

Problem Set 4

In this project, you are tasked with training an object detection model to detect and classify the objects in the presented images. You are free to use any modern object detection libraries (such as [MMDetection](#) , [Detectron2](#)).

The images and annotations for training and testing can be downloaded [here](#). There are 300 images (240 for training and 60 for testing) with three kinds of fruit (apple, banana, and orange). An annotation file in .xml format is provided alongside each image, providing the category and bounding box of the appeared object.

Your task is to train an object detector based on the training set and evaluate your model on the test set. You are free to use pre-trained backbone models to enhance performance. The evaluation results should be reported in a PDF document. In the document, you should:

- **Report the mAP** (mean average precision of three categories) with IoU=0.25, 0.5, and 0.75.
- **Visualize results** for 30 (out of 60) images in the test set with predicted category name and bounding box should be attached. Fig. 1 provides an example.
- **Discuss the methods** you have tried to improve the accuracy of detection.

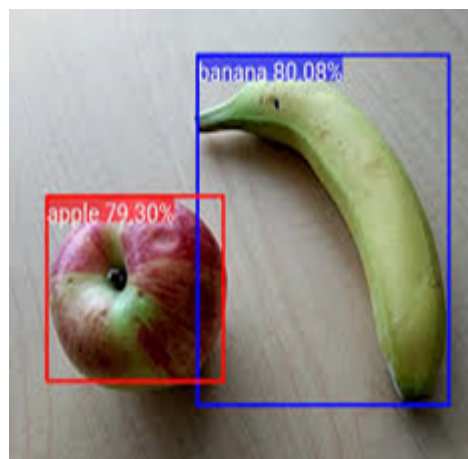


Fig. 1 A visualization example of detection results