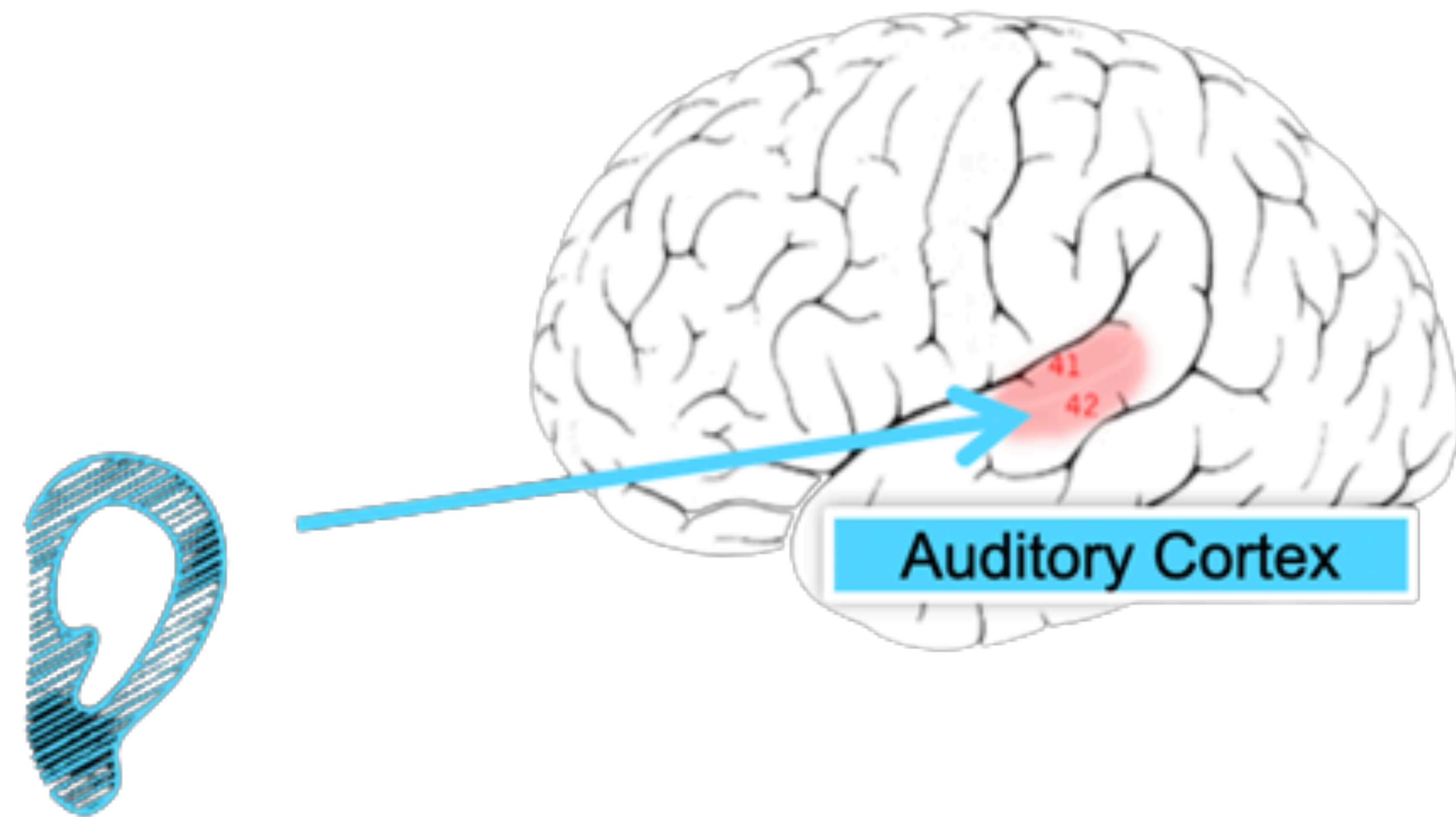
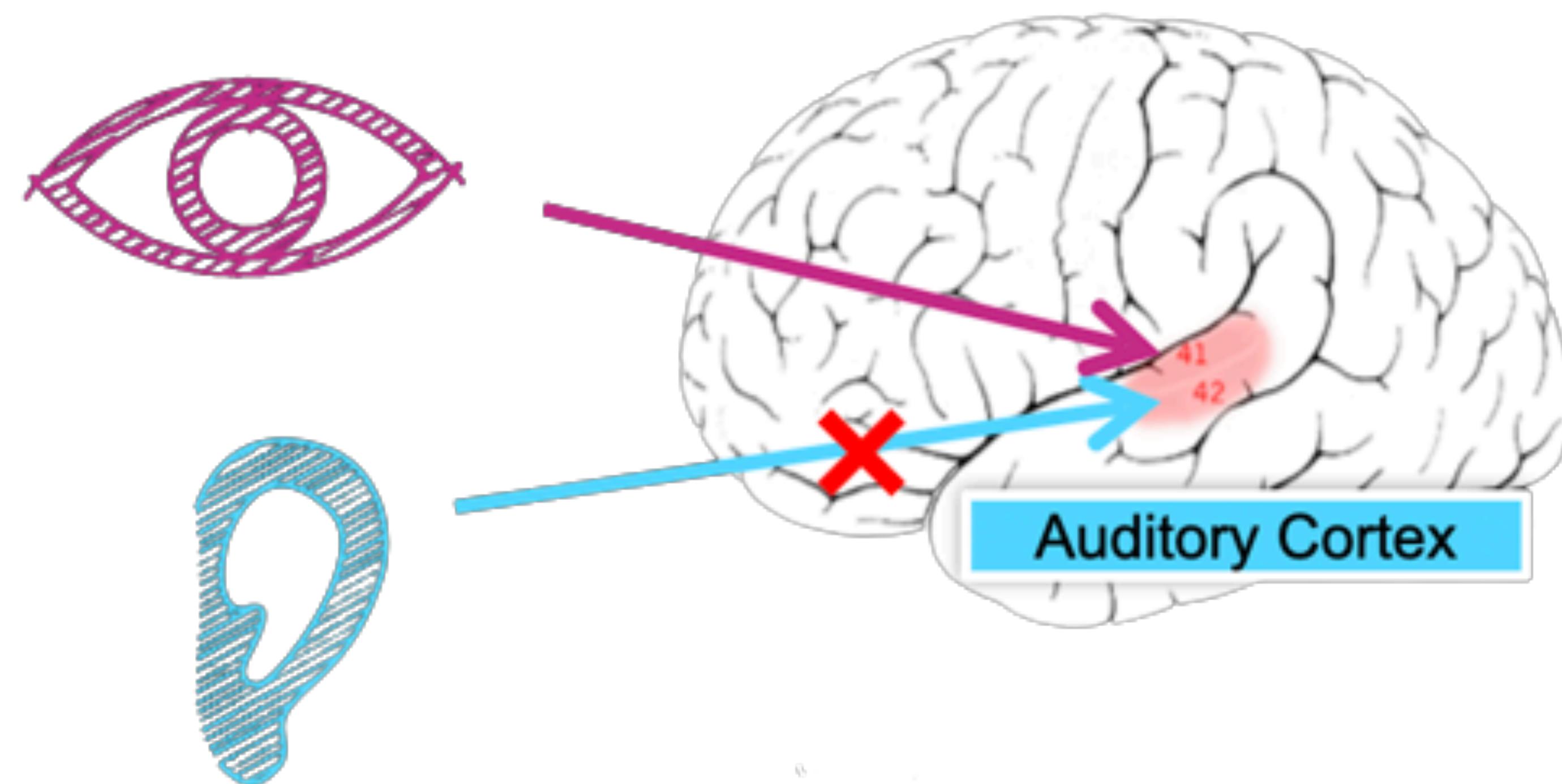
