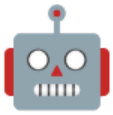
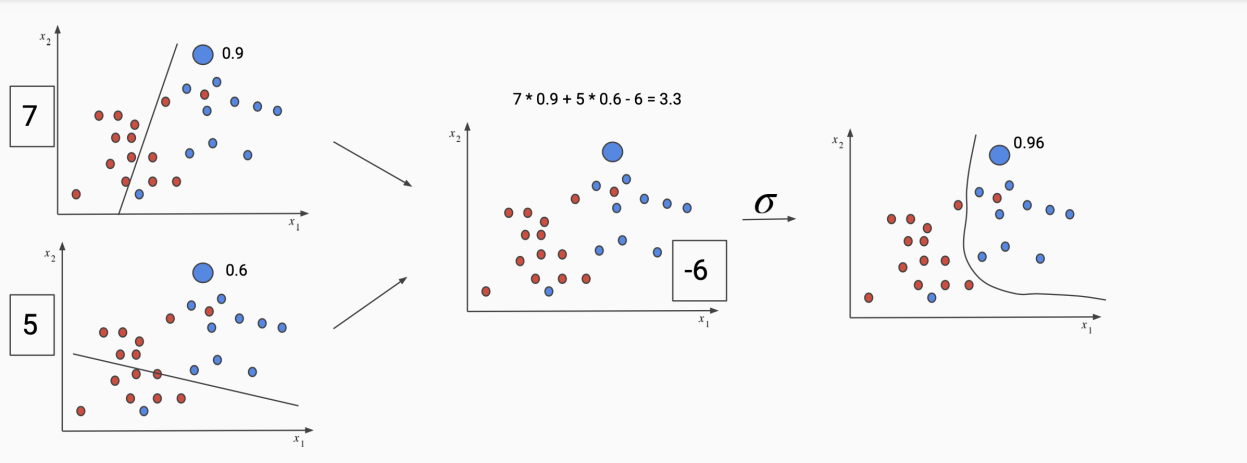


Deep Learning

Perceptron

- https://www.ling.upenn.edu/courses/cogs501/Rosenblatt1958.pdf

Intuition

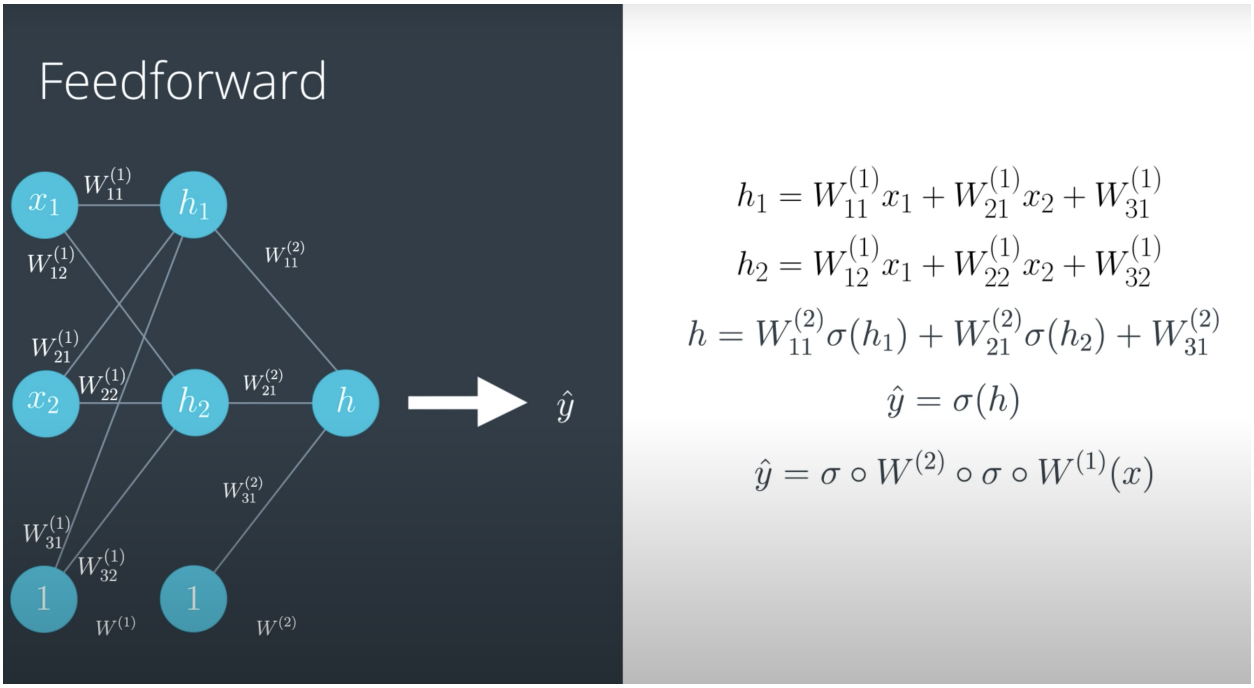


Neural Networks Zoo

- https://www.asimovinstitute.org/neural-network-zoo/

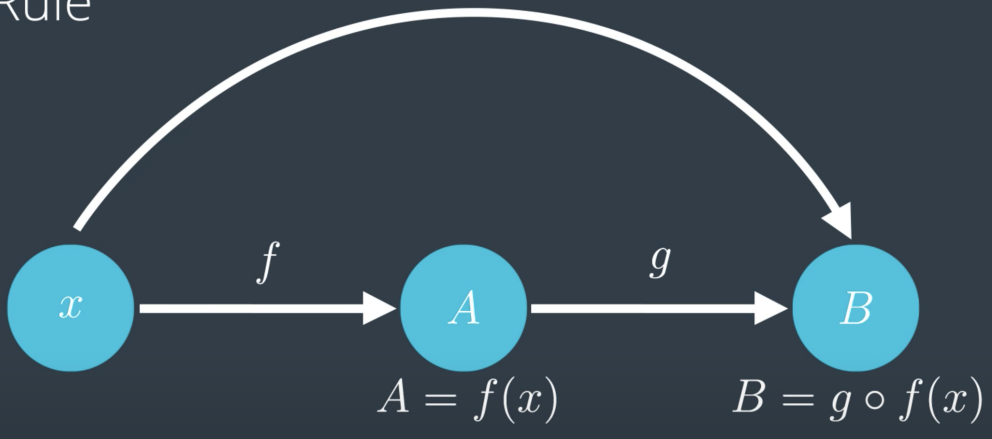
https://www.asimovinstitute.org/neural-network-zoo/

