deeplearning.ai

Convolutional Neural Networks

A simple convolution network example

Example ConvNet

$a^{[1]}$

$a^{[2]}$

$\rightarrow f^{[1]} = 3$
$\rightarrow s^{[1]} = 1$
$\rightarrow p^{[1]} = 0$
$\rightarrow 10$ filters

$f^{[2]} = 5$
$s^{[2]} = 2$
$p^{[2]} = 0$
20 filters

$f^{[3]} = 5$
$s^{[3]} = 2$
40 filters

$39 \times 39 \times 3$
$n_H^{[0]} = n_W^{[0]} = 39$
$n_c^{[0]} = 3$

$37 \times 37 \times 10$
$n_H^{[1]} = n_W^{[1]} = 37$
$n_c^{[1]} = 10$

$17 \times 17 \times 20$
$n_H^{[2]} = n_W^{[2]} = 17$
$n_c^{[2]} = 20$

$7 \times 7 \times 40$

flatten/unroll

$\dfrac{n + 2p - f}{s} + 1$

$\dfrac{39 + 0 - 3}{1} + 1 = 37$

$\hat{y}$
logistic/softmax

1960

Andrew Ng
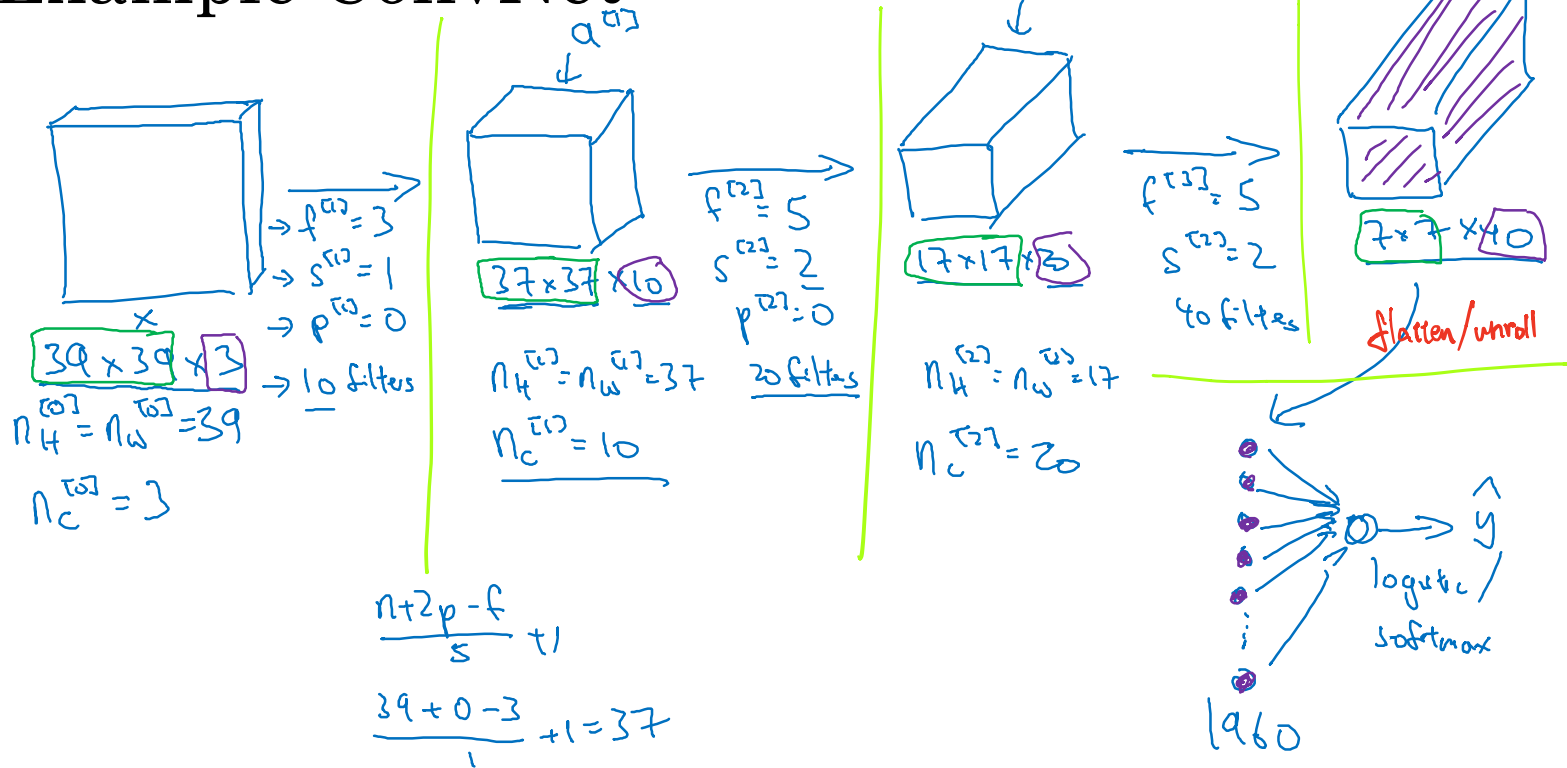
Types of layer in a convolutional network:

- Convolution $(CONV)$ $\leftarrow$

- Pooling $(POOL)$ $\leftarrow$

- Fully connected (FC) $\leftarrow$

n_H, n_W

channels

$\rightarrow$ layer