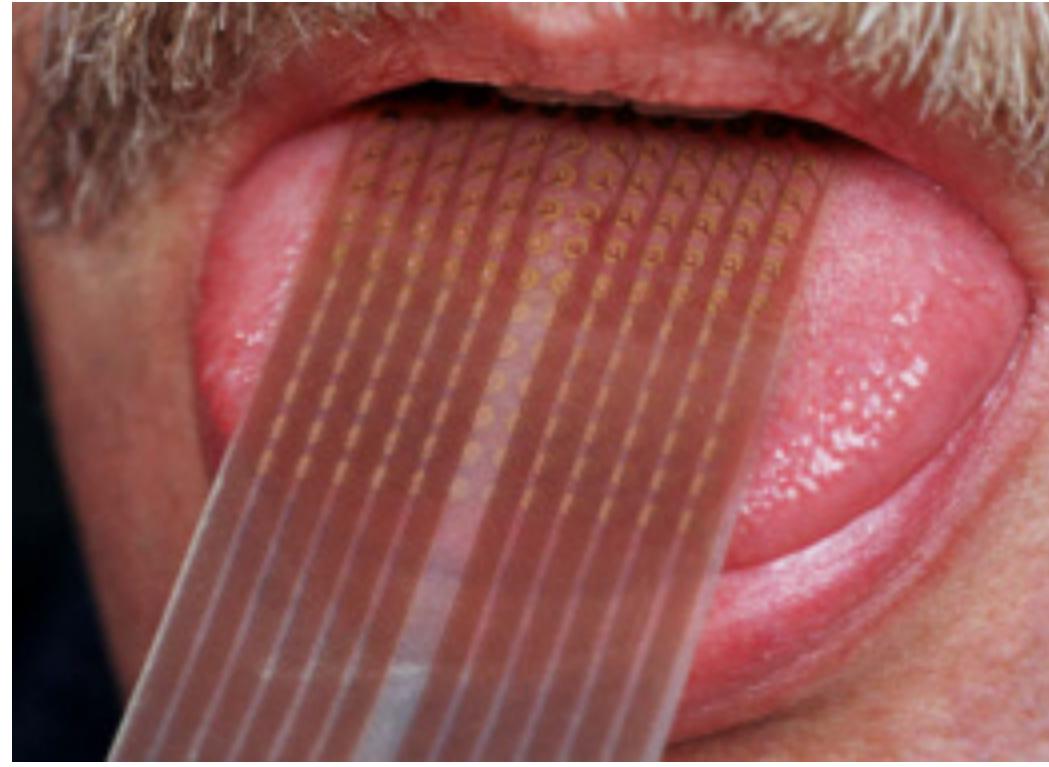


