Congratulations! You passed!

Grade received 100% **Latest Submission Grade** 100% **To pass** 80% or higher

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1. Face verification and face recognition are the two most common names given to the task of comparing a new picture against one person's face. True/False? **1 / 1 point**

- (•) False
- ( ) True

Expand

Correct
Correct. This is the description of face verification, but not of face recognition.

2. You want to build a system that receives a person's face picture and determines if the person is inside a workgroup. You have pictures of all the faces of the people currently in the workgroup, but some members might leave, and some new members might be added. Which of the following do you agree with? **1 / 1 point**

- [x] It will be more efficient to learn a function $d(\text{img}_1, \text{img}_2)$ for this task.

Correct
Correct. Since this is a one-shot learning task this function will allow us to compare two images to verify identity.

- [ ] It is best to build a convolutional neural network with a softmax output with as many outputs as members of the group.
- [x] This can be considered a one-shot learning task.

Correct
Correct. Since we might have only one example of the person we want to recognize.

- [ ] This can't be considered a one-shot learning task since there might be many members in the workgroup.

Expand

Correct
Great, you got all the right answers.

3. In order to train the parameters of a face recognition system, it would be reasonable to use a training set comprising 100,000 pictures of 100,000 different persons. **1 / 1 point**

- (•) False
- ( ) True

Expand

Correct
Correct, to train a network using the triplet loss you need several pictures of the same person.

4. Which of the following is a correct definition of the triplet loss? Consider that $\alpha > 0$. (We encourage you to figure out the answer from first principles, rather than **1 / 1 point**

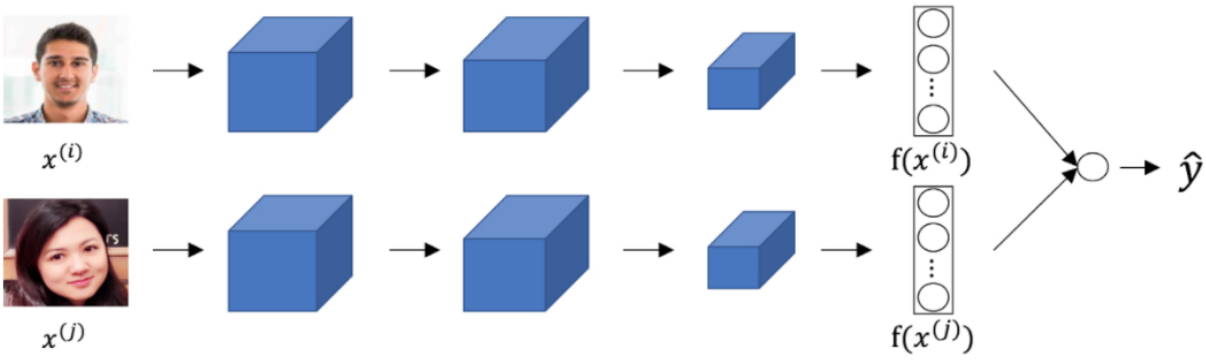
just refer to the lecture.)

- (●) $max(||f(A) - f(P)||^2 - ||f(A) - f(N)||^2 + \alpha, 0)$
- ( ) $max(||f(A) - f(N)||^2 - ||f(A) - f(P)||^2 - \alpha, 0)$
- ( ) $max(||f(A) - f(P)||^2 - ||f(A) - f(N)||^2 - \alpha, 0)$
- ( ) $max(||f(A) - f(N)||^2 - ||f(A) - f(P)||^2 + \alpha, 0)$

Expand

Correct
Correct

5. Consider the following Siamese network architecture: **1 / 1 point**



The upper and lower networks share parameters to have a consistent encoding for both images. True/False?

- ( ) False
- (●) True

Expand

Correct
Correct. Part of the idea behind the Siamese network is to compare the encoding of the images, thus they must be consistent.

6. You train a ConvNet on a dataset with cats, dogs, birds, and other types of animals. You try to find a filter that strongly responds to horizontal edges. You are more likely to find this filter in layer 6 of the network than in layer 1. True/False? **1 / 1 point**

- (●) False
- ( ) True

Expand

Correct
Correct. Edges are a very low-level feature, thus it is more likely to find such a feature detector in the first layers of the network.

7. Neural style transfer uses images Content C, Style S. The loss function used to generate image G is composed of which of the following: (Choose all that apply.) **1 / 1 point**

- [x] $J_{content}$ that compares C and G.

  ✓ **Correct**
  Correct, in neural style transfer we are interested in the similarity between S and G, and the similarity between G and C.

- [x] J_{style} that compares S and G.

  ✓ **Correct**
  Correct, in neural style transfer we are interested in the similarity between S and G, and the similarity between G and C.

- [ ] T that calculates the triplet loss between S, G, and C.
- [ ] J_{corr} that compares C

Expand

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

8. In neural style transfer, we define style as: **1 / 1 point**

- ○ $\left\|a^{[l](S)} - a^{[l](G)}\right\|^2$ the distance between the activation of the style image and the content image.
- ◉ The correlation between activations across channels of an image.
- ○ The correlation between the activation of the content image C and the style image S.
- ○ The correlation between the generated image G and the style image S.

Expand

✓ **Correct**
Correct, this correlation is represented by $$G_{kk'}^{[l](I)}$$ for the image $$I$$.

9. In neural style transfer, we can't use gradient descent since there are no trainable parameters. True/False? **1 / 1 point**

- ○ True
- ◉ False

Expand

✓ **Correct**
Correct. We use gradient descent on the cost function $$J(G)$$ and we update the pixel values of the generated image $$G$$.

10. You are working with 3D data. The input "image" has size $64 \times 64 \times 64 \times 3$, if you apply a convolutional layer with 16 filters of size $4 \times 4 \times 4$, zero padding and stride 2. What is the size of the output volume? **1 / 1 point**

- ○ $64 \times 64 \times 64 \times 3$.
- ◉ $31 \times 31 \times 31 \times 16$.
- ○ $31 \times 31 \times 31 \times 3$.
- ○ $61 \times 61 \times 61 \times 14$.

Expand

Expand

Correct

Correct, we can use the formula $$\lfloor \frac{n^{[l-1]} - f + 2 \times p}{s} \rfloor + 1 = n^{[l]}$$ to the three first dimensions.