

# Machine Vision Final Project Check In

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## 1 Progress

### 1.1 Training

training is going well with my model reporting the following confidence level accuracy:

```
Validating /home/tarnished-dan22/Machine-Vision/runs/detect/train/weights/best.pt...
Ultralytics 8.3.34 Python-3.10.12 torch-2.5.1+cu124 CUDA:0 (NVIDIA GeForce RTX 2060, 5742MiB)
Model summary (fused): 168 layers, 3,886,623 parameters, 0 gradients, 8.1 GFLOPs

```

Class	Images	Instances	Box(P)	R	mAP50	mAP50-95)
all	119	715	0.889	0.769	0.861	0.496
helmet	117	232	0.923	0.931	0.945	0.534
no-helmet	6	11	0.822	0.455	0.666	0.281
no-vest	52	90	0.865	0.71	0.837	0.436
person	115	241	0.907	0.954	0.944	0.672
vest	74	141	0.926	0.795	0.913	0.548

```
Speed: 0.2ms preprocess, 2.2ms inference, 0.8ms loss, 0.7ms postprocess per image
Results saved to /home/tarnished-dan22/Machine-Vision/runs/detect/train

image 1/4 /home/tarnished-dan22/Machine-Vision/final_project/test_imgs/DALL-E 2024-11-21 10.45.27 - A realistic depiction of a worker wearing a bright yellow hard hat, standing at a busy construction site. The worker is dressed in a reflective safety vest. 640x640 2 helmets, 1 person, 1 vest, 6.3ms
image 2/4 /home/tarnished-dan22/Machine-Vision/final_project/test_imgs/DALL-E 2024-11-21 10.46.21 - A realistic depiction of a construction worker taking a break at a construction site. The worker is sitting on a stack of wooden planks or concrete blocks. 640x640 1 helmet, 1 no-helmet, 1 person, 1 vest, 7.5ms
image 3/4 /home/tarnished-dan22/Machine-Vision/final_project/test_imgs/istockphoto-1332558192-612x612.jpg: 416x640 3 helmets, 3 persons, 3 vests, 25.7ms
image 4/4 /home/tarnished-dan22/Machine-Vision/final_project/test_imgs/istockphoto-1377331559-1024x1024.jpg: 448x640 4 helmets, 5 persons, 4 vests, 25.8ms
Speed: 1.8ms preprocess, 16.3ms inference, 1.1ms postprocess per image at shape (1, 3, 448, 640)
(mvenv) tarnished-dan22@dans-lappy:~/Machine-Vision/final_projects [ ]
```

## 1.2 Testing

I've achieved getting the trained YOLO model to recognize hard hats and safety vests.



## 2 Next Steps

I am working on a live stream to evaluate the YOLO model once trained. This is not going particularly well, but I also plan on generating and augmenting other images to test the base model. At the very least, if I cannot get the live stream function to identify PPE, then I will have a still image model that can.