Model Representation I

Let's examine how we will represent a hypothesis functi
basically computational units that take inputs (**dendrite**
outputs (**axons**). In our model, our dendrites are like the
hypothesis function. In this model our x_0 input node is
neural networks, we use the same logistic function as in
(logistic) **activation** function. In this situation, our "theta

Visually, a simplistic representation looks like:

$$\left[x_0 x_1 x_2\right] \rightarrow \left[\ \ \right] \rightarrow h_\theta(x)$$

Our input nodes (layer 1), also known as the "input layer
hypothesis function, known as the "output layer".

We can have intermediate layers of nodes between the

In this example, we label these intermediate or "hidden"

$$a_i^{(j)} = \text{"activation" of unit } i \text{ in layer } j$$
$$\Theta^{(j)} = \text{matrix of weights controlling function mapping f}$$

If we had one hidden layer, it would look like:

$$\left[x_0 x_1 x_2 x_3\right] \rightarrow \left[a_1^{(2)} a_2^{(2)} a_3^{(2)}\right] \rightarrow h_\theta(x)$$

The values for each of the "activation" nodes is obtained

$$a_1^{(2)} = g(\Theta_{10}^{(1)} x_0 + \Theta_{11}^{(1)} x_1 + \Theta_{12}^{(1)} x_2 + \Theta_{13}^{(}$$
$$a_2^{(2)} = g(\Theta_{20}^{(1)} x_0 + \Theta_{21}^{(1)} x_1 + \Theta_{22}^{(1)} x_2 + \Theta_{23}^{(}$$
$$a_3^{(2)} = g(\Theta_{30}^{(1)} x_0 + \Theta_{31}^{(1)} x_1 + \Theta_{32}^{(1)} x_2 + \Theta_{33}^{(}$$
$$h_\Theta(x) = a_1^{(3)} = g(\Theta_{10}^{(2)} a_0^{(2)} + \Theta_{11}^{(2)} a_1^{(2)} + \Theta_{12}^{(2)} a_2^{(2)} + \Theta_{13}^{(2}$$