

Weekly Report

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Abstract—This week I mainly put my effort on image annotation tools and reading papers.

I. IMAGE ANNOTATION

TO fulfill CETC 54 project's requirements, we need to add the image annotation function, including detection and segmentation, to the main framework.

- We searched widely on the Internet. There are numerous relevant softwares, like LabelImg, Sloth, Vatic, etc. Nevertheless, most of them can only draw rectangles, and limited to image detection task. Only LabelMe can mark polygons, so can be used in image segmentation task.
- We tried various versions of LabelMe, none of them can draw rotation rectangles directly. So we plan to use polygon to draw approximate rotation rectangles, then get accurate rectangles using minimum bounding rectangle.

II. CLASSIC PAPER

Fully Convolutional Networks(FCN) launched the new era of semantic segmentation. Most recent papers are motivated by that, so I read this to get some insight into FCN-based methods.

- The authors came up with Fully Convolutional Networks. Their key insight is to replace the last FC layers with upsampling/deconvolution layers. They show that convolutional networks by themselves, trained end-to-end, pixels-to-pixels, improve on the previous best result in semantic segmentation.
- Besides upsampling layers, they define a skip architecture that combines semantic information from a deep, coarse layer with appearance information from a shallow, fine layer to produce accurate and detailed segmentations. Fig. 1 is the FCN architecture. Fig. 2 is part of the results.

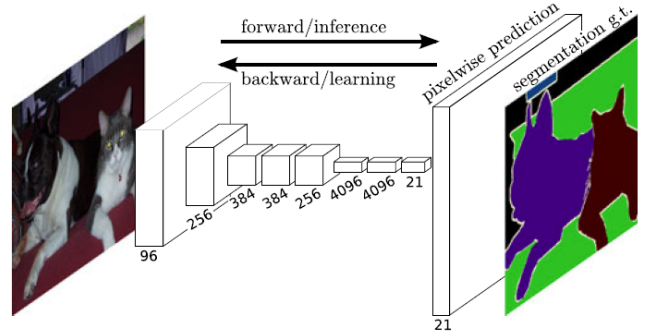


Fig. 1: FCNs architecture

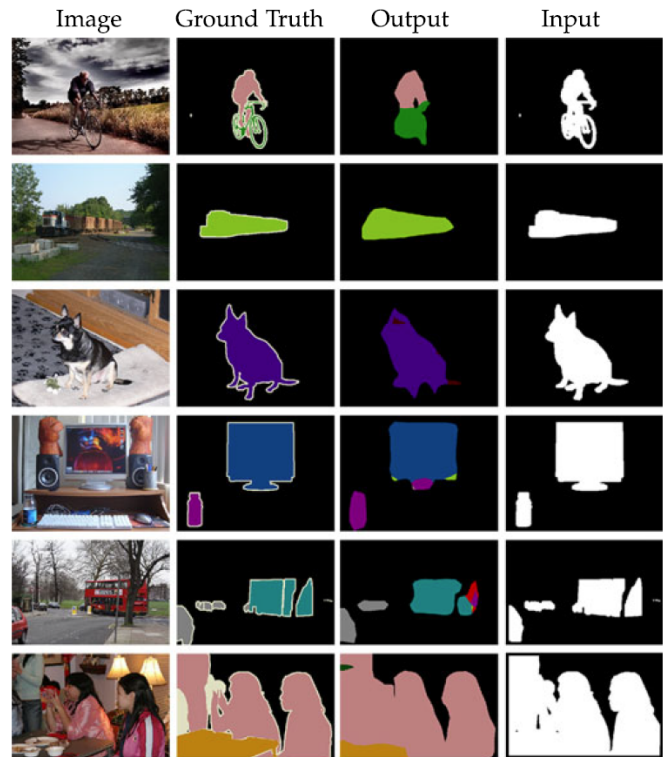


Fig. 2: FCNs semantic segmentation results