



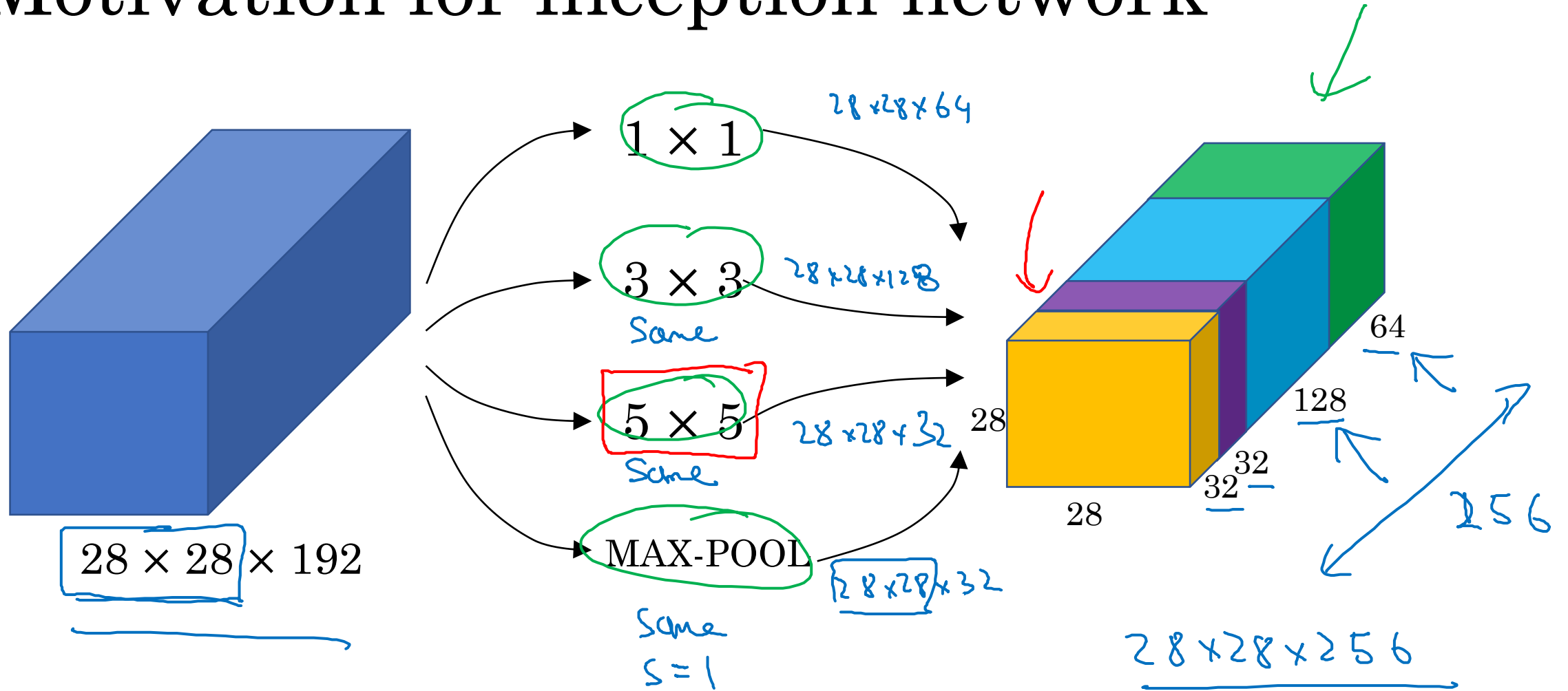
deeplearning.ai

# Case Studies

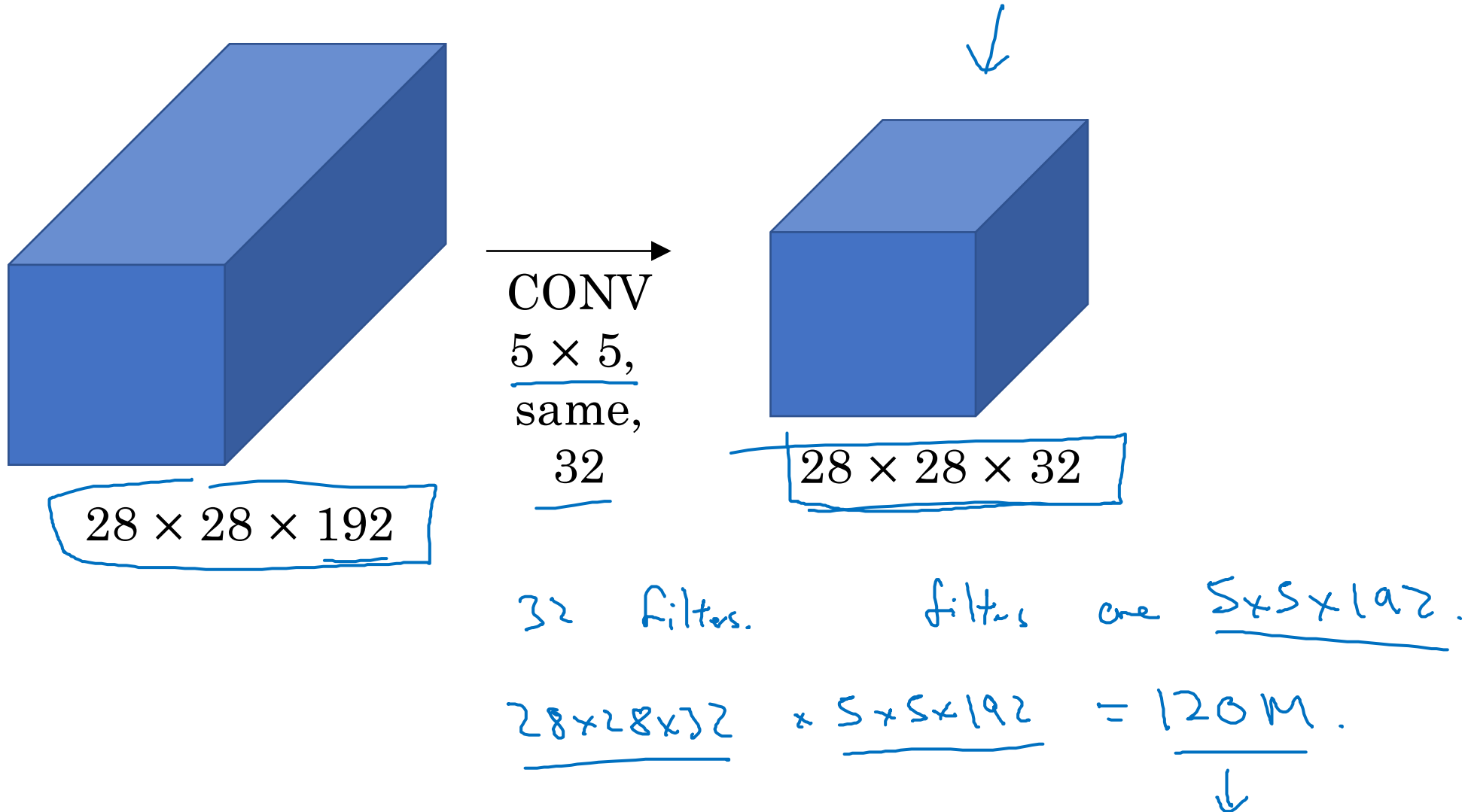
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## Inception network motivation

# Motivation for inception network

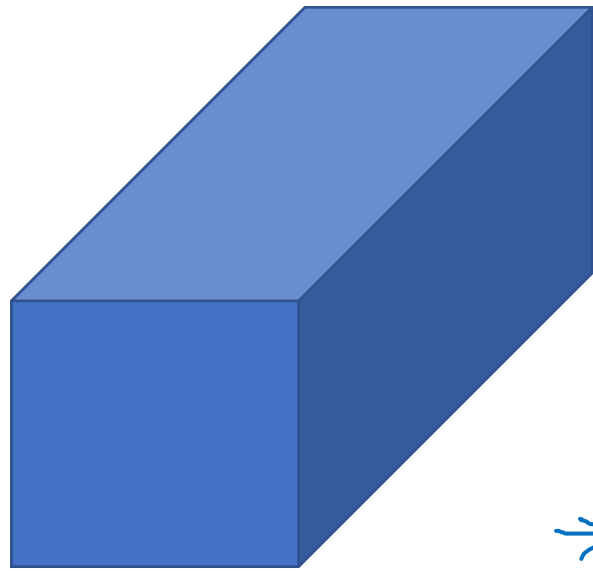
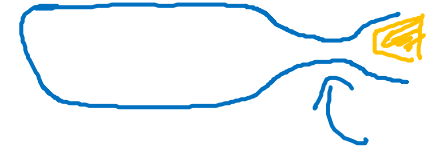


# The problem of computational cost



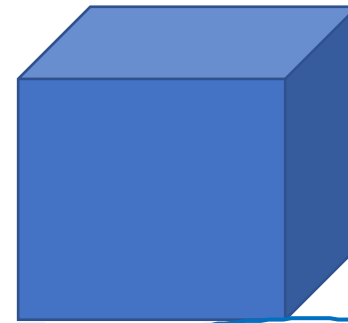
# Using $1 \times 1$ convolution

"bottleneck layers"



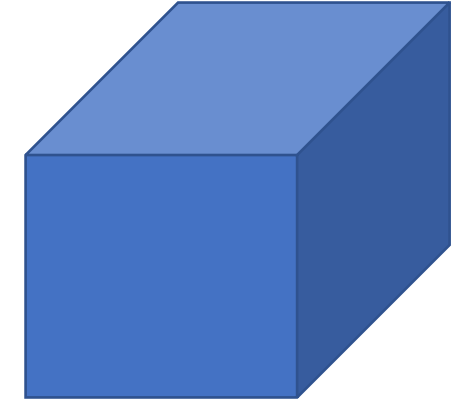
$28 \times 28 \times 192$

CONV  
 $1 \times 1$ ,  
 $\rightarrow 16$ ,  
 $\rightarrow 1 \times 1 \times 192$



$28 \times 28 \times 16$

CONV  
 $5 \times 5$ ,  
32,  
 $5 \times 5 \times 16$



$28 \times 28 \times 32$

$$28 \times 28 \times 16 \times 192 = 2.4M$$

$$28 \times 28 \times 32 \times 5 \times 5 \times 16 = 10.0M$$

12.4M

120M