

w35: Practice on Defect Detection

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Outline

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Defect Detection

This project mainly use method to detect the defect in notebook surface.

- Data number: 25
- Defect number: 1~3 per image
- Image size: 8192 x 13000
- Task: detect the defect part

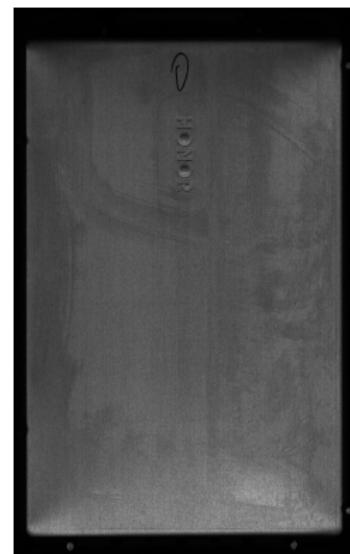
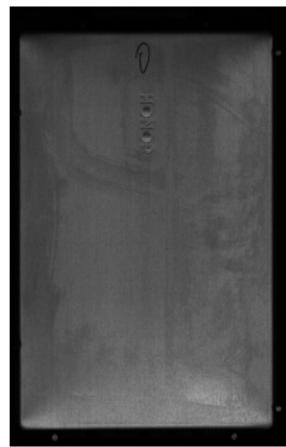
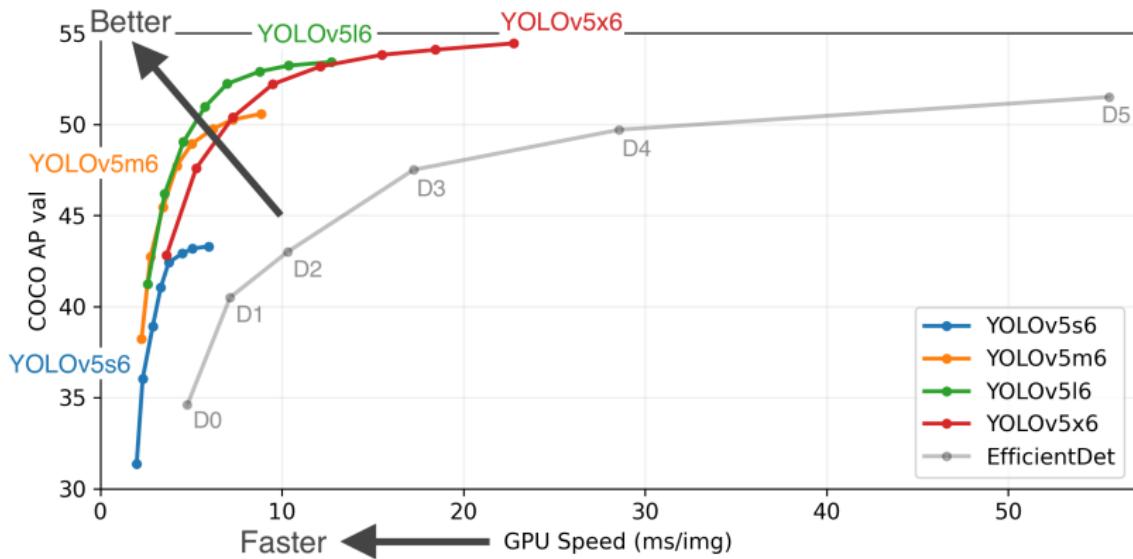


Figure: example image

Details



Yolov5



Label Image

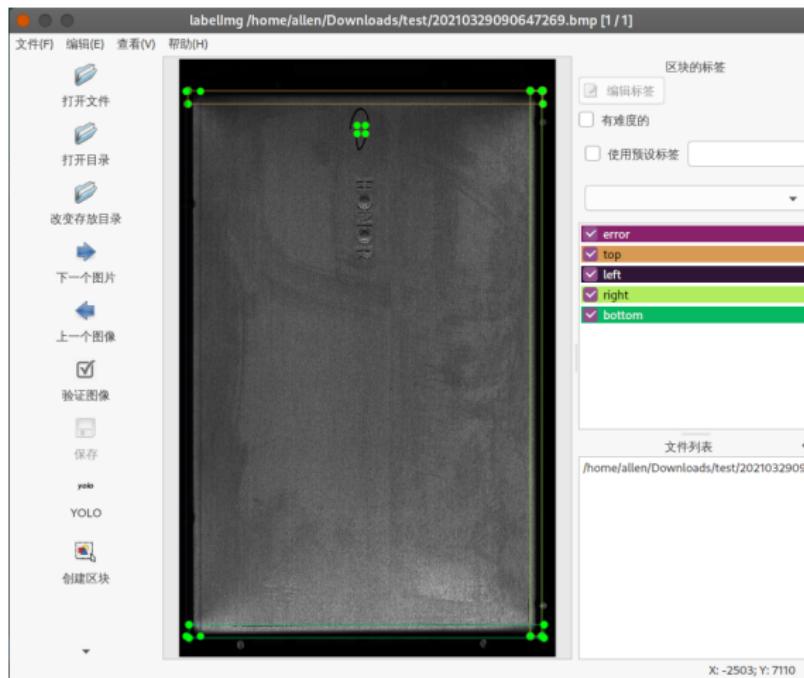


Figure: use **LabelImg** label the 25 images.

