

CT Semantic Segmentation Method of Kidney Tumor Using Neural network method

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First of all,we use semantic segmentation methods of neural network to realize the work. Our goal is to segment the renal and renal tumor sites from the CT images which is provided by competition organizer.And we will introduce three main parts of our work.The first one is the network model which is the critical part we use to finish the semantic segmentation work ,the second is the deep learning platform we use,and the third is some implementation details in our works.

So firstly,we use Mask R-CNN as our neural network model which is a simple, flexible, and general framework for semantic segmentation. The approach efficiently segment objects in an image while simultaneously generating a high-quality segmentation mask for each instance. Mask R-CNN is simple to train and adds only a small overhead to Faster R-CNN. Moreover, Mask R-CNN is easy to generalize to other tasks. MaskR-CNN is conceptually simple:FasterR-CNN has two outputs for each candidate object, a class label and a mask offset; to this it adds a third branch that outputs the object mask. MaskR-CNN is thus a natural and intuitive idea. But the additional mask output is distinct from the class and box outputs,requiring extraction of much finer spatial layout of an object. And the key elements of Mask R-CNN is pixel-to-pixel alignment.

And the second,we use tensorflow as our platform which is an end-to-end open source platform for machine learning. It has a comprehensive, flexible ecosystem of tools, libraries and community resources that lets researchers push the state-of-the-art in machine learning and developers easily build and deploy machine learning powered applications.

The last one is some concrete implementation details. We divide the datasets provided by the competition organizer into training sets and test sets. We used GPUs for training, and each time we trained a total of 90 epochs, with 50 batch size for each epoch.