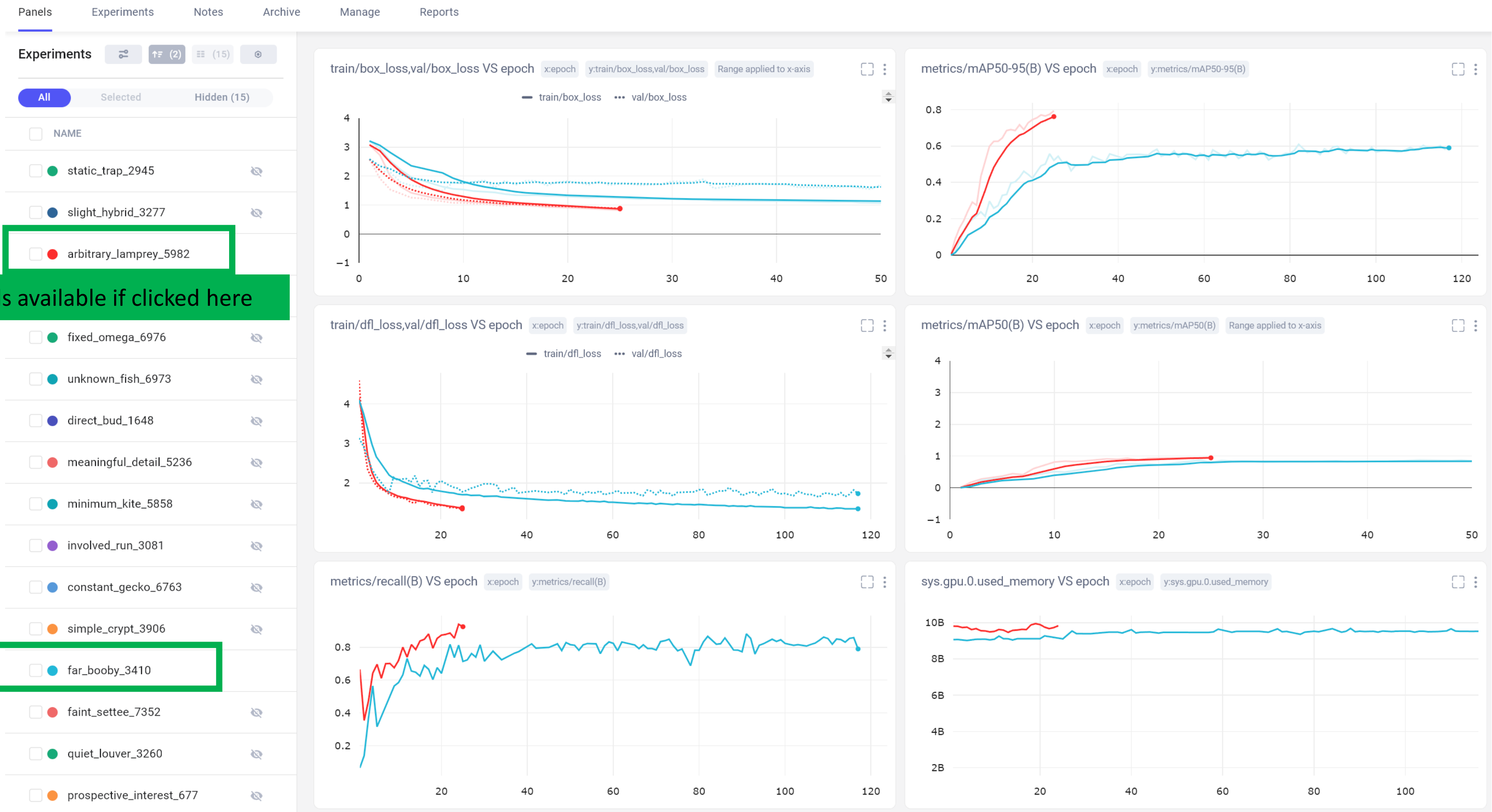
CometML Datalogging link:

https://www.comet.com/aeolus96/stop-sign-detection-using-yolov8/

(this is where all the runs are logged in detail with graphs) – <arbitrary_lamprey_5982> is the final experiment that we are using in the vehicle. Other experiments (over 80 runs) are either hidden in this view or removed because the results were not important



