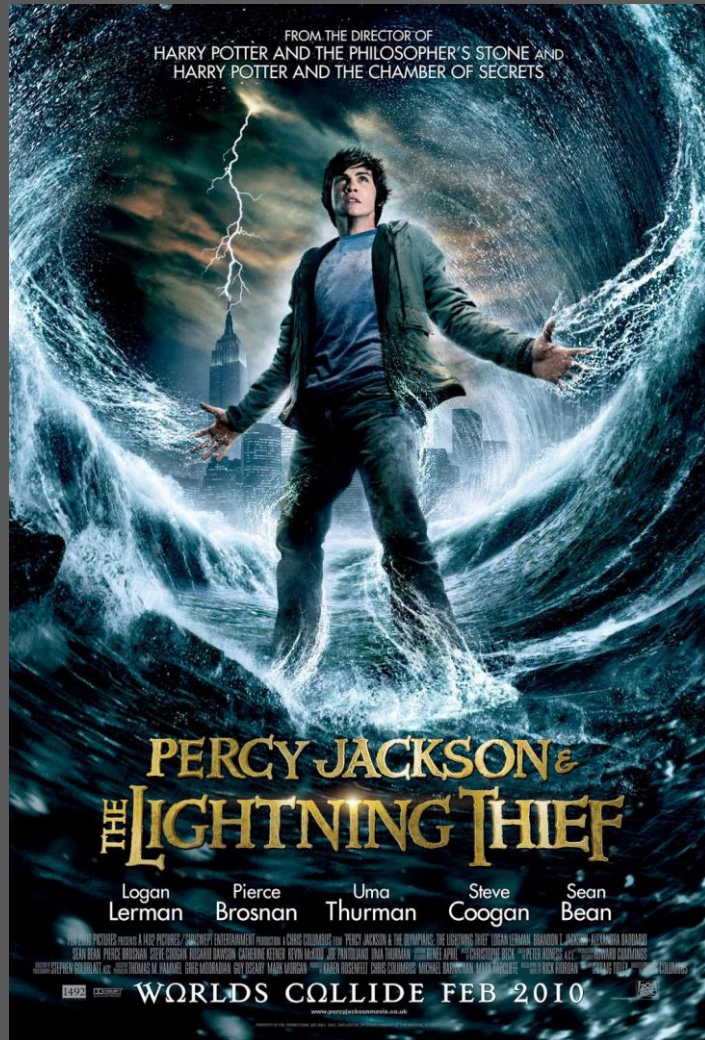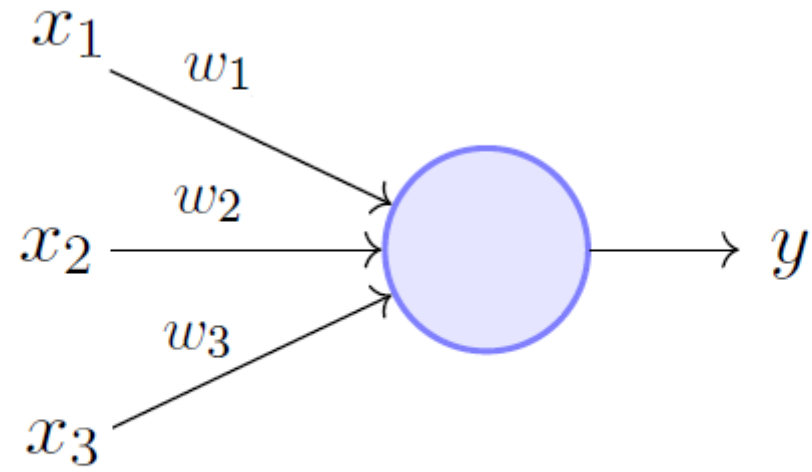Discussion
Cingin' in the Rain

Percy-eptron

Perceptron Model (Minsky-Papert in 1969)
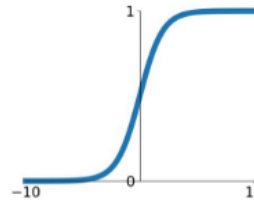
(Bl)ac(k)-tivation Functions

