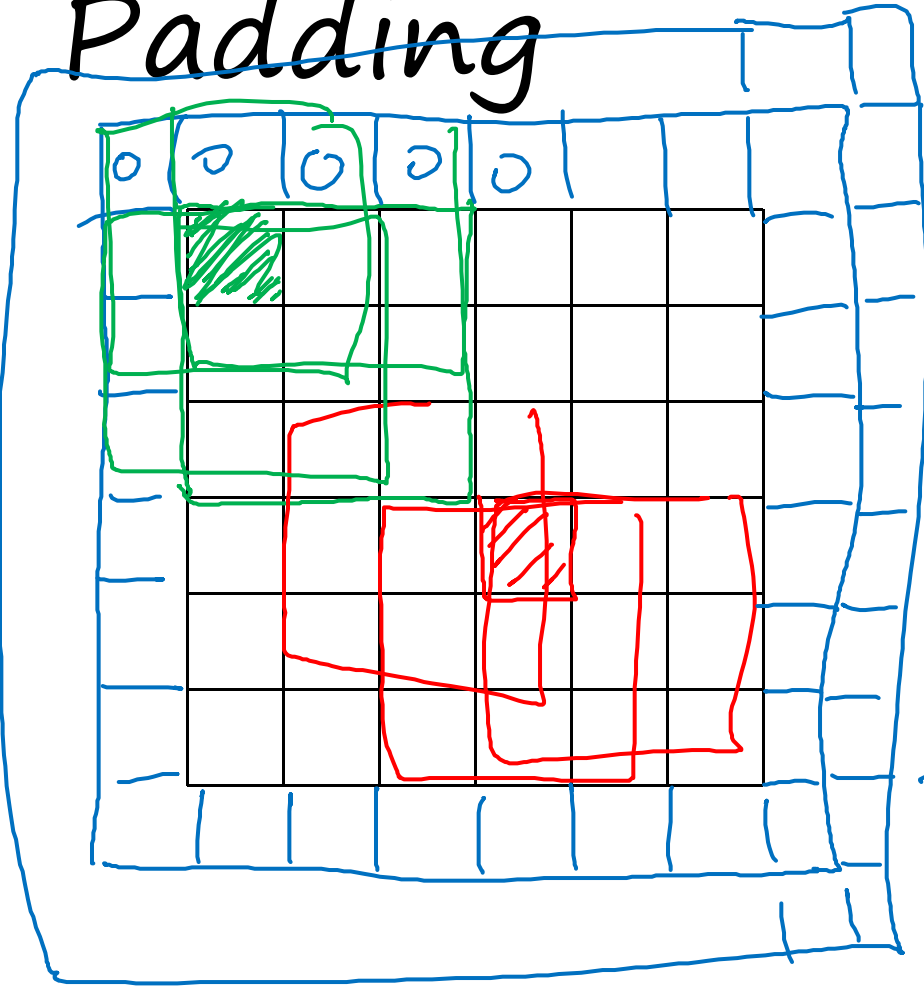deeplearning.ai

Convolutional
Neural Networks
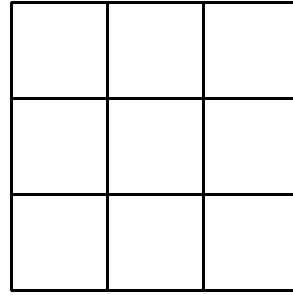
Padding

Padding

- Shrinks output
- throw away info from edge
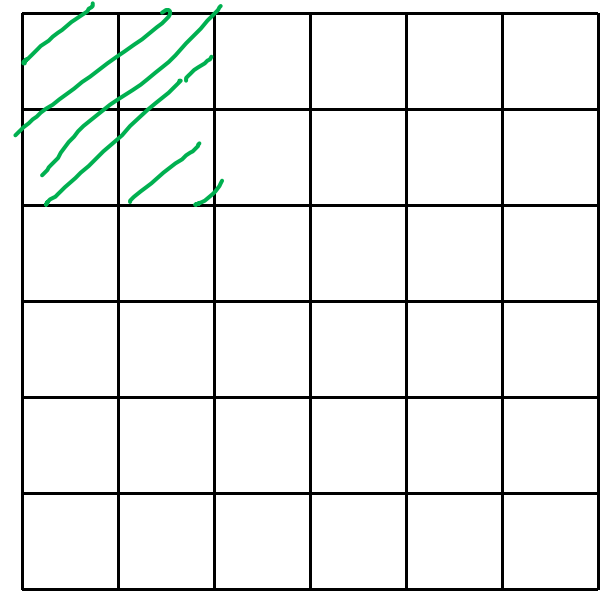
$*$

3×3
f × f

$p=2$

=

6×6

$\dfrac{6\times6}{n\times n} \to 8\times8$

$n-f+1 \times n-f+1$

$6-3+1 = 4$

$\dfrac{4\times4}{}$

$P = \text{padding} = \underline{1}$

$n+2p-f+1 \times n+2p-f+1$
$6+2-3+1 \times \_\_\_ = 6\times6$

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Valid and Same convolutions

→ no padding

"Valid": $n \times n$ $*$ $f \times f$ $\longrightarrow$ $\underline{n-f+1} \times n-f+1$

6×6 $*$ 3×3 $\longrightarrow$ 4×4

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

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

f is usually odd

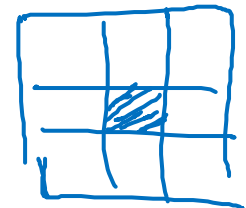$n+2p-f+1 = n \Rightarrow \boxed{p = \dfrac{f-1}{2}}$

3×3 $p = \dfrac{3-1}{2} = 1$ 5×5 $p=2$

$f=5$

1×1
3×3
5×5
7×7

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