Panels Experiments Notes Archive Manage Reports

Experiments (2) (15)

All Selected Hidden (15)

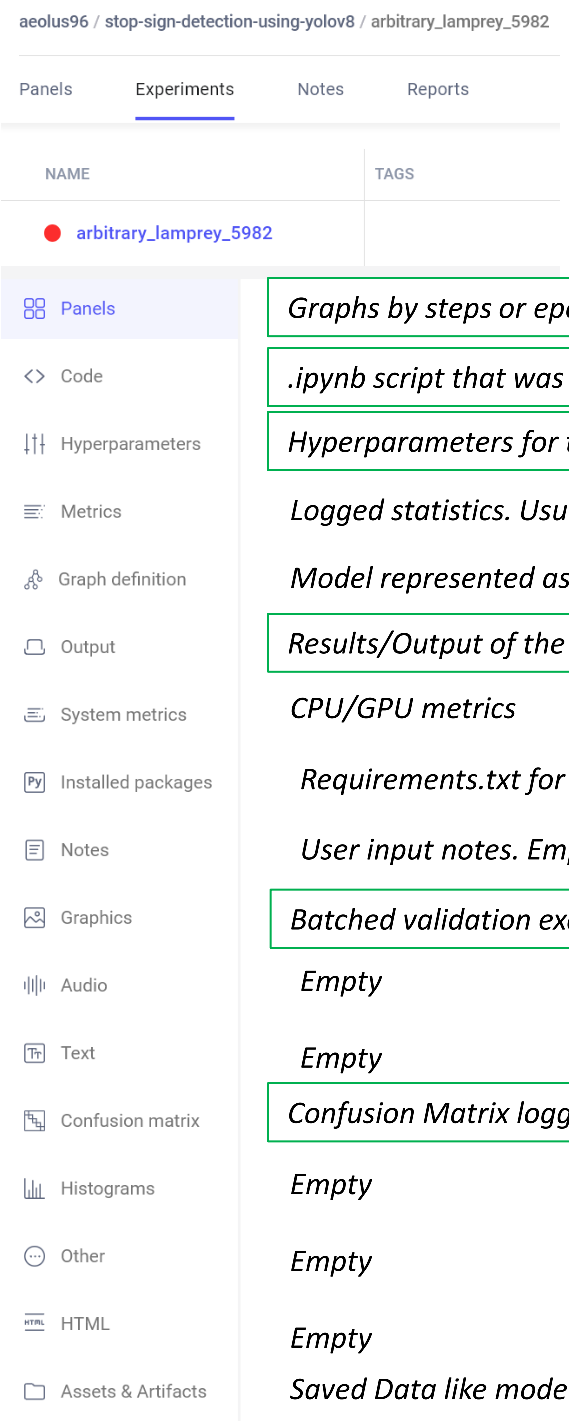
NAME

- static_trap_2945
- slight_hybrid_3277
- arbitrary_lamprey_5982
- fixed_omega_6976
- unknown_fish_6973
- direct_bud_1648
- meaningful_detail_5236
- minimum_kite_5858
- involved_run_3081
- constant_gecko_6763
- simple_crypt_3906
- far_booby_3410
- faint_settee_7352
- quiet_louver_3260
- prospective_interest_677