Augmentation

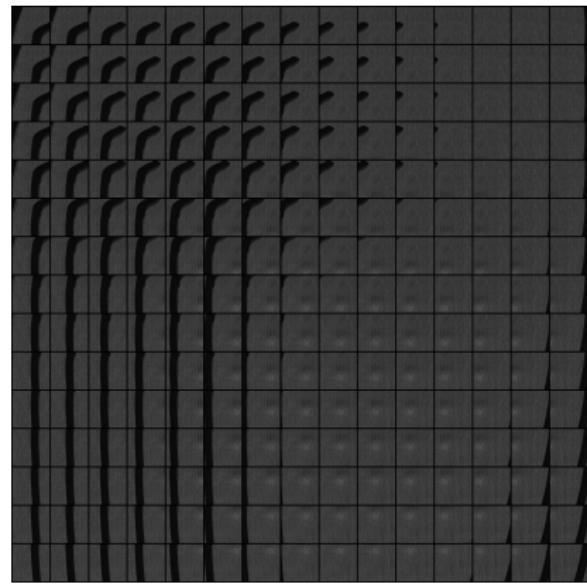
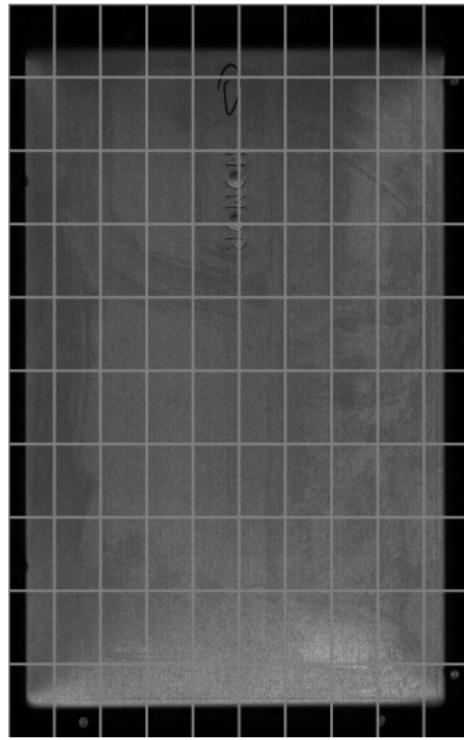


Figure: translation the images



Training

Test 1: 6 labels

```
python train.py --batch 16 --epochs 20  
          --data kesen.yaml --weights yolov5s
```

Test 2: 1 label, translation, split groups

```
python train.py --batch 16 --epochs 200  
          --data kesen2.yaml --weights yolov5s
```

Test 3: 1 label, split groups, translation

```
python train.py --batch 64 --epochs 200  
          --data kesen2.yaml --weights yolov5s
```

