

# The basics of ConvNets

Quiz, 10 questions

1  
point

1.

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

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

- ☐ Detect image contrast
  - ☐ Detect 45 degree edges
  - ☐ Detect horizontal edges
  - ☒ Detect vertical edges
- 

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)?

- ☐ 9,000,001
  - ☐ 9,000,100
  - ☐ 27,000,001
  - ☒ 27,000,100
- 

1  
point

## The basics of ConvNets

Quiz, 10 questions

3.

Full convolution output 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)?

- ☐ 2501
- ☐ 2600
- ☐ 7500
- ☒ 7600

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?

- ☐ 16x16x16
- ☒ 29x29x32
- ☐ 16x16x32
- ☐ 29x29x16

1

point

5.

You have an input volume that is 15x15x8, and pad it using "pad=2." What is the dimension of the resulting volume (after padding)?

- ☐ 17x17x8
- ☐ 17x17x10
- ☐ 19x19x12
- ☒ 19x19x8

# The basics of ConvNets

Quiz, 10 questions

1

point

6.

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

- ☐ 1
  - ☐ 2
  - ☒ 3
  - ☐ 7
- 

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?

- ☐  $16 \times 16 \times 8$
  - ☐  $32 \times 32 \times 8$
  - ☐  $15 \times 15 \times 16$
  - ☒  $16 \times 16 \times 16$
- 

1

point

8.

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

- ☐ True
  - ☒ False
- 

1

point

## The basics of ConvNets

Quiz, 10 questions

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.)

- ☐ It allows gradient descent to set many of the parameters to zero, thus making the connections sparse.
- ☐ It reduces the total number of parameters, thus reducing overfitting.
- ☐ It allows parameters learned for one task to be shared even for a different task (transfer learning).
- ☐ It allows a feature detector to be used in multiple locations throughout the whole input image/input volume.

1  
point

10.

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

- ☐ Each activation in the next layer depends on only a small number of activations from the previous layer.
- ☐ Each filter is connected to every channel in the previous layer.
- ☐ Each layer in a convolutional network is connected only to two other layers
- ☐ Regularization causes gradient descent to set many of the parameters to zero.



I, **Chinmay kumar Das**, understand that submitting work that isn't my own may result in permanent failure of this course or deactivation of my Coursera account.

[Learn more about Coursera's Honor Code](#)

Submit Quiz



# The basics of ConvNets

Quiz, 10 questions