

Intro to Data Science and Machine Learning



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Enough with the
Tech Jargons!

What is Data Science?

- Unifying Statistics, Data Analysis and their related methods.
- Understand and Analyse Actual Phenomena
- To Predict, Recommend and make Decisions

Causation vs Correlation

Case Studies

- Google VS WHO
- OpenAI Bots
- Circle Line Rouge Train

<https://blog.data.gov.sg/how-we-caught-the-circle-line-rogue-train-with-data-79405c86ab6a>

Examples of Data Science

- Product Recommendations
- People who bought also bought
- Top Sellers
- Spam Classifier

Businesses are Evolving

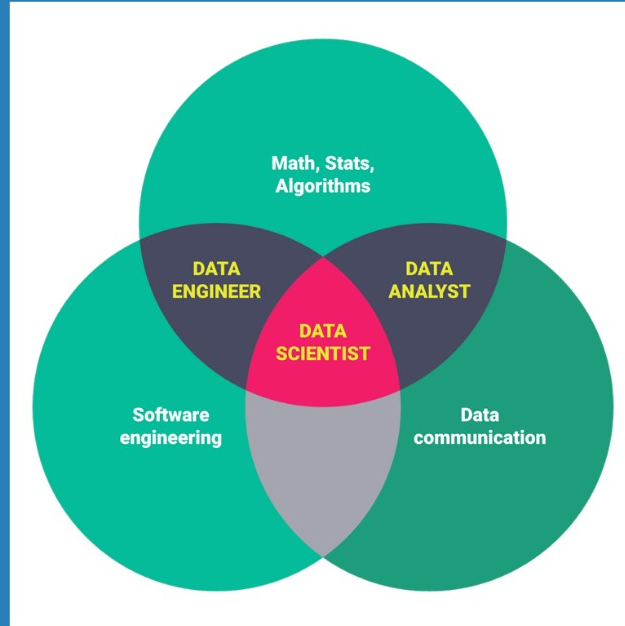
- Machine Learning
- Artificial Intelligence
- Rise of Information Value Statement
- Future of Value & AI

State of the Industry

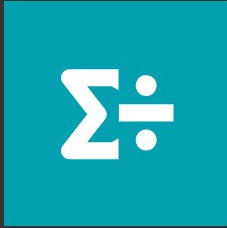


“The most valuable contributors to machine learning are often generalists.”

What are the Skills Required?

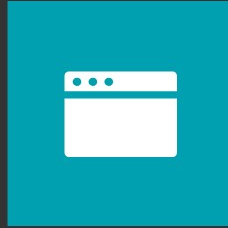


Three Family of Skills



Math, Stats, Algorithm

- Statistics
- Probability



Software Engineering

- Data Mining
- Cleaning Data
- Using Libraries



Data Communication

- Graph Charting
- Report Presentation

Demo of a Data Science Project



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Our Data Science Track

Python Development

Master Python to code scripts, read in files and do data analytics.

Data Science Introduction

Build websites which does prediction and recommendations.

* You need to know the basics of Python or any programming language.

Data Science 1

Learn skills to join companies as a junior data scientist.



Python Development Course

The course is a data-centric introduction to Python for beginners with no coding background.

1

Data types, Variables, Operators, Functions, Using Thonny

Students are taught how to use a code editor to write a program. Students will be taught the basics of coding all the way to creating a simple script.

2

Flow Control, Boolean Operations

Use conditionals to write more advanced script. Students will also be taught how to differentiate data types.

3

Advanced Data Types and Iterations

Learn how to iterate through values and perform operations within loops. Students will be taught two advanced data types: lists and dictionaries.

4

Classes, Methods, Attributes, Libraries, Randomisation

Concepts of classes and methods are explored in depth. Students will also learn to make use of libraries to perform advanced tasks.

5

Advanced Classes, Using Jupyter, File Operations

Use Python to perform operations such as file reading and writing. We will be going through a popular code editor called Jupyter Notebook.

6

Pandas and Visualisation

An introduction to Data Science, one of the most commonly applications of Python. Students will be assessed in this lesson.



Data Science Introduction Course

At the end of the course, students will build a web application project used to perform predictions/recommendations.

1

Reading Reports in Python

Students will be taught how to use Python to do file processing, including reading in tabular (CSV, Excel) data.

2

Basic Statistics Explained

We will be covering basic statistics knowledge, such as mean, median, mode, and looking at doing regression models.

3

HTTP and Web Services

Digressing a little from statistics, we will look at how to build web servers using Python. This lesson will teach us simple HTML structures, that we can use for crawling and mining data on web pages.

4

Web Scraping

Building off last week's lesson, you will learn how to write scripts which will allow you to mine web data by crawling HTML pages and using it to build a database of information.

5

Generating and Visualising Data

We will look at how to use Python to visualise and present data in graphs and reports. We will also look at building realtime dashboards to measure data.

6

Working with a Classifier Web Service

In the last lesson, we will combine all that we learnt so far to build a classifier web server. We will be using the web service to process data and make predictions.



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