Congratulations! You passed!

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Retake the assignment in 23h 25m

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1. Which of the following do you typically see in a ConvNet? (Check all that apply.) **1 / 1 point**

- [x] Multiple CONV layers followed by a POOL layer

  ✓ **Correct**
  True, as seen in the case studies.

- [ ] Multiple POOL layers followed by a CONV layer
- [ ] FC layers in the first few layers
- [x] FC layers in the last few layers

  ✓ **Correct**
  True, fully-connected layers are often used after flattening a volume to output a set of classes in classification.

Expand

✓ **Correct**
Great, you got all the right answers.

2. LeNet - 5 made extensive use of padding to create valid convolutions, to avoid increasing the number of channels after every convolutional layer. True/False? **1 / 1 point**

- ◉ False
- ○ True

Expand

✓ **Correct**
Yes, back in 1998 when the corresponding paper of LeNet - 5 was written padding wasn't used.

3. Training a deeper network (for example, adding additional layers to the network) allows the network to fit more complex functions and thus almost always results in lower training error. For this question, assume we're referring to "plain" networks. **1 / 1 point**

- ○ True
- ◉ False

Expand

✓ **Correct**
Correct, Resnets are here to help us train very deep neural networks.

4. Which of the following equations captures the computations in a ResNet block? **1 / 1 point**

- ○ $a^{[l+2]} = g\left(W^{[l+2]}g\left(W^{[l+1]}a^{[l]} + b^{[l+1]}\right) + b^{[l+2]} + a^{[l]}\right) + a^{[l+1]}$
- ○ $a^{[l+2]} = g\left(W^{[l+2]}g\left(W^{[l+1]}a^{[l]} + b^{[l+1]}\right) + b^{[l+2]}\right)$
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Expand

✓ **Correct**
Correct. This expresses the computations of a ResNet block, where the last term SSa^{[l]}SS is the shortcut connection.

5. In the best scenario when adding a ResNet block it will learn to approximate the identity function after a lot of training, helping improve the overall performance of the network. True/False? **1 / 1 point**

- ○ True
- ◉ False

Expand

✓ **Correct**
Correct. When adding a ResNet block it can easily learn to approximate the identity function, thus in a worst-case scenario, it will not affect the performance of the network at all.

6. Suppose you have an input volume of dimension $5n_H5 \times 5n_W5 \times 5n_C5$. Which of the following statements do you agree with? (Assume that the "1x1 convolutional layer" below always uses a stride of 1 and no padding.) **1 / 1 point**

- [ ] You can use a 2D pooling layer to reduce n_H, n_W, and n_C.
- [ ] You can use a 1x1 convolutional layer to reduce n_H, n_W, and n_C.
- [x] You can use a 2D pooling layer to reduce n_H, n_W, but not n_C.

  ✓ **Correct**
  This is correct.

- [x] You can use a 1x1 convolutional layer to reduce n_C, but not n_H and n_W.

Expand

✓ **Correct**
Great, you got all the right answers.

7. Which of the following are true about the inception Network? (Check all that apply) **1 / 1 point**

- [ ] Inception blocks allow the use of a combination of 1x1, 3x3, 5x5 convolutions, and pooling by applying one layer after the other.
- [x] One problem with simply stacking up several layers is the computational cost of it.

  ✓ **Correct**
  Correct. That is why the bottleneck layer is used to reduce the computational cost.

- [ ] Making an inception network deeper won't hurt the training set performance.
- [x] Inception blocks allow the use of a combination of 1x1, 3x3, 5x5 convolutions and pooling by stacking up all the activations resulting from each type of layer.

  ✓ **Correct**
  Correct. The use of several different types of layers and stacking up the results to get a single volume is at the heart of the inception network.

Expand

✓ **Correct**
Great, you got all the right answers.

8. Which of the following are common reasons for using open-source implementations of ConvNets (both the model and/or weights)? Check all that apply. **1 / 1 point**

- [x] It is a convenient way to get working with an implementation of a complex ConvNet architecture.

  ✓ **Correct**
  True

- [x] Parameters trained for one computer vision task are often useful as pre-training for other computer vision tasks.

  ✓ **Correct**
  True

- [ ] The same techniques for winning computer vision competitions, such as using multiple crops at test time, are widely used in practical deployments (or production system deployments) of ConvNets.
- [ ] A model trained for one computer vision task can usually be used to perform data augmentation for a different computer vision task.

Expand

✓ **Correct**
Great, you got all the right answers.

9. Which of the following are true about Depthwise-separable convolutions? (Choose all that apply) **0 / 1 point**

- [ ] The depthwise convolution convolves each channel in the input volume with a separate filter.
- [x] The depthwise convolution convolves the input volume with 1×1 filters over the depth dimension.

  ! **This should not be selected**
  No, this is what the pointwise convolution does.

- [x] Depthwise-separable convolutions are composed of two different types of convolutions.

  ✓ **Correct**
  Yes, it is composed of a depthwise convolution followed by a pointwise convolution.

- [x] The pointwise convolution convolves the input volume with $1 \times 1 \times n_c$ filters.

  ✓ **Correct**
  Yes, the number of filters for the output of the depthwise-separable convolution is

  ✓ **Correct**
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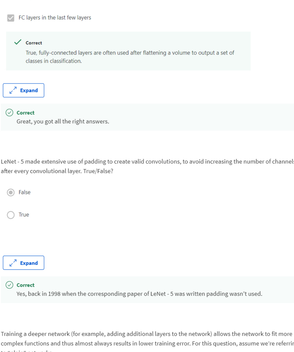
Expand

✗ **Incorrect**
You didn't select all the correct answers

10. Fill in the missing dimensions shown in the image below (marked W, Y, Z). **1 / 1 point**



- ○ W = 5, Y = 20, Z = 5
- ○ W = 30, Y = 20, Z =20
- ○ W = 30, Y = 30, Z = 5
- ◉ W = 5, Y = 30, Z = 20

Expand

✓ **Correct**