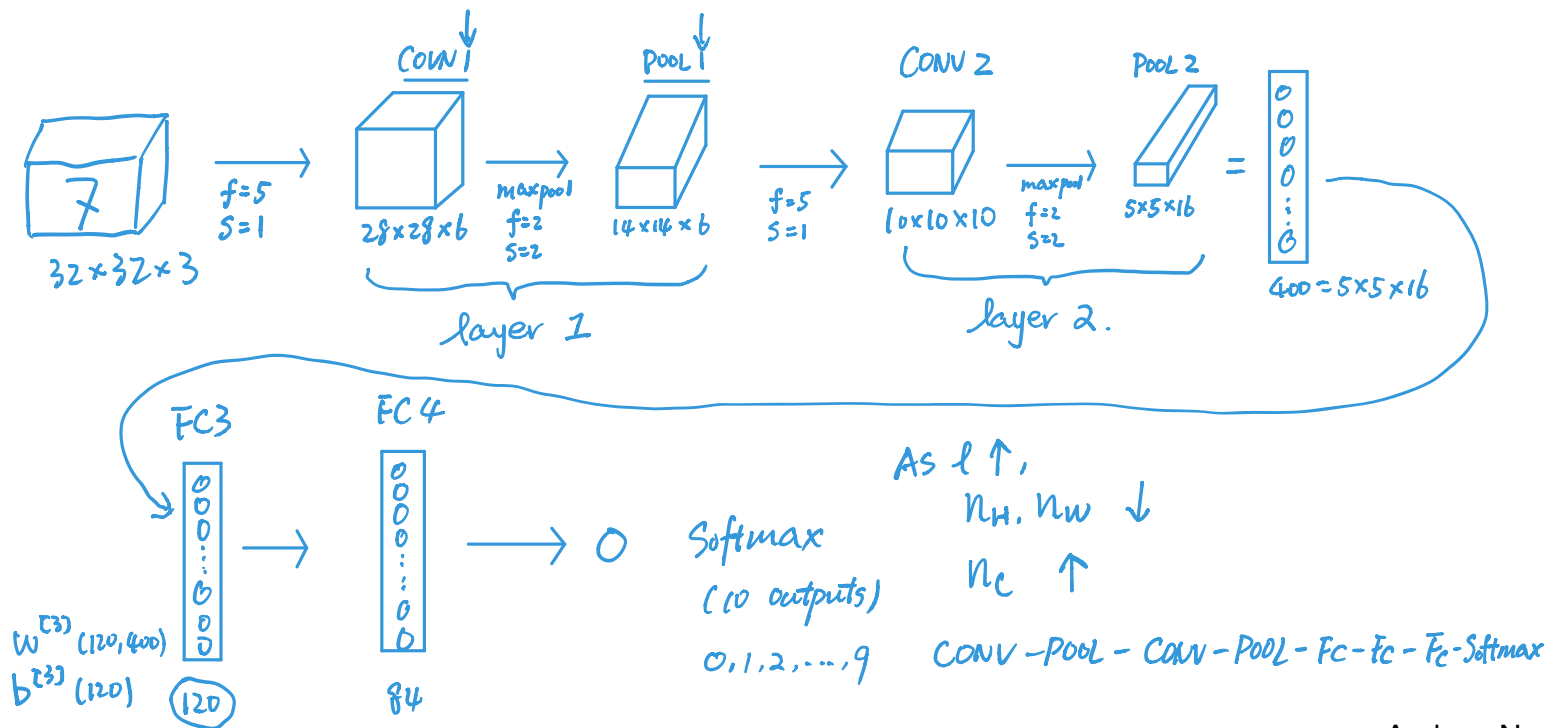deeplearning.ai

Convolutional Neural Networks

Convolutional neural network example

Neural network example (LeNet-5)

CONV 1

POOL 1

CONV 2

POOL 2

$32 \times 32 \times 3$ $f=5$ $s=1$ $28 \times 28 \times 6$ maxpool $f=2$ $s=2$ $14 \times 14 \times 6$ $f=5$ $s=1$ $10 \times 10 \times 10$ maxpool $f=2$ $s=2$ $5 \times 5 \times 16$

$400 = 5 \times 5 \times 16$

layer 1

layer 2.

FC3

FC4

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

120

84

Softmax
(10 outputs)

$0, 1, 2, \ldots, 9$

As $l \uparrow$,
$n_H, n_W \downarrow$
$n_c \uparrow$

CONV - POOL - CONV - POOL - FC - FC - FC - Softmax

Andrew Ng

Neural network example

	Activation shape	Activation Size	# parameters
Input:	(32,32,3)	3,072 $a^{[0]}$	0
CONV1 (f=5, s=1)	(28,28,8)	6272	208 ←
POOL1	(14,14,8)	1568	0 ←
CONV2 (f=5, s=1)	(10,10,16)	1600	416 ←
POOL 2	(5,5,16)	400	0 ←
FC3	(120,1)	120	48001
FC 4	(84,1)	84	10,081
Softmax	(10,1)	10	841