

## 2. What is data science?

A Mashup of disciplines

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### Math and Theory

- Statistics, Linear Algebra, Optimization, Time Series, etc.

### Applied Algorithms

- Machine Learning, Data Structures, Parallel Algorithms, etc.

### Engineering and Technologies

- Storage and computing platforms, statistical tools ,etc.

### Domain Expertise

- Text, Finance, Images, Econometrics etc.

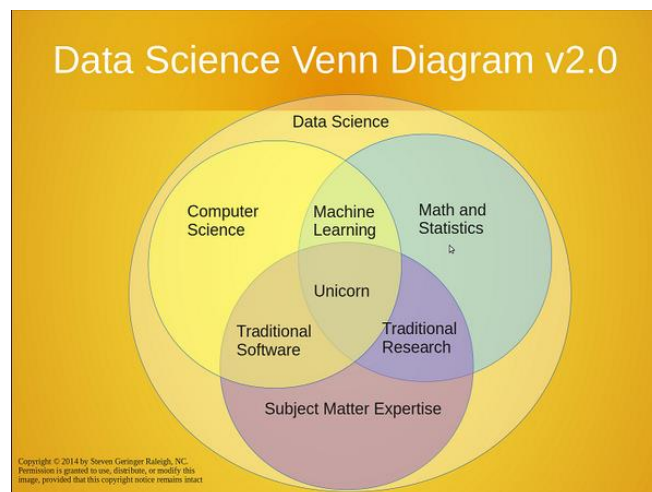
### Art

- Visualization, Infographics

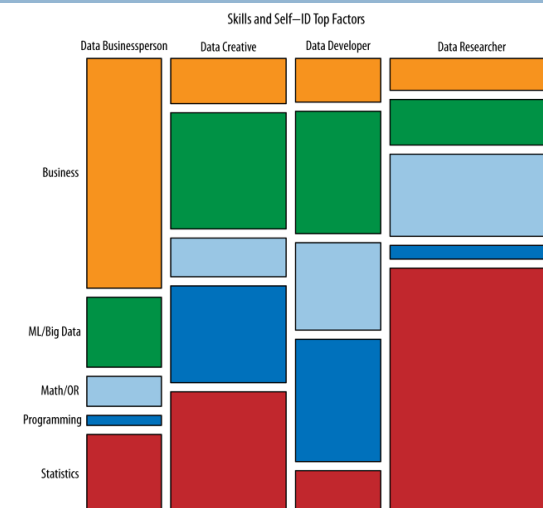
### Best practices and hacks

- Handle missed values in data, transform and represent data, etc.

## Yet Another View



## Types of Data Scientists



### 3. About this course

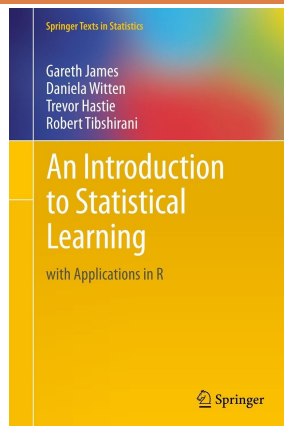
A mix of theory and practice

## What you are expected to know

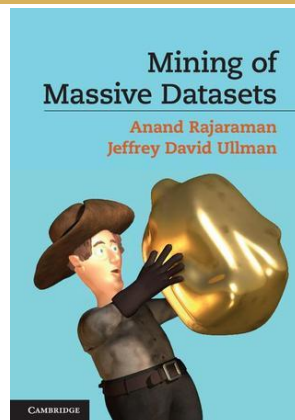
- Data is represented as a matrix
  - ▣ Basic linear algebra
- Most problems are not well-defined/uncertain
  - ▣ Basic probability and statistics
- Big data requires non-trivial data structures and algorithms
  - ▣ Basic data structures and algorithms concepts
- Practical means programming
  - ▣ Basic Programming skills

## Textbooks are available online

### Machine Learning and R

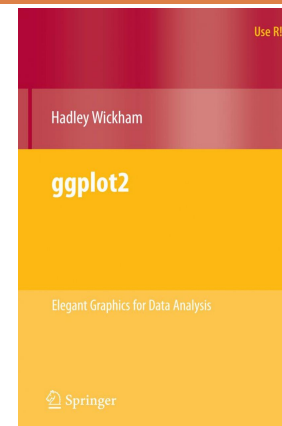


### Big Data Algorithms



## Visualization

### Introduction from

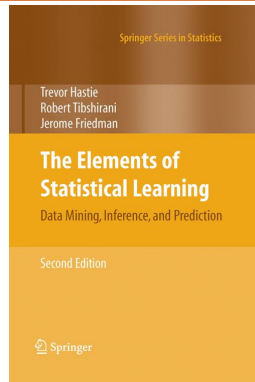


### On-going examples

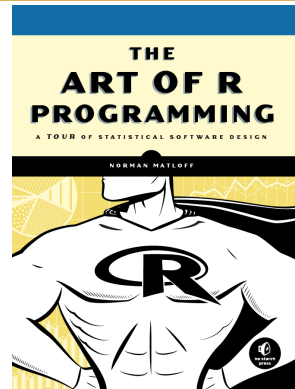


## For curious minds

### More on Machine Learning

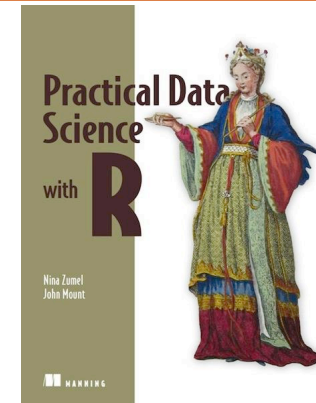


### More on R Programming



## Becoming a data scientist

### Data Scientist Skills



### Quick Hacks/Examples

