



deeplearning.ai

# Convolutional Neural Networks

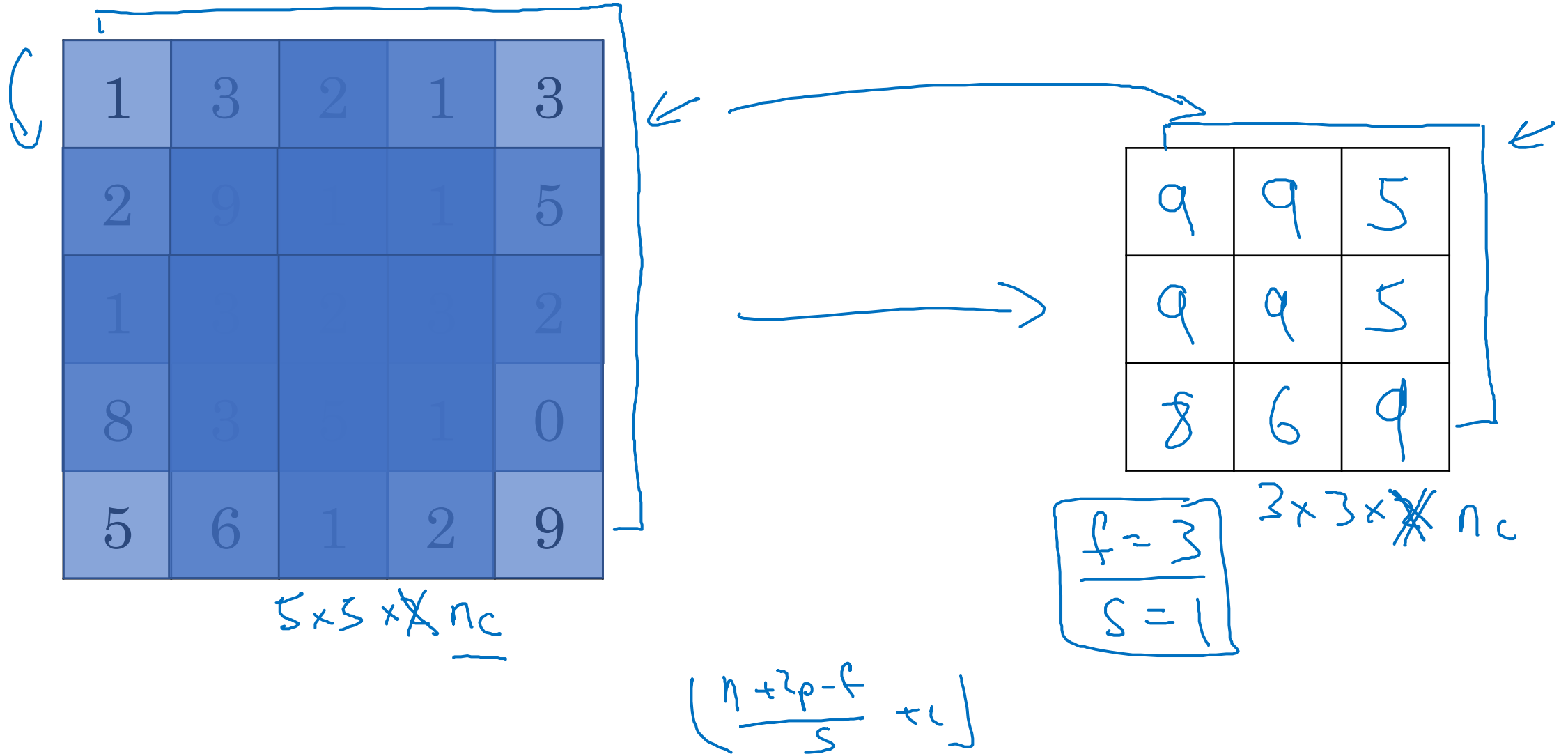
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## Pooling layers

# Pooling layer: Max pooling

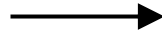
1	3	2	1
2	9	1	1
1	3	2	3
5	6	1	2


# Pooling layer: Max pooling



# Pooling layer: Average pooling

1	3	2	1
2	9	1	1
1	4	2	3
5	6	1	2



3.75	1.25
4	2

$$f=2$$

$$s=2$$

$$\underline{7 \times 7 \times 1000} \rightarrow 1 \times 1 \times 1000$$

# Summary of pooling

Hyperparameters:

f : filter size

s : stride

Max or average pooling

$$f=2, s=2$$

$$f=3, s=2$$

~~⇒ p: padding.~~

No parameters to learn!

$$n_H \times n_W \times \underline{n_C}$$

$$\downarrow$$
$$\left\lfloor \frac{n_H - f}{s} + 1 \right\rfloor \times \left\lfloor \frac{n_W - f}{s} + 1 \right\rfloor$$
$$\times \underline{n_C}$$