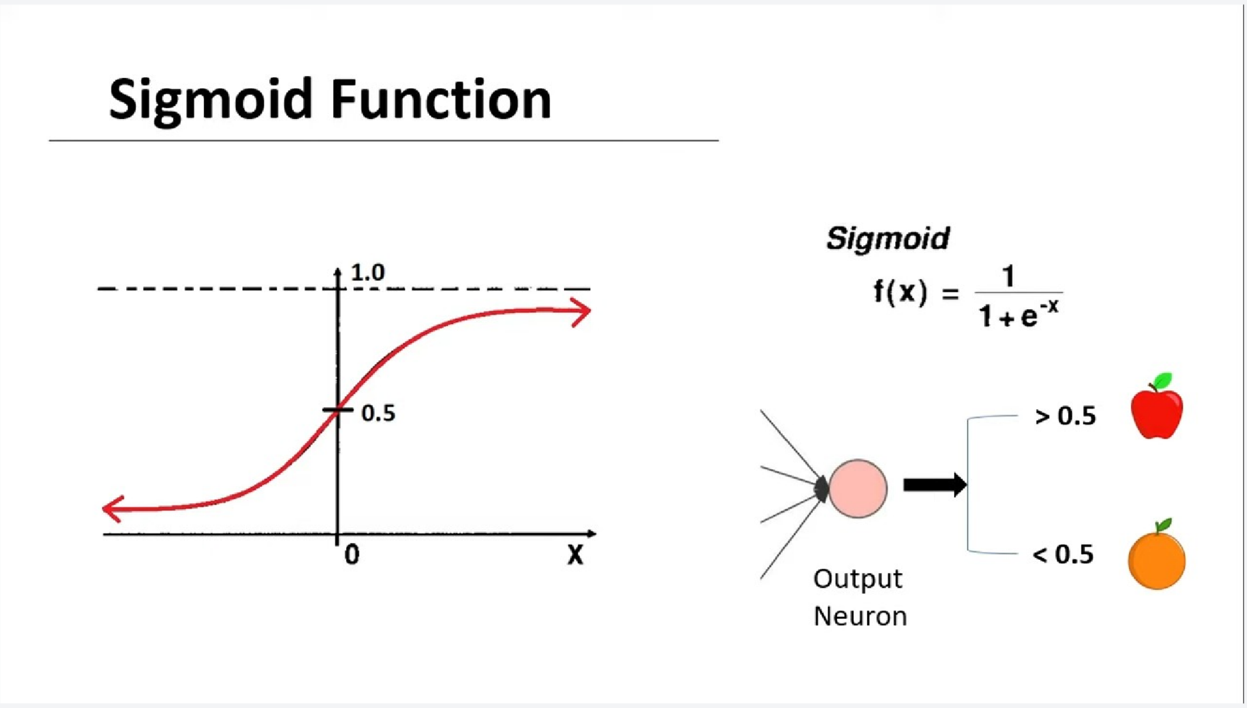
NoteGPT

8 notes 7 screenshots

03:08

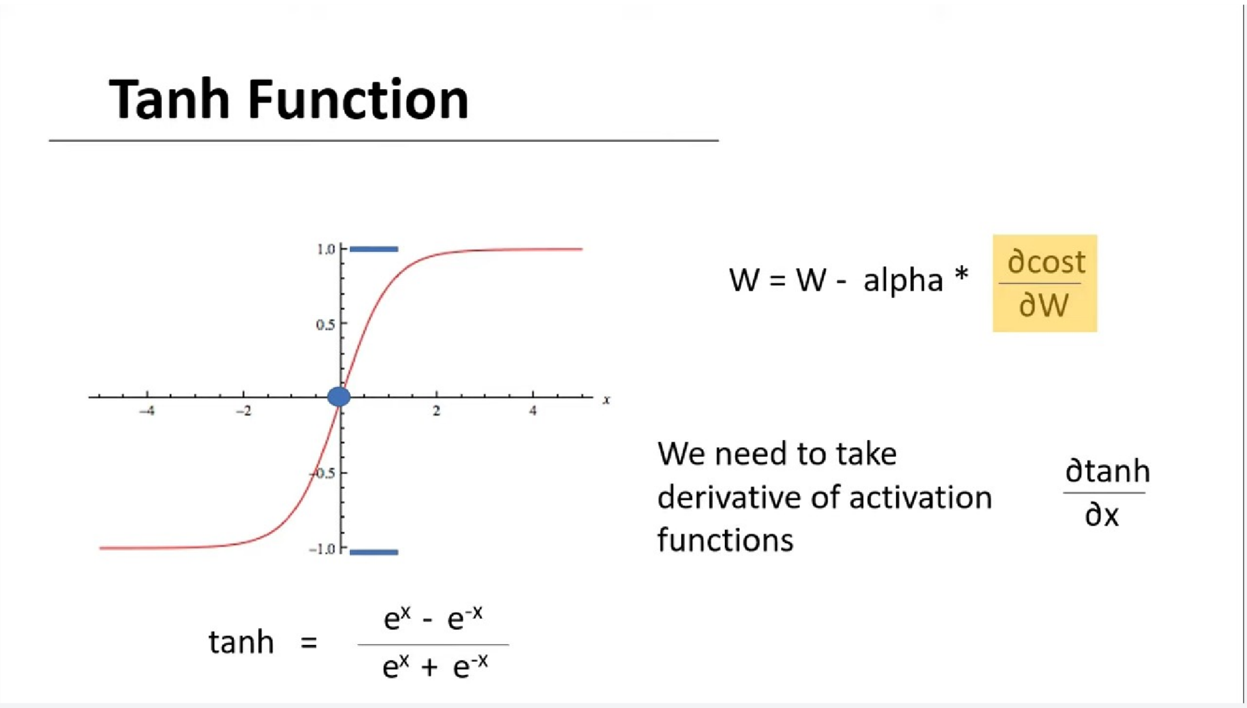
Sigmoid function



26 minutes ago

03:43

Tanh function



Tanh Function

