SUBJECT: DATE:

Magnitude Prediction

(don't care about sign for now) ← direction

Single perceptron (Sigmoid)

X (3x3) $\varepsilon = 1E-9$

$g(x) = \frac{1}{1+e^{-x}}$

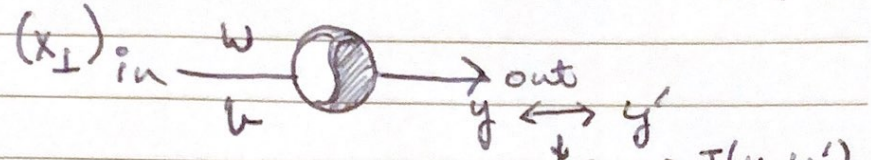
$z = wx + b$

$y = g(z)$

$J = \frac{1}{2n}\sum_R (y_R - y'_R)^2$

$\sim (y - y')^2$

normalize $x_\perp$



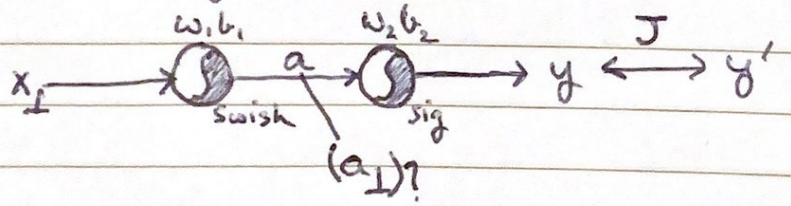
$$\Delta w \sim \frac{\partial J}{\partial w} = \frac{\partial J}{\partial y}\frac{\partial y}{\partial w}$$

$$\Delta b \sim \frac{\partial J}{\partial b} = \frac{\partial J}{\partial y}\frac{\partial y}{\partial b}$$

$$\frac{\partial A}{\partial B} \approx \frac{A(B+\varepsilon) - A(B-\varepsilon)}{2\varepsilon}$$

concepts not obv very good

Swish → Sigmoid



$$\Delta w_2 \sim \frac{\partial J}{\partial w_2} = \frac{\partial J}{\partial y}\cdot\frac{\partial y}{\partial w_2}$$ {"change in J (error) wrt w_2"}

$$\Delta b_2 \sim \frac{\partial J}{\partial b_2}$$ " wrt b2

$$\Delta w_1 \sim \frac{\partial J}{\partial w_1} = \frac{\partial J}{\partial y}\frac{\partial y}{\partial a}\frac{\partial a}{\partial w_1}$$ {"change in J wrt w_1"}

Δb_1 " wrt b1