Back Propagation Algorithm

1 hidden-layer network

$$o = \hat{y} = f(w_{ih}, w_{ho})$$

$$E = (Y-o)^2/2 \Rightarrow \frac{\partial E}{\partial w_{ho}}, \frac{\partial E}{\partial w_{ih}}$$
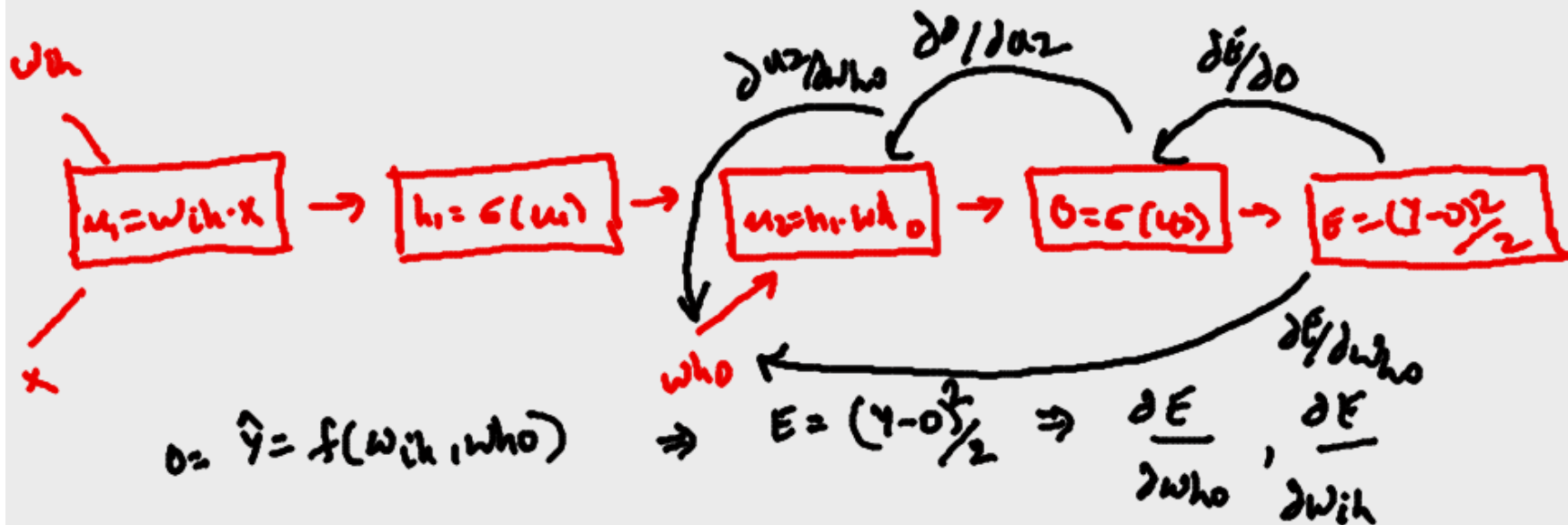
$$\frac{\partial E}{\partial w_{ho}} = \frac{\partial E}{\partial o} \times \frac{\partial o}{\partial u_2} \times \frac{\partial u_2}{\partial w_{ho}} \Rightarrow (Y-o) \times o(1-o) \times h_1$$

$$\frac{\partial E}{\partial w_{ih}} = \frac{\partial E}{\partial o} \times \frac{\partial o}{\partial u_2} \times \frac{\partial u_2}{\partial u} \times \frac{\partial h_1}{\partial u_1} \times \frac{\partial u}{\partial w_{ih}} \Rightarrow (Y-o)o(1-o) \times w_{ho} \times h_1(1-h_1)$$

$$\times X$$

Thank You