Deep Neural Networks

What does this have to do with the brain?

Forward and backward propagation

$$Z^{[1]} = W^{[1]}X + b^{[1]}$$

$$A^{[1]} = g^{[1]}(Z^{[1]})$$

$$Z^{[2]} = W^{[2]}A^{[1]} + b^{[2]}$$

$$A^{[2]} = g^{[2]}(Z^{[2]})$$

$$\vdots$$

$$A^{[L]} = g^{[L]}(Z^{[L]}) = \hat{Y}$$

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

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

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

$$dZ^{[L-1]} = dW^{[L]T}dZ^{[L]}g'^{[L]}(Z^{[L-1]})$$

$$\vdots$$

$$dZ^{[1]} = dW^{[L]T}dZ^{[2]}g'^{[1]}(Z^{[1]})$$

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

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

"It's like the brain"

Andrew Ng