Human Brain VS Computer

Motivation

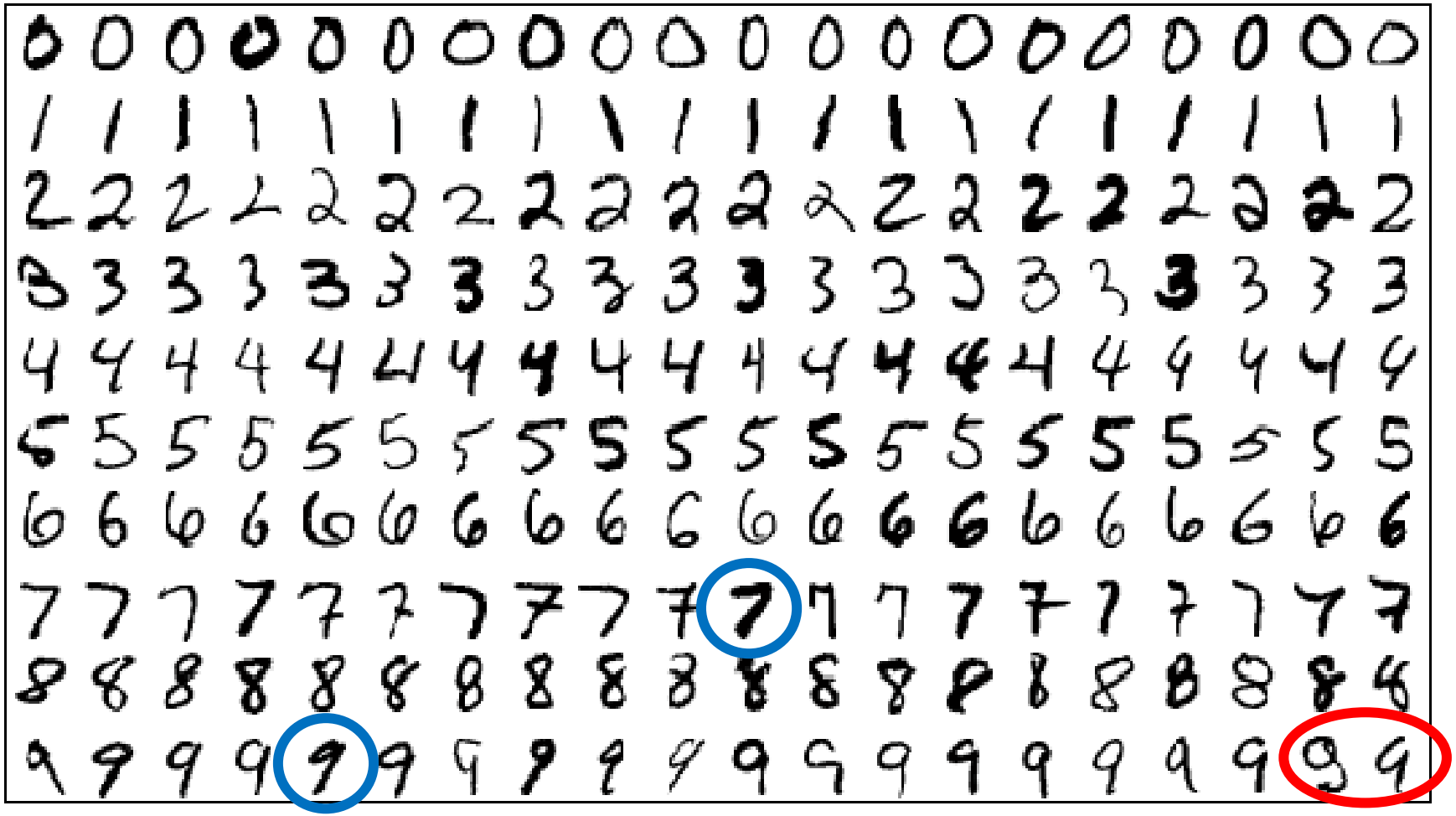
Human mind - Good at image recognition, pattern recognition etc

