Convolutional
Neural Networks

deeplearning.ai

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

x

$\boxed{39 \times 39} \times \boxed{3}$

$n_H^{[0]} = n_W^{[0]} = 39$

$n_c^{[0]} = 3$

$\boxed{37 \times 37} \times \boxed{10}$

$f^{[2]} = 5$

$S^{[2]} = 2$

$p^{[2]} = 0$

$n_H^{[1]} = n_W^{[1]} = 37$ 20 filters

$n_c^{[1]} = 10$

$\boxed{17 \times 17} \times \boxed{20}$

$f^{[3]} = 5$

$S^{[2]} = 2$

40 filters

$n_H^{[2]} = n_W^{[2]} = 17$

$n_c^{[2]} = 20$

$\boxed{7 \times 7} \times \boxed{40}$

$\frac{n + 2p - f}{S} + 1$

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

$\hat{y}$

logistic /
softmax

1960
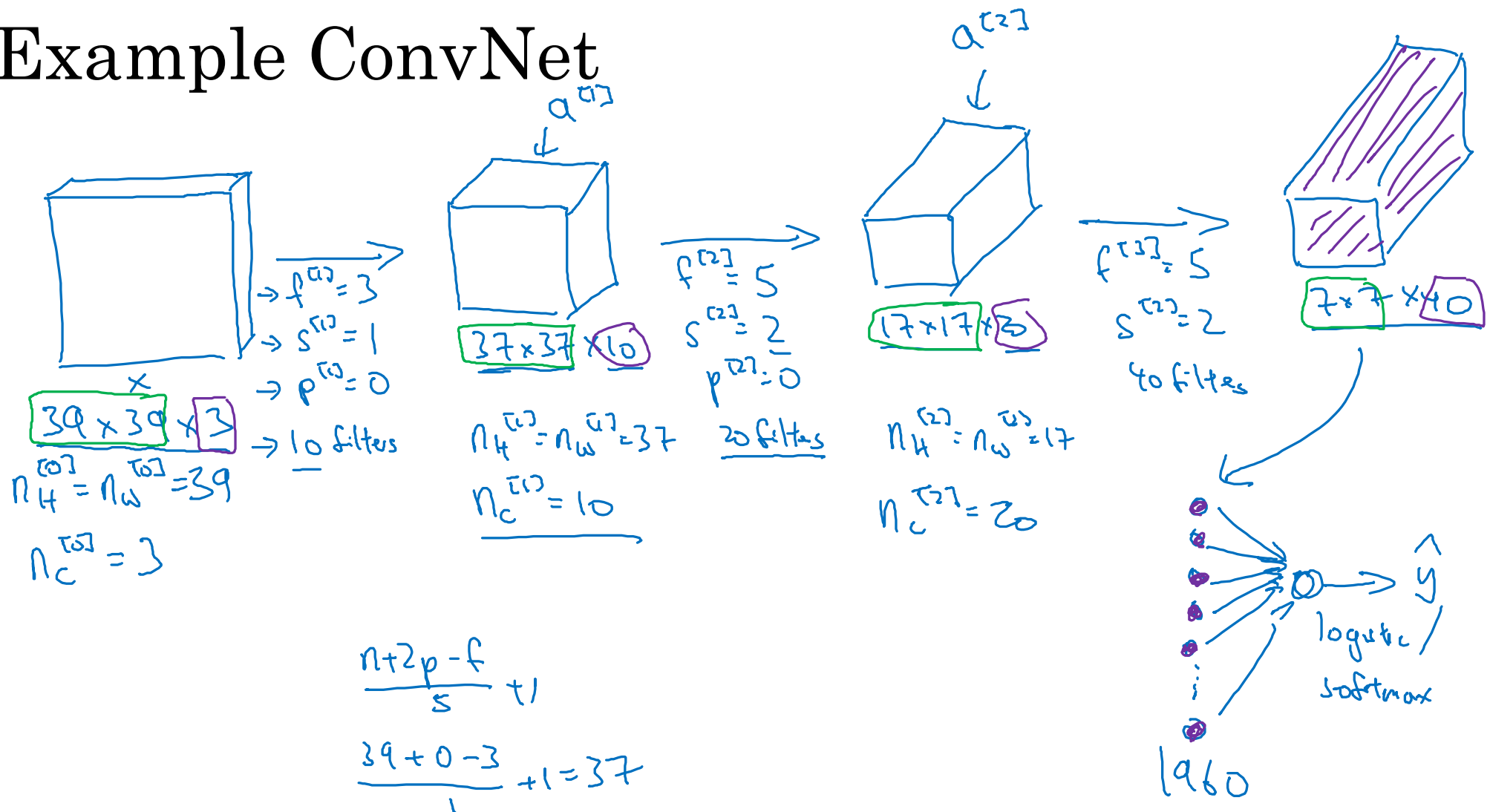
Types of layer in a convolutional network:

- Convolution $\quad$ (CONV) $\leftarrow$
- Pooling $\quad$ (POOL) $\leftarrow$
- Fully connected $\quad$ (FC) $\leftarrow$