Week 1 Intro DL

笔记本: DL 1 - NN and DL
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- AI is the new Electricity
- Electricity had once transformed countless industries: transportation, manufacturing, healthcare, communications, and more
- AI will now bring about an equally big transformation.

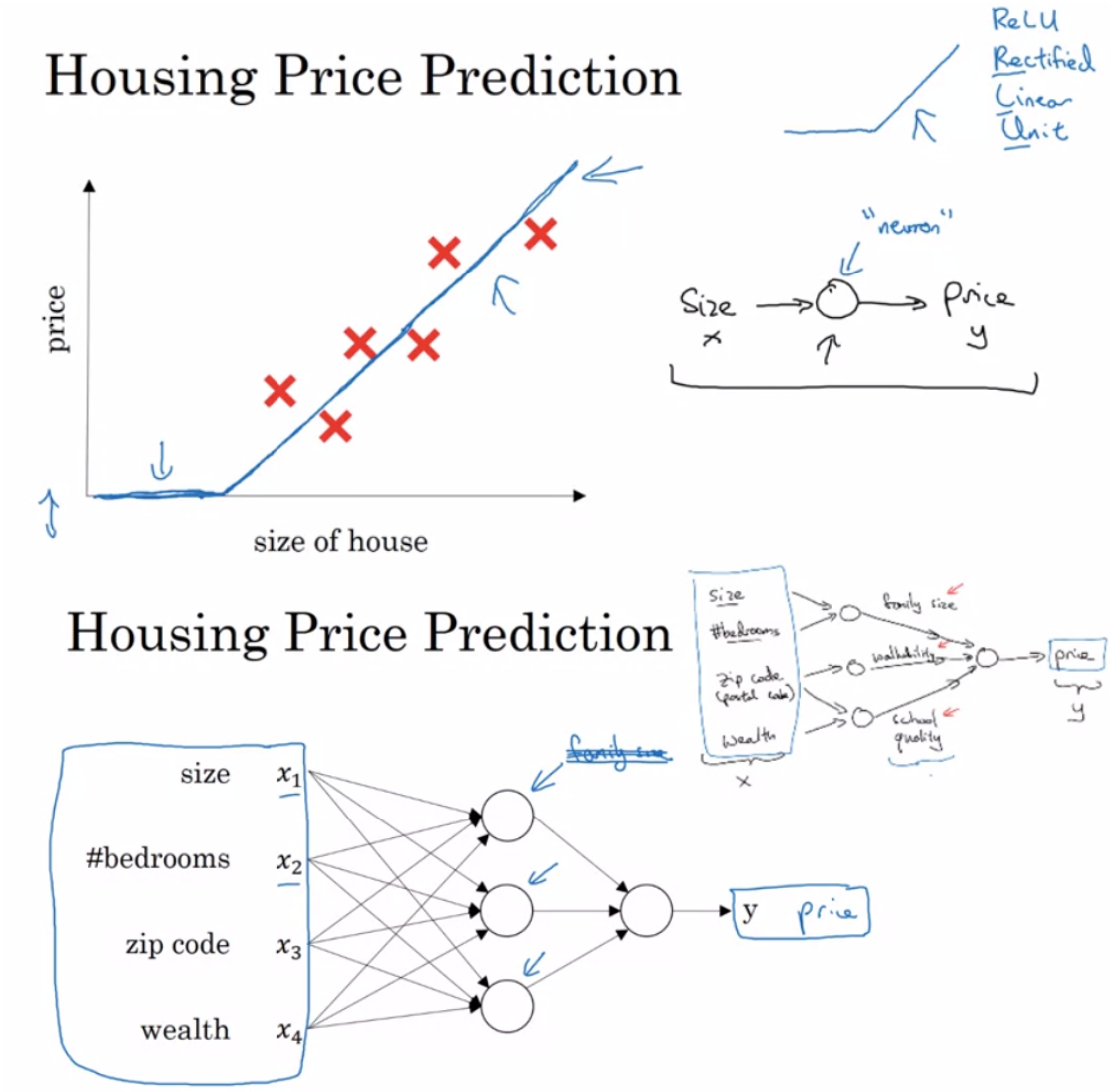
What you'll learn

Courses in this sequence (Specialization):

1. Neural Networks and Deep Learning
2. Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
3. Structuring your Machine Learning project train/dev/test
4. Convolutional Neural Networks CNN end-to-end
5. Natural Language Processing: Building sequence models

RNN, LSTM

ReLU



And the remarkable thing about neural networks is that, given enough data about x and y, given enough training examples with both x and y, neural networks are remarkably good at figuring out functions that accurately map from x to y.