Test 1

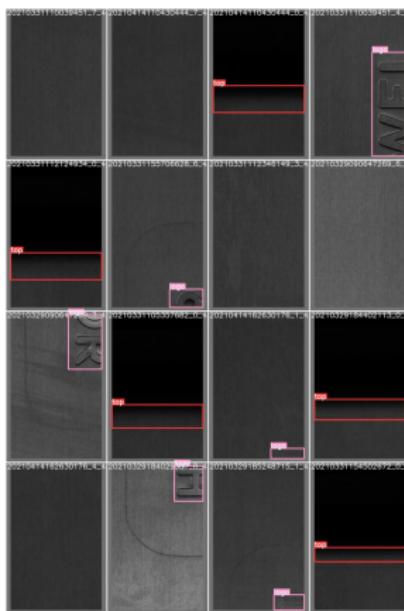


Figure: Ground Truth

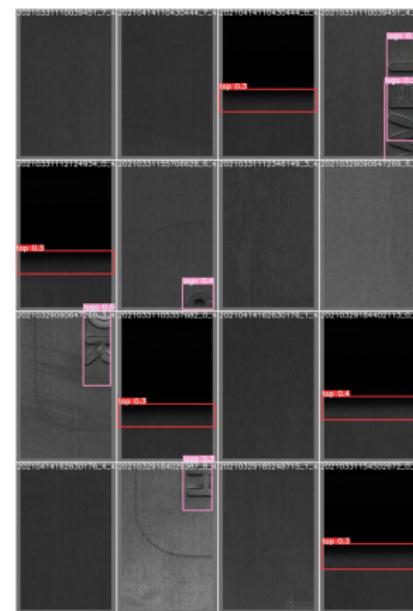


Figure: Prediction

Test 2

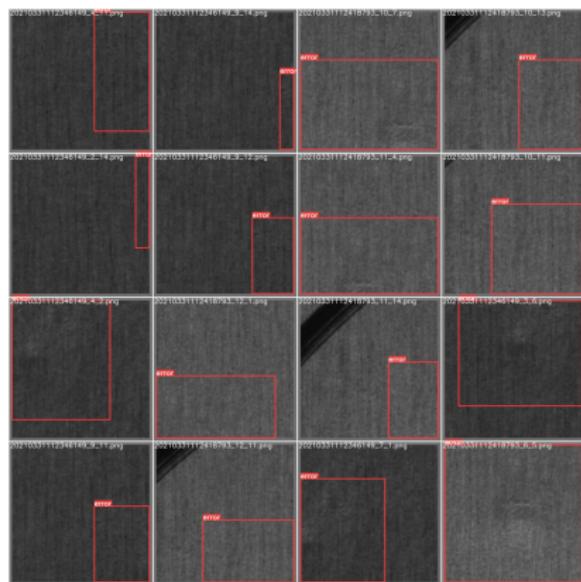


Figure: Ground Truth

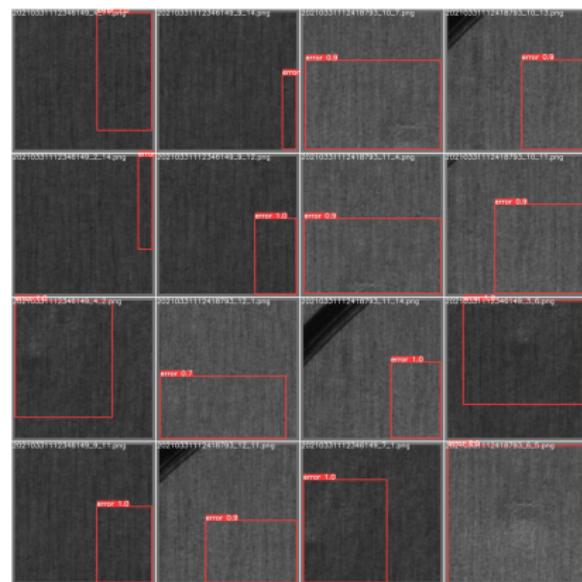
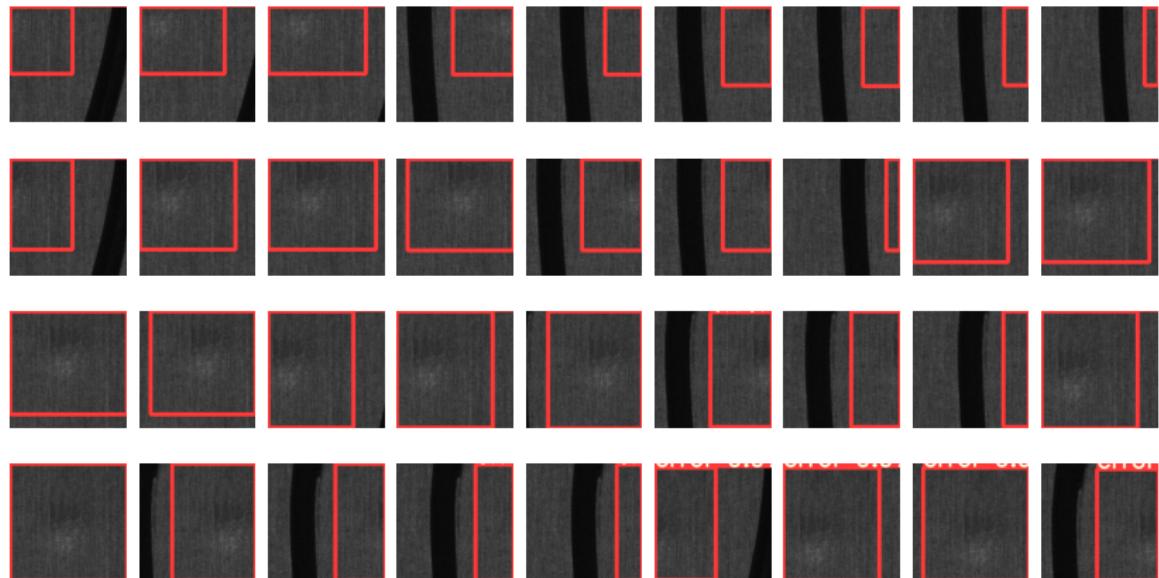


