Artificial Neural Networks

The simplest case of an ANN is the perceptron model which is a linear classifier that has a simple and efficient learning algorithm. But, besides the simple Threshold Function used in the Perceptron model, there are several other common choices for the activation function such as sigmoid, tanh, or step functions.

$$y_k = \begin{cases} 1, & \text{if } \sum x_i w_{ki} \geq \theta_k \\ 0, & \text{if } \sum x_i w_{ki} < \theta_k \end{cases}$$

Here x_i and y_k are inputs and outputs. w_{ki} is the synaptic weight converting all input to the kth output. θ_k is threshold determing if output is effective or not.