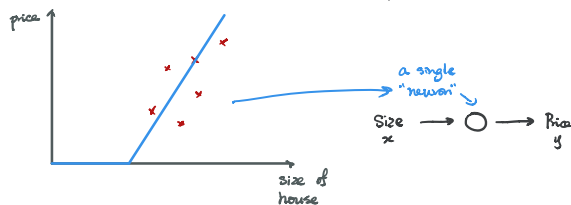


What is a neural network?

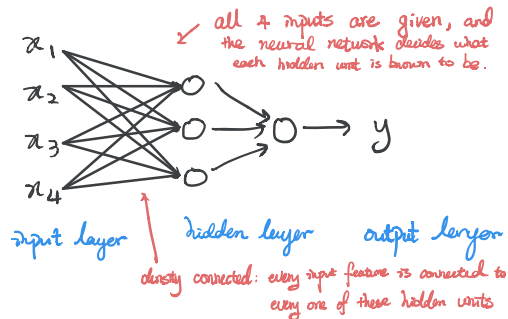
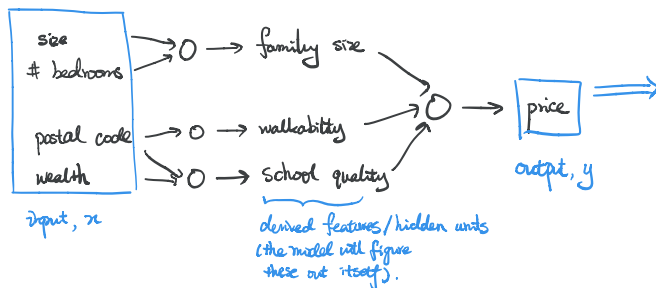
A single "neuron": a ReLU function of input.



* each neuron is an implementation of the function on the left graph (i.e. max of zero and the linear function), which is also call ReLU function.

ReLU: Rectified Linear Unit:

A neural network: a stack of neurons.



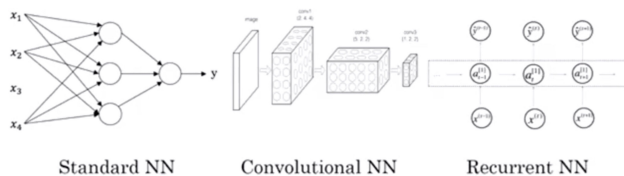
Supervised learning with neural network.

Supervised Learning

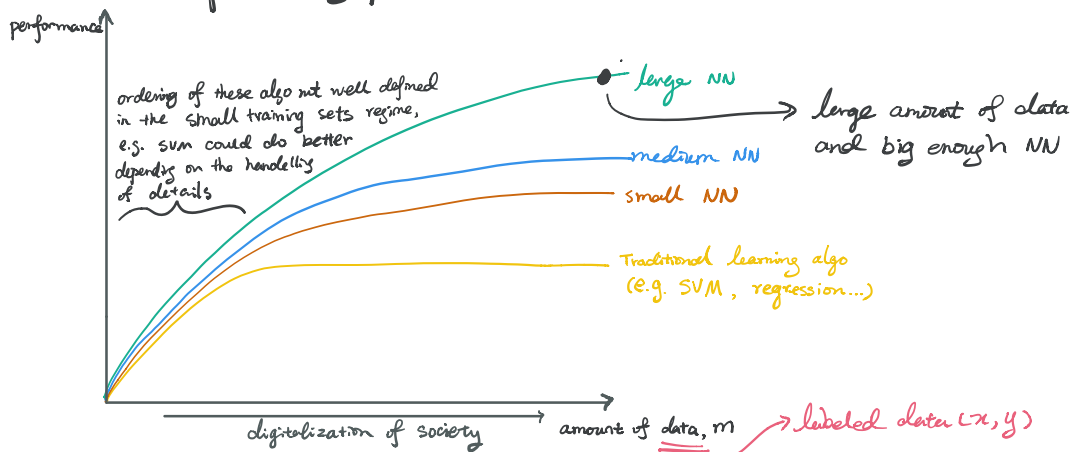
Input(x)	Output (y)	Application
Home features	Price	Real Estate
Ad, user info	Click on ad? (0/1)	Online Advertising
Image	Object (1, ..., 1000)	Photo tagging
Audio	Text transcript	Speech recognition
English	Chinese	Machine translation
Imag Radar info	Position of other cars	Autonomous driving

clever choice of x and y can enable valuable applications.

Neural Network examples



Scale drives deep learning process



* The development of algorithm also help NN to work much faster, e.g. changing activation function from sigmoid to help gradient descent to work much faster

