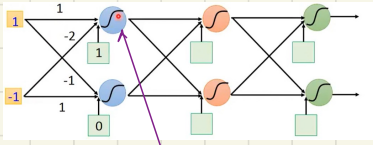
Three steps for Deep-learning

step1: define a set of function → step2: goodness of function → step3: pick the best function

↓

Neural network

step1: fully connect feedforward Network



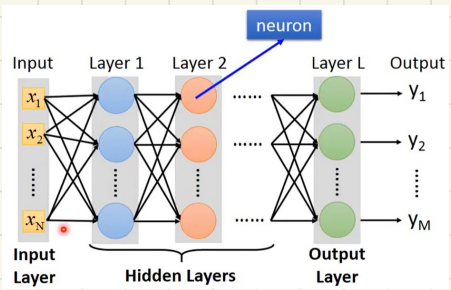
sigmoid function

This is a function.

Input vector, output vector

$f\left(\begin{bmatrix}0\\0\end{bmatrix}\right)=\begin{bmatrix}0.51\\0.85\end{bmatrix}$

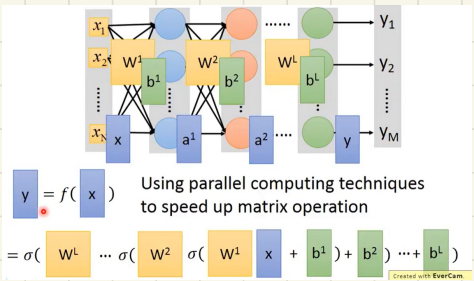
Given network structure, define a function set



Fully Connected Feedforward Network

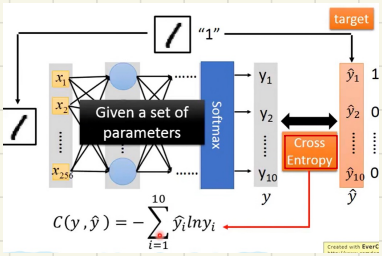
前饋網絡

Deep = many hidden layers



使用GPU加速

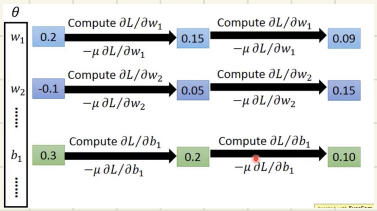
Step 2: Loss for an example



For all training data

$$L = \sum_{i=1}^{N} C_i$$

↓ find a function in function set that minimizes total loss L.

↓ find the network parameters θ^* that minimize total loss L.

Gradient Descent