

The basics of ConvNets

Quiz, 10 questions

✓ **Congratulations! You passed!**

Next Item



1 / 1
point

1.

What do you think applying this filter to a grayscale image will do?

$$\begin{bmatrix} 0 & 1 & -1 & 0 \\ 1 & 3 & -3 & -1 \\ 1 & 3 & -3 & -1 \\ 0 & 1 & -1 & 0 \end{bmatrix}$$



1 / 1
point

2.

Suppose your input is a 300 by 300 color (RGB) image, and you are not using a convolutional network. If the first hidden layer has 100 neurons, each one fully connected to the input, how many parameters does this hidden layer have (including the bias parameters)?



0 / 1
point

3.

Suppose your input is a 300 by 300 color (RGB) image, and you use a convolutional layer with 100 filters that are each 5x5. How many parameters does this hidden layer have (including the bias parameters)?



1 / 1
point

4.

You have an input volume that is 63x63x16, and convolve it with 32 filters that are each 7x7, using a stride of 2 and no padding. What is the output volume?

The basics of ConvNets

Quiz, 10 questions 1 / 1
 point

5.

You have an input volume that is $15 \times 15 \times 8$, and pad it using "pad=2." What is the dimension of the resulting volume (after padding)?



1 / 1
point

6.

You have an input volume that is $63 \times 63 \times 16$, and convolve it with 32 filters that are each 7×7 , and stride of 1. You want to use a "same" convolution. What is the padding?



1 / 1
point

7.

You have an input volume that is $32 \times 32 \times 16$, and apply max pooling with a stride of 2 and a filter size of 2. What is the output volume?



1 / 1
point

8.

Because pooling layers do not have parameters, they do not affect the backpropagation (derivatives) calculation.



0 / 1
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9.

In lecture we talked about "parameter sharing" as a benefit of using convolutional networks. Which of the following statements about parameter sharing in ConvNets are true? (Check all that apply.)



1 / 1
point

10.

In lecture we talked about “sparsity of connections” as a benefit of using convolutional layers. What does this mean?

The basics of ConvNets

Quiz, 10 questions

