onvolutions and pooling

验, 5 个问题

5/5 分 (100.00%)

恭喜！您通过了！

下一项

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分数

1.
Choose correct statements about convolutional layer:

- [x] Convolutional layer doesn't need a bias term

未选择的是正确的

- [x] Convolutional layer provides translation invariance

未选择的是正确的

- [x] Convolutional layer works the same way for every input patch

正确
Because kernel parameters are shared!

- [x] Convolutional layer is a special case of a fully-connected layer

正确
Convolutional layer can be viewed as a special case of a fully connected layer when all the weights outside the local receptive field of each output neuron equal 0 and kernel parameters are shared between neurons

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1 / 1
分数

2.
Choose correct statements about pooling layer:

- [x] Pooling layer can reduce spatial dimensions (width and height of the input volume)

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正确
When used with stride > 1

Pooling layer is strictly differentiable

未选择的是正确的

Pooling layer reduces the number of convolutional filters

未选择的是正确的

Pooling layer provides translation invariance

正确
Remember the slash classifier example? Taking maximum gave us translation invariance.

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1 / 1
分数

3.
Back-propagation for convolutional layer first calculates the gradients as if the kernel parameters were not shared and then...

Takes a mean of the gradients for each shared parameter

Takes a maximum gradient for each shared parameter

Takes a sum of gradients for each shared parameter

正确
That's it!

Takes a minimum gradient for each shared parameter

---

1 / 1
分数

4.
Suppose you have a 10x10x3 colour image input and you want to stack two convolutional layers with kernel size 3x3 with 10 and 20 filters respectively. How many parameters do you have to train for these two layers? Don't forget bias terms!

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5/5 分 (100.00%)

预览

2100

(3*3*3+1)*10 + (3*3*10+1)*20

正确回答

(3*3*3+1)*10 + (3*3*10+1)*20

您的答案"(3*3*3+1)*10 + (3*3*10+1)*20"与授课老师给出的答案"(3*3*3+1)*10 + (3*3*10+1)*20"相同。

1 / 1
分数

5.

What receptive field do we have after stacking n convolutional layers with kernel size $k \times k$ and stride 1? Layers numeration starts with 1. The resulting receptive field will be a square, input its side as an answer.

预览

$$k + (k-1)(n-1)$$

(k-1)*(n-1)+k

正确回答

您的答案"(k-1)*(n-1)+k"与授课老师给出的答案"(k-1)*(n-1)+k"相同。