



deeplearning.ai

Convolutional Neural Networks

Pooling layers

Pooling layer: Max pooling

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

4x4



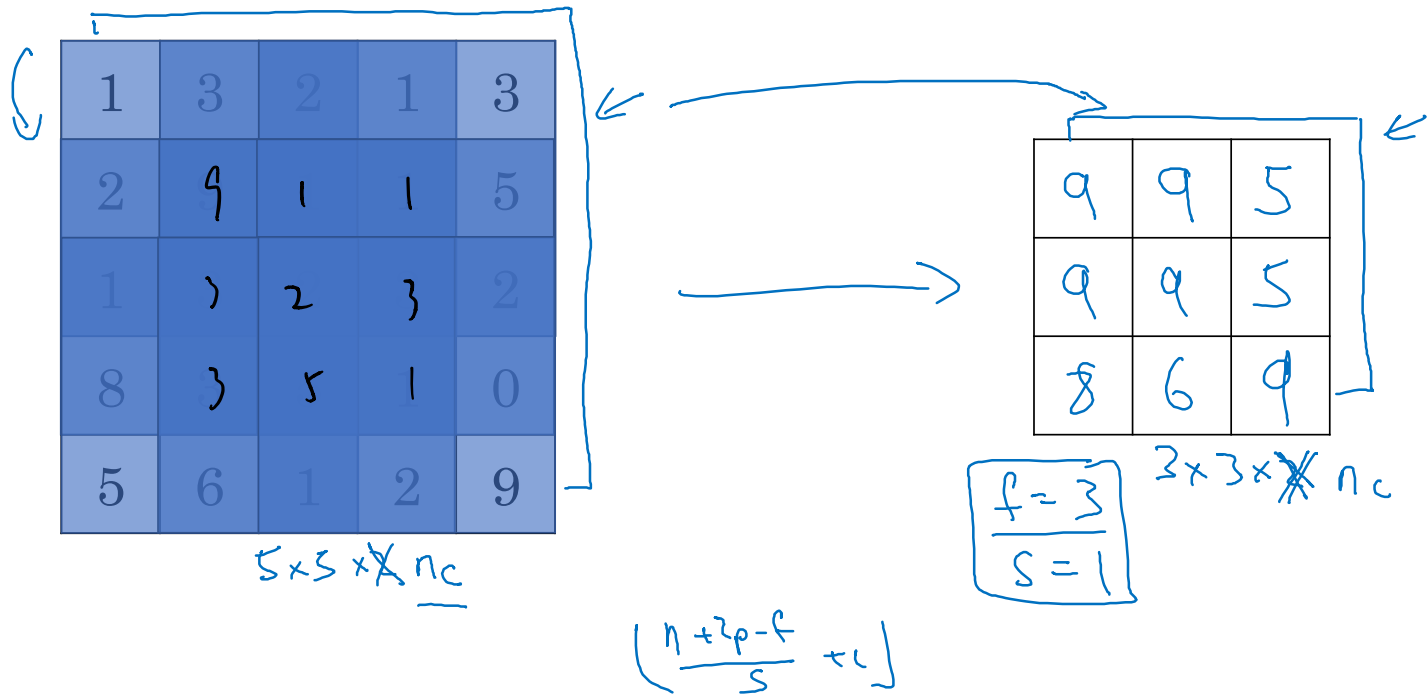
9	2
6	3

2x2

Hyperparameters:
 $f=2$
 $s=2$

to

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 (most common)
f=3, s=2

→ ~~p: padding~~ (0 most common)

No parameters to learn!

$$N_H \times N_W \times \underline{N_C}$$

↓

$$\left\lfloor \frac{N_H - f}{s} + 1 \right\rfloor \times \left\lfloor \frac{N_W - f}{s} + 1 \right\rfloor \times \underline{N_C}$$