

# Fridge Vision – Colab Notebook Journey

From data loading to  
YOLOv8 training,  
evaluation, and inference.

# Notebook Overview

- Google Colab notebook powering the Fridge Vision project

- Uses YOLOv8 for object detection on grocery/fridge items

- Includes sections for setup, data prep, training, and testing

# Environment & Setup

1

- Mount Google Drive and link to dataset

2

- Install/import Ultralytics YOLOv8 and other libraries

3

- Configure file paths and runtime (GPU)

# Data Preparation

- Load images and label files



- Organize train/validation/test splits



- (Optional) apply data augmentation



- Visually inspect sample labeled images



# YOLOv8 Training



- START FROM A PRE-  
TRAINED YOLOV8  
CHECKPOINT



- POINT TO A CUSTOM  
DATASET YAML



- SET EPOCHS, BATCH SIZE,  
IMAGE SIZE, AND LEARNING  
RATE



- RUN TRAINING AND  
MONITOR  
TRAINING/VALIDATION LOSS

Image 5: Kiwi001005.png

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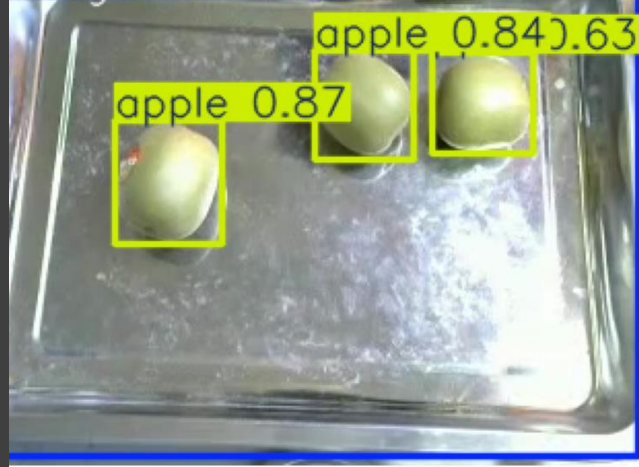


