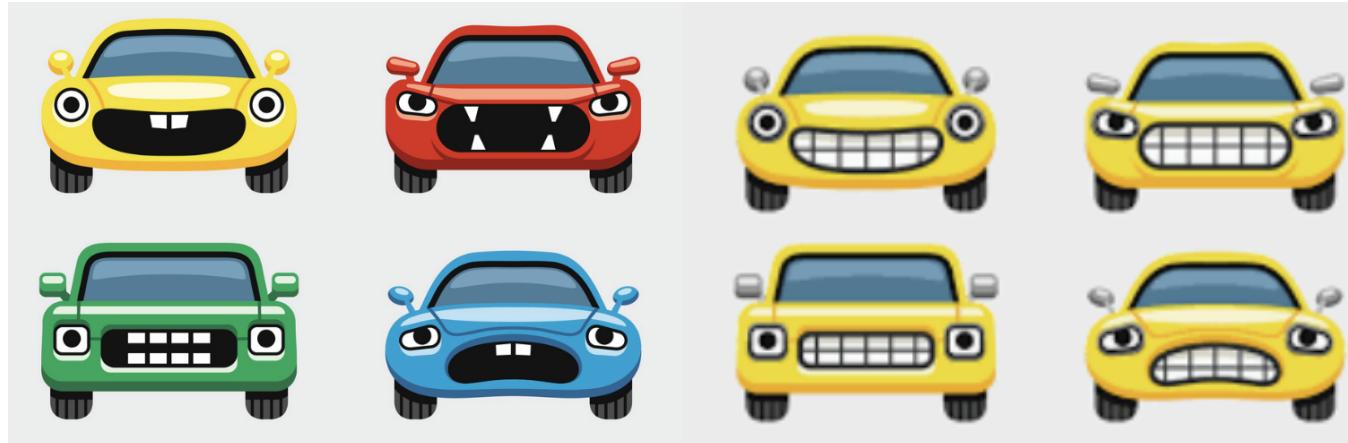


# CS5001/5003 FINAL PROJECT

TRAIN A SENTIMENT DETECTION ML MODEL USING TENSORFLOW OB API

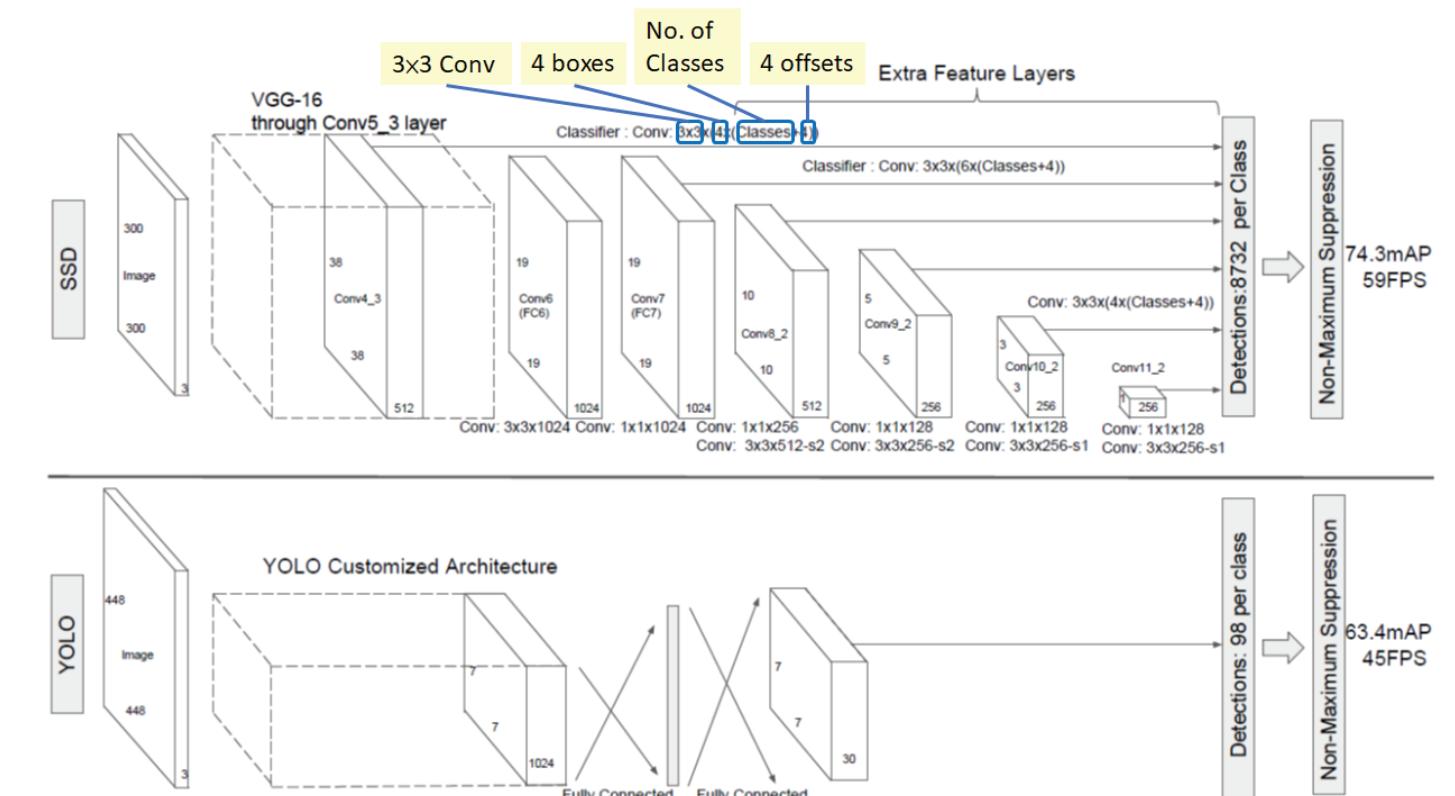


HAPPY CAR

UNHAPPY CAR

## IMPLEMENTATION PROCESS

1. INSTALLATION & SETUP
2. COLLECT DATA
3. LABELING AND ANNOTATION
4. TRAINING MODEL
5. TESTING MODEL
6. OUTPUT PERFORMANCE METRICS
7. PERFORMANCE TUNING

