



5 notes 5 screenshots

02:29



find all the values of the next layer of neurons using matrix multiplication and pass them to sigmoid function

$$\begin{array}{c}
 \text{n_h = size of hidden layer} \qquad \text{n_x = size of input layer} \\
 \\
 \mathbf{W} = \begin{bmatrix} W_{11} & W_{12} & W_{13} \\ W_{21} & W_{22} & W_{23} \\ W_{31} & W_{32} & W_{33} \\ W_{41} & W_{42} & W_{43} \end{bmatrix} \begin{bmatrix} a_1^{[0]} \\ a_2^{[0]} \\ a_3^{[0]} \end{bmatrix} = \begin{bmatrix} W_{11}^{[1]} a_1^{[0]} + W_{12}^{[1]} a_2^{[0]} + W_{13}^{[1]} a_3^{[0]} \\ W_{21}^{[1]} a_1^{[0]} + W_{22}^{[1]} a_2^{[0]} + W_{23}^{[1]} a_3^{[0]} \\ W_{31}^{[1]} a_1^{[0]} + W_{32}^{[1]} a_2^{[0]} + W_{33}^{[1]} a_3^{[0]} \\ W_{41}^{[1]} a_1^{[0]} + W_{42}^{[1]} a_2^{[0]} + W_{43}^{[1]} a_3^{[0]} \end{bmatrix} \\
 \begin{array}{ccc}
 \text{shape(n_h, n_x)} & \text{shape(n_x, 1)} & \text{shape(n_h, 1)} \\
 = \text{shape(4, 3)} & = \text{shape(3, 1)} & = \text{shape(4, 1)}
 \end{array}
 \end{array}$$

$$f\left(\begin{bmatrix} W_{11}^{[1]} a_1^{[0]} + W_{12}^{[1]} a_2^{[0]} + W_{13}^{[1]} a_3^{[0]} \\ W_{21}^{[1]} a_1^{[0]} + W_{22}^{[1]} a_2^{[0]} + W_{23}^{[1]} a_3^{[0]} \\ W_{31}^{[1]} a_1^{[0]} + W_{32}^{[1]} a_2^{[0]} + W_{33}^{[1]} a_3^{[0]} \\ W_{41}^{[1]} a_1^{[0]} + W_{42}^{[1]} a_2^{[0]} + W_{43}^{[1]} a_3^{[0]} \end{bmatrix} + B1 \right) = \begin{bmatrix} a_1^{[1]} \\ a_2^{[1]} \\ a_3^{[1]} \\ a_4^{[1]} \end{bmatrix} = A1$$

$$A1 = f(W1 * A0 + B1)$$

16 hours ago

03:41



final formulae for forward propagation

Forward Propagation

$$Z1 = W1 * A0 + B1$$

$$A1 = f(Z1)$$

$$Z2 = W2 * A1 + B2$$

$$A2 = f(Z2)$$

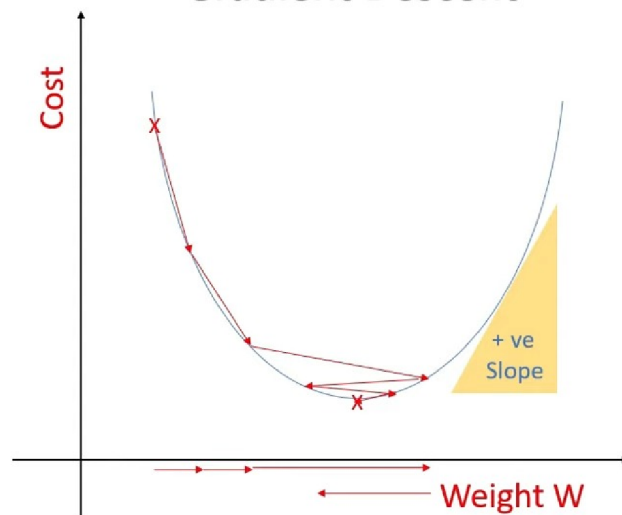
16 hours ago

06:59



Gradient descent

Gradient Descent



$$\text{Repeat } \left\{ \begin{array}{l} W = W - \alpha * \frac{\partial \text{cost}}{\partial W} \end{array} \right.$$

9 minutes ago

07:23



Find the new values for w and b while back propogation to minimize the error

Gradient Descent

Repeat {

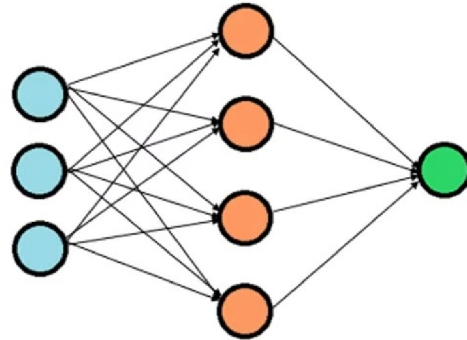
$$W2 = W2 - \alpha * \frac{\partial \text{cost}}{\partial W2}$$

$$B2 = B2 - \alpha * \frac{\partial \text{cost}}{\partial B2}$$

$$W1 = W1 - \alpha * \frac{\partial \text{cost}}{\partial W1}$$

$$B1 = B1 - \alpha * \frac{\partial \text{cost}}{\partial B1}$$

}



8 minutes ago

09:47



How neural network is trained

How a Neural Network is Trained

Step 1 : Initialize weights randomly Step 4 : Backward Propagation

Step 2 : Forward Propagation

$$Z1 = W1 * A0 + B1$$

$$A1 = f (Z1)$$

$$Z2 = W2 * A1 + B2$$

$$A2 = f (Z2)$$

Step 3 : find value of Cost

$$W2 = W2 - \alpha * \frac{\partial \text{cost}}{\partial W2}$$

$$B2 = B2 - \alpha * \frac{\partial \text{cost}}{\partial B2}$$

$$W1 = W1 - \alpha * \frac{\partial \text{cost}}{\partial W1}$$

$$B1 = B1 - \alpha * \frac{\partial \text{cost}}{\partial B1}$$

Step 5 : Repeat Step 2, 3 and 4 for many times

3 minutes ago