# Neural Network Model

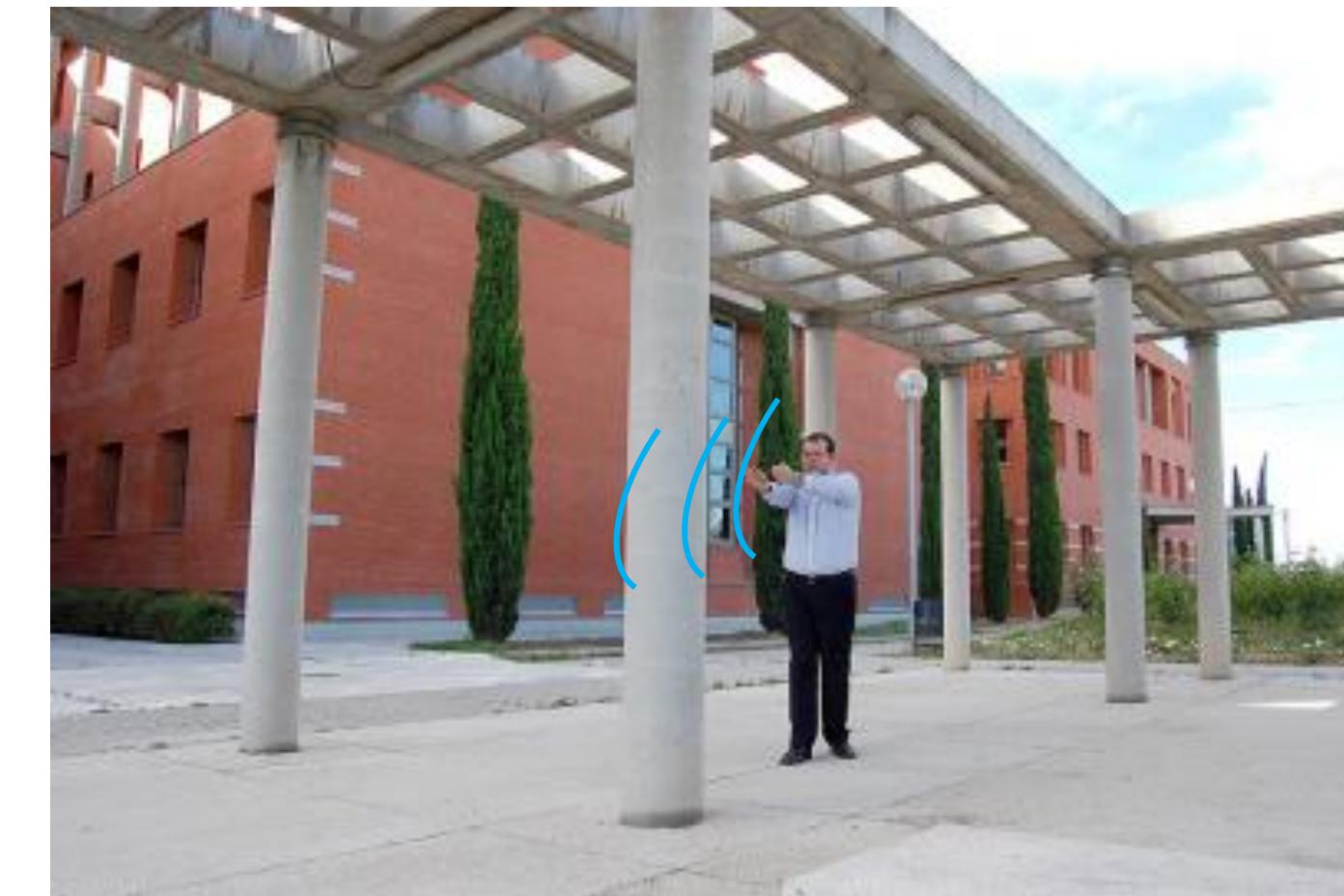
Presented by  
Mahdi Ranjbar



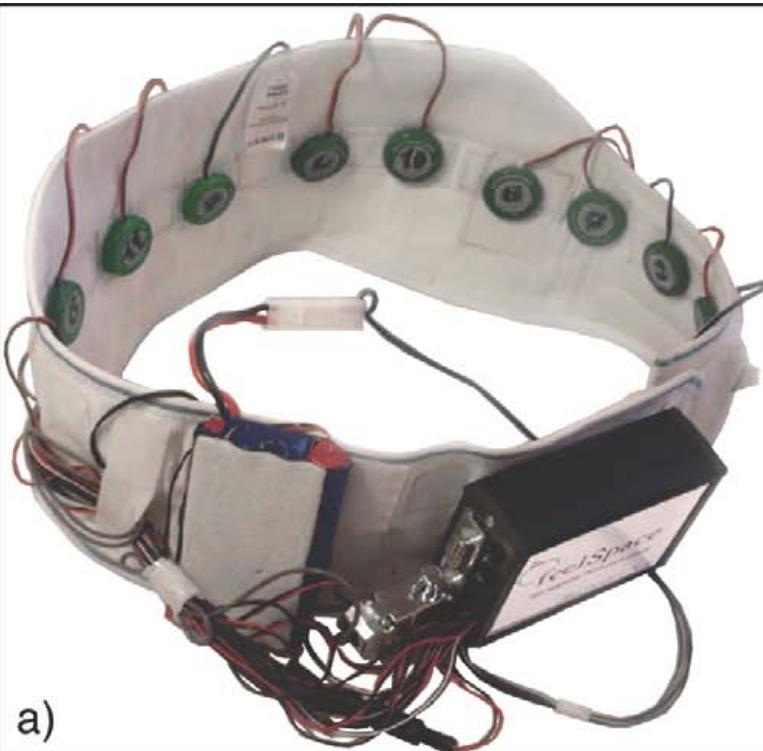




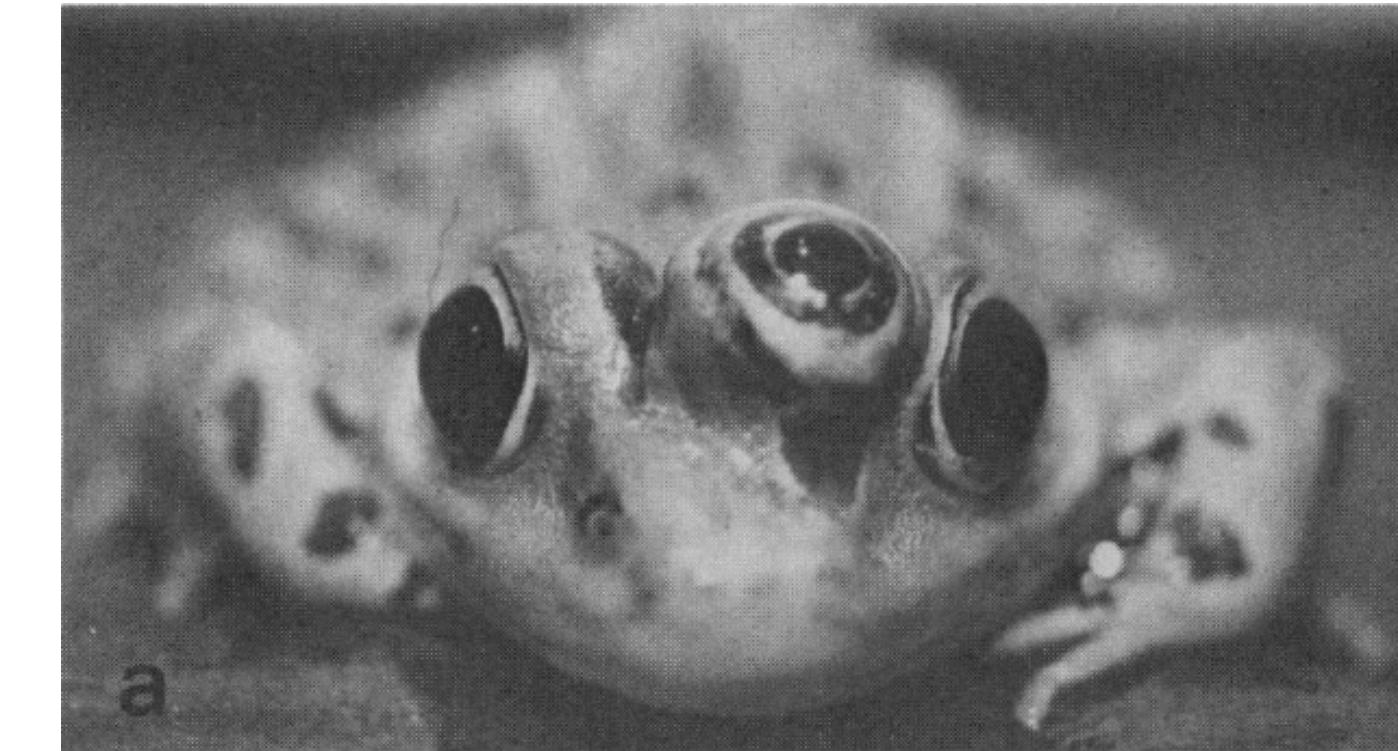