Image 2: Apple\_1.png

8/3/2017 5:50:18 PM

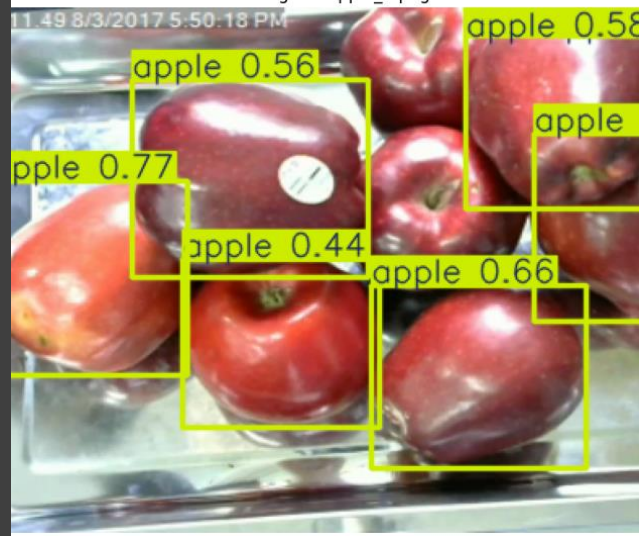


Image 3: Apple\_2.png

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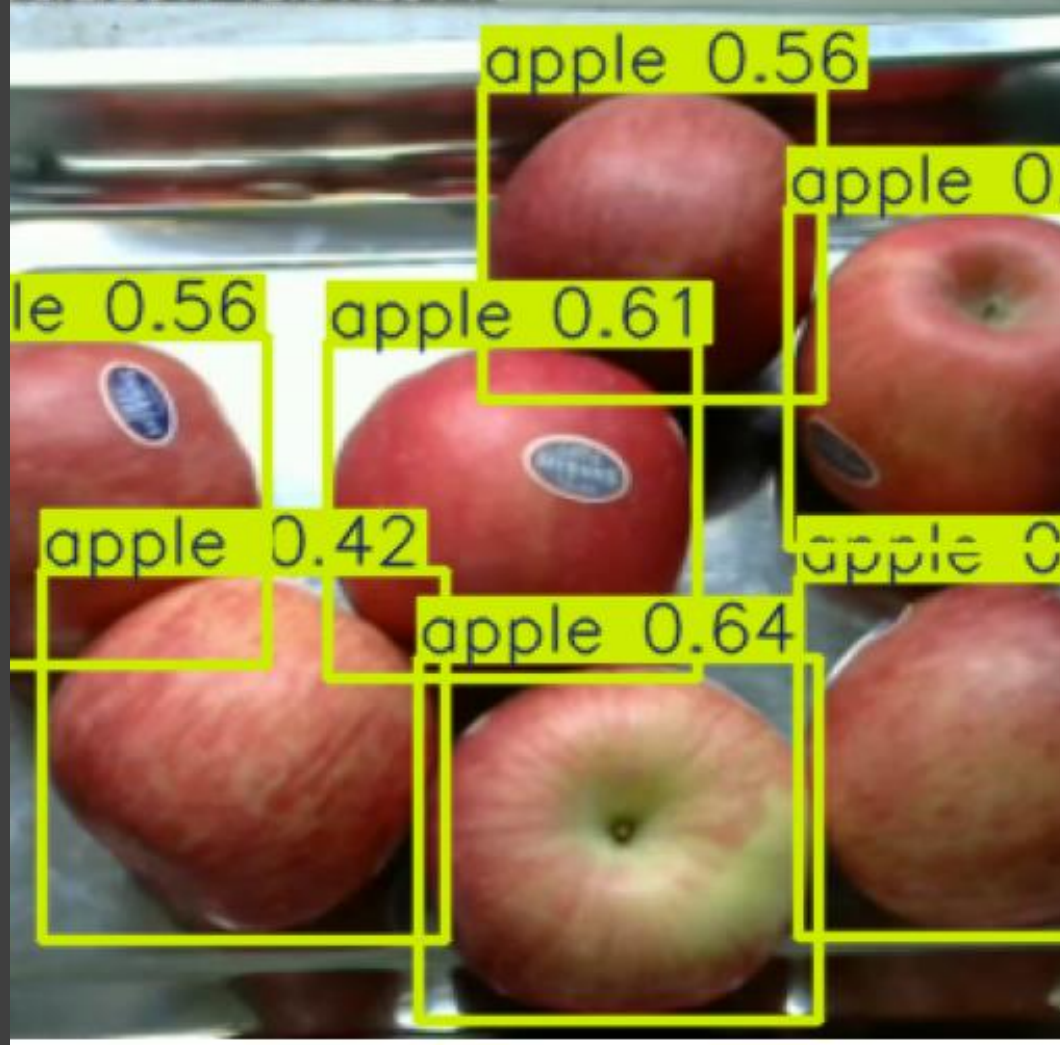
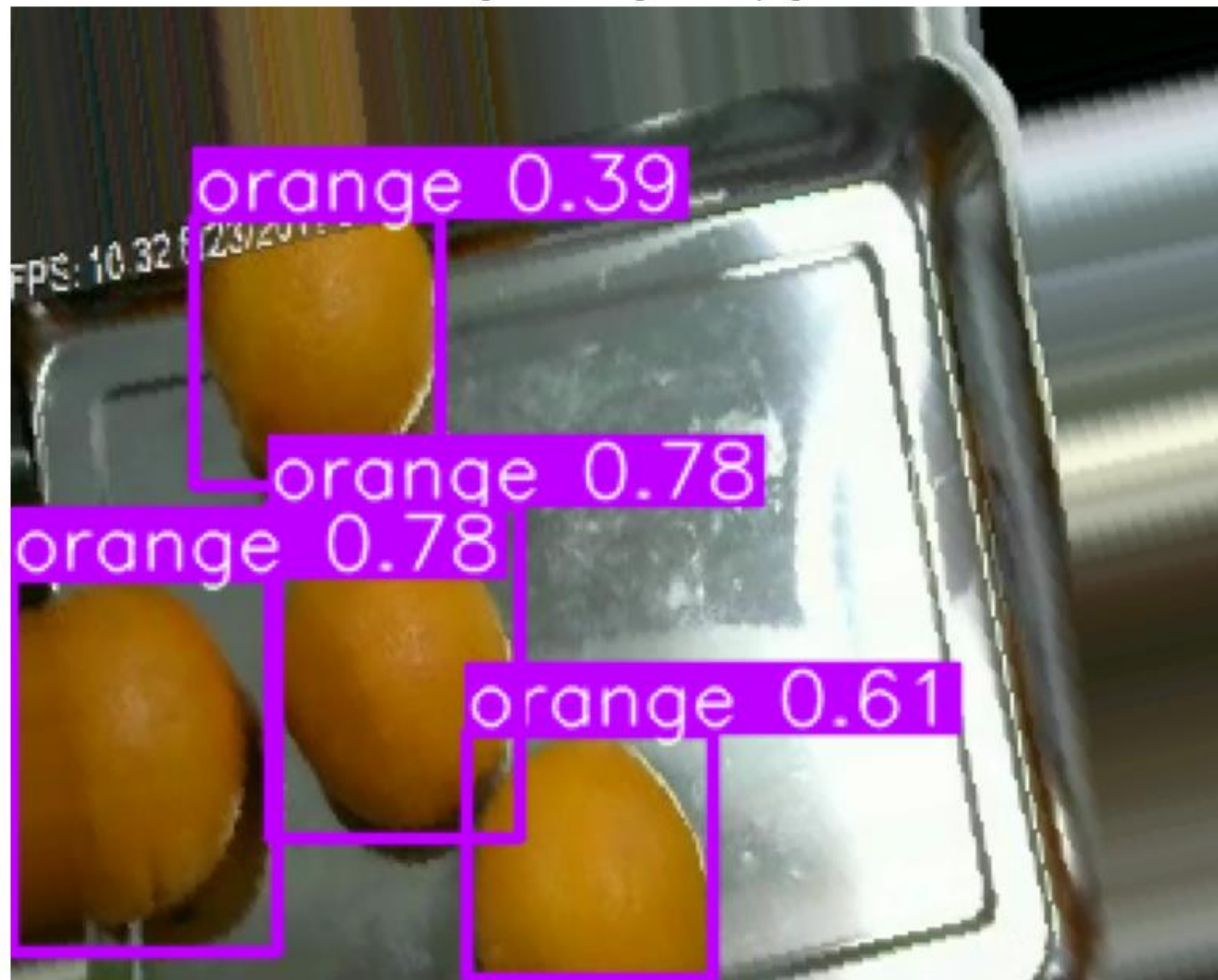