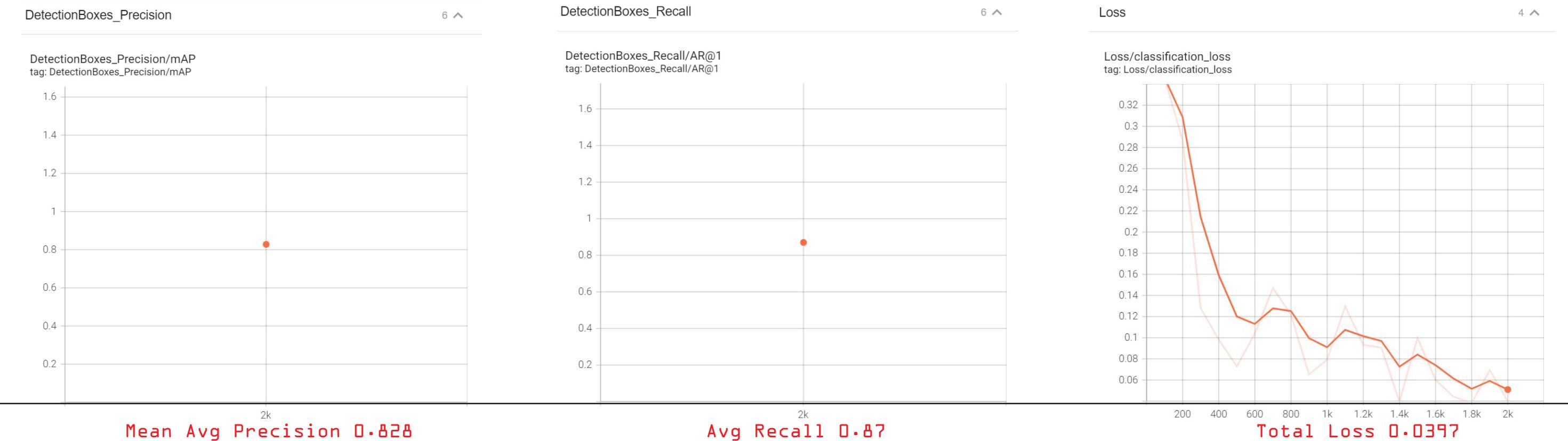


SELECTED PRE-TRAINED MODEL: SSD MOBILENET V2 FPNLite

# CS5001/5003 FINAL PROJECT

TRAIN A SENTIMENT DETECTION ML MODEL USING TENSORFLOW OB API

2



```

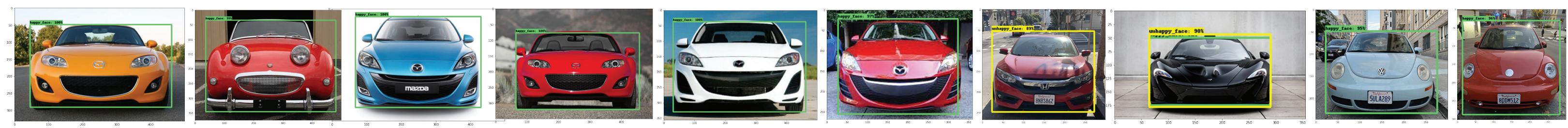
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.828
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.943
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.943
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.828
Average Recall (AR) @ [ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.870
Average Recall (AR) @ [ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.870
Average Recall (AR) @ [ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.870
Average Recall (AR) @ [ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @ [ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @ [ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.870
INFO:tensorflow:Eval metrics at step 2000
  
```

mAPrecision TP/(TP + FP)  
Recall TP/(TP + FN)

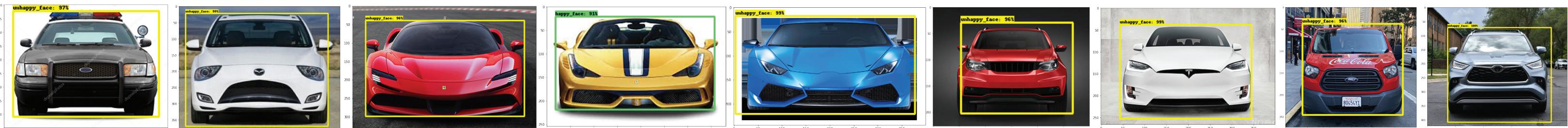
# CS5001/5003 FINAL PROJECT

TRAIN A SENTIMENT DETECTION ML MODEL USING TENSORFLOW OR API

## PREDICTIONS OF SENTIMENT CLASSIFICATIONS



CLASS 1: HAPPY



CLASS 2: UNHAPPY

# Citation of Sources

- <https://github.com/tzutalin/labelImg>
- <https://github.com/tensorflow/models>
- [https://github.com/tensorflow/models/blob/master/research/object\\_detection/g3doc/configuring\\_jobs.md](https://github.com/tensorflow/models/blob/master/research/object_detection/g3doc/configuring_jobs.md)
- [https://github.com/nicknochnack/GenerateTFRecord/blob/main/generate\\_tfrecord.py](https://github.com/nicknochnack/GenerateTFRecord/blob/main/generate_tfrecord.py)
- <https://github.com/nicknochnack/TFODCourse>
- [https://github.com/tensorflow/models/blob/master/research/object\\_detection/g3doc/tf2\\_detection\\_zoo.md](https://github.com/tensorflow/models/blob/master/research/object_detection/g3doc/tf2_detection_zoo.md)
- [https://github.com/tensorflow/models/tree/master/research/object\\_detection](https://github.com/tensorflow/models/tree/master/research/object_detection)
- <https://teachablemachine.withgoogle.com/train/image>
- [https://www.tensorflow.org/install/source\\_windows](https://www.tensorflow.org/install/source_windows)
- <https://towardsdatascience.com/review-ssd-single-shot-detector-object-detection-851a94607d11>