Feed forward



Back propagation

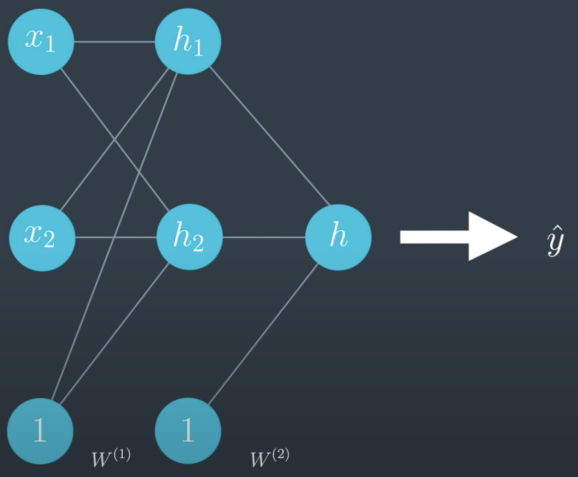
Chain Rule



$$A = f(x) \qquad B = g \circ f(x)$$

$$\frac{\partial B}{\partial x} = \frac{\partial B}{\partial A}\frac{\partial A}{\partial x}$$

Backpropagation

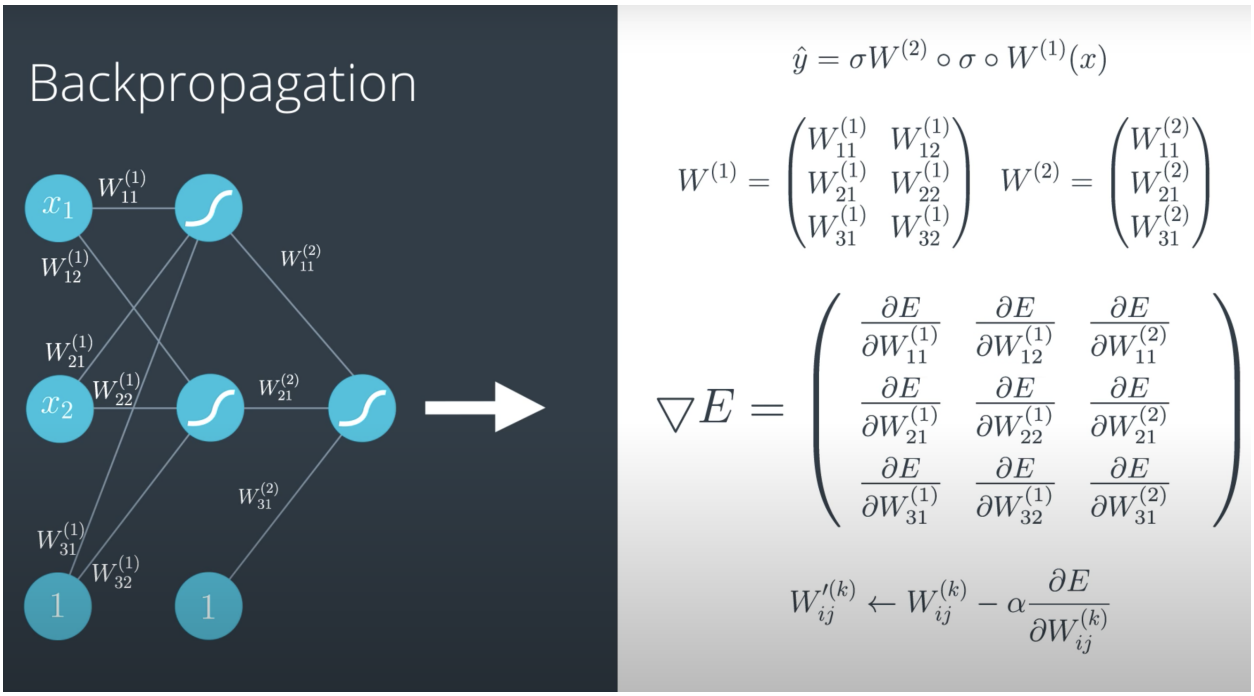


$$E(W) = -\frac{1}{m}\sum_{i=1}^{m} y_i ln(\hat{y}_i) + (1 - y_i) ln(1 - \hat{y}_i)$$

$$E(W) = E(W_{11}^{(1)}, W_{12}^{(1)}, ..., W_{31}^{(2)})$$

$$\nabla E = (\frac{\partial E}{\partial W_{11}^{(1)}}, ..., \frac{\partial E}{\partial W_{31}^{(2)}})$$

$$\frac{\partial E}{\partial W_{11}^{(1)}} = \frac{\partial E}{\partial \hat{y}}\frac{\partial \hat{y}}{\partial h}\frac{\partial h}{\partial h_1}\frac{\partial h_1}{\partial W_{11}^{(1)}}$$



Derivatives

https://betterexplained.com/articles/calculus-building-intuition-for-the-derivative/