**Seeing with your tongue**



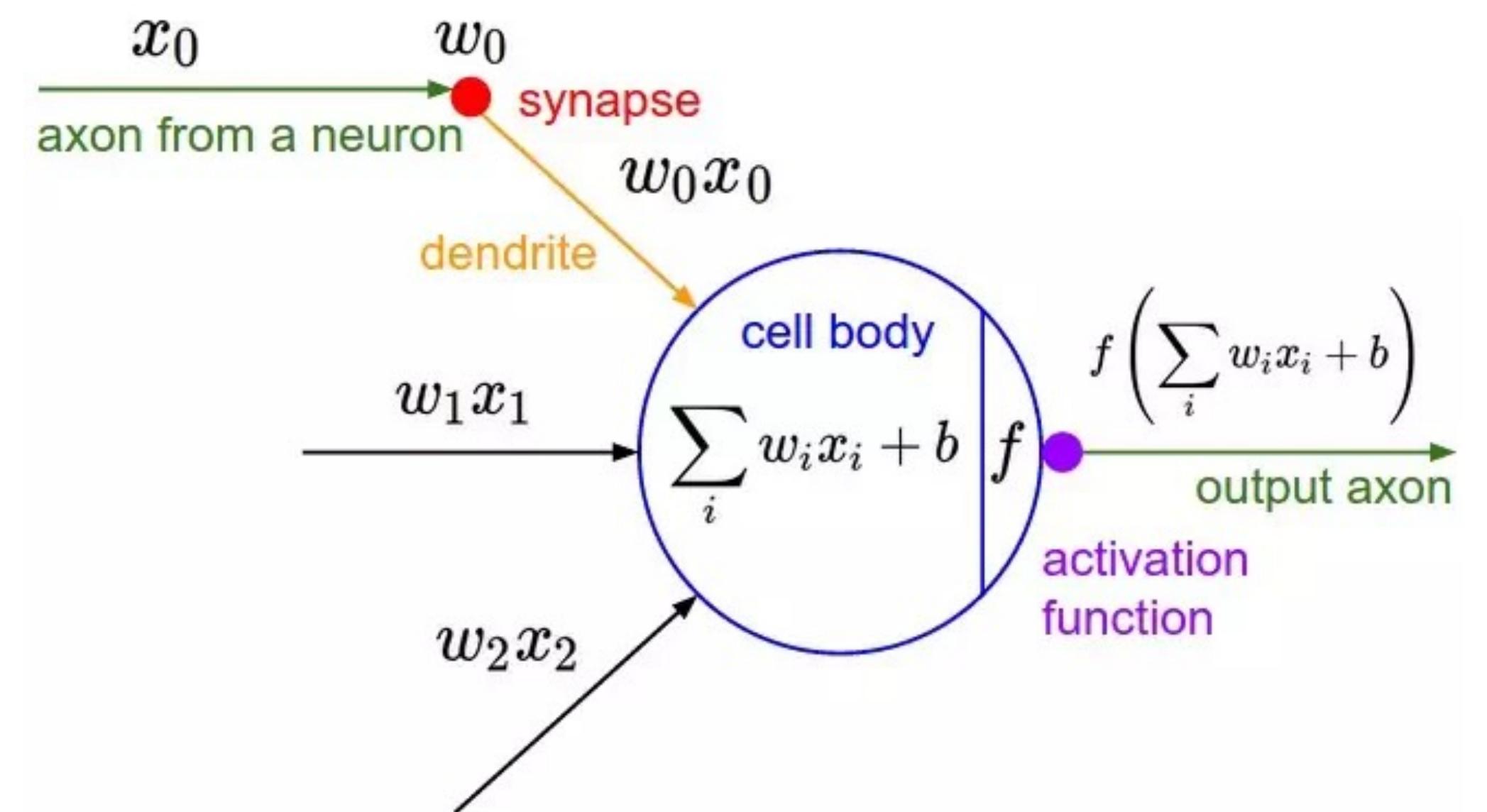
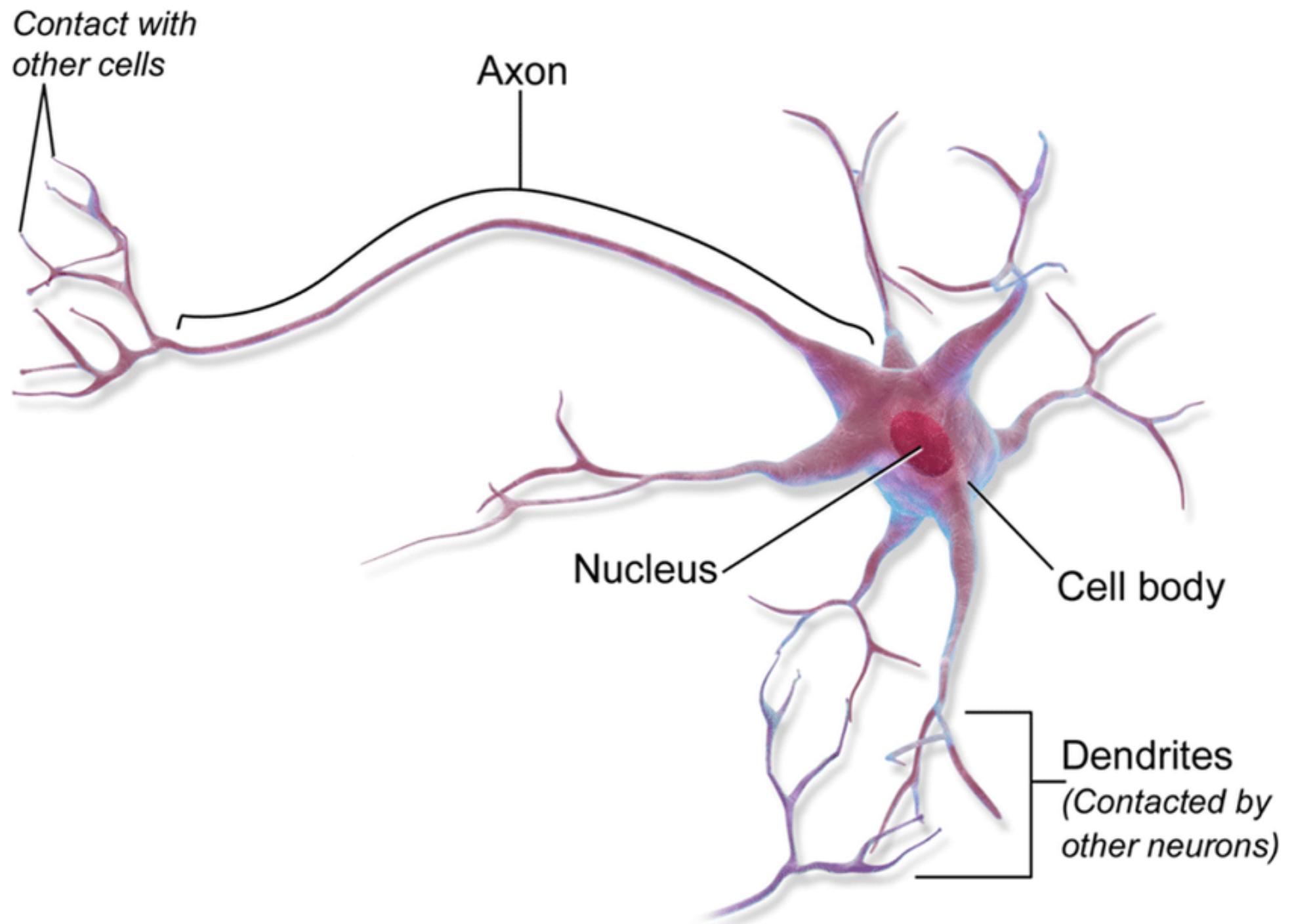
**Human echolocation (sonar)**

