	`yolo predict source=video.mp4`	MPEG-4 Part 14 - Wikipedia
`.mpeg`	`yolo predict source=video.mpeg`	MPEG-1 Part 2
`.mpg`	`yolo predict source=video.mpg`	MPEG-1 Part 2
`.ts`	`yolo predict source=video.ts`	MPEG Transport Stream
`.wmv`	`yolo predict source=video.wmv`	Windows Media Video
`.webm`	`yolo predict source=video.webm`	WebM Project

Test your model on a video with yolov8_detect.py :

yolov8_detect.py M | configs.cfg | README.md

RealTimeMOT > YoloV8 > yolov8_detect.py > ...

```python
import os
import cv2
import imutils
import datetime

from ultralytics import YOLO
import random

class GetInfos :···

class YoloModel :···

class Detect :···


VIDEO_PATH = "D:/LEVRAUDLaura/Data/H3_Depart_court.mov"
# OUTPUT_DIR = "D:/LEVRAUDLaura/Dev/LowerPythonEnv/RealTimeMOT/YoloV8/train_cd_best_model"
OUTPUT_DIR = "D:/LEVRAUDLaura/Dev/LowerPythonEnv/RealTimeMOT/YoloV8/train_cd_best_and_new_model/output"
# MODEL = "D:/LEVRAUDLaura/Dev/LowerPythonEnv/RealTimeMOT/YoloV8/Train15/runs/detect/train/weights/best.pt"
MODEL = "D:/LEVRAUDLaura/Dev/LowerPythonEnv/RealTimeMOT/YoloV8/train_cd_best_and_new_model/weights/best.pt"
CONF_TRESHOLD = 0.10

detect = Detect(VIDEO_PATH,OUTPUT_DIR,MODEL,CONF_TRESHOLD)
detect.run()
```

Change VIDEO_PATH, OUTPUT_DIR, MODEL and CONF_THRESHOLD parameters. Each prediction is given by the model with a confidence score. CONF_THRESHOLD allows only the detections with higher confidence to appear in the video output.