Computer - Good at arithmetic calculations

$$2574304 \times e^{354} \div \tan 5.1\pi$$

Handwriting recognition

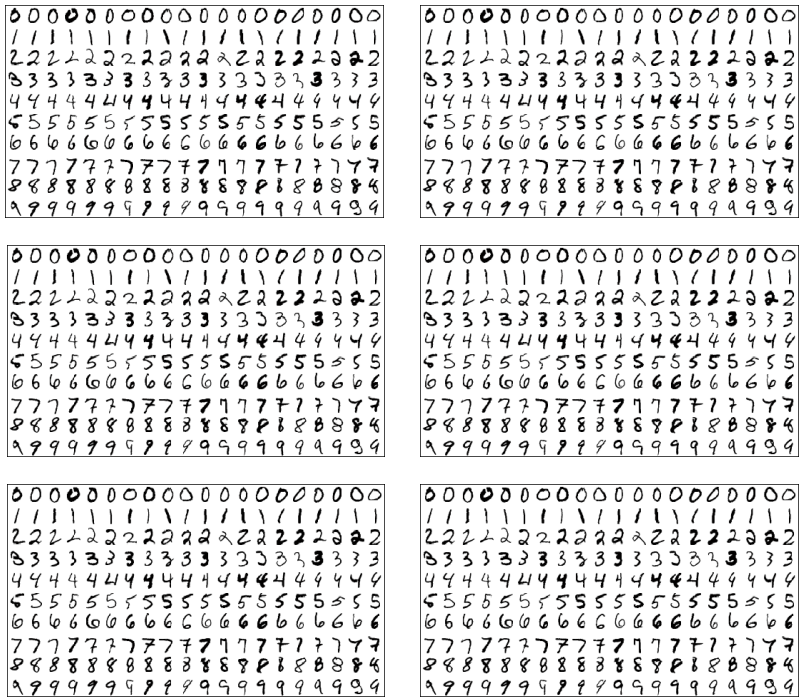
Making precise rules is difficult



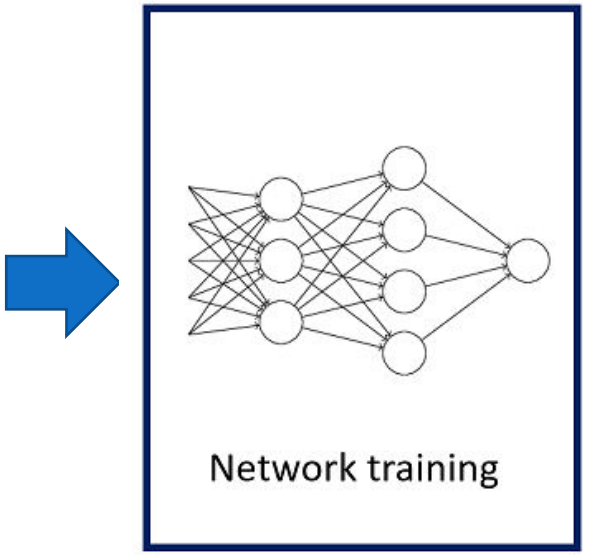
