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Introduction to Deep Learning

Welcome



- 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
4. Convolutional Neural Networks
5. Natural Language Processing: Building sequence models

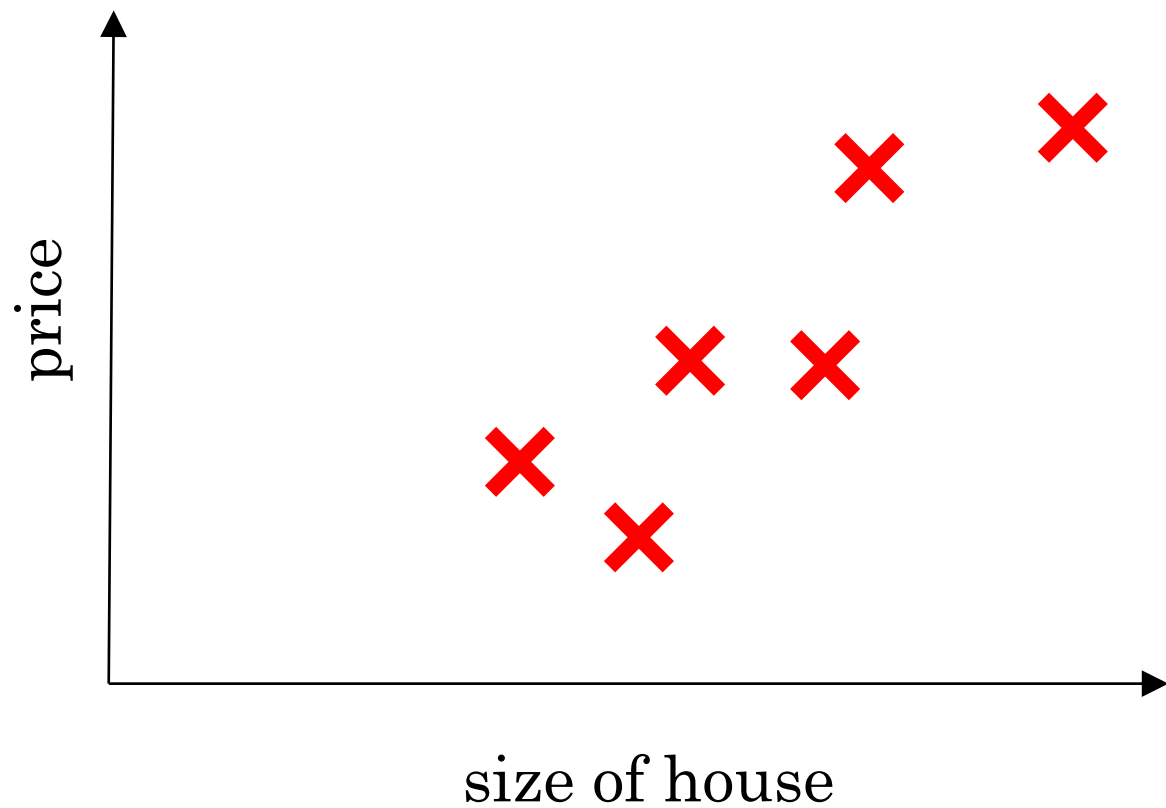


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Introduction to Deep Learning

What is a Neural Network?