Image 10: Orange00100.png





# Evaluation & Metrics

Evaluate on	- Evaluate on validation/test sets
Look	- Look at precision, recall, and mAP
Examine	- Examine detection examples to check quality
Identify	- Identify confusion cases (e.g., apples vs tomatoes)





# Inference & Demos



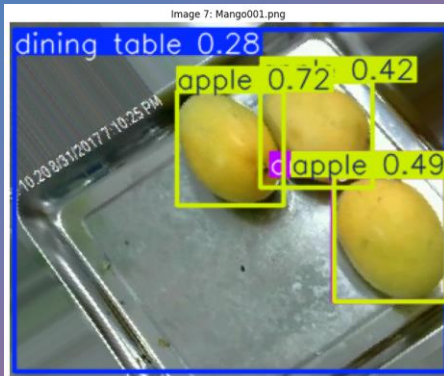
- Run the trained model on new fridge images



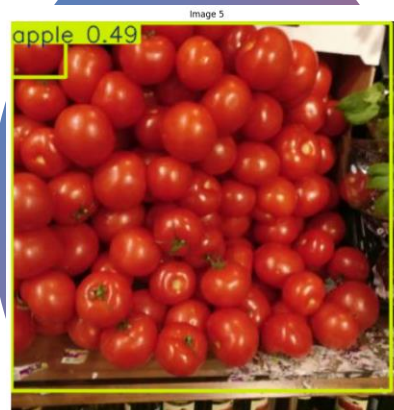
- Display images with bounding boxes and labels



- Save example outputs for use in reports and slides



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# Challenges Captured in the Notebook



- Model struggled to tell tomatoes from apples



- Limited tomato training data and visual similarity



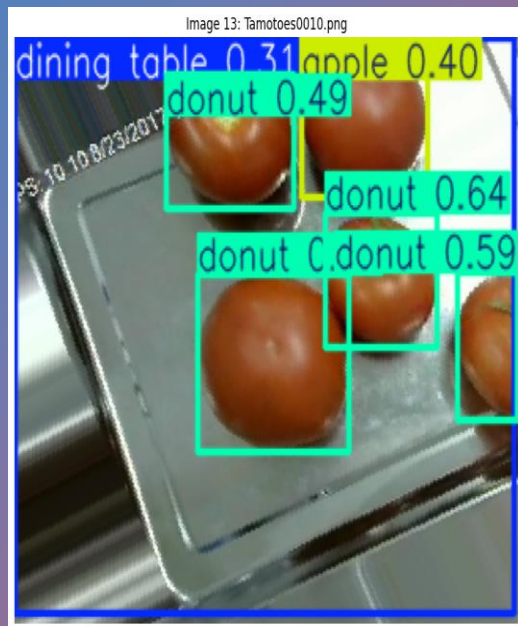
- Training/debugging took longer than planned



- Real fridge images were messier than expected

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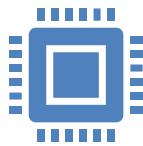
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# Lessons & Reflections



- High-quality, balanced data is essential



- Real-world environments need robust models



- Time estimates for training must include debugging



- The notebook became a central log of experiments

# Conclusion



THE COLAB NOTEBOOK DOCUMENTED THE FULL ML LIFECYCLE FOR FRIDGE VISION, FROM RAW DATA TO TRAINED YOLOV8 MODEL AND FINAL DEMOS.



WORKING THROUGH THE PROJECT REINFORCED PRACTICAL SKILLS IN COMPUTER VISION, EXPERIMENTATION, AND ITERATIVE IMPROVEMENT.