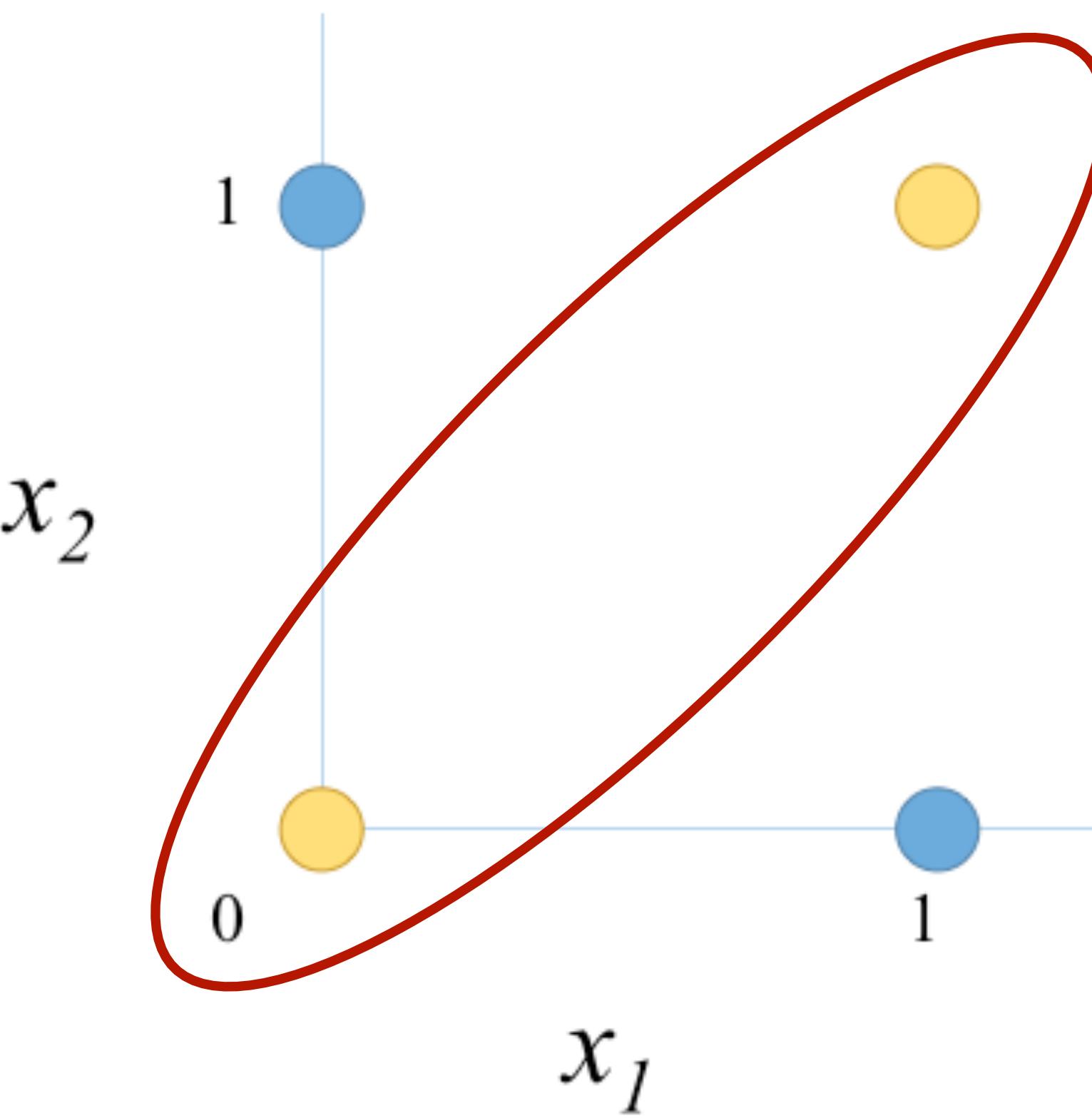
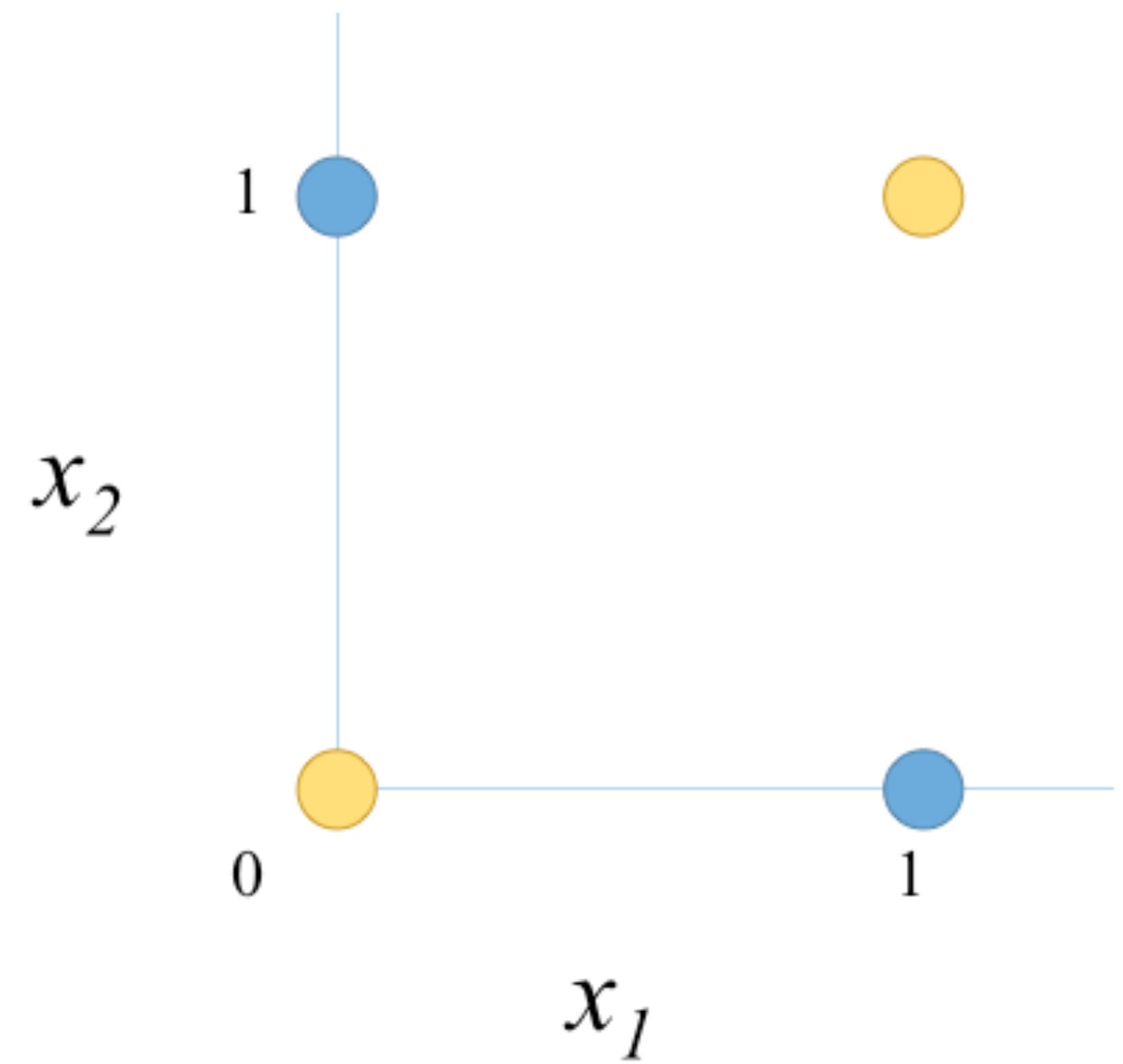