Yolov8m

More details available if clicked here

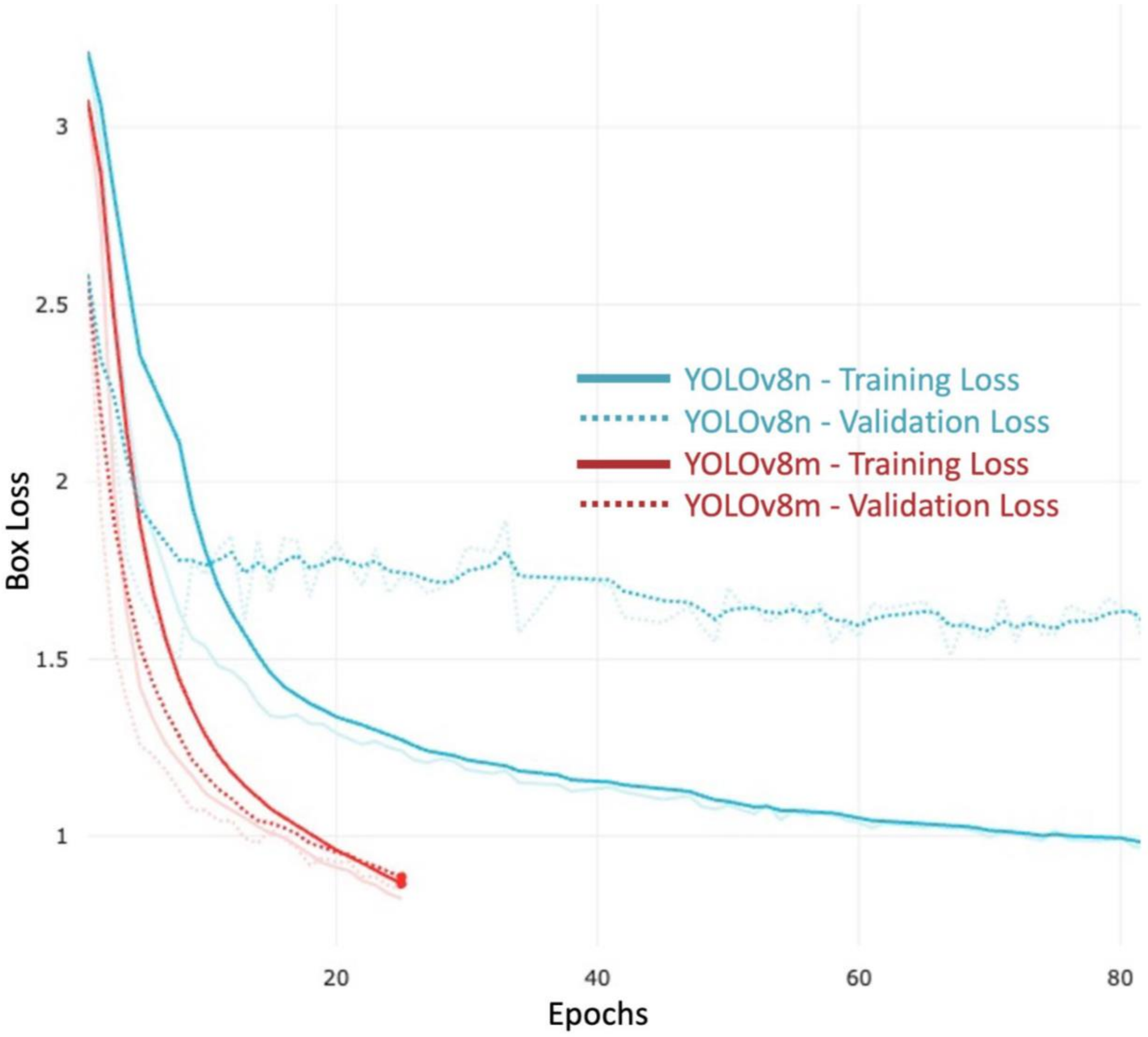
Yolov8n

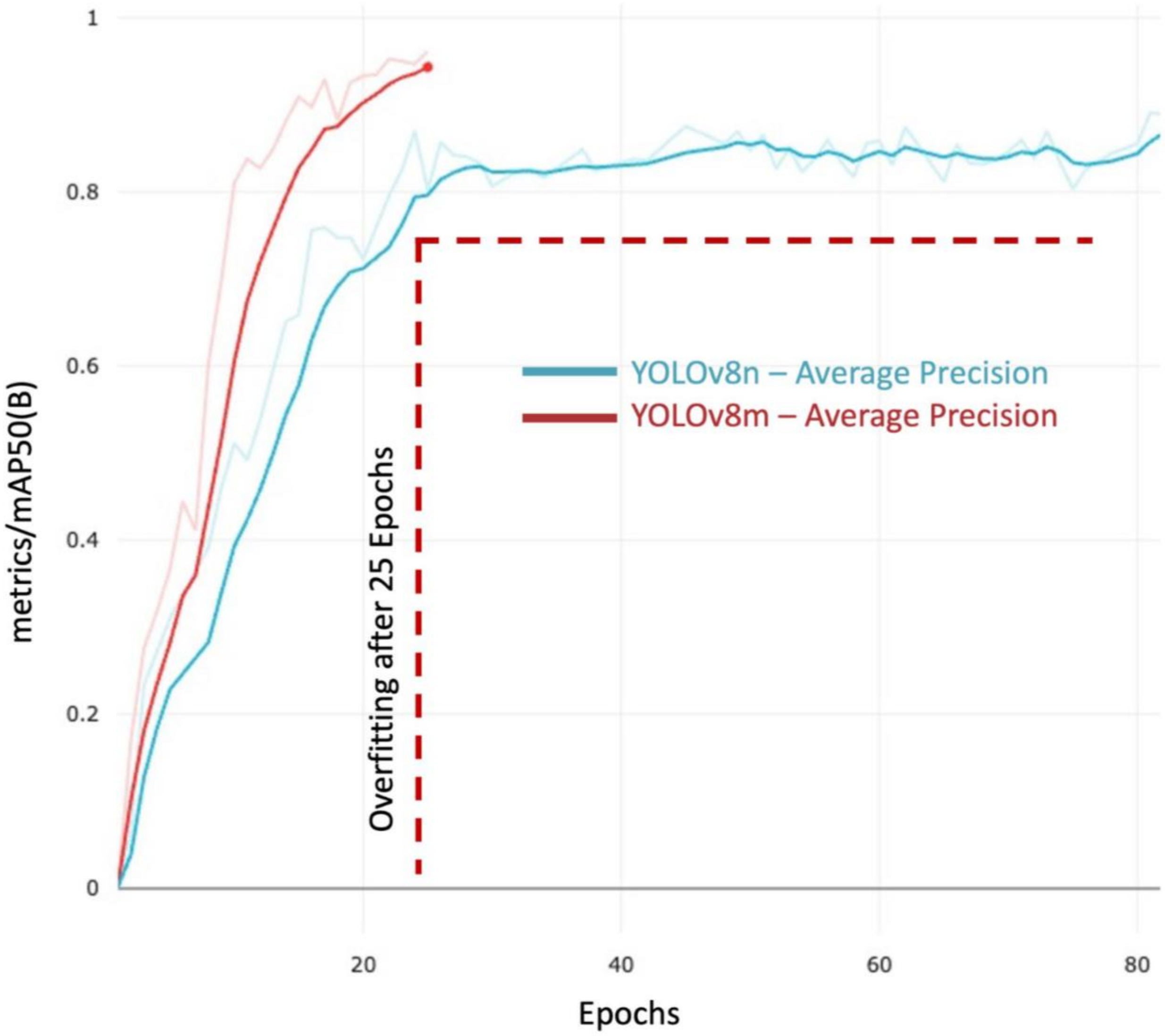


aeolus96 / stop-sign-detection-using-yolov8 / arbitrary_lamprey_5982	Account/Project Name/Experiment
Panels Experiments Notes Reports	Tabs to see all experiments compared together at once
NAME TAGS	
● arbitrary_lamprey_5982	Experiment that was turned out good and we are using in ROS
Panels	Graphs by steps or epochs. (Free version doesn't remember the settings)
Code	.ipynb script that was used to run the training. Logs up till the training ends
Hyperparameters	Hyperparameters for the model. Very useful to recreate experiment or find out which run to get the model from.
Metrics	Logged statistics. Usually min/max/avg performance (Yolo does its own best and last models so this is not used)
Graph definition	Model represented as a graph. Not sure how to use this right now
Output	Results/Output of the training code. Last Epoch onwards.
System metrics	CPU/GPU metrics
Installed packages	Requirements.txt for this model to run
Notes	User input notes. Empty
Graphics	Batched validation examples, Curves, Confusion Matrix, Label spread, etc. (generated by YOLOv8)
Audio	Empty
Text	Empty
Confusion matrix	Confusion Matrix logged by Comet in counts (Test data) at the end of training
Histograms	Empty
Other	Empty
HTML	Empty
Assets & Artifacts	Saved Data like models, images, code, output, etc. all in one packet

