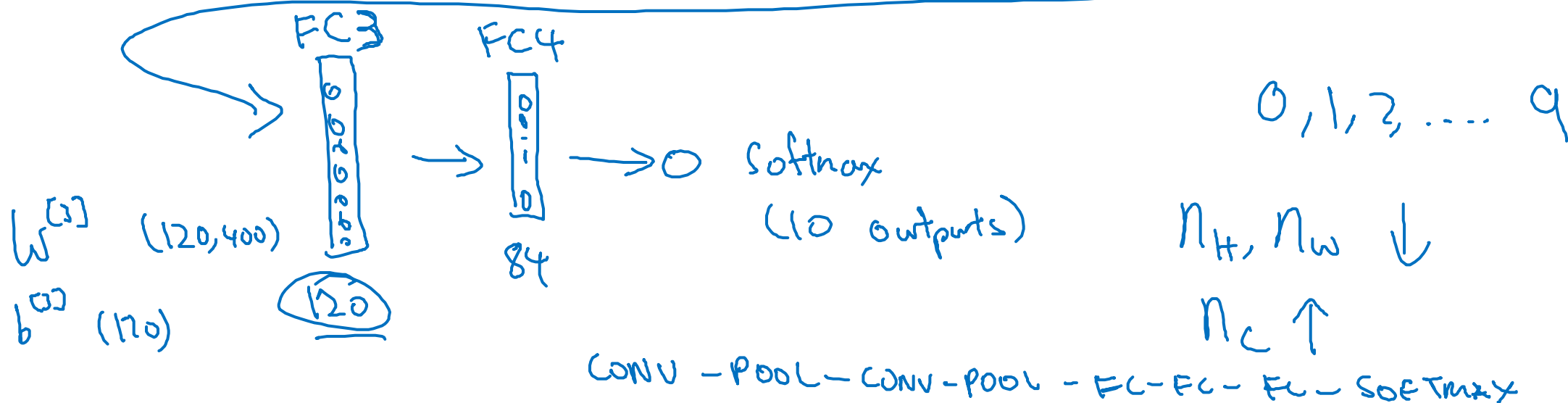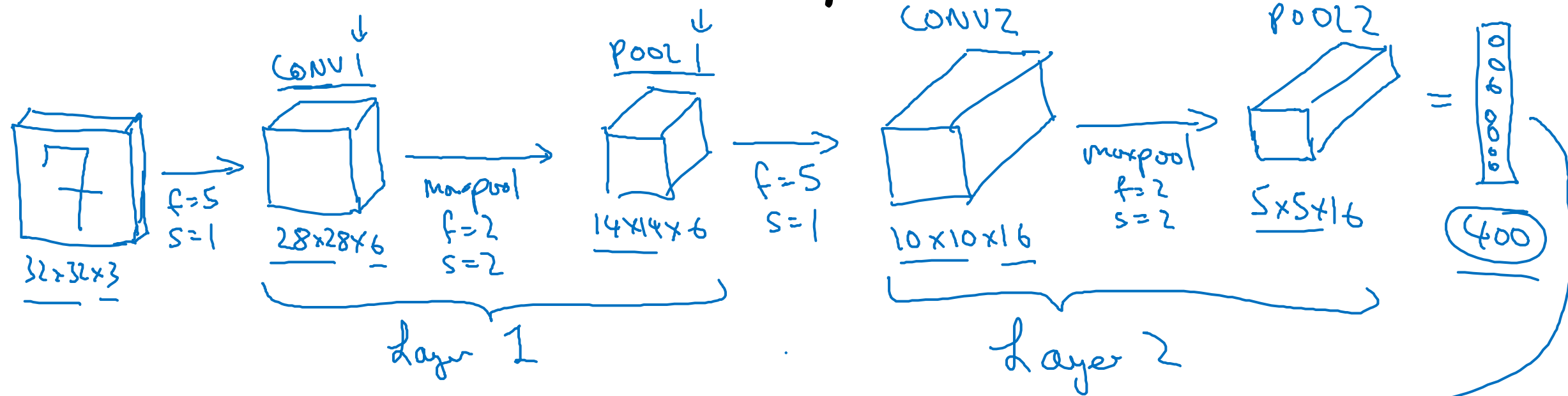deeplearning.ai

Convolutional Neural Networks

Convolutional neural network example

Neural network example (LeNet-5)

CONV1 ↓

POOL1 ↓

CONV2

POOL2

$32 \times 32 \times 3$ → $f=5$, $S=1$ → $28 \times 28 \times 6$ → maxpool $f=2$, $S=2$ → $14 \times 14 \times 6$ → $f=5$, $S=1$ → $10 \times 10 \times 16$ → maxpool $f=2$, $S=2$ → $5 \times 5 \times 16$ = (400)

Layer 1

Layer 2

FC3

FC4

→ (120) → 84 → O Softmax (10 outputs)

$W^{[3]}$ (120, 400)

$b^{[3]}$ (120)

$0, 1, 2, \ldots 9$

$n_H, n_W \downarrow$

$n_C \uparrow$

CONV – POOL – CONV – POOL – FC – FC – FC – SOFTMAX

Andrew Ng

Neural network example

	Activation shape	Activation Size	# parameters
Input:	(32,32,3)	$\sim$ 3,072 $a^{[0]}$	0
$(\sim)$			
POOL2	(5,5,16)	400	0
FC3	(120,1)	120	48,001
FC4	(84,1)	84	10,081
Softmax	(10,1)	10	841

Andrew Ng