

Convolutional Neural Networks

QUIZ • 30 MIN

The basics of ConvNets

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The basics of ConvNets

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

1 / 1 point

Correct

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)?

1 / 1 point

Correct

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

Correct

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?

1 / 1 point

Correct

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)?

1 / 1 point

Correct

6. You have an input volume that is 63x63x16, and convolve it with 32 filters that are each 7x7, and stride of 1. You want to use a "same" convolution. What is the padding?

1 / 1 point

Correct

7. You have an input volume that is 32x32x16, and apply max pooling with a stride of 2 and a filter size of 2. What is the output volume?

1 / 1 point

Correct

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

1 / 1 point

Correct

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

Correct

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

1 / 1 point

Correct

Video: Computer Vision

Example

5 min

Video: Edge Detection

Example

11 min

Video: More Edge Detection

7 min

Video: Padding

9 min

Video: Strided Convolutions

9 min

Reading: Strided convolutions

\*CORRECTION\*

1 min

Video: Convolutions Over Volume

10 min

Video: One Layer of a Convolutional Network

16 min

Video: Simple Convolutional Network Example

8 min

Reading: Simple Convolutional Network Example

\*CORRECTION\*

1 min

Video: Pooling Layers

10 min

Video: CNN Example

12 min

Reading: CNN Example

\*CORRECTION\*

1 min

Video: Why Convolutions?

9 min

Reading: Why Convolutions?

\*CORRECTION\*

1 min

Practice questions

Quiz: The basics of ConvNets

10 questions

Programming assignments

Lab: Convolutional Model: step-by-step

2h

Programming Assignment: Convolutional Model: step-by-step

Lab: Convolutional Model: application

1h

Programming Assignment: Convolutional model: application

Heroes of Deep Learning (Optional)

Video: Yann LeCun Interview

27 min