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
$f=2$
$s=2$

$5 \times 5 \times 16$

$= \quad (400)$

Layer 1

Layer 2

FC3

FC4

→ O Softmax

(10 outputs)

$0, 1, 2, \ldots 9$

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

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

(120)

84

$n_H, n_W \downarrow$

$n_c \uparrow$

CONV - POOL - CONV - POOL - FC - FC - FC - SOFTMAX

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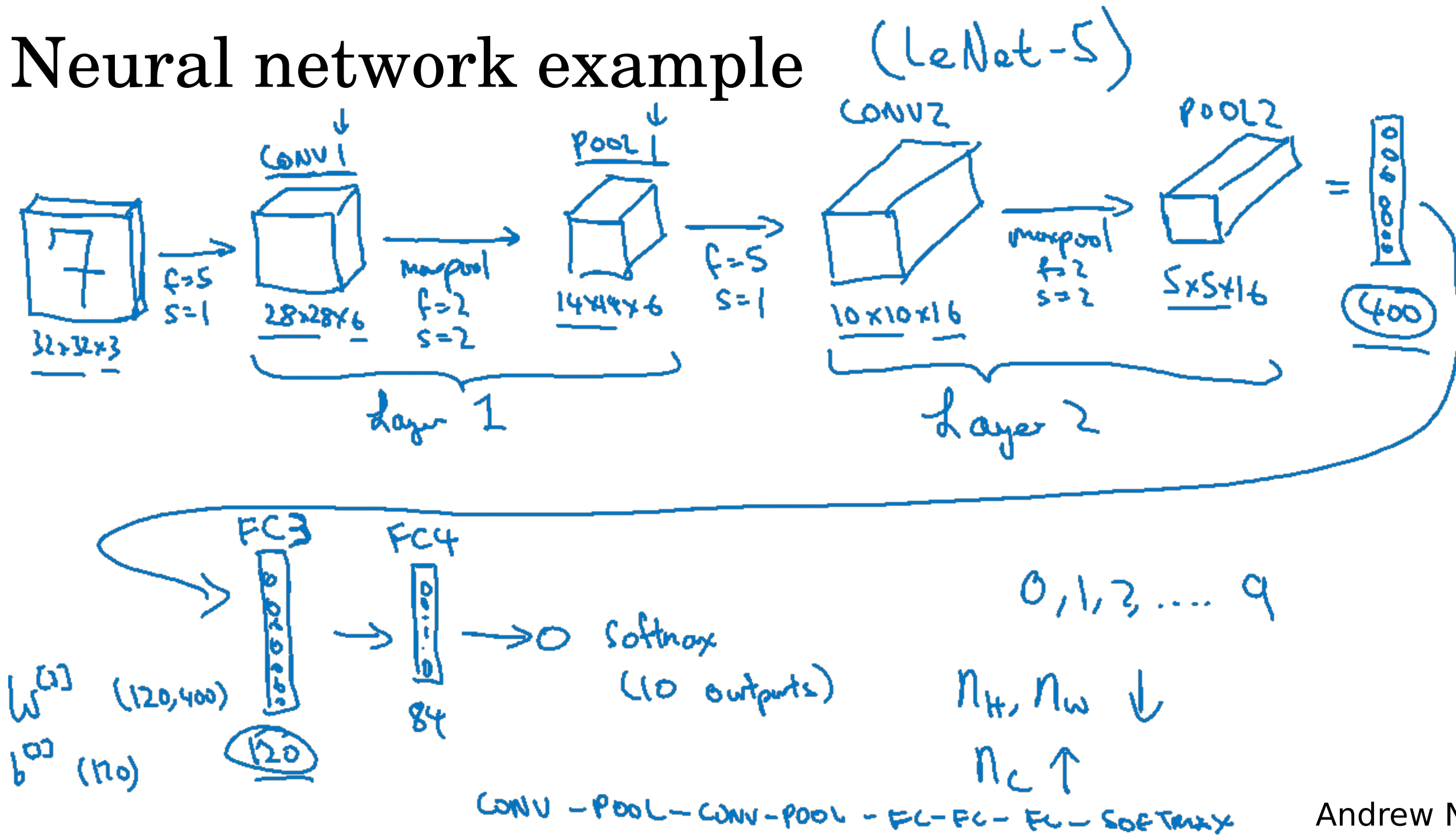
Neural network example

	Activation shape	Activation Size	# parameters
Input:	(32,32,3)	3,072 $a^{[0]}$	0