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

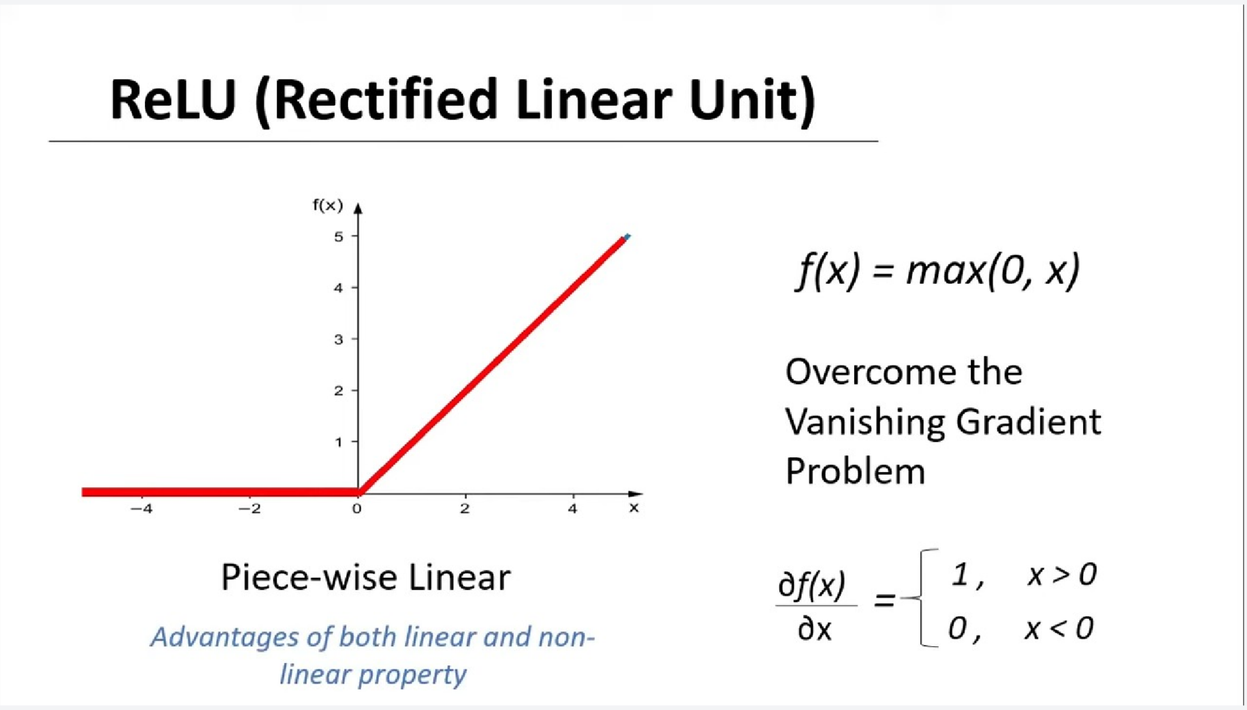
We need to take derivative of activation functions $\frac{\partial \tanh}{\partial x}$