Activation Functions

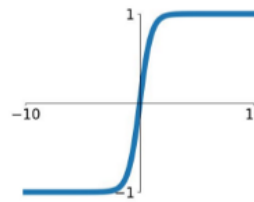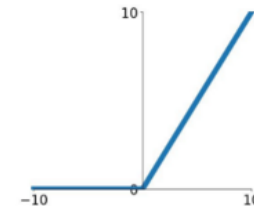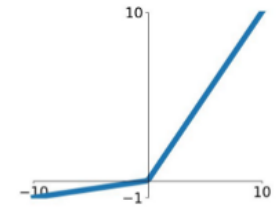**Sigmoid**
$\sigma(x) = \frac{1}{1+e^{-x}}$

tanh
$\tanh(x)$
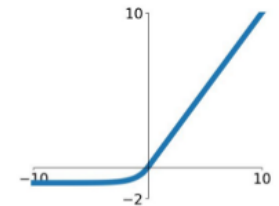
ReLU
$\max(0, x)$

Leaky ReLU
$\max(0.1x, x)$

Maxout
$\max(w_1^T x + b_1, w_2^T x + b_2)$

ELU
$\begin{cases} x & x \geq 0 \\ \alpha(e^x - 1) & x < 0 \end{cases}$

Let's work on an X-ample

(A) New (Hope) Ral Network

Long Definition (optional):