Neural Networks

Pattern recognition

Neural Networks creates own complex pattern recognition rules



Training data



1
2
3
4
5
6
7
8
9
0

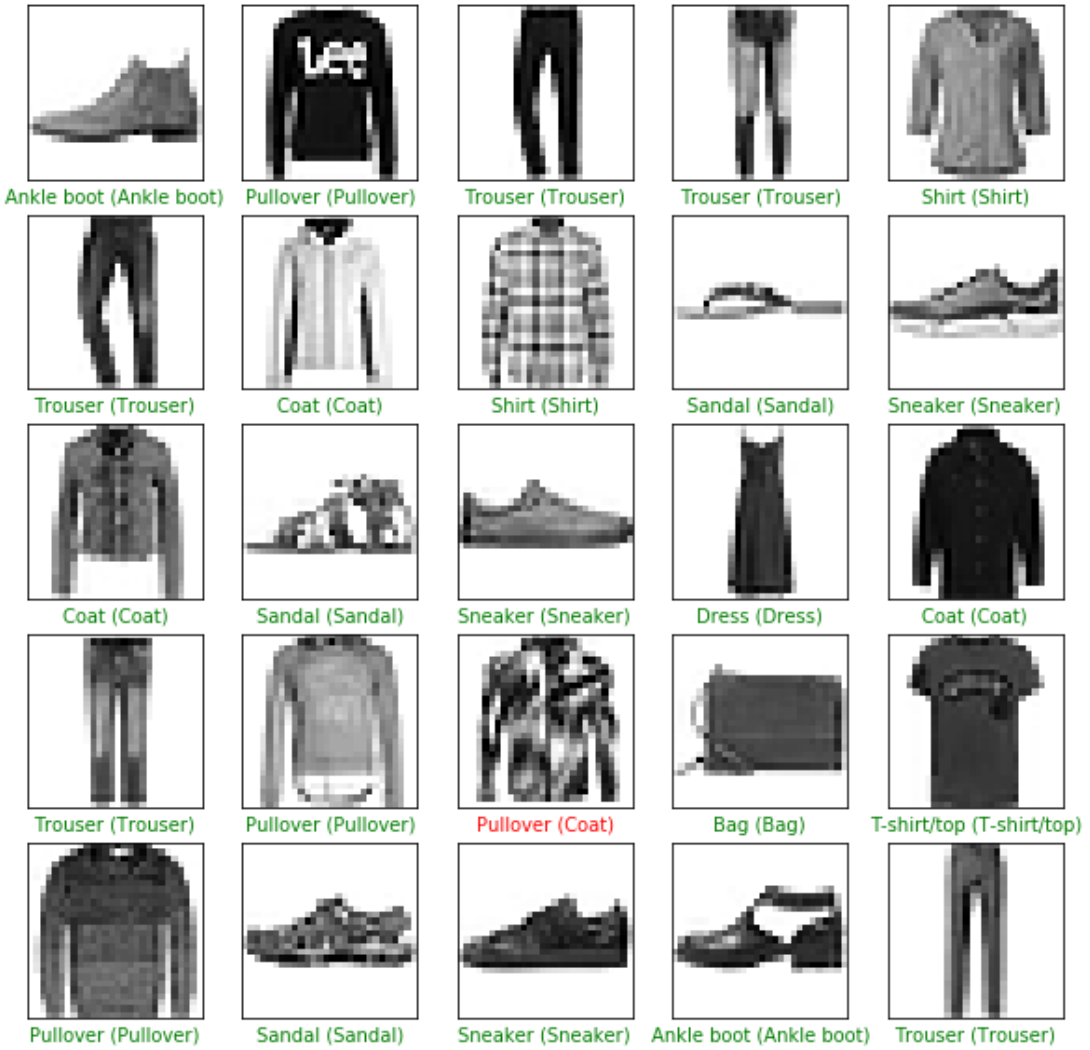
Future Prediction

Dataset

Fashion MNIST

