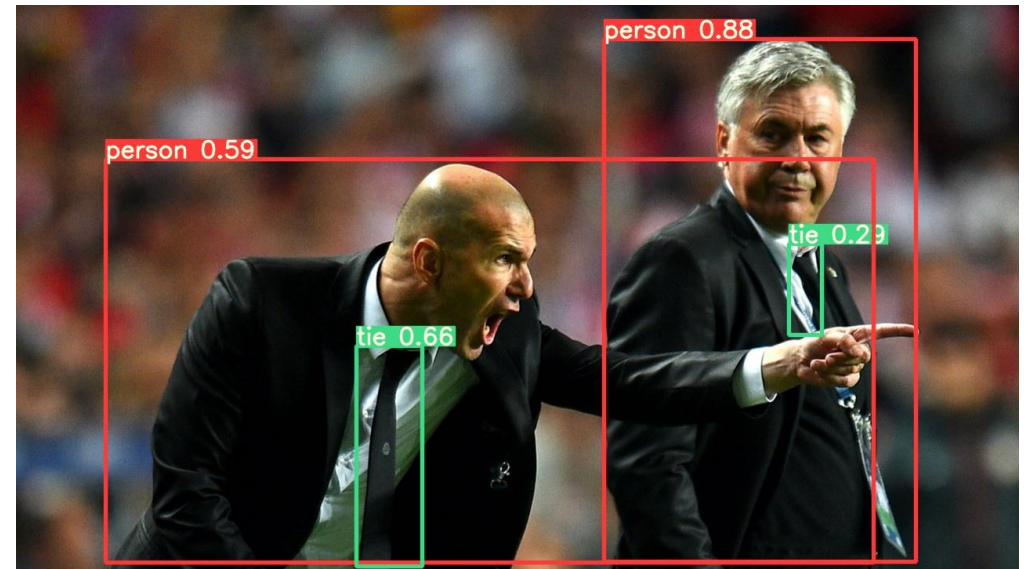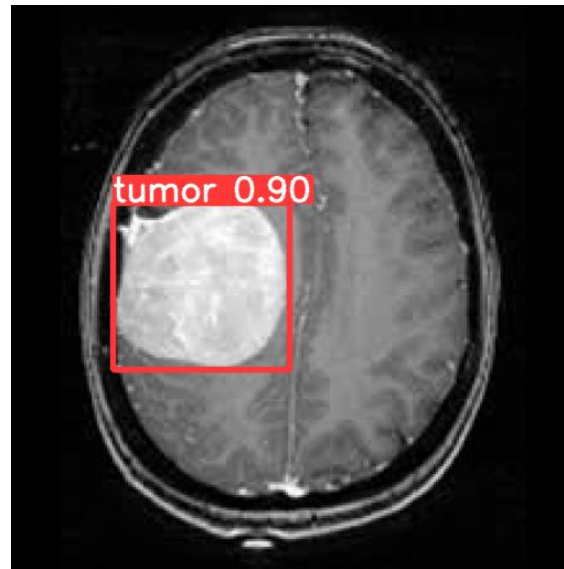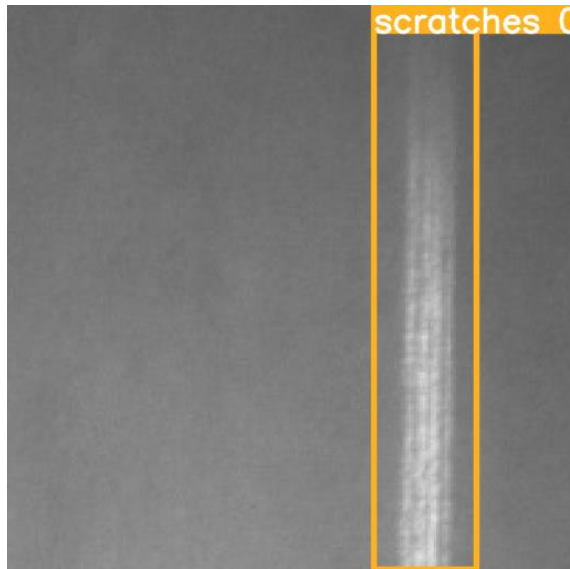# YOLOv8

Ultralytics YOLOv8 is a cutting-edge state-of-the-art (SOTA) model developed by Ultralytics. Improve and optimize on the basis of the previous successful YOLO.

