

# Introduction to Data Science

## Data Science Fundamental

Ratthaprom PROMKAM, Dr.rer.nat.

Department of Mathematics and Computer Science

# Learning Objectives

Meet people who work in data science

Explore definitions of data science

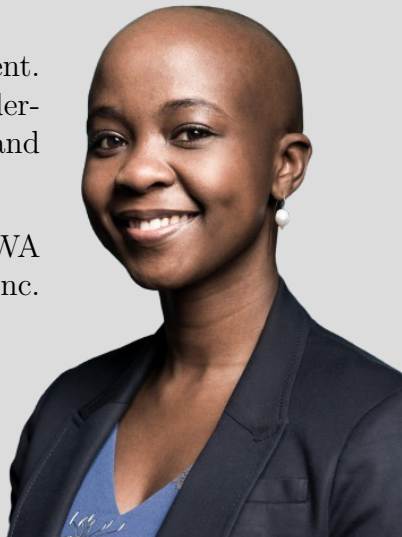
Learn about data science in a business context

Discover some use cases for data science

# What is data science?

“Data science is a process, not an event. It is the process of using data to understand different things, to understand the world.”

— Shingai MANJENGWA  
CEO of Fireside Analytics Inc.



# What is data science?

“For me, it’s when you have a model, or a hypothesis of a problem, and you try to validate that hypothesis or model with your data.”

— Rafael B. DA SILVA  
Data Scientist/ Engineer/ Analyst



# What is data science?

“Data science is the art of uncovering the insights and trends that are hiding behind data.”

— Diana ZARATE-DIAZ  
COO of Sahar Global Summits, Llc.



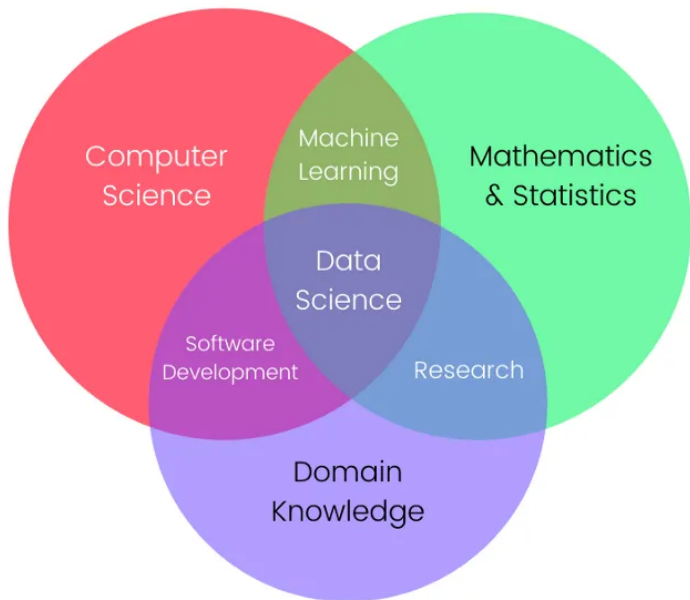
# What is data science?

“I see data science as one’s attempt to work with data to find answers to questions that they are exploring. If you have data, curiosity, and you’re going through analyzing data, trying to get some answers from it, is data science. ”

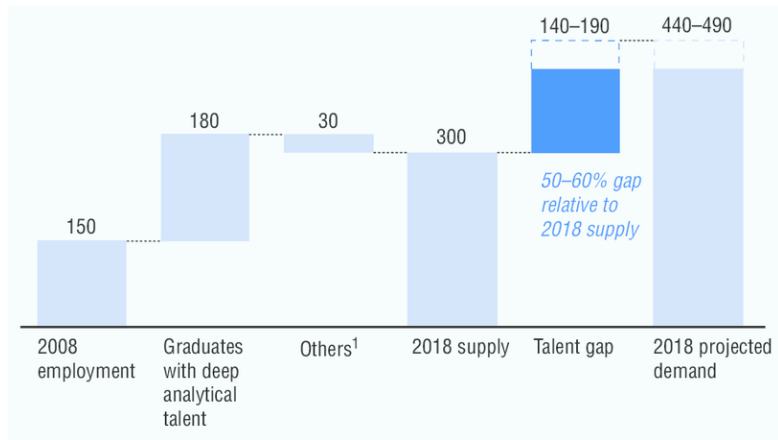
— Murtaza HAIDER  
Prof. at Toronto Metro. University