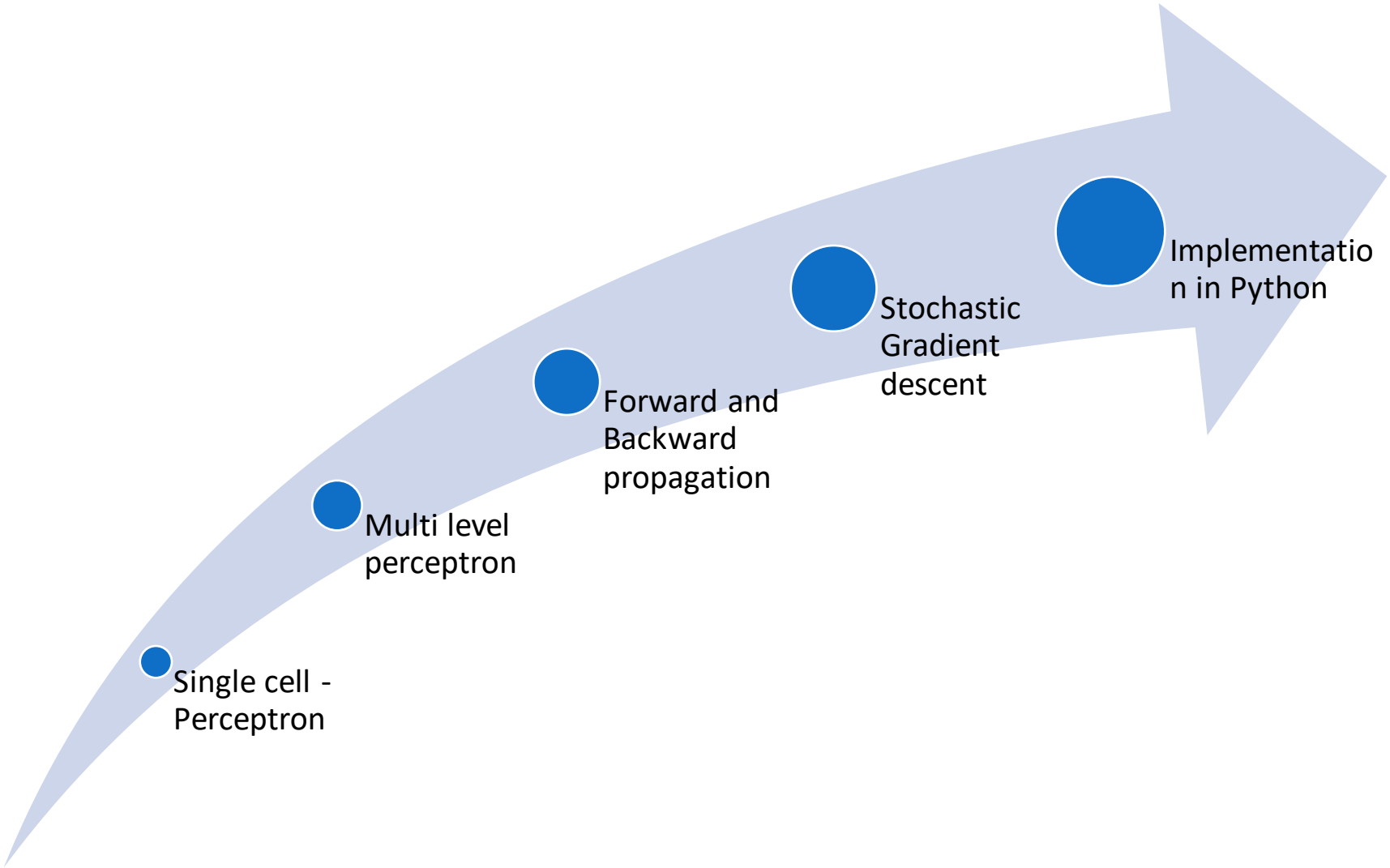
We will classify images

into 10 fashion items



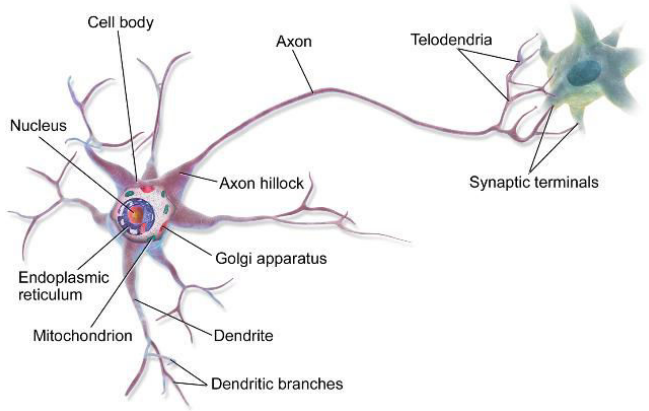
Course Flow

Course Flow

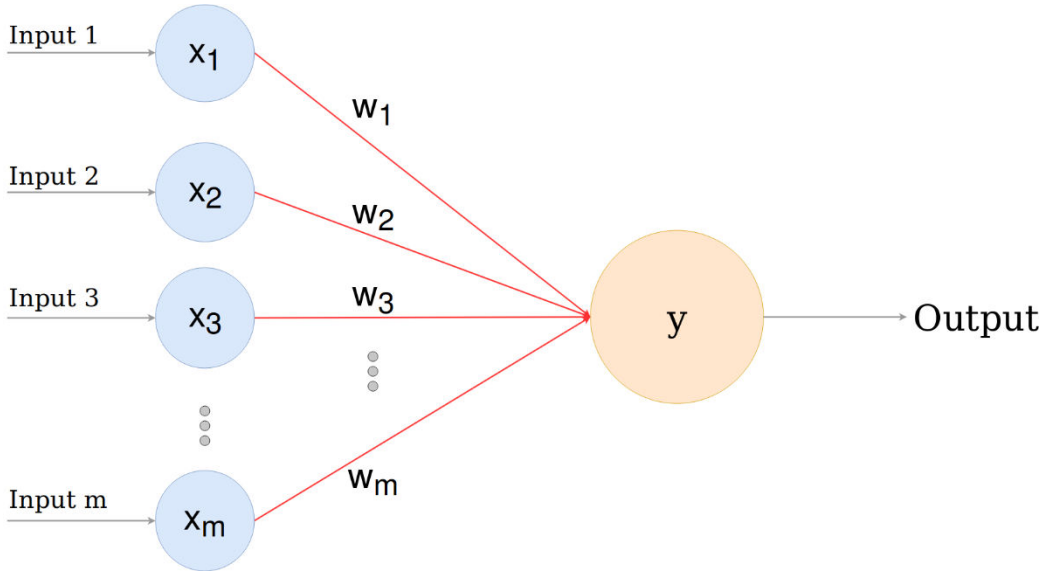


Perceptron

Artificial Neuron