Version 20230223

Applications

YOLOv8 can be applied to factory defect detection, medical image analysis, biological image analysis, industrial security image analysis, mask image analysis, etc.

How to use

The main process is:

Select dataset -> preprocessing (prepare images, labels, set training parameters) -> training -> inference images

Select dataset

Select the dataset for training or inference.

- The "Folder" icon button next to the pull-down menu can open the data folder location, which is convenient for users to confirm and modify.

- If you want to create a new dataset by yourself, please press the "New" button, enter the dataset name in the pop-up window (only English and numbers can be used as the dataset name), and press "OK" to complete the creation, that is The name you just entered can be found in the pull-down menu.

Prepare images

- After pressing the "folder" icon button, click the name of the dataset to be used, and put the images you want to train and infer in the images folder of the train, val, and test folders.

- Please add "name to be marked-XXX file name" in front of the training, validation and test image files you put in, such as "inclusion-1.png".

- It is recommended to zoom or crop the training and validation image files to a square image of approximately 512 x 512 size. The zoomed and cropped part of the image can be zoomed and cropped on the annotation page opened by "1.annotation voc xml".

1. Annotation voc xml

After running, it will open the annotation webpage for image annotation.Currently, only image formats with file extension .jpeg or .jpg or .png are supported, and images can be cropped, resized, and labeled.

Note:

Both training and validation images need to be annotated. To switch to annotated validation images, please press "Open Image Dir" at the top left to select "your dataset/val/images", then press "SELECT", then press Under "Annotation" in the upper right, select "Pascal VOC XML" and then select "your dataset/val/annotations" and then press "SELECT".

See Annotation.pdf for how to use annotation pages.
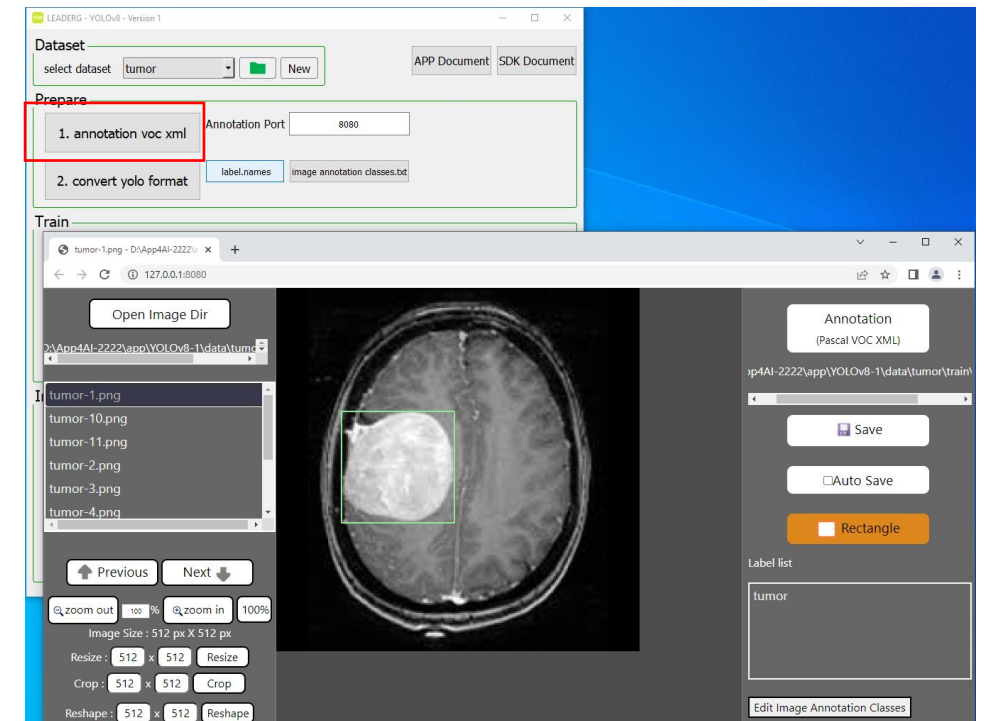
2.convert yolo format

After confirming that the category names in the label.names file are correct, you can press the button to convert the voc xml label file to yolo format.

