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Machine Learning with Python-From Linear Models to Deep Learning[Course](#)[Progress](#)[Dates](#)[Discussion](#)[Resources](#)[Course](#) / [Unit 3. Neural networks \(2.5 we...](#) / [Lecture 12. Convolutional Neural](#)[← Previous](#)

3. CNN - Continued

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Exercises due Apr 5, 2023 08:59 -03 Past due

Convolution Neural Networks (Continued)**Video** [Download video file](#)**Transcripts** [Download SubRip \(.srt\) file](#) [Download Text \(.txt\) file](#)**CNN - Numerical Example**

1 point possible (graded)

In this problem, we are going to work out the outputs of a tiny toy example of CNN that has a conv layer consisting of just one filter F of shape 2×2 followed by a max-pooling layer. The input image is of shape 3×3 .

The output of the CNN is calculated as $\text{Pool}(\text{ReLU}(\text{Conv}(I)))$ where ReLU is the rectified linear unit function given by:

$$\text{ReLU}(x) = \max(0, x)$$

Also assume that the stride for the convolution and pool layers is 1

For the following values of the image I and filter weights F enter below the value of the

Submit

You have used 0 of 3 attempts

CNN Meaning

1/1 point (graded)

If you are trying to recognize a large number of features, you should have a small number

☐ true☒ false**Submit**

You have used 2 of 2 attempts

Recitation: Convolution/Cross Correlation: Definition





▶ 0:00 / 0:00

▶ 1.0x

Video

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Video

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Discrete 2D example




Video

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Video Note: There is a small mistake in the final convolution result at the end of the vid

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Discussion

Topic: Unit 3. Neural networks (2.5 weeks):Lecture 12. Convolutional Neural Networks / 3. CNN - Continued

	<u>CNN - Numerical Example question:</u> <u>I have problems attempting this question. Please help! Not sure how to start!</u>
	<u>the video is very not intuitive</u> <u>Can I still get refund of this data science program?</u>
	<u>Are convolution and cross-correlation symmetric?</u> <u>Are convolution and cross-correlation symmetric? That is, Is $f * g = g * f$? Is $f \circ g = g \circ f$?</u>
	<u>First video - layer 3 : 4096 kernels?</u> <u>In the first video at time 1:44 in layer 3 there are 256@ 6x6 images displayed, the result of convolution of lay</u>
	<u>convolution, cross-correlation</u> <u>What does the tau value represent in the convolution formula? I could not understand that part in the formula</u>
	<u>first video, 1:34 error in explaining it.</u> <u>"we will shift it from negative infinity to positive infinity" Do you know no a soul who hears that understand w</u>
	<u>Last video</u> <u>not $[[2, 0], [0, 1]]$ but $[[2, 0], [0, 2]]$. I wished that wa had those videos earlier on in this course</u>
	<u>video 2 1:48m formula for the discrete case is wrong?</u>

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