

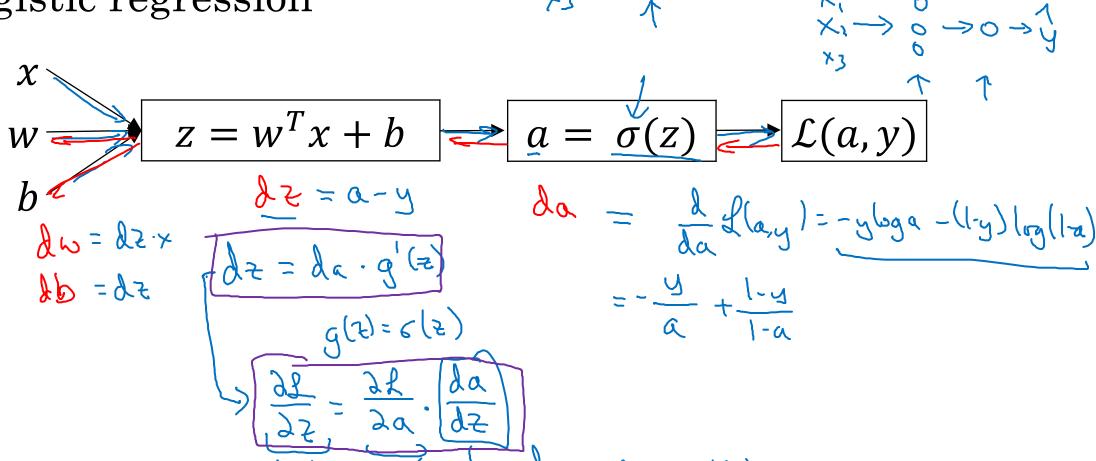
deeplearning.ai

One hidden layer Neural Network

Backpropagation intuition (Optional)

Computing gradients

Logistic regression



Neural network gradients $z^{[2]} = W^{[2]}x + b^{[2]}$ duri = de a Tos $\left(\begin{array}{cccc} n^{T\lambda_{2}} & n^{Li_{2}} \end{array} \right)$

Summary of gradient descent

$$dz^{[2]} = a^{[2]} - y$$
 $dW^{[2]} = dz^{[2]}a^{[1]^T}$
 $db^{[2]} = dz^{[2]}$
 $dz^{[1]} = W^{[2]T}dz^{[2]} * g^{[1]'}(z^{[1]})$
 $dW^{[1]} = dz^{[1]}x^T$
 $db^{[1]} = dz^{[1]}$

Vectorized Implementation:

$$z^{(i)} = (\omega^{(i)} \times + b^{(i)})$$

$$z^{(i)} = g^{(i)}(z^{(i)})$$

$$z^{(i)} = \left[z^{(i)}(z^{(i)})\right]$$

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$$dw^{[1]} = dz^{[1]}x^T$$

$$dw^{[1]} = \frac{1}{m}dz^{[1]}x^T$$

$$db^{[1]} = dz^{[1]}$$

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

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