

How to train your Model

Hopefully easier than wrangling a fire breathing reptile

Ok! So now we have gone through Notebook 8

And we have gotten our annotated species of interest exported in the YOLO format.

Now we want to make our model right? Well let us get going, shall we

Lets see if we can get a model into shape using Notebook 5!

Step 1: Configure your paths

After running the initial setup code cells, similar to the other notebooks, we can get started with the first step

We begin with configuring our paths, specify the directory where your images and labels are stored.

Continue with checking that the directory also contains the important YAML files it should, if it does, you're good to continue to the next part

The next cell of code will allow you to name your model appropriately

How it should look

Choose location of output

Change

● NOTE: Each model type requires a specific folder structure to be in place. To be able to train your own Object Detection models, your `data_path` must contain a `yml` file for data and hyperparameters. See <https://github.com/ultralytics/yolov5/wiki/Train-Custom-Data#11-create-datasetyaml>. For image classification models, there should be 3 folders (train, val, test) each containing images in `class_name` folders. For segmentation models, polygon coordinates are also required.

```
[7]: # Fix important paths
mlp.setup_paths()
```

```
INFO:root:Success! Paths to data.yaml and hyps.yaml found.
```

Choose a suitable experiment name

```
[8]: exp_name = kso_widgets.choose_experiment_name()
```

Experiment name:

Choose model to use for training

In the next cell you will specify the folder (can be any folder of choice) where you want to download the baseline model to, which you will select in the cell after. This baseline model will be used as the starting point for the training.

```
[ ]: # Specify path to download baseline model
download_folder = kso_widgets.choose_folder()
```

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Step 2: Setting up the training

Specify where you want to download your baseline model by running the provided cell of code (I myself like to keep things together, so it goes into the same directory as the yaml-file, frames and labels)

Continue to the next cell to download the baseline model you want to use. In general we use the Yolov8 Baseline model

(And don't mind the red, scary looking text, it just does that)

Step 3: Train the model

We can now start making our model

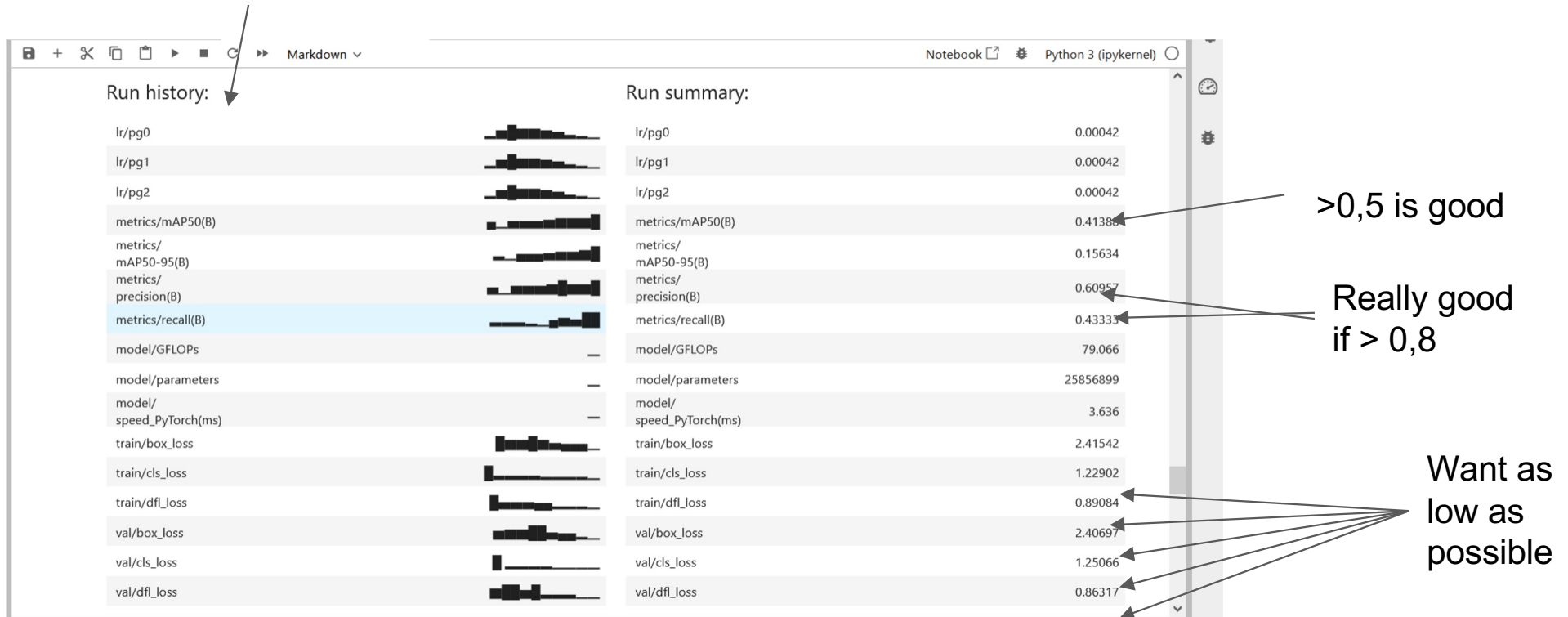
First we want to specify the Batch size and number of epochs we want to train our model. As well as the size of the frames we train on, Larger frame size = more detail accuracy, but on the other hand also slower training process, so typically we run it at 640x640 (a good size for accuracy to speed ratio)

Keep in mind that we need to press [ENTER] after each change, else the changes won't take

Continue to run the rest of the cells until you reach the "Evaluate Model Performance" part

Step 4: A quick glance at the performance

Graphs over the epoch performance



Goody good!

Now we have trained a model, to look at it performing, head to Notebook 6