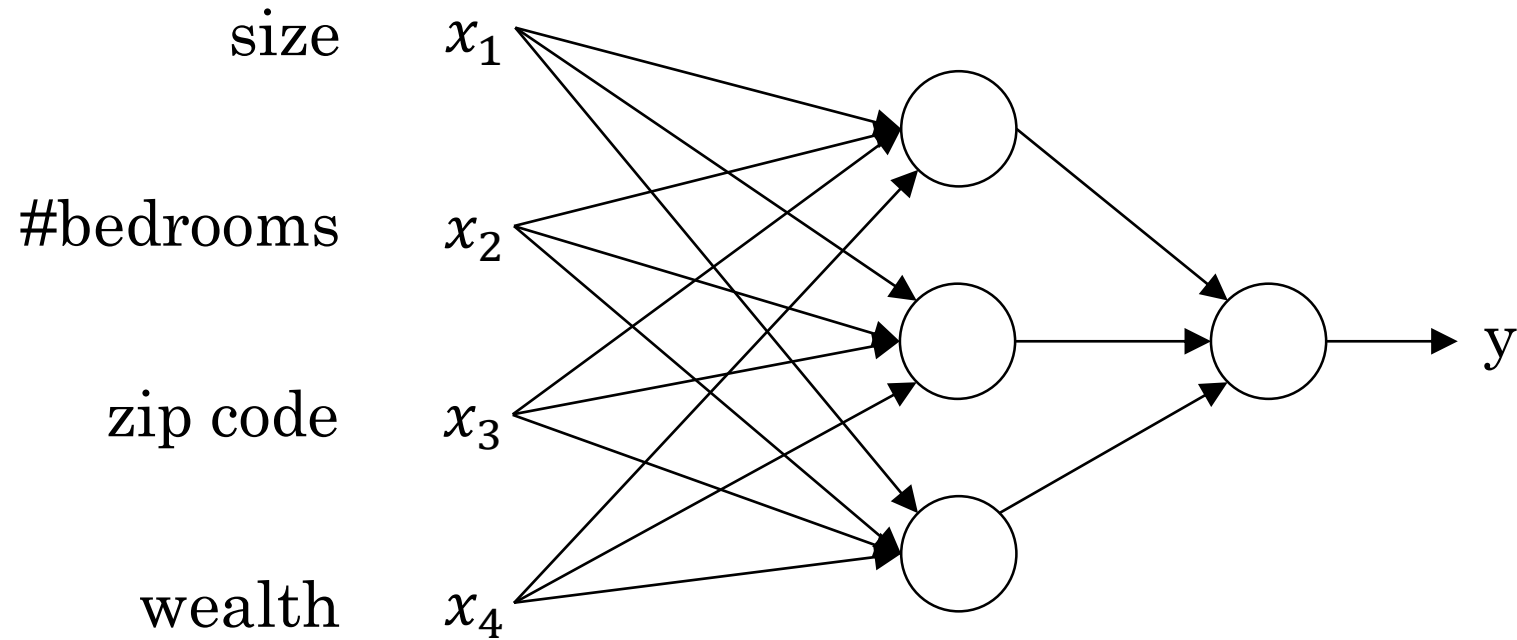
Housing Price Prediction



Housing Price Prediction

Housing Price Prediction

**Drawing of
previous Image**





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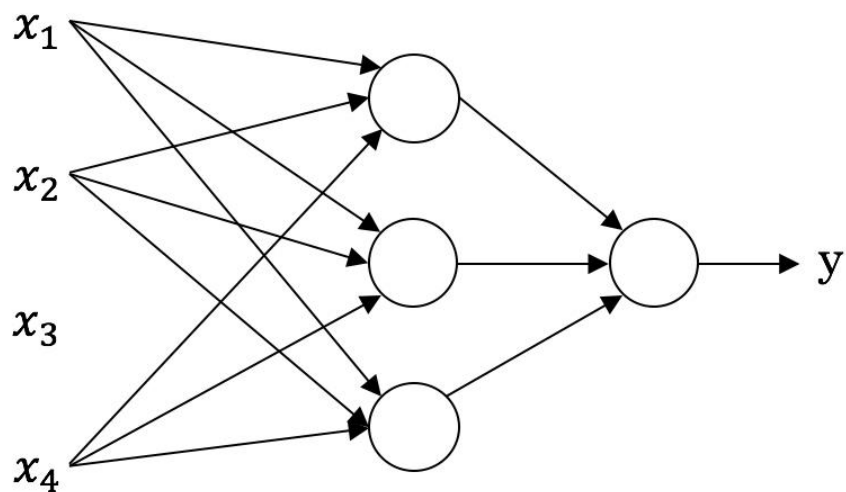
Introduction to Deep Learning