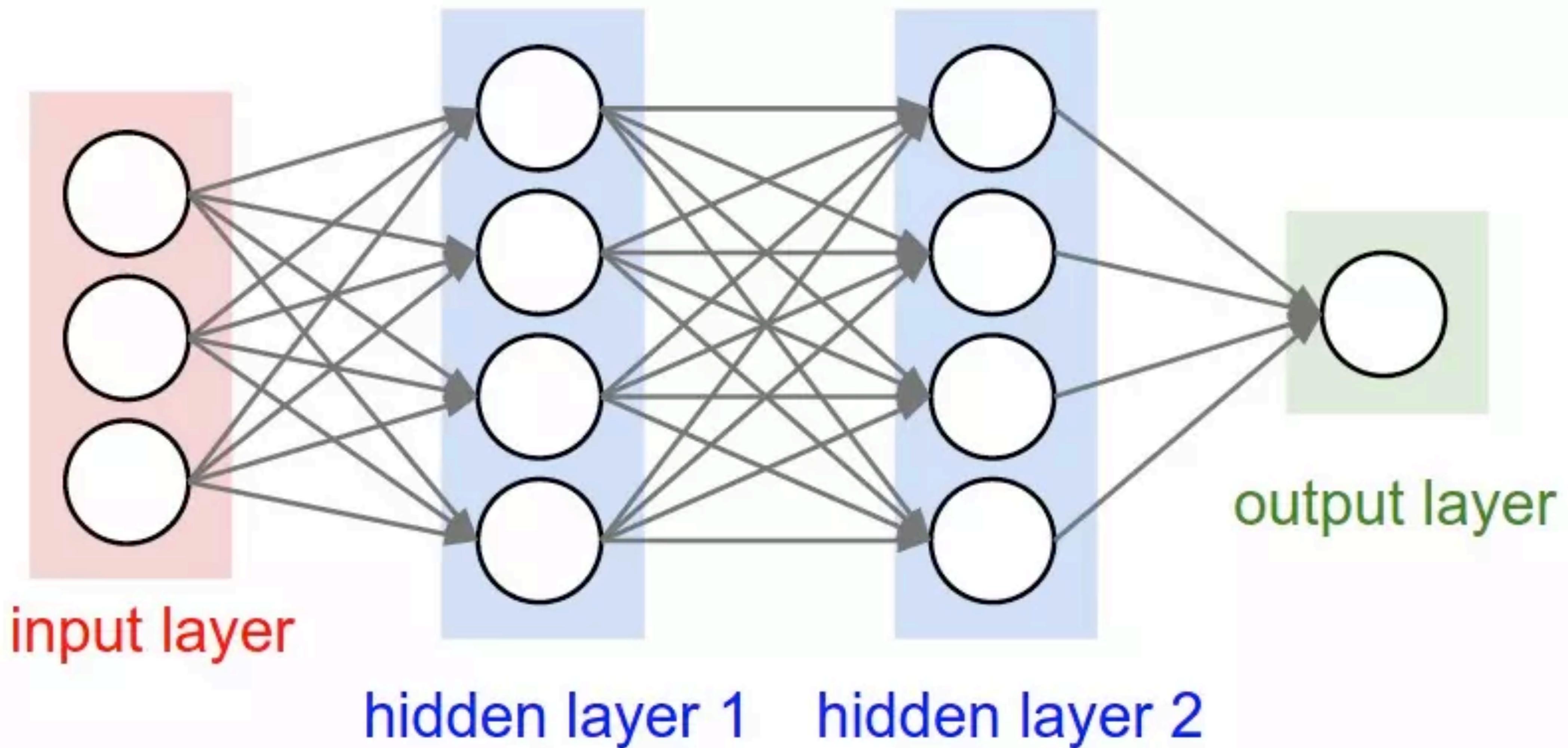
**Haptic belt: Direction sense**

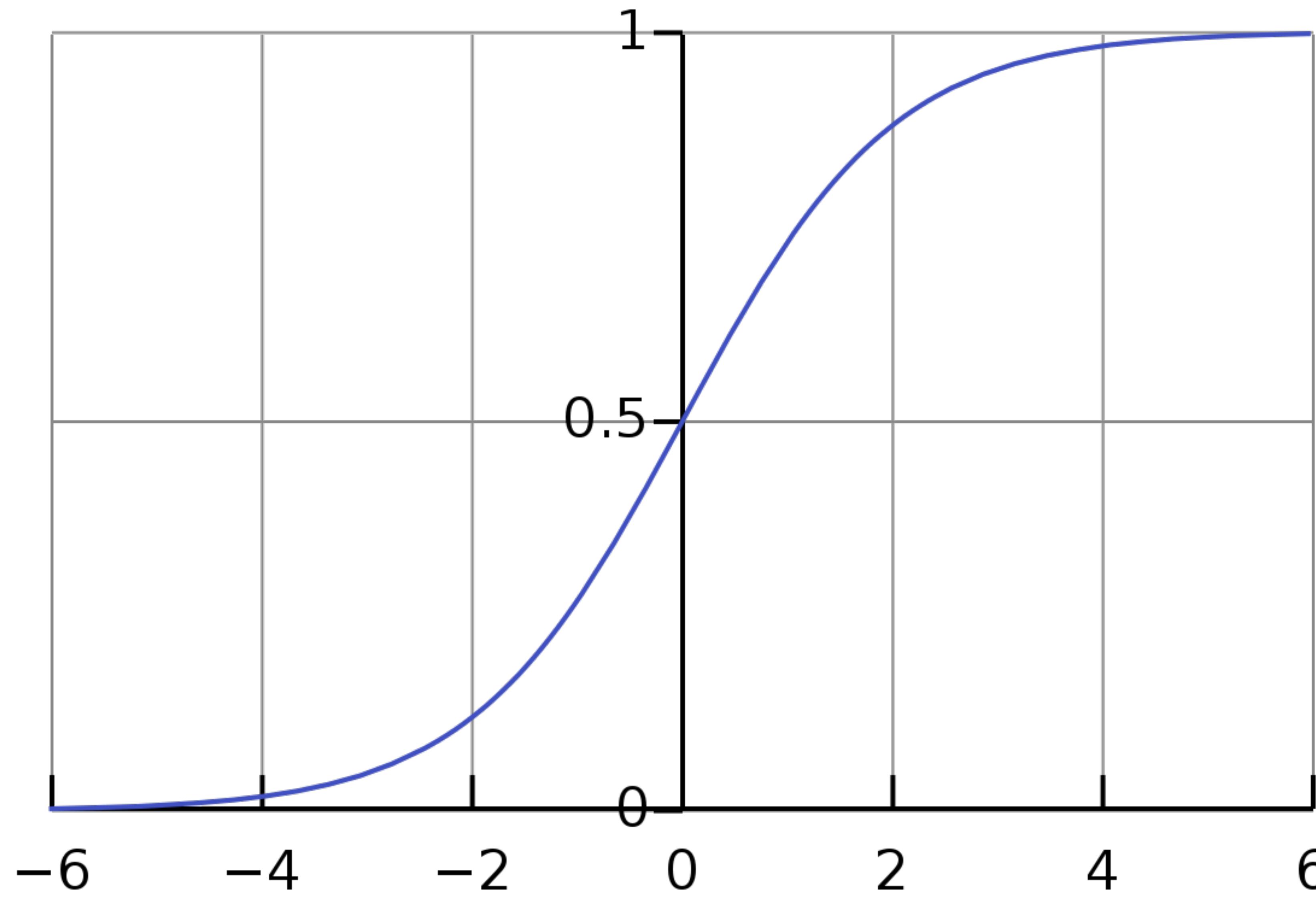


**Implanting a 3<sup>rd</sup> eye**





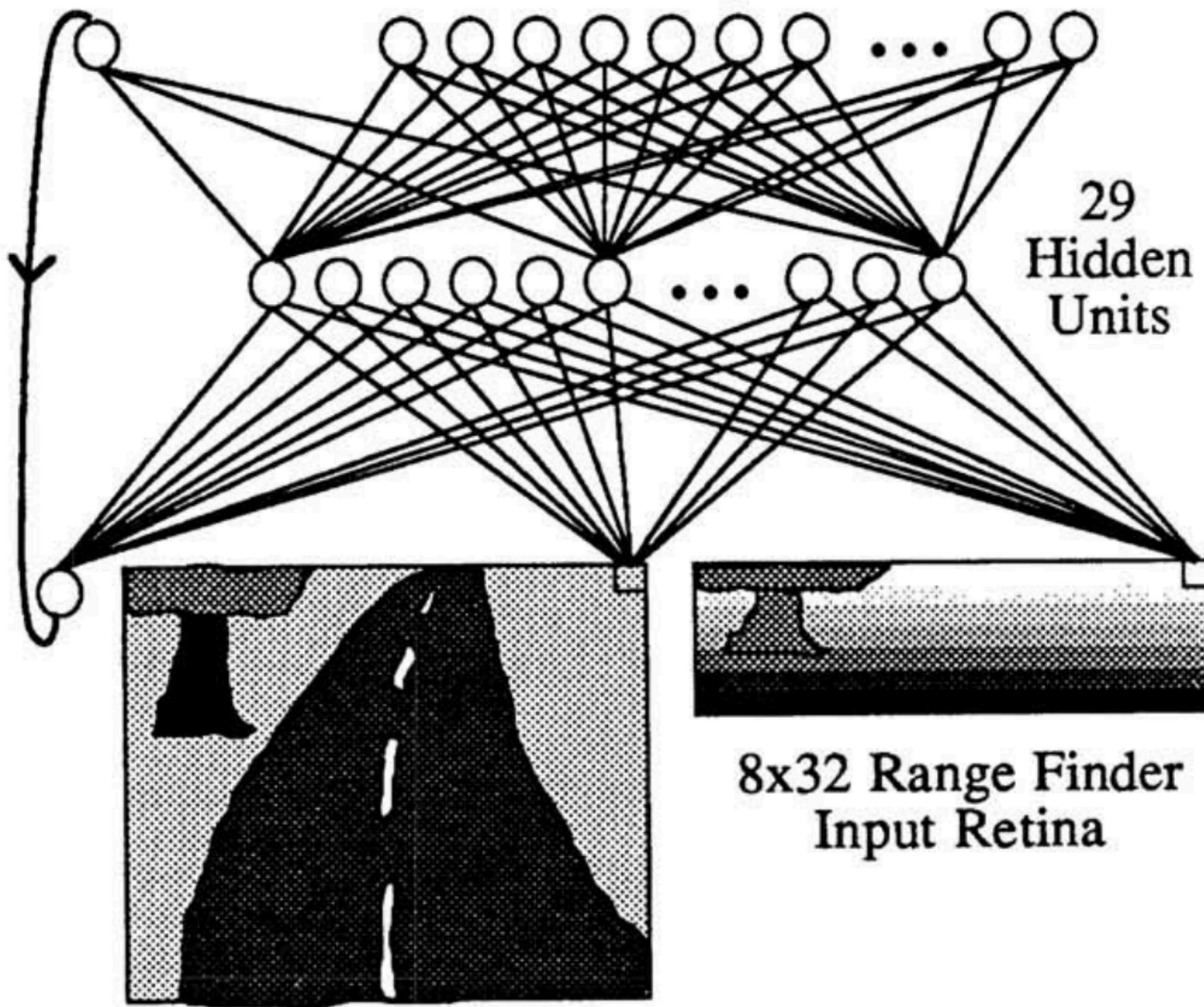




Road Intensity  
Feedback Unit

45 Direction  
Output Units

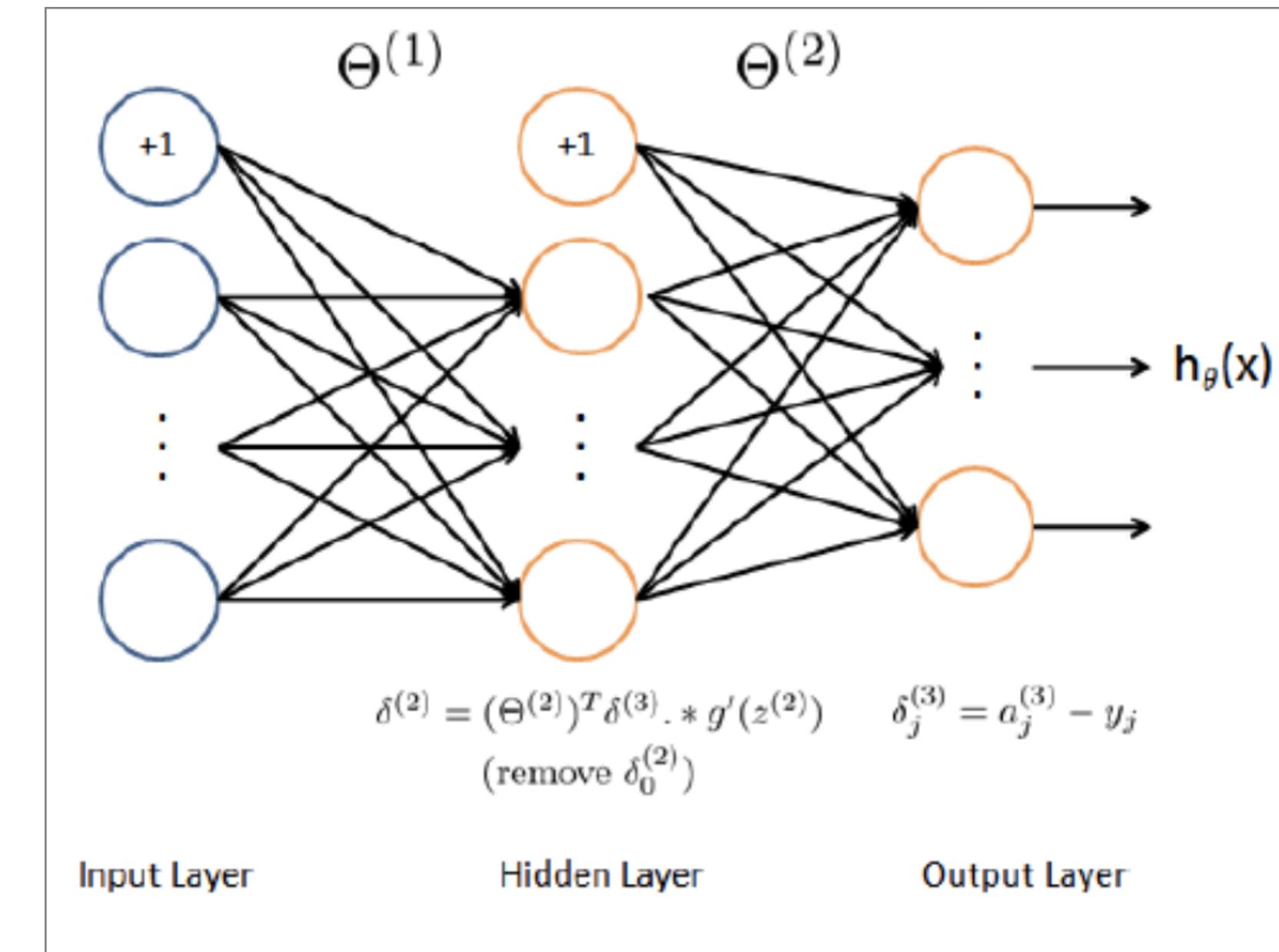
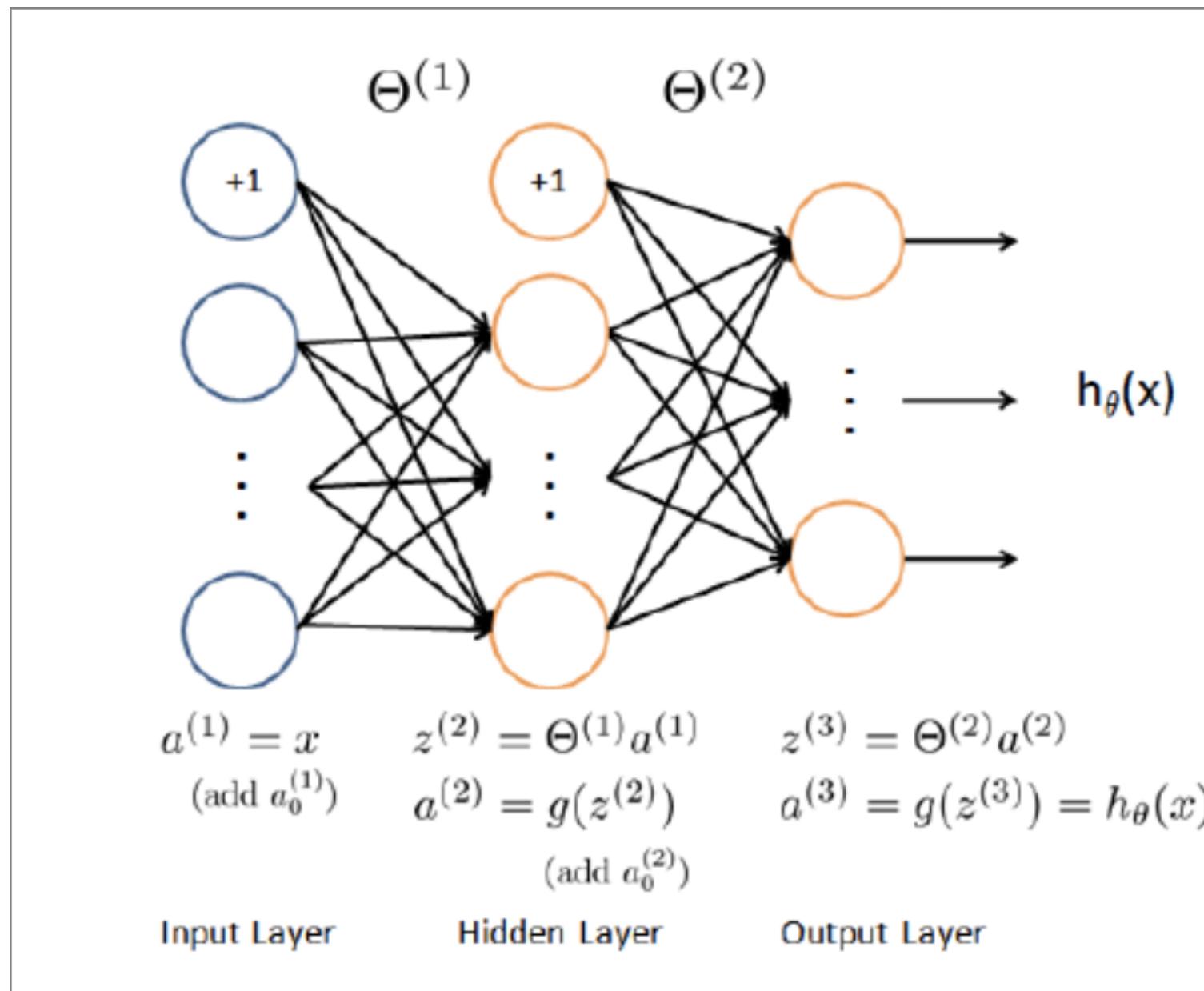
29  
Hidden  
Units



30x32 Video  
Input Retina

