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**Week5**

1. In computer vision or image processing , convolution is used to detect features in the image efficiently
2. Convolution of the image to a filter usually shrinks the image. Zero padding can be added to adjust the image size before applying the convolution .
3. If the input volume size = (nx, ny,nc) and the padding is p , stride =s , and the filter is (f,f,nc) , then the output volume size is ( ( nx – f +2p )/s +1 , ( ny – f +2p )/s +1 , 1)
4. If the input layer has a size of ( nx,ny,nc) , and The hidden convolution layer size is ( f \*f\* nc\* number of filters) then the output layer size is ( ( nx – f +2p )/s +1 , ( ny – f +2p )/s +1 , number of filters)
5. The number of the weights required for the hidden convolution layer is ( f\*f\*nc\*number of filters)
6. The ‘Same’ padding aims to make the output volume of the same size as the input volume, while the ‘Valid’ padding do not.
7. The Pooling filters are used to summarize the inputs, and they can be (Max or average filters).
8. Layers in the convolution networks are ( convolution , pooling, and fully connected )
9. One example of convolution network is the LeNet-5 architecture   
   { input -> conv -> relu -> max pool -> conv -> relu -> maxpool -> fully connected -> fully connected -> softmax }
10. Convolutions are used as they have the following two advantages { parameter sharing and sparsity of connections }