Artificial neural networks, usually simply called neural networks (NNs), are based on a collection of connected units or nodes called artificial neurons, which loosely model the neurons in a biological brain. Each connection, like the synapses in a biological brain, can transmit a signal to other neurons. An artificial neuron that receives a signal then processes it and can signal neurons connected to it.
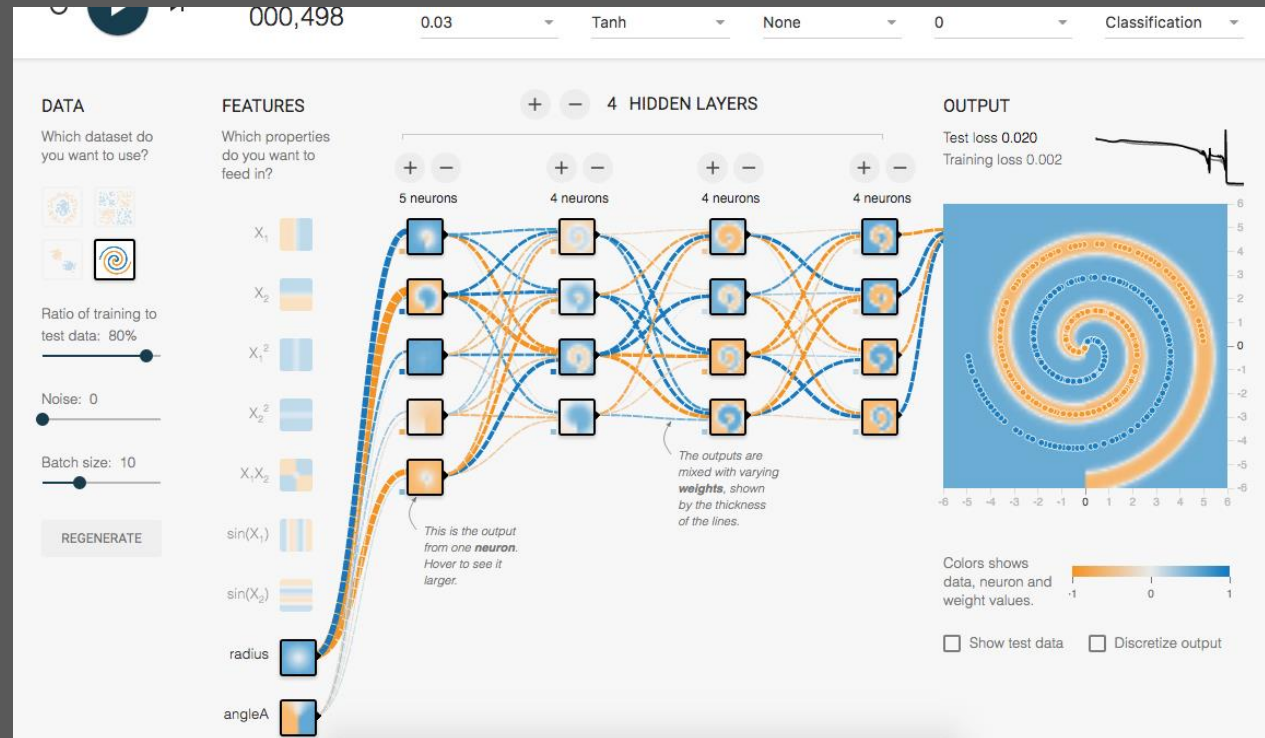
Short Definition:
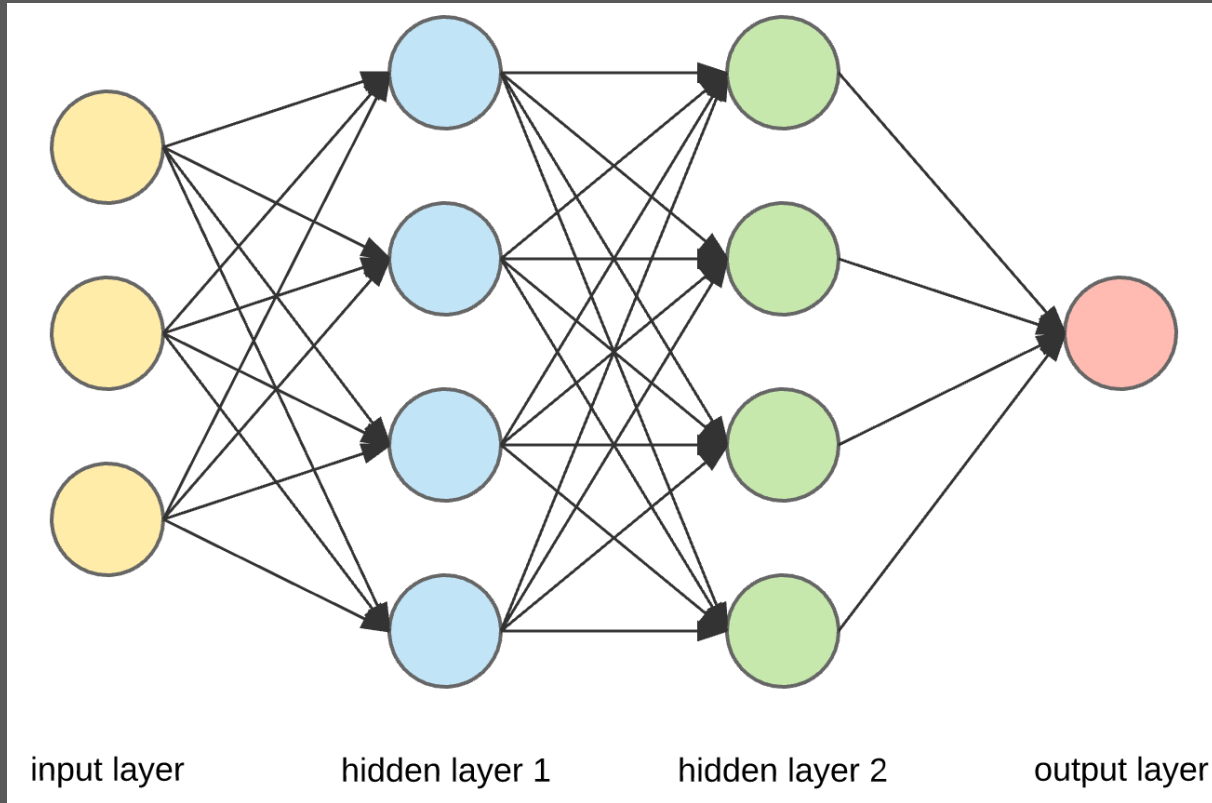**Neural Network is a bunch of perceptron connected together**

Motivation:

The perceptron is not complex enough to classify non-linear data. We then introduced neural network which consists of many perceptron to handle non-linear classification problem.
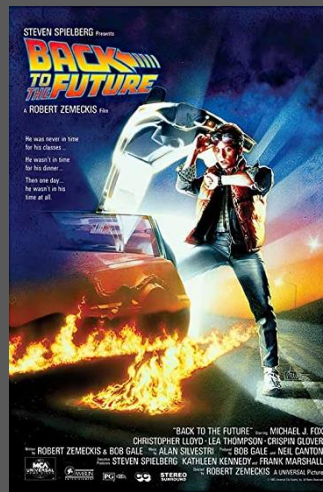
https://playground.tensorflow.org/

Definition & Terminology

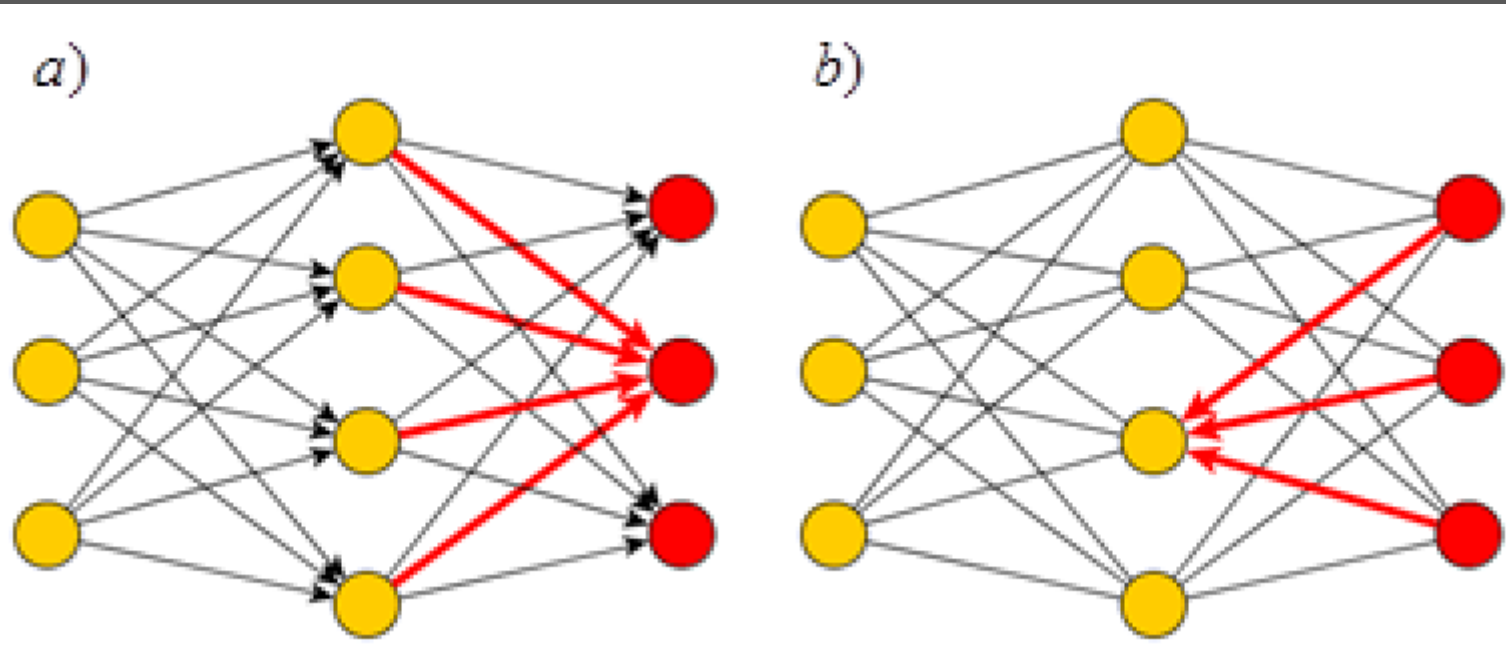input layer   hidden layer 1   hidden layer 2   output layer

(Demon S)Layers

Back Propagation (backpropagation)

(Django Un)chain(ed) rule is backpropagation backbone

That's The End (of Evangelion) for today