

INT301 Bio-Computation

Week 5 Tutorial

For a feedforward neural network with two inputs and one output, use the back-propagation algorithm with momentum as shown below to update the weights after each of the training examples $\{(1, 0), 1\}$ and $\{(0, 1), 0\}$ in order (i.e. incremental learning version).

$$\Delta w(t) = -\frac{\partial E_e}{\partial w(t)} + \alpha \Delta w(t-1)$$

Assume the network has a single hidden layer with one neuron and all neurons use the sigmoid activation function. All weights (including bias) are initially equal to 1, learning rate $\eta=0.2$ and momentum term $\alpha = 0.9$.