You can press [label.names] to edit the category names. The format uses a newline to distinguish multiple categories.

[image annotation classes.txt] is the category name used when the annotation webpage.
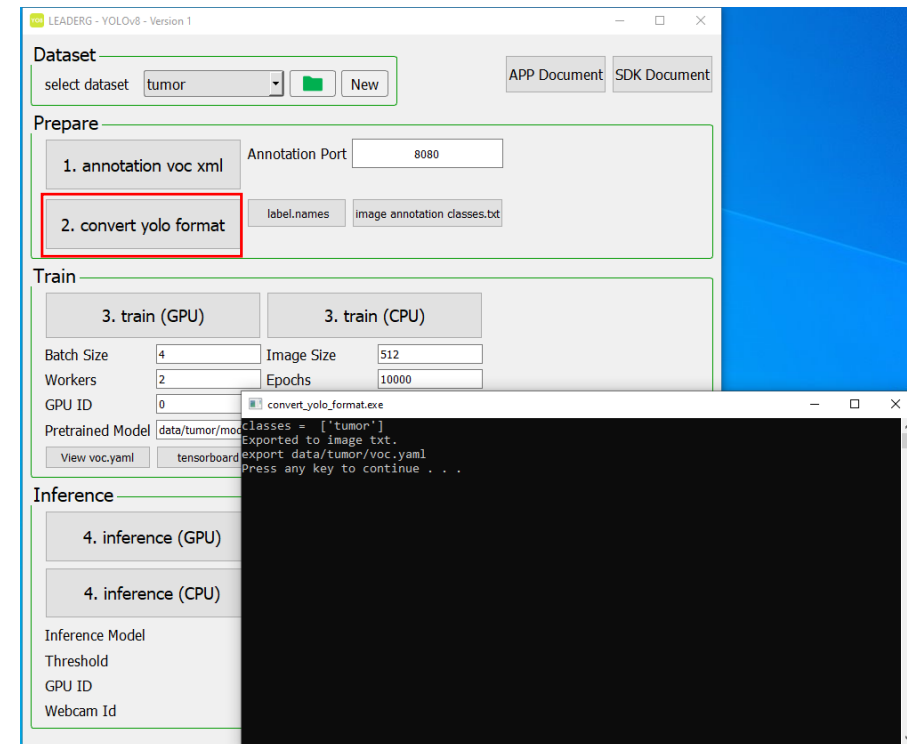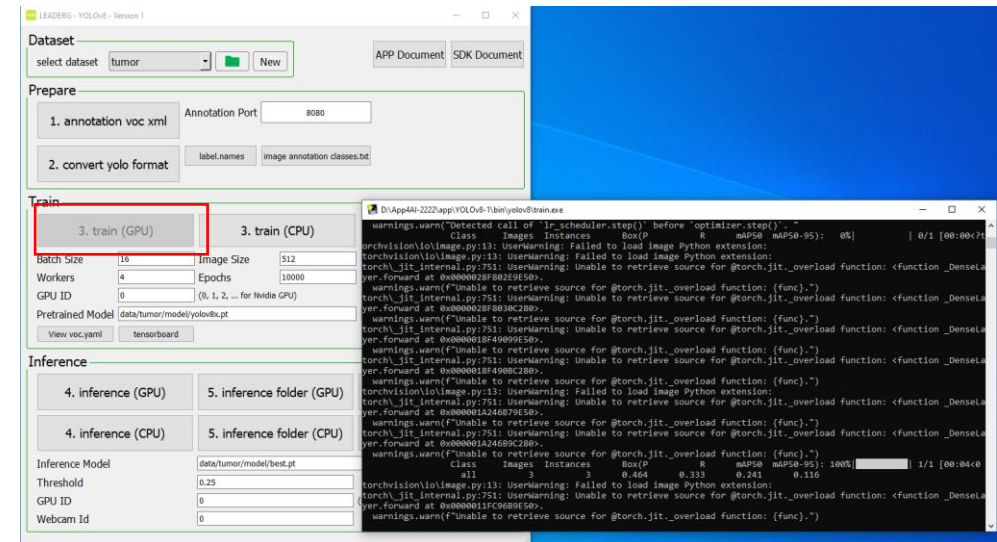
3. train (GPU)
3. train (CPU)

