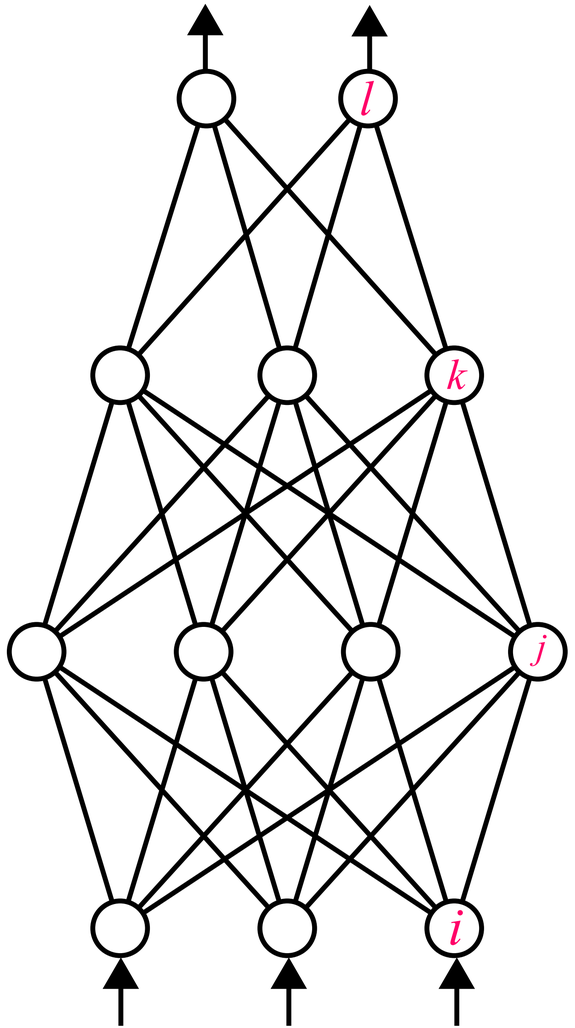

$$y_l = f\left(\underbrace{\sum_{k,l} w_{kl} \cdot y_l}_{z_l}\right)$$

$$y_k = f\left(\underbrace{\sum_{j,k} w_{jk} \cdot y_j}_{z_k}\right)$$

$$y_j = f\left(\underbrace{\sum_{i,j} w_{ij} \cdot x_i}_{z_j}\right)$$

Feed Forward

$$\frac{\partial E}{\partial y_l} = \Delta y_l$$

$$\frac{\partial E}{\partial y_k} = \sum_l w_{kl} \cdot \frac{\partial E}{\partial z_l}$$

$$\frac{\partial E}{\partial y_j} = \sum_j w_{jk} \cdot \frac{\partial E}{\partial z_k}$$

$$\frac{\partial E}{\partial z_l} = \frac{\partial E}{\partial y_l} \cdot \frac{\partial y_l}{\partial z_l}$$

$$\frac{\partial E}{\partial z_k} = \frac{\partial E}{\partial y_k} \cdot \frac{\partial y_k}{\partial z_l}$$

$$\frac{\partial E}{\partial z_j} = \frac{\partial E}{\partial y_j} \cdot \frac{\partial y_j}{\partial z_j}$$

Back Propagation