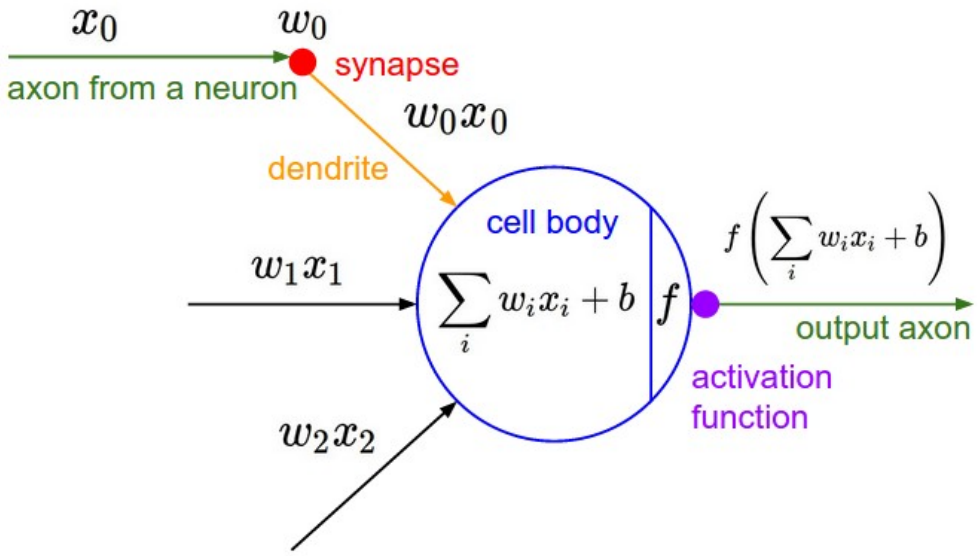
1. What is neuron model



source: https://www.cs.utoronto.ca/ fidler/teaching/2015/slides/CSC2523/CNN-tutorial.pdf

2. Give examples of activation functions

- Step-function

$$f(x) = \begin{cases} 1, x > 0 \\ 0, x < 0 \end{cases}$$

- Sigmoid

$$f(x) = \frac{1}{1 + e^{-x}}$$

- TanH

$$f(x) = \tanh(x)$$

- ReLU

$$f(x) = \max(0, x)$$

- Maxout

$$f(x) = \max(w_0 x + b_0, w_1 x + b_1)$$

source: https://www.cs.utoronto.ca/ fidler/teaching/2015/slides/CSC2523/CNN-tutorial.pdf

3. What are the strong and weak sides of sigmoid activation function

source: https://towardsdatascience.com/understanding-neural-networks-from-neuron-to-rnn-cnn-and-deep-learning-cd88e90e0a90

4. For image and speech recognition, what kind of neural networks are better used and why?

- CNN (Convolution Neural Networks) are used for image recognition.
- RNN (Recurring Neural Networks) are used for speech recognition

source: https://www.cs.utoronto.ca/ fidler/teaching/2015/slides/CSC2523/CNN-tutorial.pdf