Congratulations! You passed!

Grade received 95% To pass 80% or higher

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1. Suppose a neural network contains a dense layer with that connects one hidden layer h_i with n_i units to a following hidden layer h_{i+1} with n_{i+1} units. How many parameters are needed for this connection? **1 / 1 point**

- $n_i + n_{i+1}$
- $n_i n_{i+1}$
- n_i
- (selected) $(n_i + 1)n_{i+1}$

Correct
Well done!

2. Why do we use non-linear activation functions (such as $tanh$ or $relu$) in neural networks? **1 / 1 point**

- To induce sparse connectivity in the network weights.
- (selected) Without non-linear activation functions, the network would only be able to model linear functions of the data.
- So that the model activations are equivariant with respect to the input features
- To allow the usage of higher learning rates, thus speeding up the convergence during the optimization.

Correct
Well done!

3. Suppose that we have a 10x10 image with only one colour channel. We apply a single convolutional filter with kernel size 3x3, stride 1 and no zero padding ('VALID' padding), followed by a 2x2 pooling layer (with a default stride of 2 in both dimensions). What are the dimensions of the output? **1 / 1 point**

- 8x8
- 5x5x1
- (selected) 4x4x1
- 6x6x1

Correct
Well done!

4. What happens to the spatial dimension of the output when you increase the stride in a convolutional layer? **1 / 1 point**

- (selected) The output spatial dimension decreases.
- The output spatial dimension can increase or decrease.
- The output spatial dimension does not vary unless the number of filters change.
- The output spatial dimension increases.

Correct
Well done!

5. What is the effect of using pooling layers in convolutional neural networks? Select all that apply. **0.75 / 1 point**

- [x] It helps to make the model invariant to small translations of the input.

Correct
Well done!

- [ ] It increases the dimensions of the input.
- [ ] It reduces the spatial dimensions of the layer input.
- [ ] To reduce a 3-dimensional tensor input to a 2-dimensional tensor output.

You didn't select all the correct answers