deeplearning.ai

Deep Neural Networks

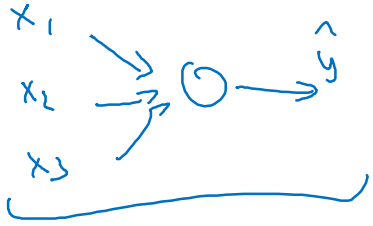
What does this have to do with the brain?

Forward and backward propagation

$$
\begin{aligned}
Z^{[1]} &= W^{[1]}X + b^{[1]} \\
A^{[1]} &= g^{[1]}(Z^{[1]}) \\
Z^{[2]} &= W^{[2]}A^{[1]} + b^{[2]} \\
A^{[2]} &= g^{[2]}(Z^{[2]}) \\
&\vdots \\
A^{[L]} &= g^{[L]}(Z^{[L]}) = \hat{Y}
\end{aligned}
$$

$$
\begin{aligned}
dZ^{[L]} &= A^{[L]} - Y \\
dW^{[L]} &= \frac{1}{m} dZ^{[L]} A^{[L-1]T} \\
db^{[L]} &= \frac{1}{m} np.\text{sum}(dZ^{[L]}, axis = 1, keepdims = True) \\
dZ^{[L-1]} &= dW^{[L]T} dZ^{[L]} g'^{[L-1]}(Z^{[L-1]}) \\
&\vdots \\
dZ^{[1]} &= dW^{[2]T} dZ^{[2]} g'^{[1]}(Z^{[1]}) \\
dW^{[1]} &= \frac{1}{m} dZ^{[1]} A^{[0]T} \\
db^{[1]} &= \frac{1}{m} np.\text{sum}(dZ^{[1]}, axis = 1, keepdims = True)
\end{aligned}
$$

"It's like the brain."



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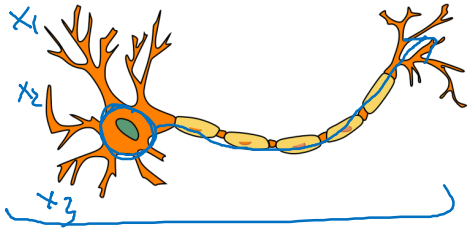

Andrew Ng