[CLICK HERE](#)

$$J(\theta) = \frac{1}{m} \sum_{i=1}^m \sum_{k=1}^K \left[ -y_k^{(i)} \log((h_\theta(x^{(i)}))_k) - (1 - y_k^{(i)}) \log(1 - (h_\theta(x^{(i)}))_k) \right] + \frac{\lambda}{2m} \left[ \sum_{j=1}^{25} \sum_{k=1}^{400} (\Theta_{j,k}^{(1)})^2 + \sum_{j=1}^{10} \sum_{k=1}^{25} (\Theta_{j,k}^{(2)})^2 \right]$$



$$\Delta^{(l)} = \Delta^{(l)} + \delta^{(l+1)}(a^{(l)})^T$$

$$\frac{\partial}{\partial \Theta_{ij}^{(l)}} J(\Theta) = D_{ij}^{(l)} = \frac{1}{m} \Delta_{ij}^{(l)}$$

$$\begin{aligned} \frac{\partial}{\partial \Theta_{ij}^{(l)}} J(\Theta) &= D_{ij}^{(l)} = \frac{1}{m} \Delta_{ij}^{(l)} \text{ for } j = 0, \\ \frac{\partial}{\partial \Theta_{ij}^{(l)}} J(\Theta) &= D_{ij}^{(l)} = \frac{1}{m} \Delta_{ij}^{(l)} + \frac{\lambda}{m} \Theta_{ij}^{(l)} \text{ for } j \geq 1 \end{aligned}$$