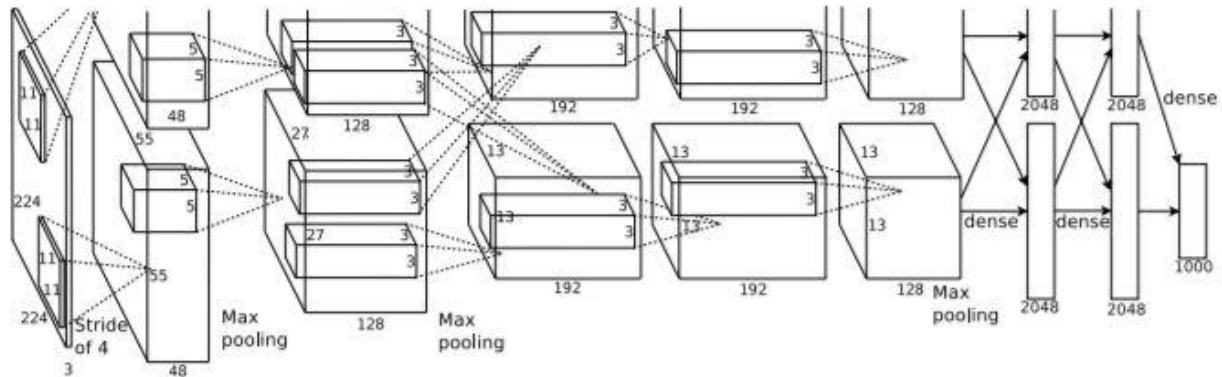


AlexNet



First Layer:

The input for AlexNet is a $227 \times 227 \times 3$ RGB image which passes through the first convolutional layer with 96 feature maps or filters having size 11×11 and a stride of 4. The image dimensions change to $55 \times 55 \times 96$.

Then the AlexNet applies maximum pooling layer or sub-sampling layer with a filter size 3×3 and a stride of two. The resulting image dimensions will be reduced to $27 \times 27 \times 96$.

Second Layer:

Next, there is a second convolutional layer with 256 feature maps having size 5×5 and a stride of 1. Then there is again a maximum pooling layer with filter size 3×3 and a stride of 2. This layer is same as the second layer except it has 256 feature maps so the output will be reduced to $13 \times 13 \times 256$.

Third, Fourth and Fifth Layers:

The third, fourth and fifth layers are convolutional layers with filter size 3×3 and a stride of one. The first two used 384 feature maps where the third used 256 filters.

The three convolutional layers are followed by a maximum pooling layer with filter size 3×3 , a stride of 2 and have 256 feature maps.

Sixth Layer:

The convolutional layer output is flattened through a fully connected layer with 9216 feature maps each of size 1×1 .

Seventh and Eighth Layers:

Next is again two fully connected layers with 4096 units.

Output Layer:

Finally, there is a softmax output layer \hat{y} with 1000 possible values.

Summary:

Layer		Feature Map	Size	Kernel Size	Stride	Activation
Input	Image	1	227x227x3	-	-	-
1	Convolution	96	55 x 55 x 96	11x11	4	relu
	Max Pooling	96	27 x 27 x 96	3x3	2	relu
2	Convolution	256	27 x 27 x 256	5x5	1	relu
	Max Pooling	256	13 x 13 x 256	3x3	2	relu
3	Convolution	384	13 x 13 x 384	3x3	1	relu
4	Convolution	384	13 x 13 x 384	3x3	1	relu
5	Convolution	256	13 x 13 x 256	3x3	1	relu
	Max Pooling	256	6 x 6 x 256	3x3	2	relu
6	FC	-	9216	-	-	relu
7	FC	-	4096	-	-	relu
8	FC	-	4096	-	-	relu
Output	FC	-	1000	-	-	Softmax

<https://engmrk.com/alexnet-implementation-using-keras/>