The basics of ConvNets

CALIFICACIÓN DEL ÚLTIMO ENVÍO

100%

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

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

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

   ✓ **Correcto**

2. Suppose your input is a 300 by 300 color (RGB) image, and you are not using a   **1 / 1 puntos**
    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)?

   ✓ **Correcto**

3. Suppose your input is a 300 by 300 color (RGB) image, and you use a convolutional layer   **1 / 1 puntos**
    with 100 filters that are each 5x5. How many parameters does this hidden layer have
    (including the bias parameters)?

   ✓ **Correcto**

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 puntos**

    ✓   **Correcto**

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 puntos**

    ✓   **Correcto**

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 puntos**

    ✓   **Correcto**

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 puntos**

    ✓   **Correcto**

8. Because pooling layers do not have parameters, they do not affect the backpropagation (derivatives) calculation.   **1 / 1 puntos**

    ✓   **Correcto**

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 puntos**

✓ **Correcto**

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

1 / 1 puntos

✓ **Correcto**