Wk1 - Intro to Deep Learning
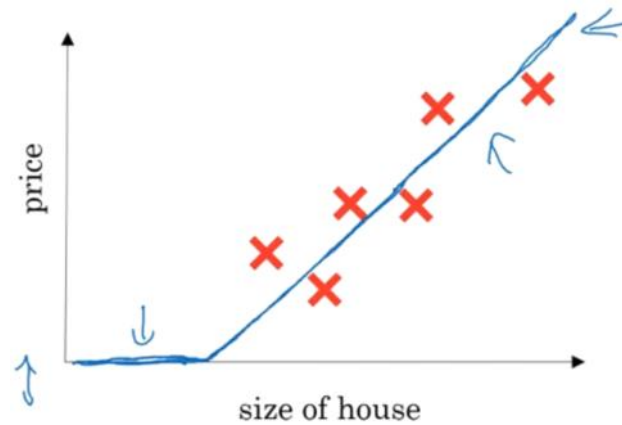
Sunday, May 20, 2018   10:50 PM

What is a Neural Network?

Made up of neurons.

"neuron"

Size → ◯ → Price
x   1   y
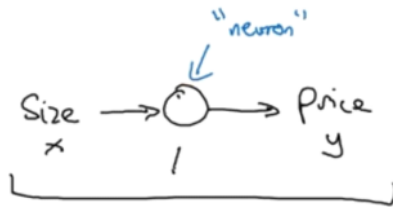
Screen clipping taken: 5/20/2018 10:58 PM

With some activation function such as the ReLU (Rectified Linear Unit) activation function.

Supervised Learning with Neural Networks

Structured Data

Size	#bedrooms	...	Price (1000$s)
2104	3		400
1600	3		330
2400	3		369
⋮	⋮		⋮
3000	4		540

User Age	Ad Id	...	Click
41	93242		1
80	93287		0
18	87312		1
⋮	⋮		⋮
27	71244		1

Unstructured Data

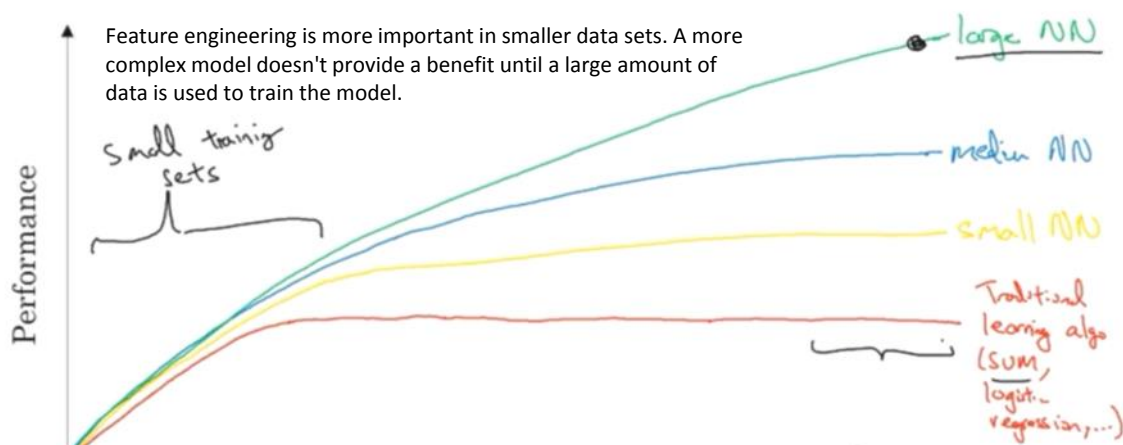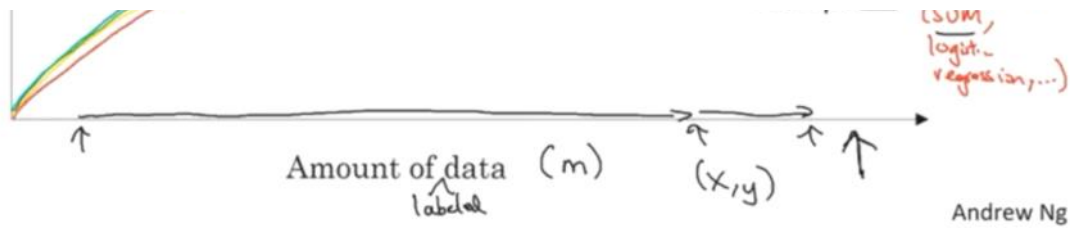Audio   Image

Four scores and seven years ago...

Text
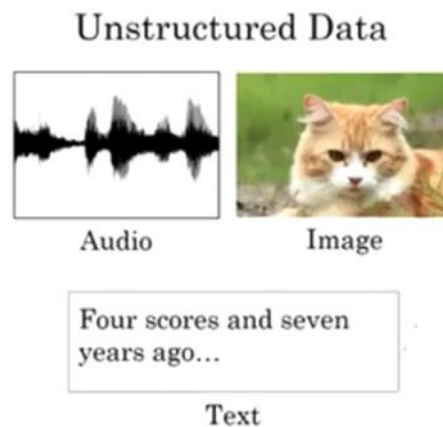
Historically, computers struggled with unstructured data. Advances in deep learning (CNN, RNN, LSTM) are changing that.

Why is Deep Learning Taking Off?

1. Data.
2. Data.
3. Computation
4. Algorithms

Scale drives deep learning progress

Feature engineering is more important in smaller data sets. A more complex model doesn't provide a benefit until a large amount of data is used to train the model.

small training sets

large NN
medium NN
small NN
Traditional learning algo (SVM, logit. regression,...)

(SUM,
logit
regression,...)

Amount of data (m)
labeled

(x,y)

Andrew Ng

Heroes of Deep Learning - Geoffrey Hinton Interview

Generative adversarial nets may be one of the biggest breakthroughs in unsupervised learning.

Wk2 - Neural Networks Basics