

Deep Neural Network

- ✔ **Video:** Deep L-layer Neural Network  
5 min
- ▶ **Video:** Forward Propagation in a Deep Network  
7 min
- ▶ **Video:** Getting your Matrix Dimensions Right  
11 min
- ▶ **Video:** Why Deep Representations?  
10 min
- ▶ **Video:** Building Blocks of Deep Neural Networks  
8 min
- ▶ **Video:** Forward and Backward Propagation  
10 min
- ▶ **Video:** Parameters vs Hyperparameters  
7 min
- 📖 **Reading:** Clarification: What does this have to do with the brain?  
1 min
- ▶ **Video:** What does this have to do with the brain?  
4 min

Lecture Notes (Optional)

- ✔ **Reading:** Lectures in PDF  
1 min

Quiz

Programming Assignments

- 🔗 **Programming Assignment:** Building your Deep Neural Network: Step by Step  
3h
- ✔ **Reading:** Confusing Output from the AutoGrader  
10 min
- 🔗 **Programming Assignment:** Deep Neural Network - Application  
3h

References & Acknowledgments

- ✔ **Reading:** References  
10 min
- ✔ **Reading:** Acknowledgments  
10 min

Clarification: What does this have to do with the brain?

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)

$$\vdots$$
$$dZ^{[1]} = W^{[2]}dZ^{[2]} * g^{[1]}(Z^{[1]})$$
$$dW^{[1]} = \frac{1}{m}dZ^{[1]}A^{[0]T}$$

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

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

Mark as completed

