

HW3 Instance Segmentation

Outline

- Introduction
- Methodology
- Experiment
- Code and Reference

Introduction

- The purpose of this project is to train a instance segmentation model on **tiny PASCAL VOC** dataset.
- Only **ImageNet-pretrained** model can be used.
- There are only 1349 training data provided in the tiny PASCAL VOC, so we need to deal with **overfitting problem**.

Methodology

- In this project, I used **Mask-RCNN** with **Resnet50 and FPN** as the backbone, which was ImageNet pretrained.

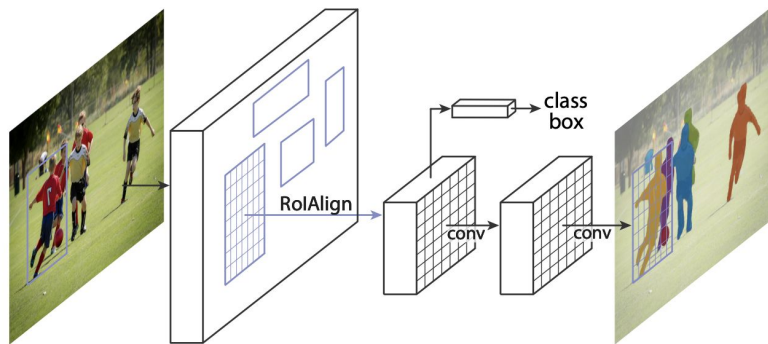
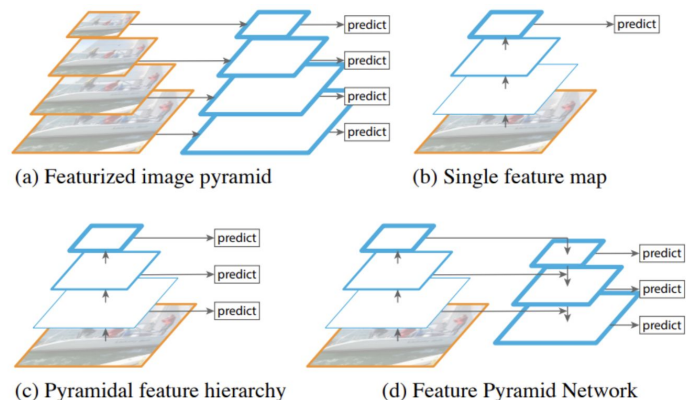


Figure 1. The **Mask R-CNN** framework for instance segmentation.



Methodology (cont.)

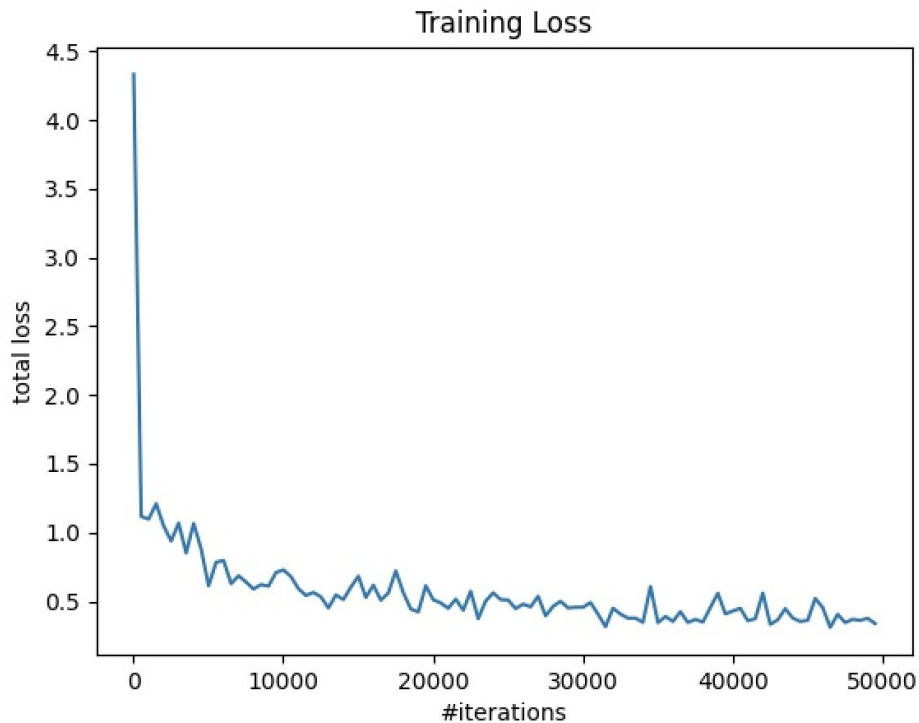
- Hyperparameters
 - Batch size: 2
 - Learning rate: 0.00025
 - Iterations: 50k
 - Testing thresh: 0.5 (to get value of mAP@0.5)
- Network architecture
 - Head: Mask-RCNN
 - Backbone: Resnet50 with feature pyramid network
 - Using package [Detectron2](#), which is provided by Facebook AI Research (FAIR)

Experiment

- Hardware information
 - CPU: i9-10900X
 - GPU: RTX 2080ti * 1
 - RAM: 62G
- Training time for 50k iterations: 4.8 hr

Experiment (cont.)

- Loss
- mAP@0.5: 0.49298



Code and Reference

- [Code Github link](#)
- [Detectron2](#)
- [Detectron2 Model Zoo](#)