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Due May 2, 2:59 PM CST

Graded Quiz • 30 min

 \equiv Back

≜ ttTryaagain once you are ready **Grade received** 70% **To pass** 80% or higher

Special Applications: Face Recognition & Neural Style Transfer

Specifatiapplications: Face Recognition & Neural Style Transfer

This can be considered a one-shot learning task.

Special Applications: Face Recognition & Neural Style Transfer

Ouiz • 30 min

Due May 2, 2:59 PM CST **Attempts** 3 every 8 hours

Treagainture against K persons' faces. True

(X) Receive grade

1/1 point

Etestsity Aussian Charle 70% 1. Face verification requires comparing a new picture against one person's face, whereas face recognition requires comparing a

Let will be profice efficient to learn a function $d(\mathrm{img}_1,\mathrm{img}_2)$ 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.

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

each one. Which of the following do you agree with? (Select the best answer.)

O You take several pictures of the same person to train $d(\mathrm{img}_1,\mathrm{img}_2)$ using the triplet loss.

To train using the triplet loss you need several pictures of the same person.

since you already have the person in place.

more representative set of the population.

 $\max\left(\left\|f(A)-f(P)
ight\|^2-\left\|f(A)-f(N)
ight\|^2+lpha,0
ight)$

f(A) represents the encoding of the Anchor.

 \bigcap α is a trainable parameter of the Siamese network.

5. Consider the following Siamese network architecture:

Which of the following are true about the triplet loss? Choose all that apply.

 $oxedsymbol{\square}$ A the anchor image is a hyperparameter of the Siamese network.

model.

(X) Incorrect

4. In the triplet loss:

image.

positive images.

Correct

 $x^{(i)}$

 $x^{(j)}$

True

False

True

False

True

False

(√) Correct

Incorrect

Incorrect

 \bigcirc 31 × 31 × 31 × 16.

 $\bigcirc 29 \times 29 \times 29 \times 13.$

 $\bigcirc 29 \times 29 \times 29 \times 3.$

✓ Correct

order to look artistic.

8. In neural style transfer, we define style as:

(Correct

layer.

Correct

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

It is best to build a convolutional neural network with a softmax output with as many outputs as members of the group.

3. 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. To train a system to solve this problem using the triplet loss you get many persons and take several pictures of

You take several pictures of the same person because this way you can get more pictures to train the network efficiently

You shouldn't use persons outside the workgroup you are interested in because that might create a high variance in your

It would be best to increase the number of persons in the dataset by taking only one picture of each person to have a

Correct. f represents the network that is in charge of creating the encoding of the images, and A represents the anchor

We want that $\|f(A)-f(P)\|^2<\|f(A)-f(N)\|^2$ so the negative images are further away from the anchor than the

Correct. Being a positive image the encoding of P should be close to the encoding of A.

The upper and lower neural networks have different input images, but have exactly the same parameters.

6. You train a ConvNet on a dataset with 100 different classes. You wonder if you can find a hidden unit which responds strongly

to pictures of cats. (I.e., a neuron so that, of all the input/training images that strongly activate that neuron, the majority are cat

Yes, this neuron understands complex shapes (cat pictures) so it is more likely to be in a deeper layer than in the first

Correct. Neural style transfer compares the high-level features of two images and modifies the pixels of one of them in

Yes it is true, parameters are shared among these two networks.

pictures.) You are more likely to find this unit in layer 4 of the network than in layer 1.

7. In neural style transfer, we train the pixels of an image, and not the parameters of a network.

 $\bigcup \|a^{[l](S)}-a^{[l](G)}\|^2$ the distance between the activation of the style image and the content image.

No, the style is defined as the correlation between activations across channels of the activation of an image.

10. You are working with 3D data. The input "image" has size 32 imes 32 imes 32 imes 3, if you apply a convolutional layer with 16 filters of

The correlation between the generated image G and the style image S.

lacktriangle The correlation between the activation of the content image C and the style image S.

Neural style transfer doesn't use gradient descent since there are no trainable parameters.

The correlation between activations across channels of an image.

9. In neural style transfer, which of the following better express the gradients used?

No, we use gradient descent on the cost function J(G).

size $4 \times 4 \times 4$, zero padding and stride 1. What is the size of the output volume?

Correct, we can use the formula $\lfloor rac{n^{[l-1]}-f+2 imes p}{s}
floor+1=n^{[l]}$ on the three first dimensions.

View Feedback 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 we keep your highest score 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?

False To Pass 80% or higher Your grade Correct. 70%

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