# What is data science?



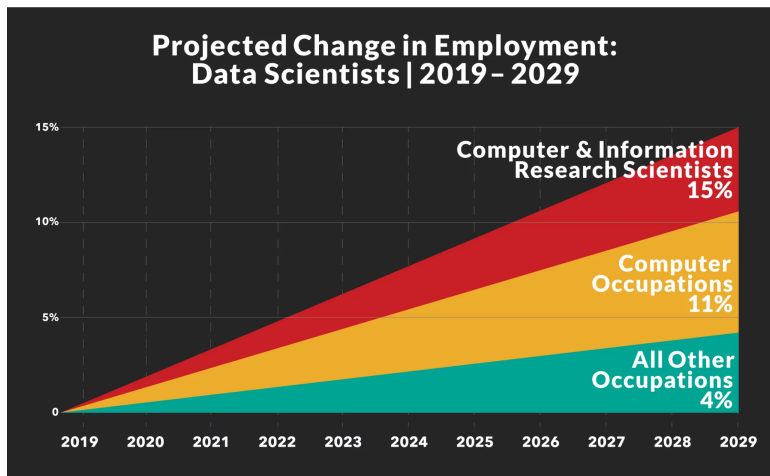
# Data Scientist: The Sexiest Job in 21st Century



**Figure:** Demand for data analytics expertise according to the McKinsey Global Institute.



# Data Scientist: The Sexiest Job in 21st Century



**Figure:** United States Bureau of Labor Statistics (BLS)  
Occupational Outlook Handbook

## Review Questions:

In the report by the McKinsey Global Institute, by 2018, it is projected that there will be a shortage of people with deep analytical skills in the United States. What is the size of this shortage?

- ☐ 20,000 - 50,000
- ☐ 120,000
- ☐ 140,000 - 190,000
- ☐ 800,000 - 900,000
- ☐ 3,000,000 - 6,000,000

# Review Questions:

What has changed from the past to make Data science an in-demand occupation?

- ☐ There is now a lack of data
- ☐ Laws have changed
- ☐ Vast amount of data date being created
- ☐ The advent of the free market

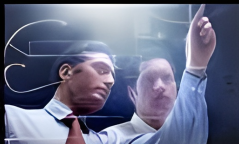
## Review Questions:

What is the minimum education requirement to become a data scientist?

- You must have a Degree in Computer Science
- You must have a masters degree in Statistics
- You must have a Ph.D. in Machine learning
- The above are all helpful, but they are not necessary to become a data scientist, education backgrounds of data scientists vary

# A day in the life of a data science person

## Data Scientist



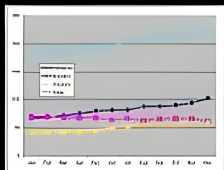
What my friends think I do



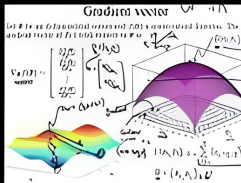
What my mom thinks I do



What society thinks I do



What my boss thinks I do



What I think I do



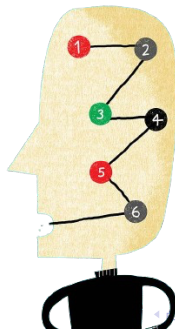
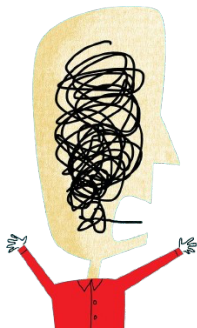
What I actually do

# Case: Toronto Transit Commissions



# Case: Toronto Transit Commissions

There are **500,000** complaints!  
Dates, Names, Types, Status,  
Emails and Faxes.



# Type of Data

