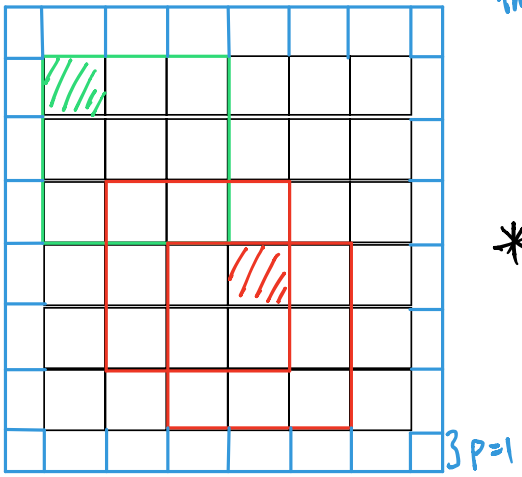
deeplearning.ai

Convolutional Neural Networks

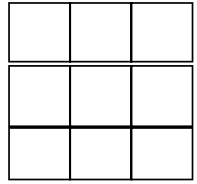
Padding

Padding

- Shrinky Output
- throwy away info from edge.



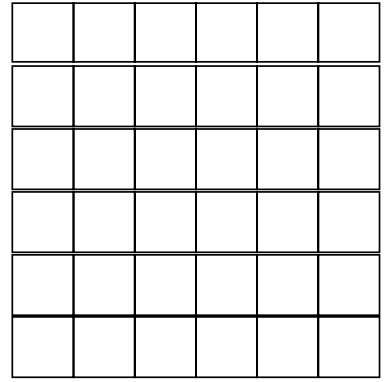
$*$



3×3

$f \times f$

$=$



6×6

$6 \times 6 \rightarrow 8 \times 8$

$n \times n$

$p = \text{padding} = 1$

$(n-f+1) \times (n-f+1) \rightarrow \cancel{4 \times 4}$

$6-3+1 = 4$

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

$6+2-3+1 = 6 \times 6$

Andrew Ng

Valid and Same convolutions

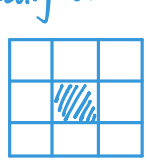
→ no padding

"Valid": $n \times n \quad * \quad f \times f \longrightarrow n-f+1 \times n-f+1$

$6 \times 6 \quad * \quad 3 \times 3 \longrightarrow 4 \times 4$

"Same": Pad so that output size is the same as the input size.

f is usually odd.



1×1
3×3
5×5
7×7

$n+2p-f+1 \quad * \quad n+2p-f+1$

~~$n+2p-f+1 = n$~~.

$\Rightarrow p = \frac{f-1}{2}$

$3 \times 3, \; p = \frac{3-1}{2} = 1$ | 5×5

$p = 2$.