

Deep Neural Network

- ✔ **Video:** Deep L-layer neural network
5 min
- ✔ **Video:** Forward Propagation in a Deep Network
7 min
- ✔ **Reading:** Clarification about Getting your matrix dimensions right video
1 min
- ✔ **Video:** Getting your matrix dimensions right
11 min
- ✔ **Video:** Why deep representations?
10 min
- ✔ **Video:** Building blocks of deep neural networks
8 min
- ✔ **Reading:** Clarification about Upcoming Forward and Backward Propagation Video
1 min
- ✔ **Video:** Forward and Backward Propagation
10 min
- ✔ **Video:** Parameters vs Hyperparameters
7 min
- ✔ **Reading:** Clarification about What does this have to do with the brain video
1 min

Practice Questions

Programming Assignments

- ✔ **Notebook:** Building your Deep Neural Network: Step by Step
2h 30m
- ✔ **Programming Assignment:** Building your deep neural network: Step by Step
- ✔ **Notebook:** Deep Neural Network - Application
1h
- ✔ **Programming Assignment:** Deep Neural Network Application

Note that the formulas shown in the next video have a few typos. Here is the correct set of formulas.

$$dZ^{[L]} = A^{[L]} - Y$$

$$dW^{[L]} = \frac{1}{m} dZ^{[L]} A^{[L-1]T}$$

$$db^{[L]} = \frac{1}{m} np.sum(dZ^{[L]}, axis = 1, keepdims = True)$$

$$dZ^{[L-1]} = W^{[L]^T} dZ^{[L]} * g^{[L-1]}(Z^{[L-1]})$$

Note that $*$ denotes element-wise multiplication)

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$$dZ^{[1]} = W^{[2]} dZ^{[2]} * g'^{[1]}(Z^{[1]})$$

$$dW^{[1]} = \frac{1}{m} dZ^{[1]} A^{[0]T}$$

Note that $A^{[0]T}$ is another way to denote the input features, which is also written as X^T

$$db^{[1]} = \frac{1}{m} np.sum(dZ^{[1]}, axis = 1, keepdims = True)$$

✓ Complete