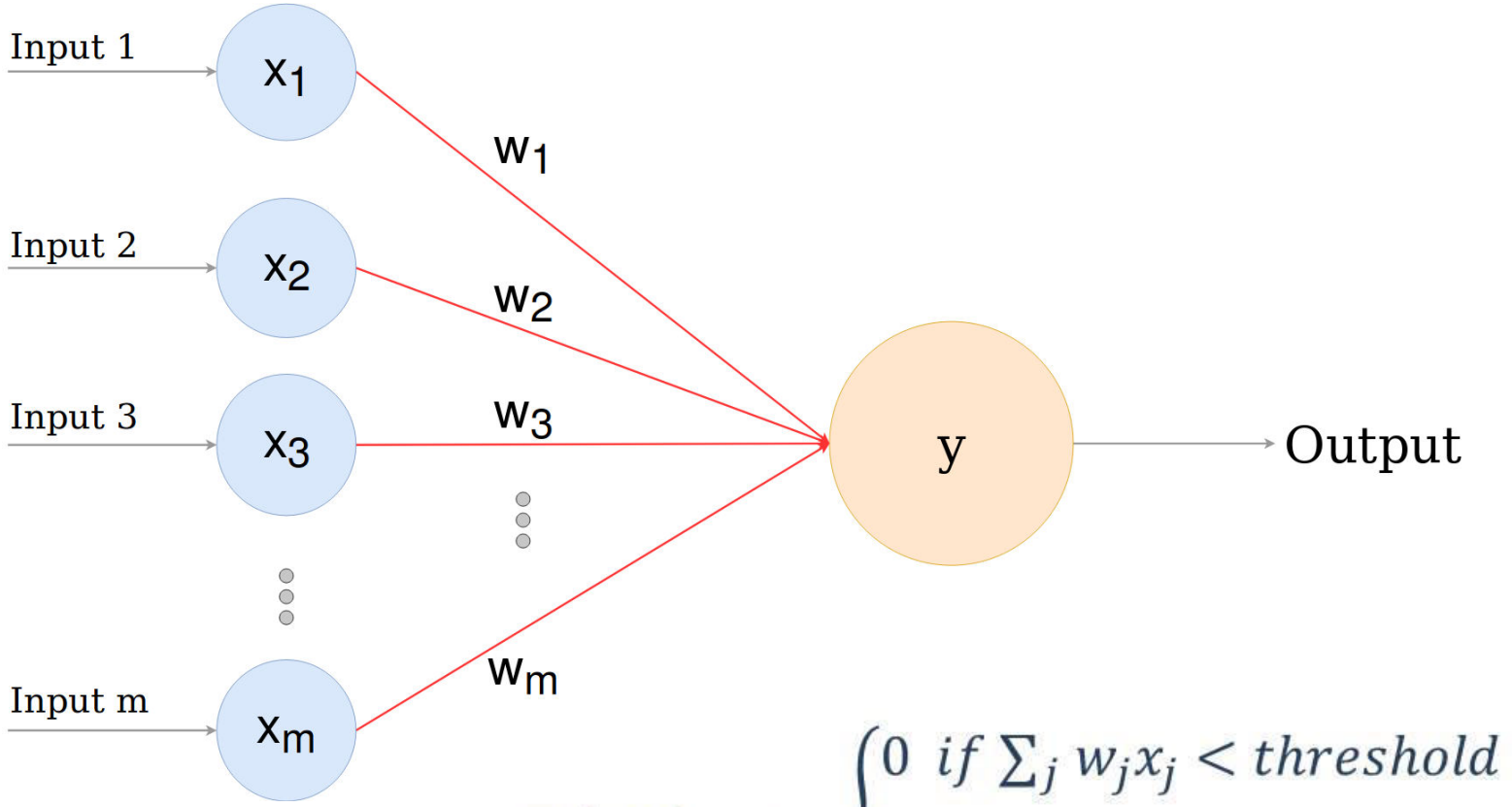
Biological Neuron



Artificial Neuron

Perceptron

Artificial Neuron



$$output = \begin{cases} 0 \ if \ \sum_j w_j x_j < threshold \\ 1 \ if \ \sum_j w_j x_j > threshold \end{cases}$$