Supervised Learning with Neural Networks

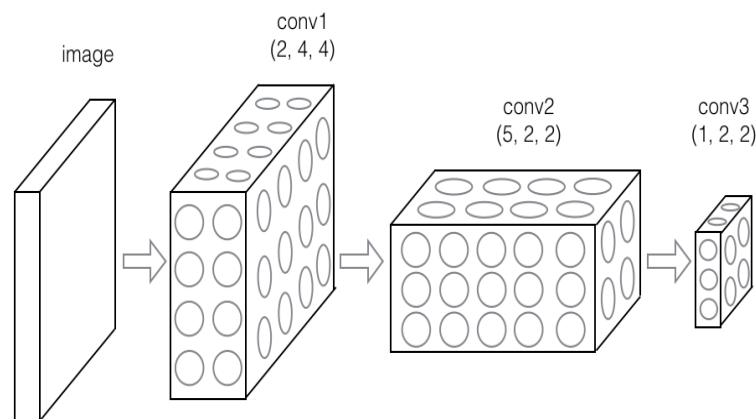
Supervised Learning

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

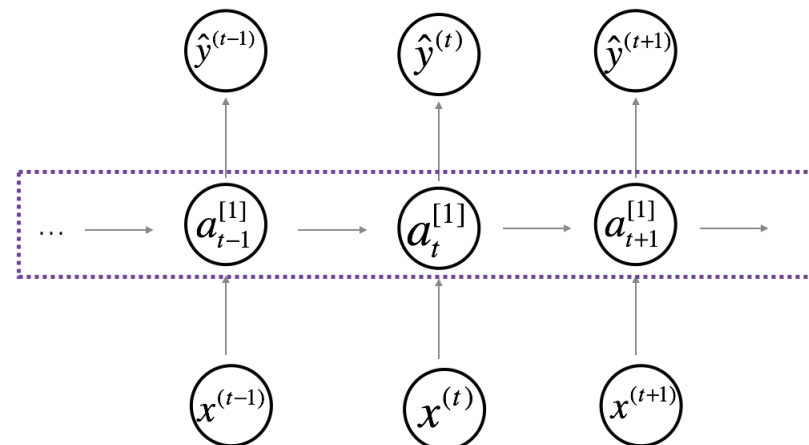
Neural Network examples



Standard NN



Convolutional NN



Recurrent NN

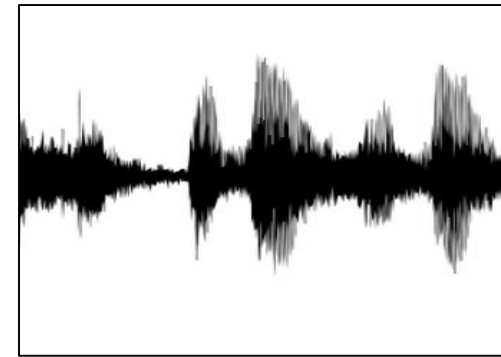
Supervised Learning

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

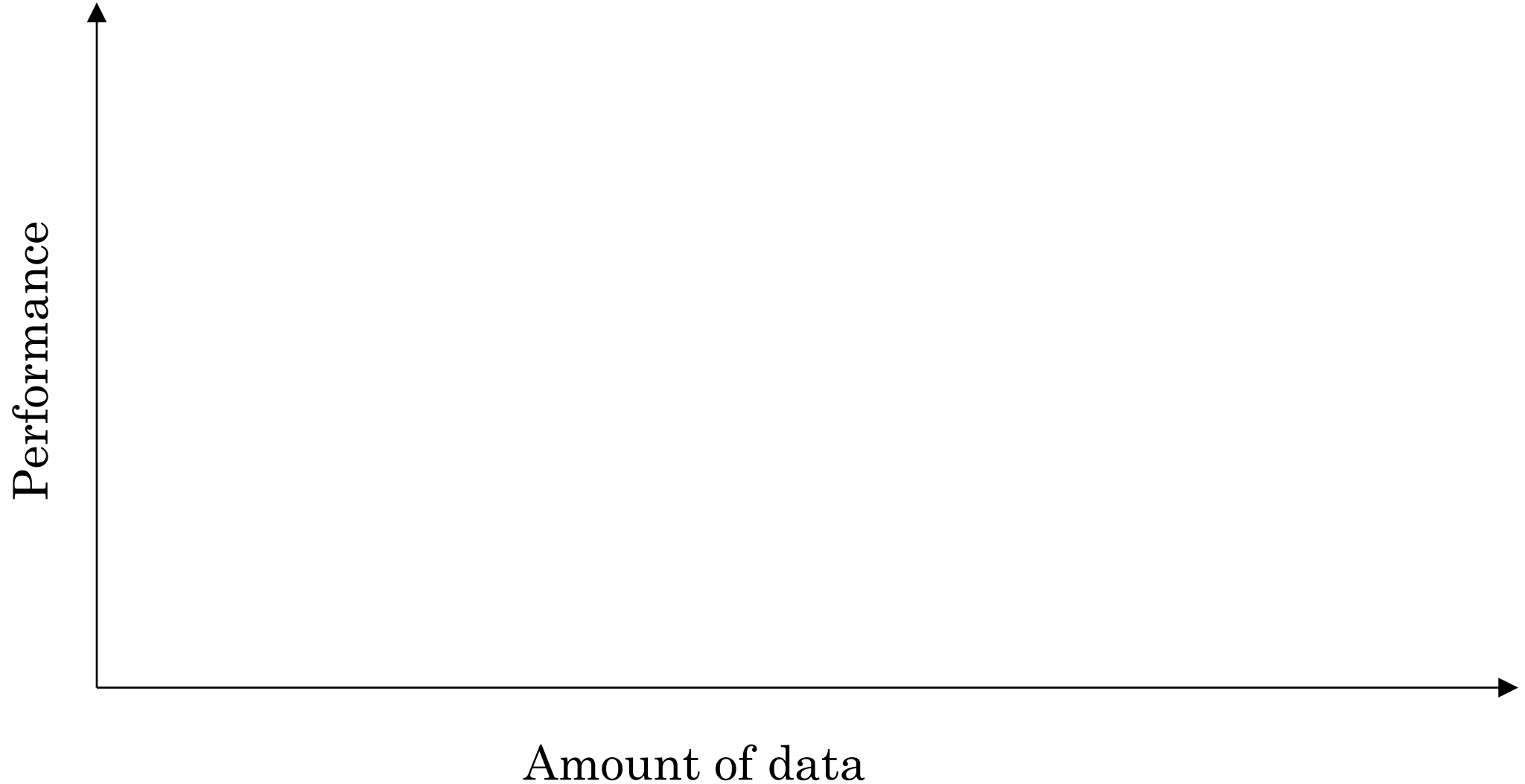


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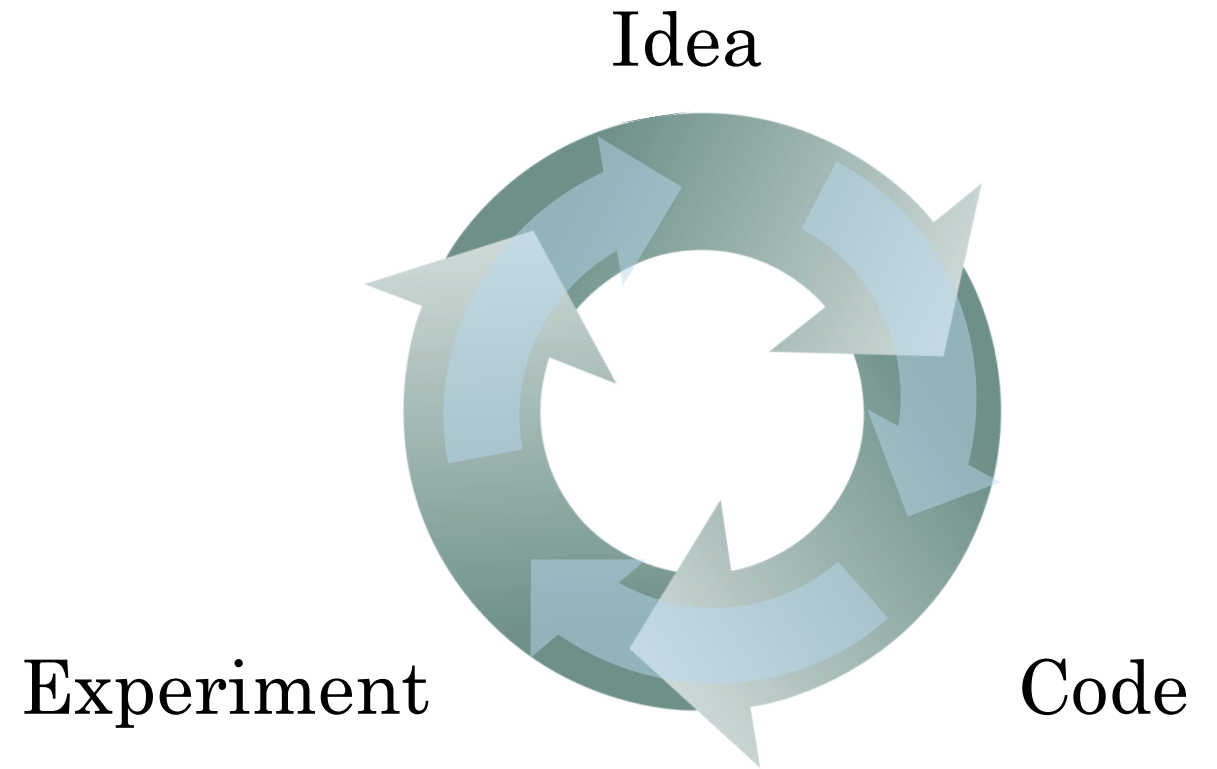
Why is Deep Learning taking off?

Scale drives deep learning progress



Scale drives deep learning progress

- Data
- Computation
- Algorithms





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Introduction to Neural Networks

About this Course

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1. Neural Networks and Deep Learning
2. Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
3. Structuring your Machine Learning project
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5. Natural Language Processing: Building sequence models

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



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Introduction to Neural Networks

Course resources

Course Resources

Discussion forum

- Questions, technical discussions, bug reports, etc.

Wiki (in-progress lecture notes)

- deeplearning.ai/wiki

Contact us: feedback@deeplearning.ai

Companies: enterprise@deeplearning.ai

Universities: academic@deeplearning.ai

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