Start training.

Note:

Pretrained Model is the pretrained model path used.
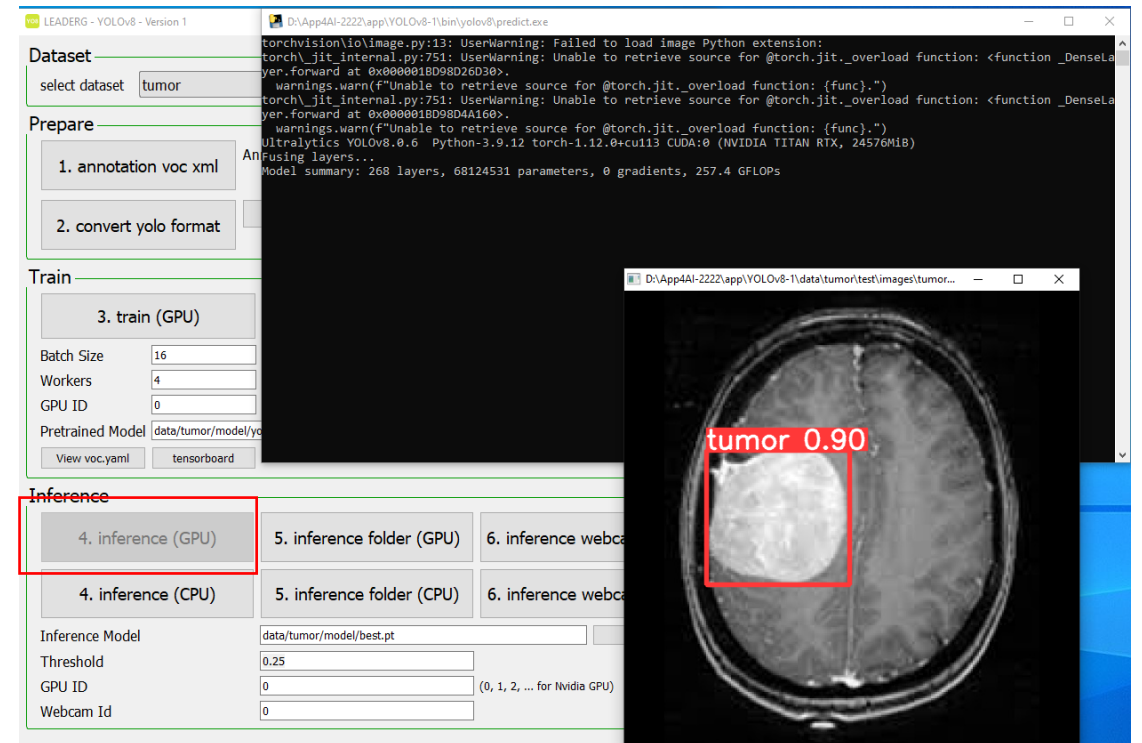
Epochs is the number of training epochs.