$$\tanh = \frac{e^{x} - e^{-x}}{e^{x} + e^{-x}}$$

16 minutes ago

06:09

RELU method if the derivative of activation function is low which will lead to slow learning



ReLU (Rectified Linear Unit)

$f(x) = max(0, x)$

Overcome the Vanishing Gradient Problem

Piece-wise Linear

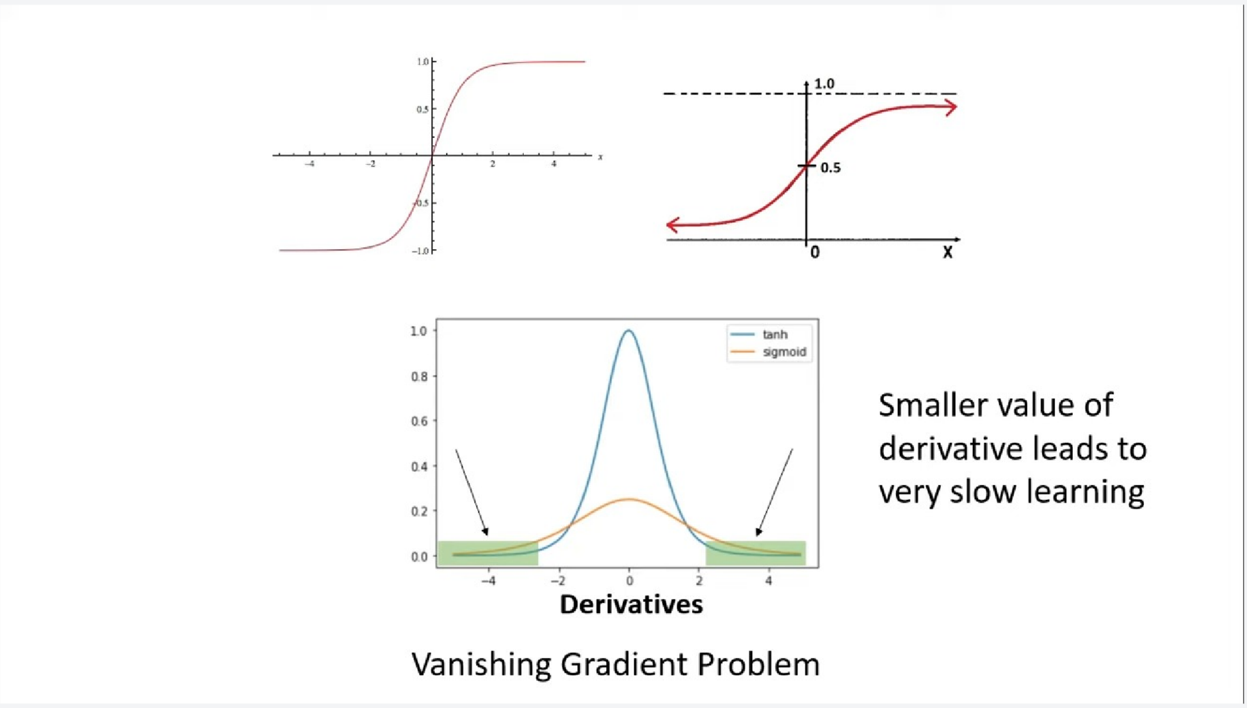
Advantages of both linear and non-linear property

