Congratulations! You passed!

Grade received 80%

1.

2.

3.

∠⁷ Expand

 $(7 \times 7 \times 3 + 1) \times 128 = 18944.$

Latest Submission Grade 80% To pass 80% or higher

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What do you think applying this filter to a grayscale image will do? $ \lceil -1 -1 2 \rceil $	1/1 point
$egin{bmatrix} -1 & 2 & 1 \ 2 & 1 & 1 \end{bmatrix}$	
Detect horizontal edges.	
O Detecting image contrast.	
Oetect vertical edges.	
Detect 45-degree edges.	
w ⁷ Expand	
Correct Correct. Notice that there is a high delta between the values in the top left part and the ones in the bottom right part. When convolving this filter on a grayscale image, the edges forming a 45-degree angle with the horizontal will be detected.	
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
27,000,100	
9,000,100	
27,000,001	
9,000,001	
∠ ^{?/} Expand	
\odot correct Correct, the number of weights is $300\times300\times3\times100=27,000,000$, when you add the bias terms (one per neuron) you get $27,000,100$.	
Suppose your input is a 256 by 256 color (RGB) image, and you use a convolutional layer with 128 filters that are each 7×7 . How many parameters does this hidden layer have (including the bias parameters)?	1 / 1 point
O 6400	
O 1233125504	
18944	
O 18816	

Yes, you have $7 \times 7 \times 3 + 1$ weights per filter with the bias. Given that you have 128 filters, you get

no padding, What is the output volume?	
② 29x29x32	
<u> </u>	
○ 29x29x16	
∠ ⁿ Expand	
\oslash Correct Yes, $rac{63-7+0 imes2}{2}+1=29$ and the number of channels should match the number of filters.	
-	
5. You have an input volume that is 31x31x32, and pad it using "pad=1". What is the dimension of the resulting volume (after padding)?	1/1 point
33x33x33	
○ 31x31x34	
○ 32x32x32	
33x33x32	
∠ ⁷ Expand	
Correct Yes, if the padding is 1 you add 2 to the height dimension and 2 to the width dimension.	
6. You have a volume that is $121 \times 121 \times 32$, and convolve it with 32 filters of 5×5 , and a stride of 1. You want to use a "same" convolution. What is the padding?	1/1 point
0 0	
O 5	
2	
© 2	
∠ ^A Expand	
○ Correct ○ Correct ○ 121-5+4	
Yes, when using a padding of 2 the output volume has $n_H=rac{121-5+4}{1}+1.$	
7. You have an input volume that is 66x66x21, and apply max pooling with a stride of 3 and a filter size of 3. What is the output volume?	1/1 point
\bigcirc 21 \times 21 \times 21	
O 22 × 22 × 7	
$ \bigcirc 66 \times 66 \times 7 $ $ \bigcirc 22 \times 22 \times 21 $	
∠ ⁿ Expand	
\odot Correct $ \text{Ves using the formula } n^{[l]} = \frac{n_H^{[l-1]} + 2 \times p - f}{H} + 1 \text{ with } n = 0, \ f = 3, \ s = 3 \text{ and } n^{[l-1]} = 66 $	

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

1/1 point



⊘ Correct

Yes, weight sharing reduces significantly the number of parameters in a neural network, and sparsity of connections allows us to use a smaller number of inputs thus reducing even further the number of parameters.