CSE527 CNN Example

1 CNN understanding

Suppose there are two networks. They all have the same input size 10*10. They all have 2 layers. In the first network, the first layer is a convolutional layer with filter size 3*3, stride 2*2. The second layer is a max pooling layer with pooling stride 2*2. In the second network, the first layer is a convolutional layer with filter size 3*3, stride 1*1. The second layer is a max pooling layer with pooling stride 4*4.

(1) Given you an image of size 10*10, if feed this image to these two networks, what are the output sizes?

The output size of different networks are the same, 2*2.

(2) which network can capture more information?

The second one. For each output unit in both networks, it is derived from 5*5 region in the original input. However, since the second network has smaller stride size, they are more convolutional operators. It can capture more information.