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
Image, Radar info	Position of other cars	Autonomous driving

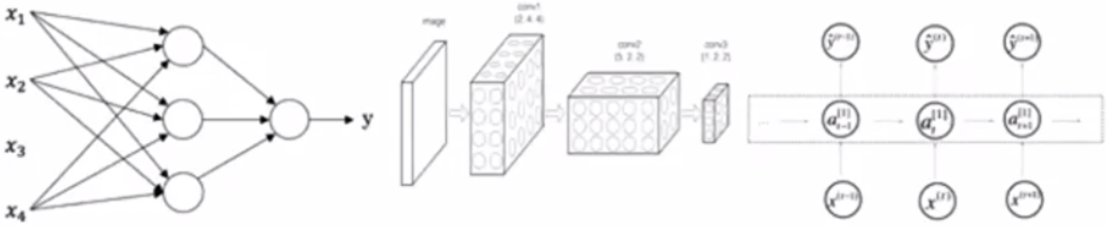
Standard NN

CNN

RNN

Custom/ Hybrid

Neural Network examples



Standard NN | Convolutional NN | Recurrent NN

Supervised Learning

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

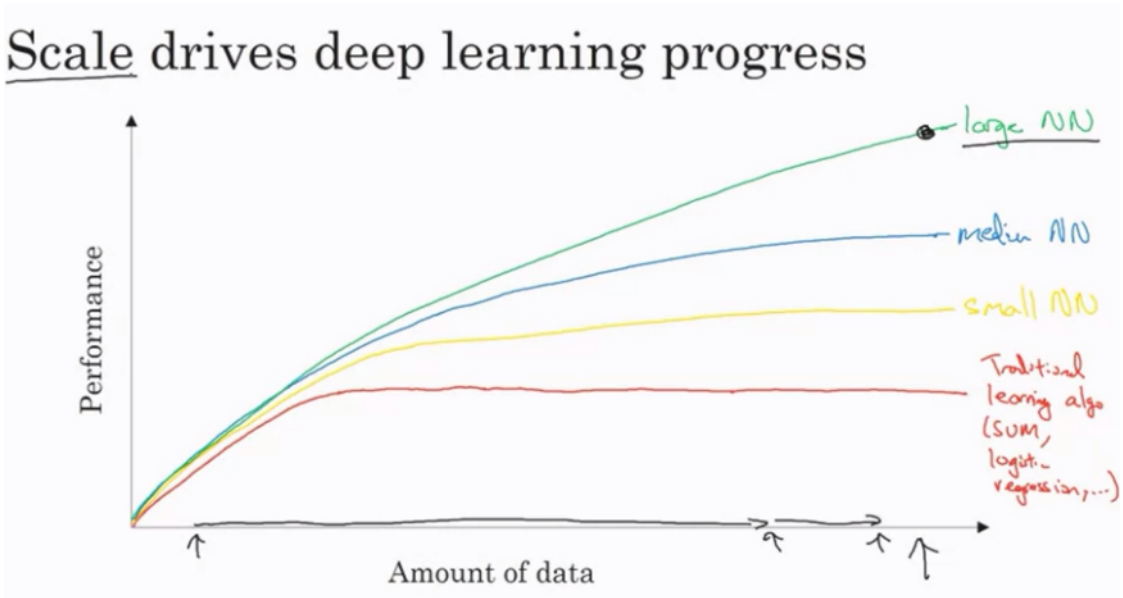
Unstructured Data

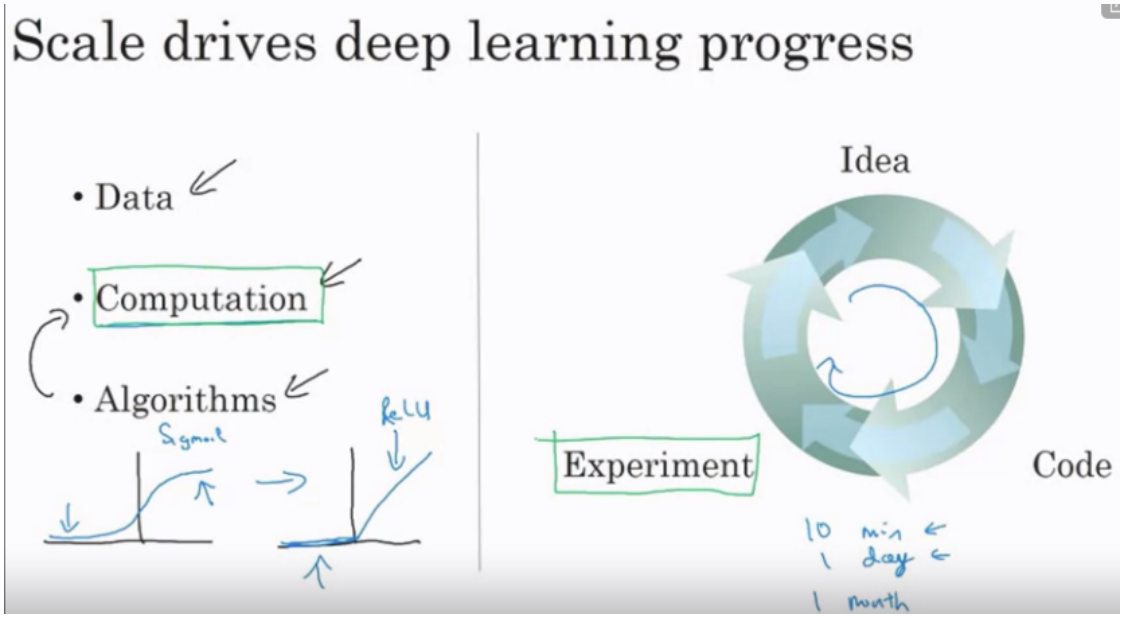
Audio

Image

Four scores and seven years ago…

Text





ReLU -> GD faster compared with Sigmoid

experimental science

Outline of this Course

Week 1: Introduction

Week 2: Basics of Neural Network programming

Week 3: One hidden layer Neural Networks

Week 4: Deep Neural Networks

Geoffrey Hinton's Interview (omitted)