4. inference (GPU)
4. inference (CPU)

Infer a single image.
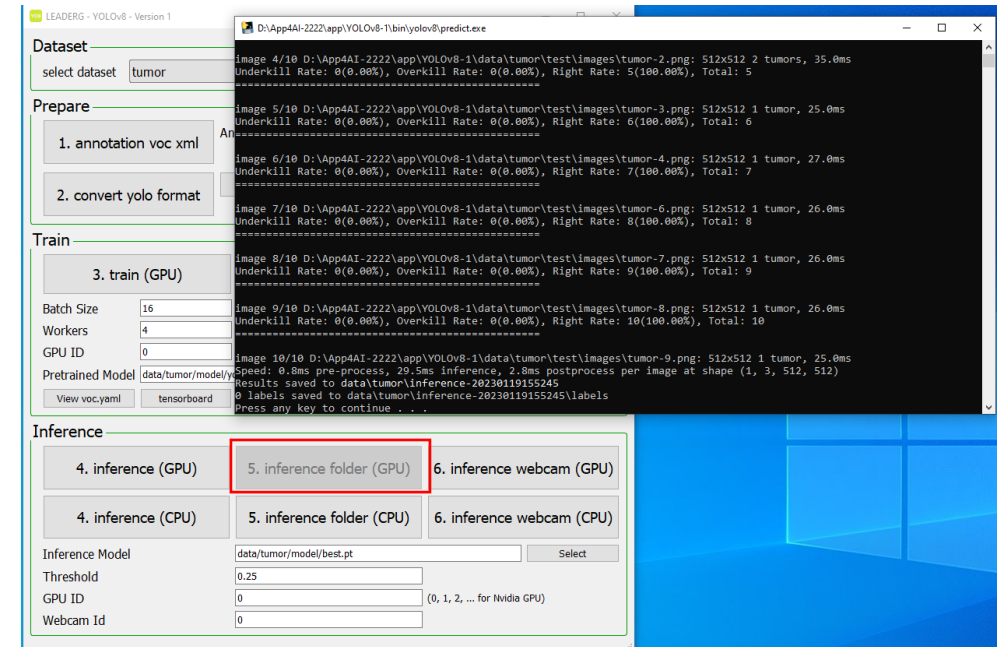
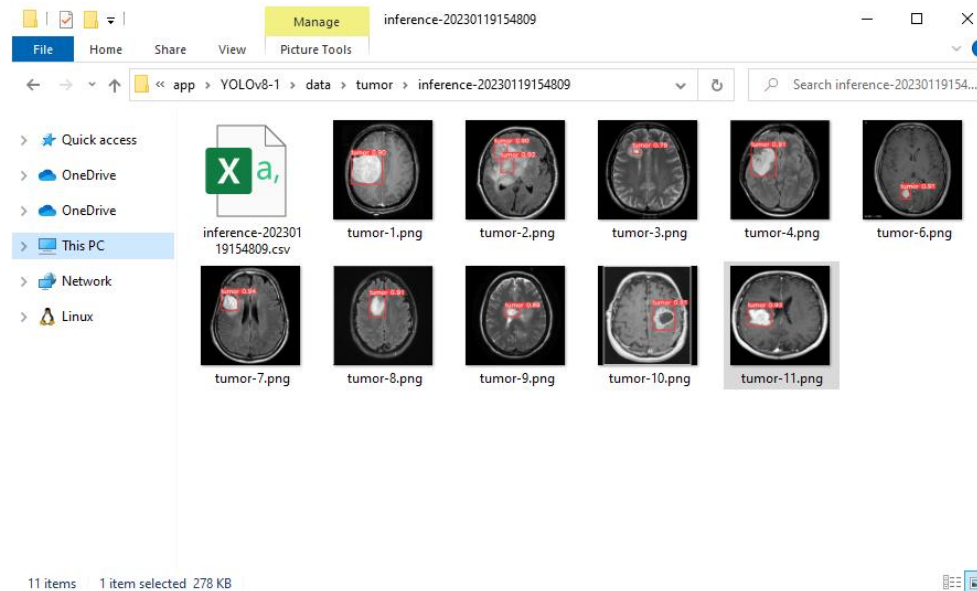Choose the Inference Model yourself.

5. inference folder (GPU)
5. inference folder (CPU)

Infer all images in the folder.

Choose the Inference Model yourself.