Loss and Accuracy Graphs compared between models

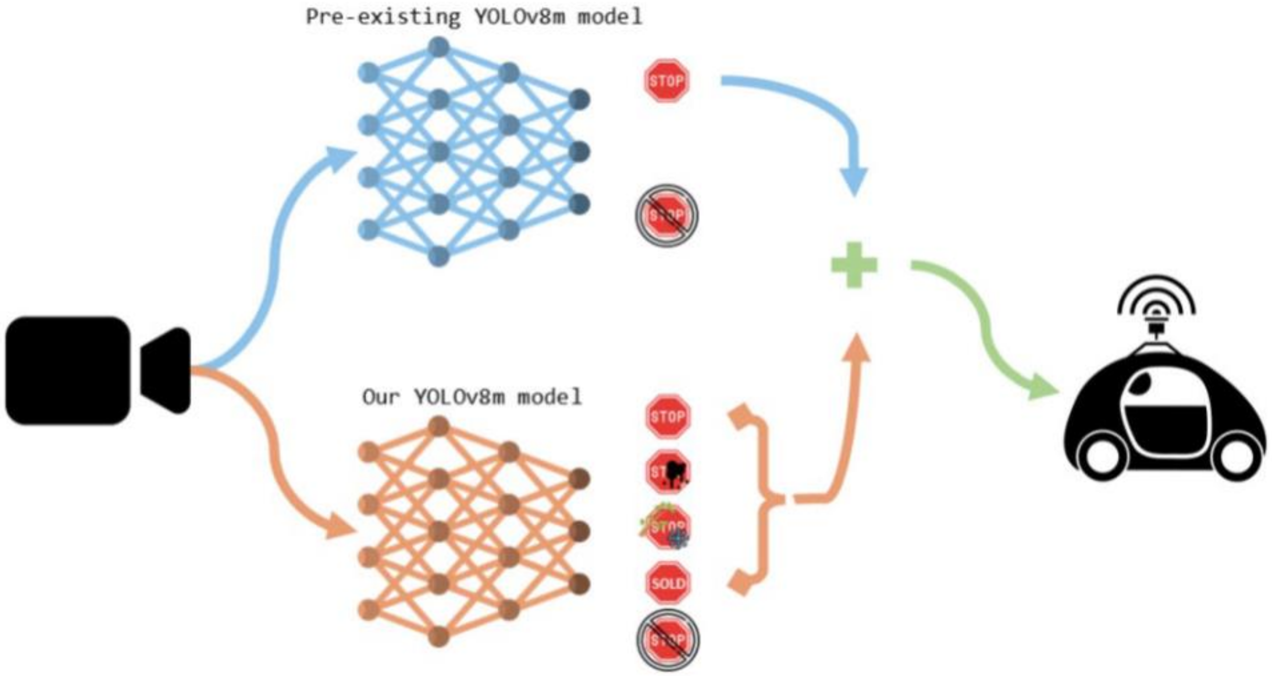
Medium: arbitrary_lamprey_5982 **Nano: far_booby_3410**





Current ROS implementation uses two YOLOv8 models side by side like this (https://github.com/Aeolus96/Route-StopSignDetector.git)

- *Our custom trained model is good at stop signs in **not the best conditions** but at the same time, the pre-trained yolo model (COCO dataset) is significantly better at **clear stop signs**. Moreover, it detects slightly farther out (+5-10ft).*
- *To keep it simple and easy to use, we use both models together for now. Yolov8 does support adding classes to pre-existing models however, they need to be trained again.*
- *Best way to tackle IGVC detections in future would be to add all the classes (tire, stop sign, pothole, etc.) into one single dataset and train. This would minimize GPU stress and allow faster predictions altogether.*


Pre-existing YOLOv8m model
STOP
STOP
Our YOLOv8m model
STOP
ST
STOP
SOLD
STOP