



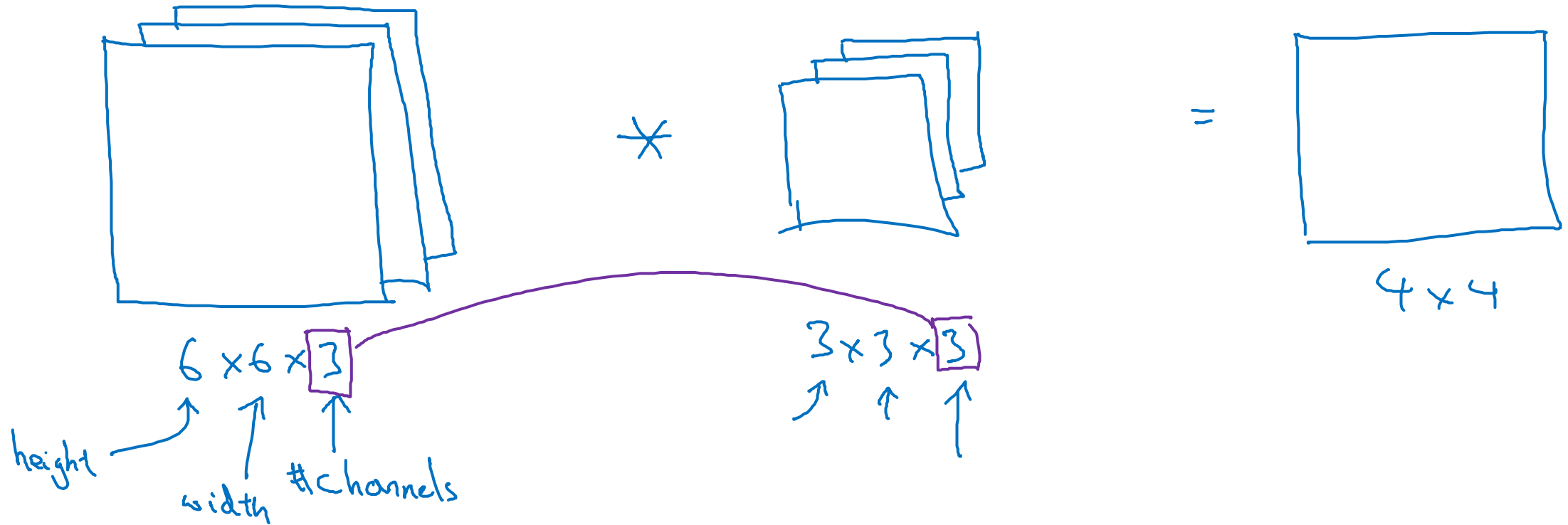
deeplearning.ai

# Convolutional Neural Networks

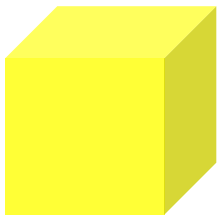
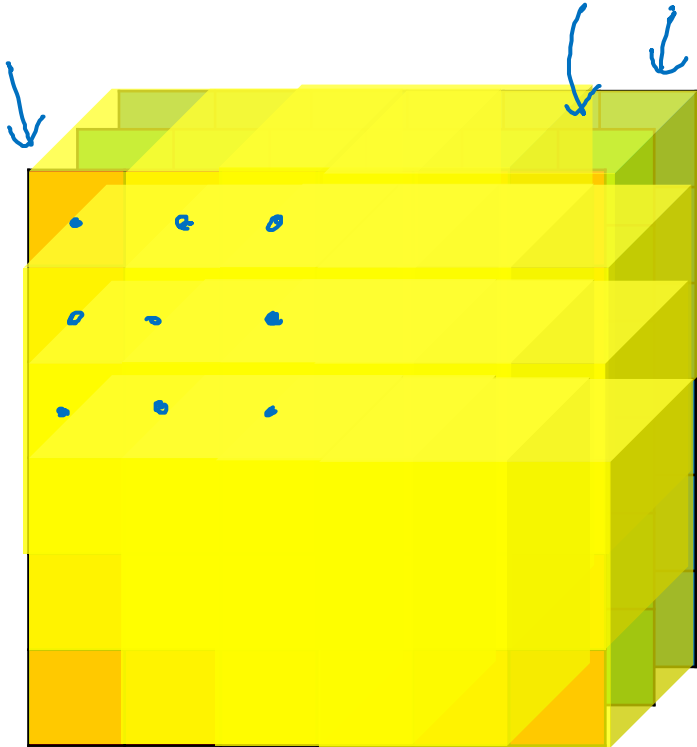
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## Convolutions over volumes

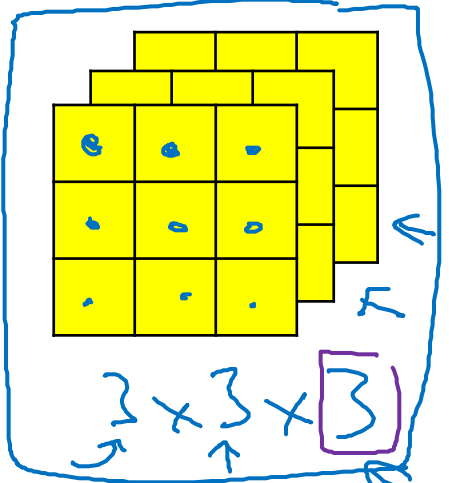
# Convolutions on RGB images



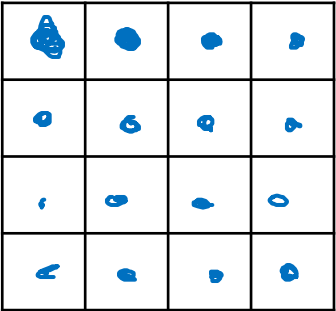
# Convolutions on RGB image



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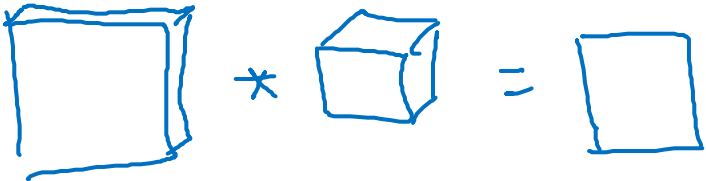


