# A Tutorial to Apply YOLO to Object Detection for Corn Counting in Kaggle

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 Kaggle is a well-known machine learning platform for contests and sharing datasets, owned by Google.

https://www.kaggle.com/

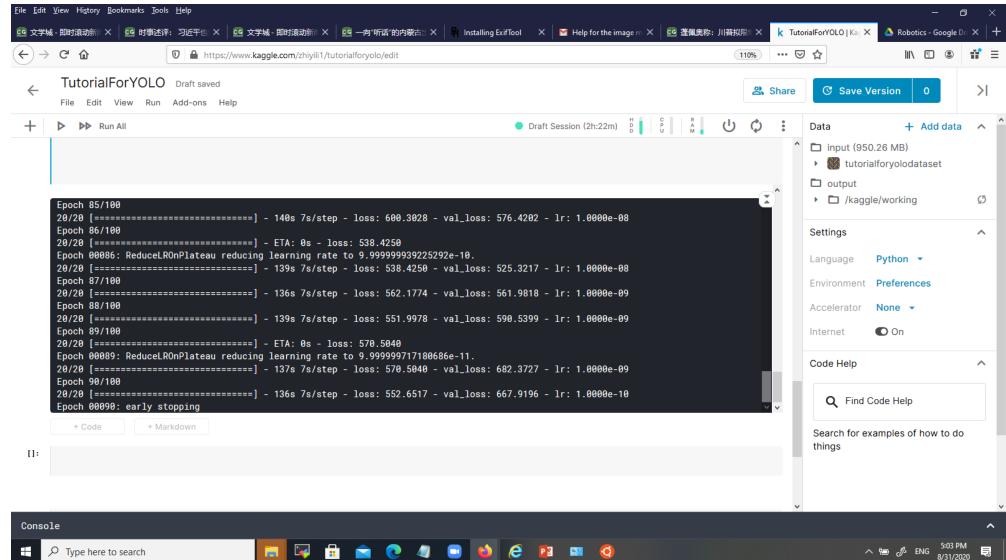
- Jupyter Notebook is a standard interface to run Python code.
- We provide an example Jupyter Notebook to run corn images detection in Kaggle.

- Upload your own dataset corn image object detection.
- Generate an example Jupyter Notebook python script to train/ evaluate in Kaggle.

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### Dataset used

- High Resolution Images taken from 10 meters ground level.
  - 68 training RGB images
  - 22 testing RGB images

# Train/Evaluation processes in Kaggle

Create a Kaggle account, it is free.

- 1. Put dataset in readable/writable director in Kaggle: todirectory = '/kaggle/working/' copy\_tree(fromdirectory, todirectory)
- 2. Prepare YOLO bounding box format annotation files !python xml\_to\_yolo\_for\_train.py !python xml\_to\_yolo\_for\_test.py
- 3. Clustering to get anchor boxes information by kmeans for initialization.
  !python kmeans.py

# Train/Evaluation processes

- 4. Train: Two stages, early-stopping, generate trained model. !python train.py
- 5. Evaluation: Based on trained model, generate ground truth and prediction test images results.
  - !python yolo\_evaluation.py
- 6. Calculate mAP (Mean Average Precision): Based on ground truth and prediction results
  - !python yolo\_mAP\_Calculation.py

# Train/Evaluation processes

- Train/Evaluation process is done on-line in Kaggle
- Training process normally take more than 2 hours, early-stopping, change learning rates in training.
- Evaluation: mAP (mean average Precision): 0.58

## Next improvements

Code in Github and can be downloaded:

https://github.com/zhiyilearn/A-Tutorial-for-YOLO-Object-Detection-in-Kaggle-Platform

- Show real code(expansion) instead of running only scripts
- As a homework (extra credits) to let students accomplish.