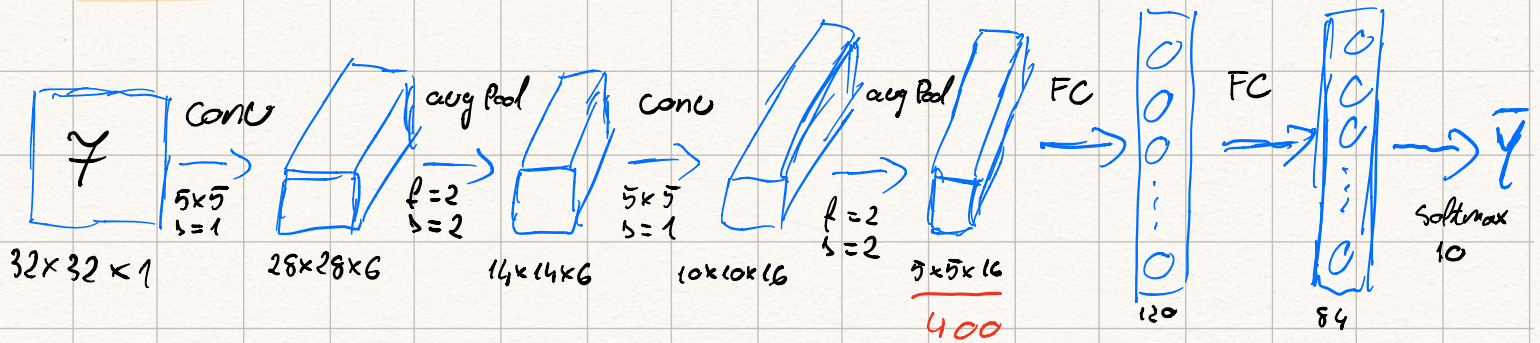
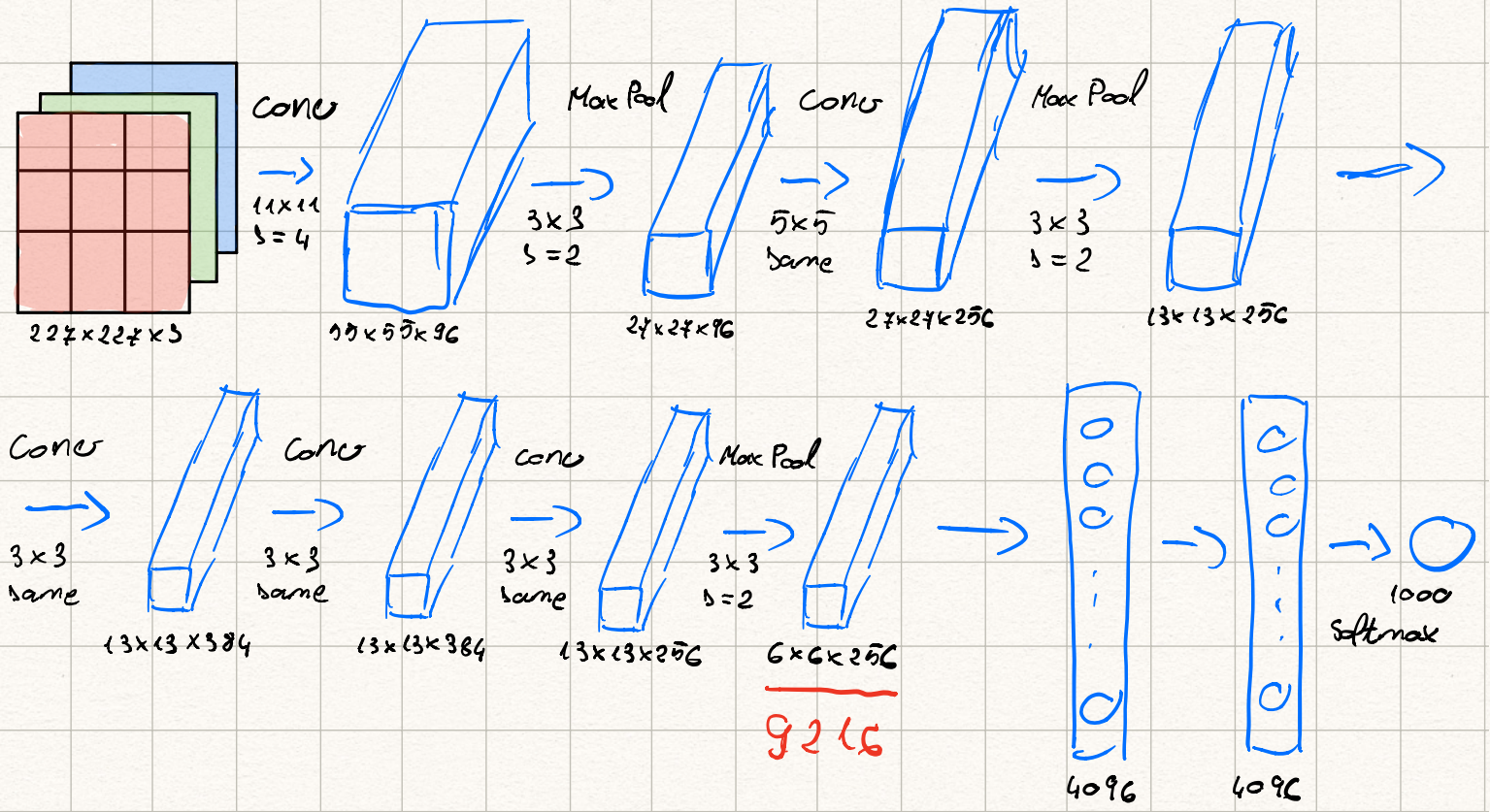


# LeNet - 5



- $\sim 60k$  parameters
- $n_H, n_W \downarrow, n_C \uparrow$
- then sigmoid/tanh  $\rightarrow$  now: relu

# AlexNet

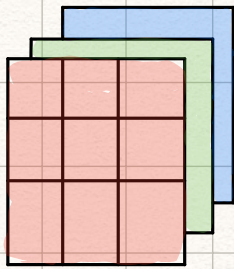


- $\sim 60$  million parameters
- Relu

# VGG-16

Conv:  $3 \times 3$ ,  $b=1$ , same

Max Pool:  $2 \times 2$ ,  $b=2$



$224 \times 224 \times 3$

$\rightarrow 224 \times 224 \times 64 \xrightarrow{\text{Pool}} 112 \times 112 \times 64 \xrightarrow{\text{Conv, 128} \times 2} 112 \times 112 \times 128 \xrightarrow{\text{Pool}}$

$\rightarrow 56 \times 56 \times 128 \xrightarrow{\text{Conv, 256} \times 3} 56 \times 56 \times 256 \xrightarrow{\text{Pool}} 28 \times 28 \times 256 \xrightarrow{\text{Conv, 512} \times 3}$

$\rightarrow 28 \times 28 \times 512 \xrightarrow{\text{Pool}} 14 \times 14 \times 512 \xrightarrow{\text{Conv, 512} \times 3} 14 \times 14 \times 512 \xrightarrow{\text{Pool}}$

$\rightarrow 7 \times 7 \times 512 \rightarrow \text{FC}_{4096} \rightarrow \text{FC}_{4096} \rightarrow \text{Softmax}_{1000}$

•  $\sim 138$  million parameters