

CNN Example *CORRECTION*

Starting from 9:45, please note that the calculation of the number of parameters is incorrect.

Here is a screenshot of that slide:

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) | <u>6,272</u> | 208 ← |
| POOL1 | (14,14,8) | <u>1,568</u> | 0 ← |
| CONV2 (f=5, s=1) | (10,10,16) | <u>1,600</u> | 416 ← |
| POOL2 | (5,5,16) | <u>400</u> | 0 ← |
| FC3 | (120,1) | <u>120</u> | 48,001 } |
| FC4 | (84,1) | <u>84</u> | 10,081 } |
| Softmax | (10,1) | <u>10</u> | 841 |

Andrew Ng

Here are the 5 typos:

1. 208 should be $(5*5*3 + 1) * 8 = 608$
 2. 416 should be $(5*5*8 + 1) * 16 = 3216$
 3. In the FC3, 48001 should be $400*120 + 120 = 48120$, since the bias should have 120 parameters, not 1
 4. Similarly, in the FC4, 10081 should be $120*84 + 84$ (not 1) = 10164
- (Here, the bias is for the fully connected layer. In fully connected layers, there will be one bias for each neuron, so the bias become In FC3 there were 120 neurons so 120 biases.)
5. Finally, in the softmax, 841 should be $84*10 + 10 = 850$