$$\frac{\partial f(x)}{\partial x} = \begin{cases} 1, & x > 0 \\ 0, & x < 0 \end{cases}$$

14 minutes ago

05:09

To resolve this problem we use RELU.



Smaller value of derivative leads to very slow learning

Derivatives

Vanishing Gradient Problem

11 minutes ago

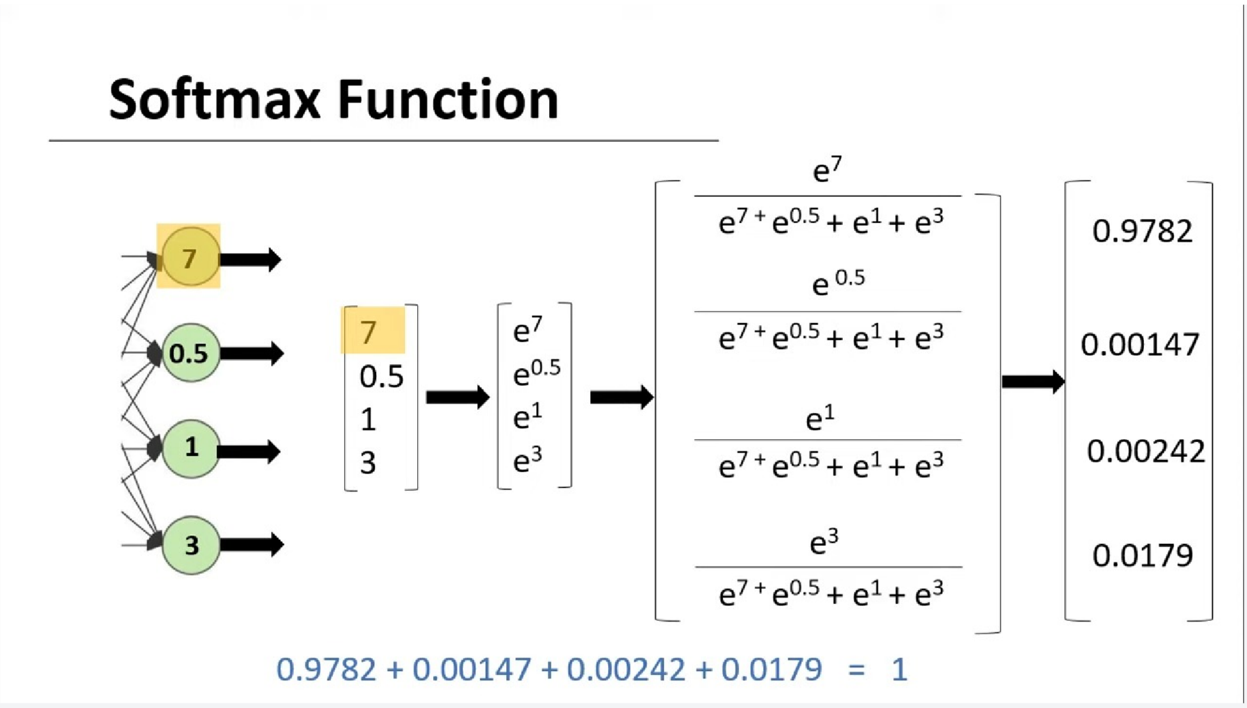
07:45

We can use the sigmoid function for binary classification only. For multi-class classification, we can use the softmax function.