Coordinate information and image results are stored in the "inference-XXX" folder.
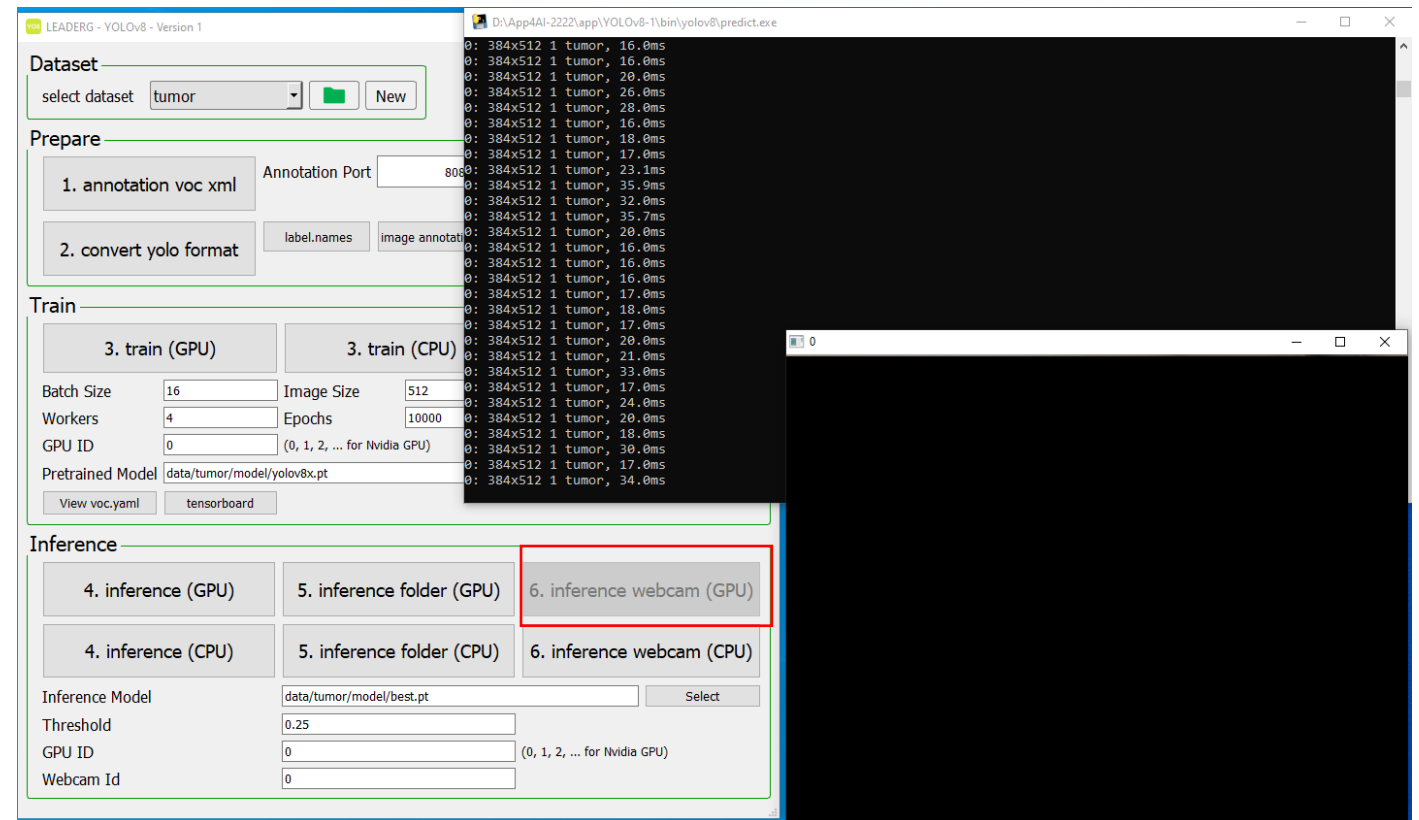
6. inference webcam (GPU)
6. inference webcam (CPU)

Infer the image of the webcam.

- When using GPU mode, it may take some time to display the webcam image initially, please be patient.

The Webcam Id parameter below can set the specified webcam.

Reference

- Please refer to the readme.txt in the APP folder.
- LEADERG AppForAI: https://www.leaderg.com/appforai-windows
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