Example

Purchasing a Shirt

Color

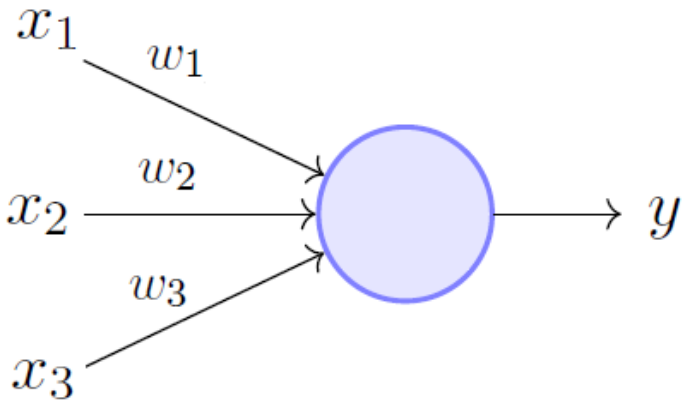
- Blue or Not

Sleeves

- Full or half

Fabric

- Cotton or not



You will buy the shirt or not

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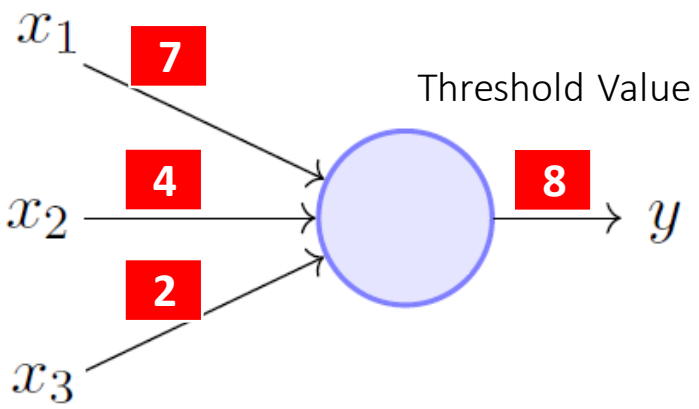

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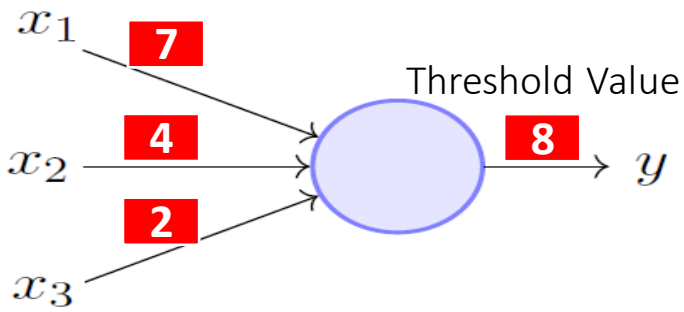

You will buy the shirt or not

Color	Sleeves	Fabric	Calculated Sum	Threshold	Buy / Not Buy
Blue	Half	Non Cotton	7*1 + 4*0 + 2*0 = 7	8	Not buy
Blue	Full	Non Cotton	11	8	Buy
Not Blue	Full	Cotton	6	8	Not Buy

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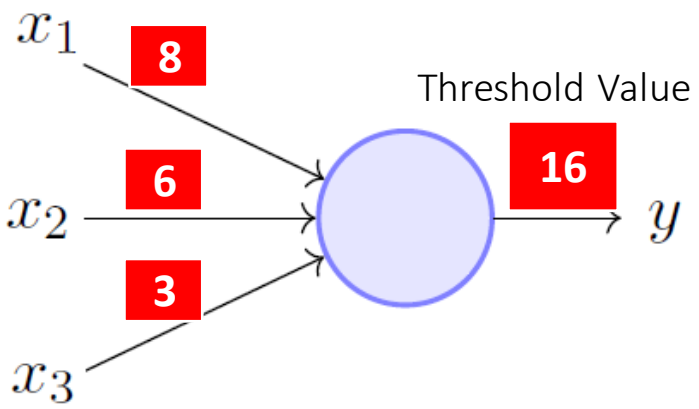

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