

What is Padding?

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7	2	3	3	8
4	5	3	8	4
3	3	2	8	4
2	8	7	2	7
5	4	4	5	4

*

1	0	-1
1	0	-1
1	0	-1

=

6		

$$7 \times 1 + 4 \times 1 + 3 \times 1 + 2 \times 0 + 5 \times 0 + 3 \times 0 + 3 \times -1 + 3 \times -1 + 2 \times -1 = 6$$

$n \times n$
 5×5

7×7

$f \times f$
 3×3

$$\rightarrow (n-f+1)(n-f+1)$$

$$(5-3+1) = 3 \times 3$$

$$n-f+1 = 5$$

$$n-3+1=5 \Rightarrow n=8-1$$

$$n=7$$

0	0	0	0	0	0	0
0	7	2	3	3	8	0
0	4	5	3	8	4	0
0	3	3	2	8	4	0
0	2	8	7	2	7	0
0	5	4	4	5	4	0
0	0	0	0	0	0	0

7×7

Zero padding

convolution

$$5 \times 5 \rightarrow 3 \times 3$$

$$\underline{5 \times 5} \rightarrow 3 \times 3$$

$$(n - f + 1)$$

↓

$$(n + 2p - f + 1)$$

$$5 + 2(1) - 3 + 1 \quad \checkmark$$

$$= 7 - 3 + 1 = 5$$