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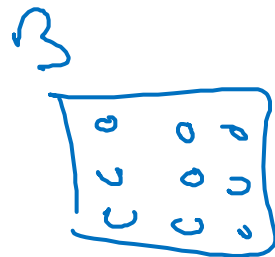
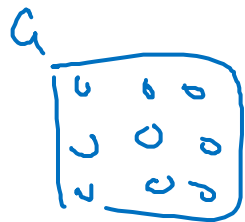
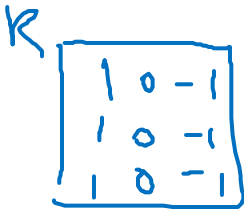


4 x 4

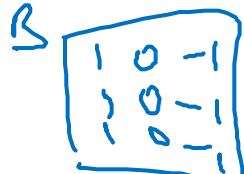
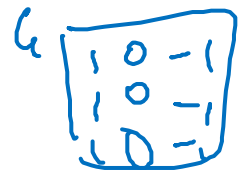
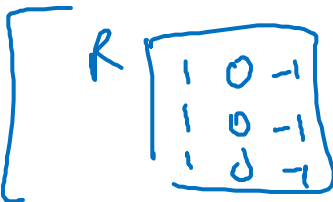
$6 \times 6 \times 3$   
↑ ↑ ↑



27 numbers

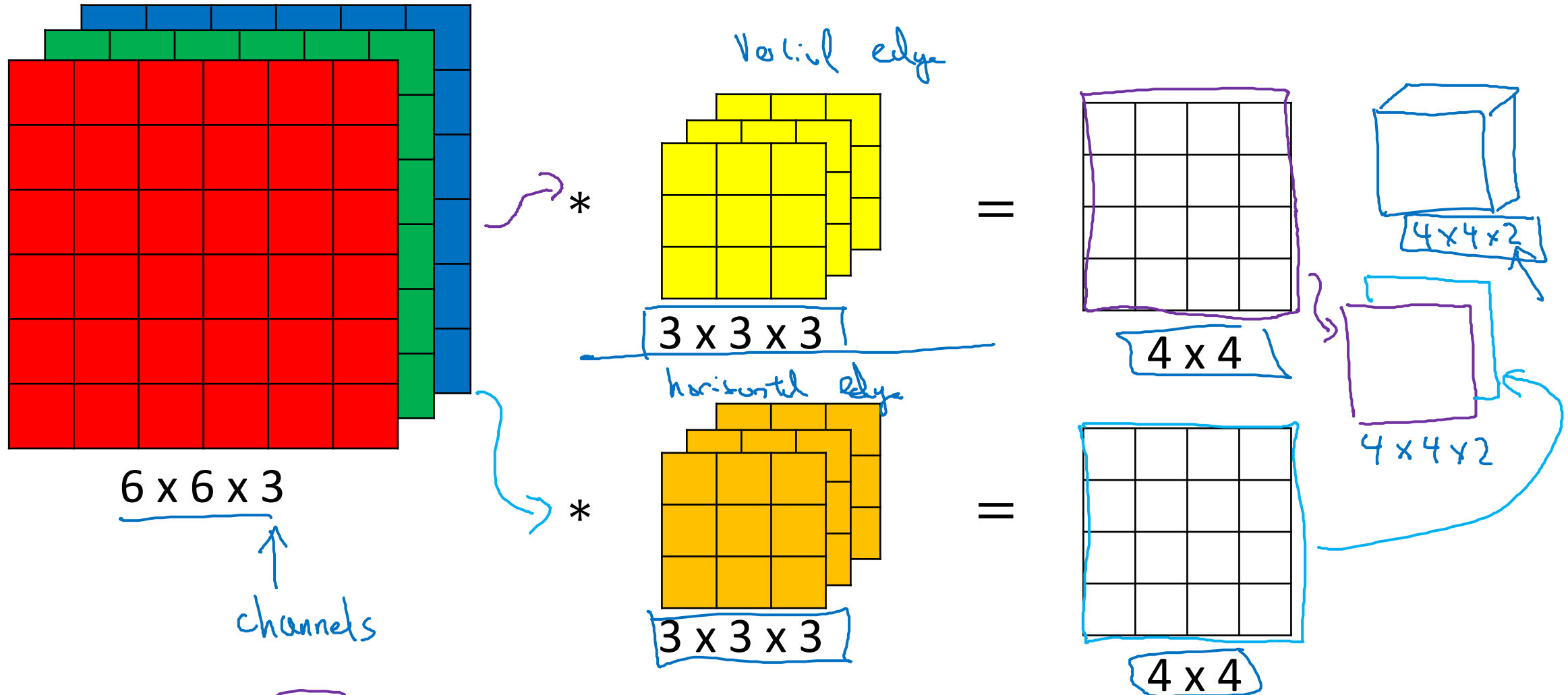


→ 3x3x3



→ 3x3x3

# Multiple filters



Summary:  $n \times n \times n_c$   $\times$   $f \times f \times n_c$   $\rightarrow$   $\frac{n-f+1}{4} \times \frac{n-f+1}{4} \times n_c'$

$6 \times 6 \times 3$   $3 \times 3 \times 3$   $4 \times 4 \times 2$   $\uparrow$  #filters