8 minutes ago

08:17

The output of softmax fucntion and converting the value in the form of probability



Softmax Function

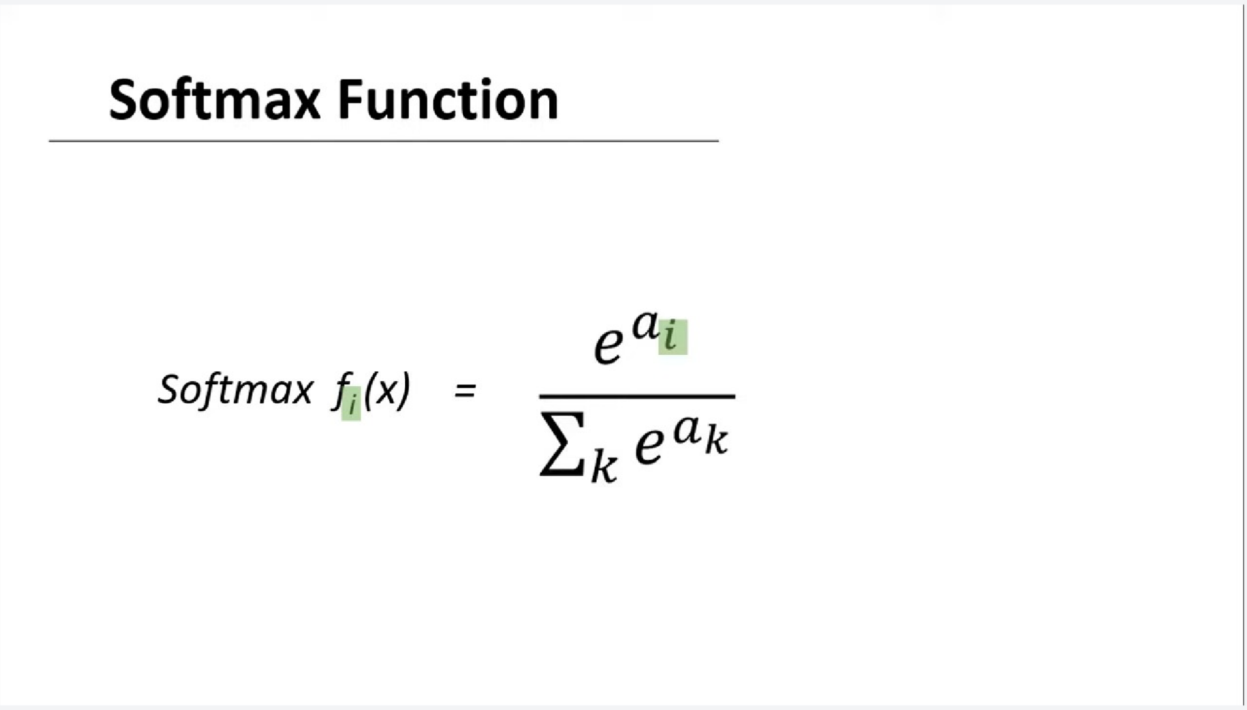
$$\begin{bmatrix}7\\0.5\\1\\3\end{bmatrix} \rightarrow \begin{bmatrix}e^{7}\\e^{0.5}\\e^{1}\\e^{3}\end{bmatrix} \rightarrow \begin{bmatrix}\frac{e^{7}}{e^{7}+e^{0.5}+e^{1}+e^{3}}\\ \frac{e^{0.5}}{e^{7}+e^{0.5}+e^{1}+e^{3}}\\ \frac{e^{1}}{e^{7}+e^{0.5}+e^{1}+e^{3}}\\ \frac{e^{3}}{e^{7}+e^{0.5}+e^{1}+e^{3}}\end{bmatrix} \rightarrow \begin{bmatrix}0.9782\\0.00147\\0.00242\\0.0179\end{bmatrix}$$