Figure: Prediction

Test 2



Test 3

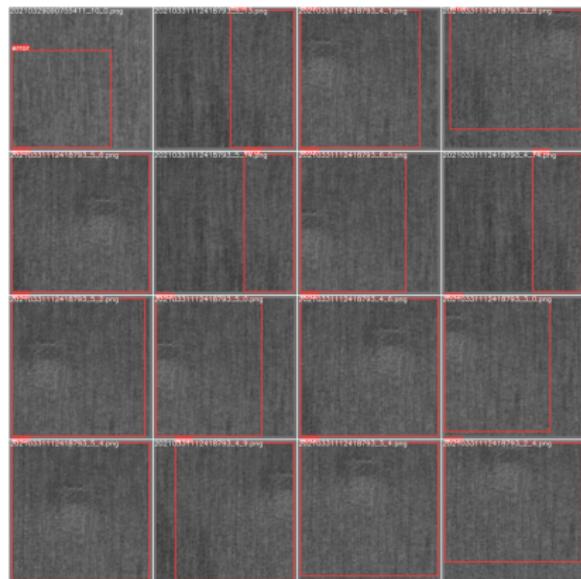


Figure: Ground Truth

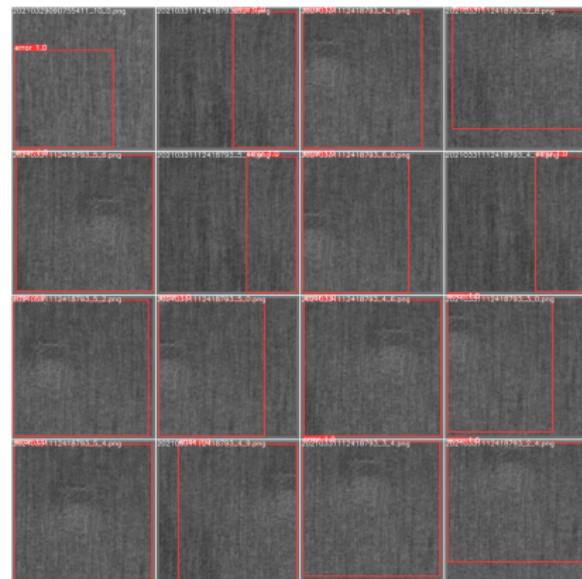
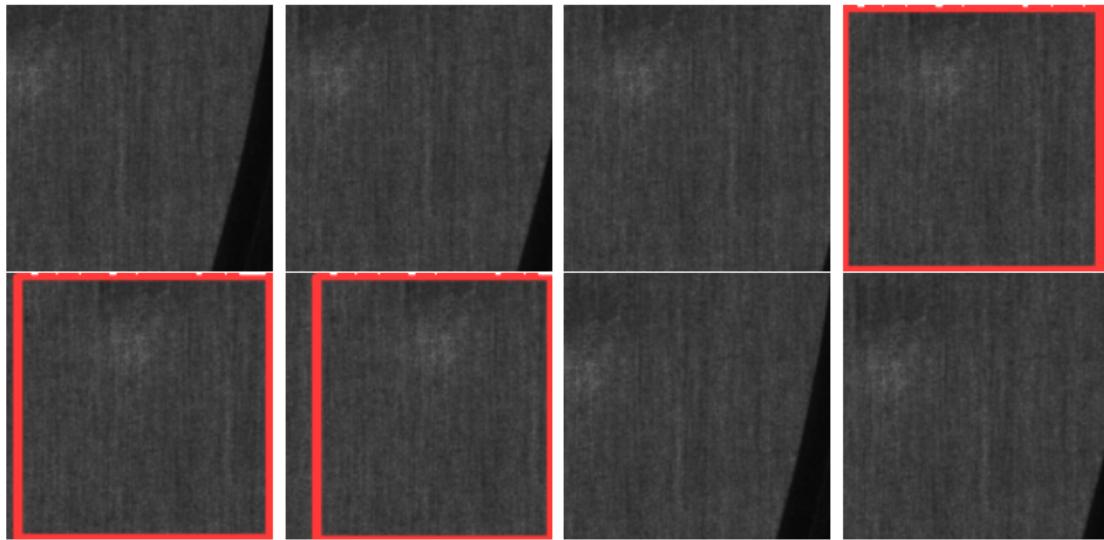


Figure: Prediction

Test 3



Future Works

- find some related datasets for pre-training
- use more data augmentation methods
- research on traditional defect detection algorithm