$$0.9782 + 0.00147 + 0.00242 + 0.0179 = 1$$

5 minutes ago

09:07

Softmax function formalue



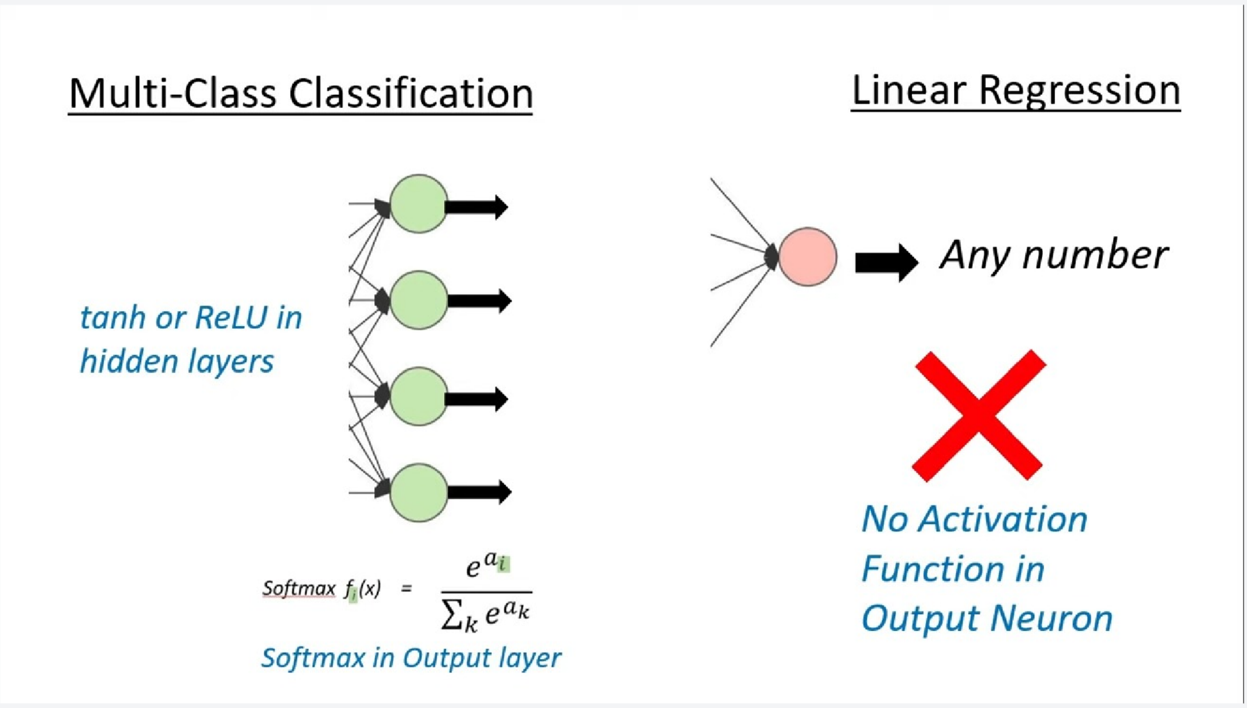
Softmax Function

$$Softmax\ f_i(x) = \frac{e^{a_i}}{\sum_k e^{a_k}}$$

4 minutes ago

11:16

For linear regression problems, no activation function is requires in the outpot neutron.


Multi-Class Classification
tanh or ReLU in hidden layers
Softmax $f_i(x) = \frac{e^{a_i}}{\sum_k e^{a_k}}$
Softmax in Output layer
Linear Regression
Any number
No Activation Function in Output Neuron

2 minutes ago