

# Data Science Info

## ▶ Introduction to Data Science Program



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## ► What is Data Science?

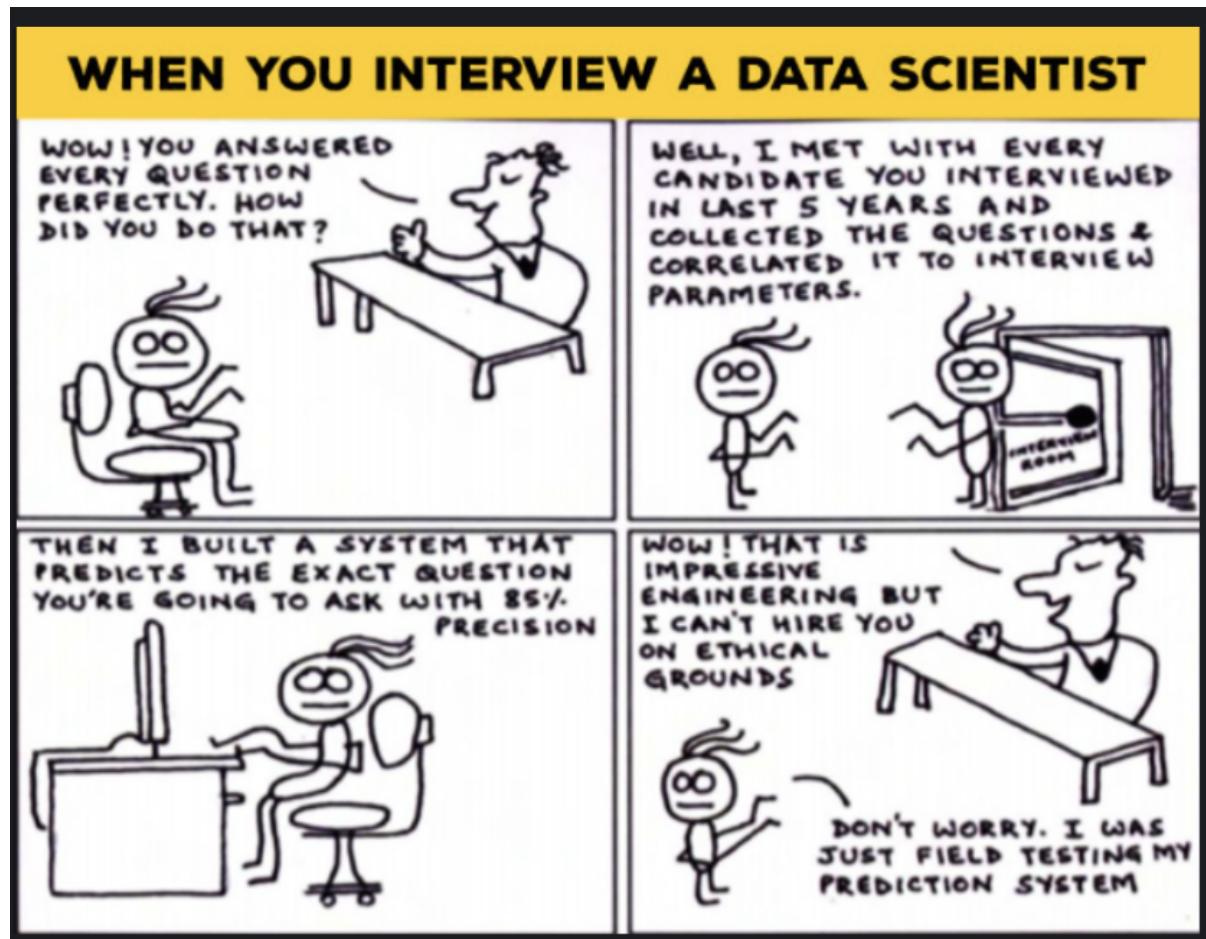


Data never sleeps

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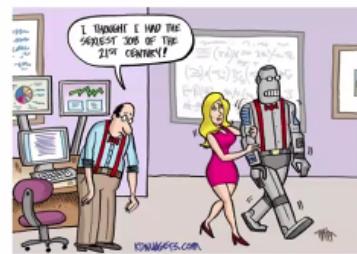
<https://www.domo.com/learn/data-never-sleeps-8>



# ► What is Data Science?

Data Science has **now become the buzzword**

- **2006:** “**Data is the new oil**” said Clive Humby, a renowned mathematician.
- **2012:** Harvard Business Review announced Data Scientist as the **“The Sexiest Job of the 21st Century”**.
- **2013:** New York Times considered Data Science as a **“hot new field that promises to revolutionize industries from business to government, health care to academia.”**
- **2017:** The Economist published a report titled **“The world’s most valuable resource is no longer oil, but data”**.



# ► What is Data Science?



**Josh Wills** @josh\_wills · May 3, 2012

Data Scientist (n.): Person who is better at statistics than any software engineer and better at software engineering than any statistician.

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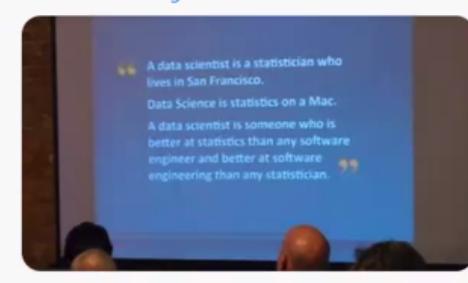
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**Jeremy Jarvis** @jeremyjarvis · Jan 30, 2014

"A data scientist is a statistician who lives in San Francisco" #monkigras



**Big Data Borat** @BigDataBorat · Aug 27, 2013

Data Science is statistics on a Mac.

18

602

330



"Balance these 6 nails without letting them touch the wood"

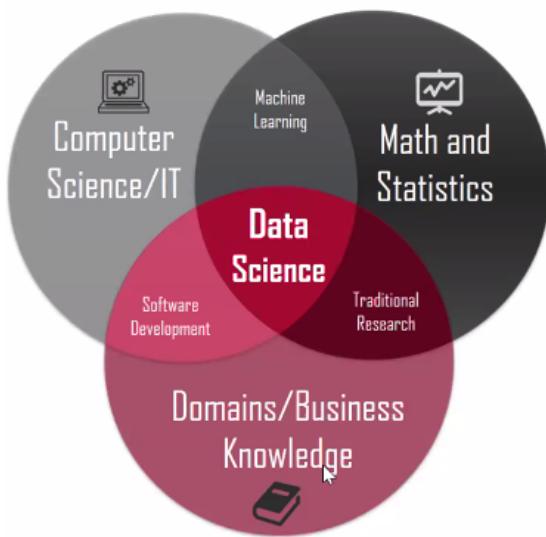


Statistics



Data Science

# ► What is Data Science?



An interdisciplinary field

Extract knowledge and insights from different data types

Uses scientific methods, processes, algorithms, and systems

## What do Job Roles in DSc do?

### Data science roles in the industry

A variety of different jobs and roles under the Data Science field

- 1. Data Scientist
- 2. Data Analyst
- 3. Data Engineers
- 4. Database Administrator
- 5. Machine Learning Engineer
- 6. Data Architect
- 7. Statistician
- 8. Business Analyst
- 9. Data and Analytics Manager

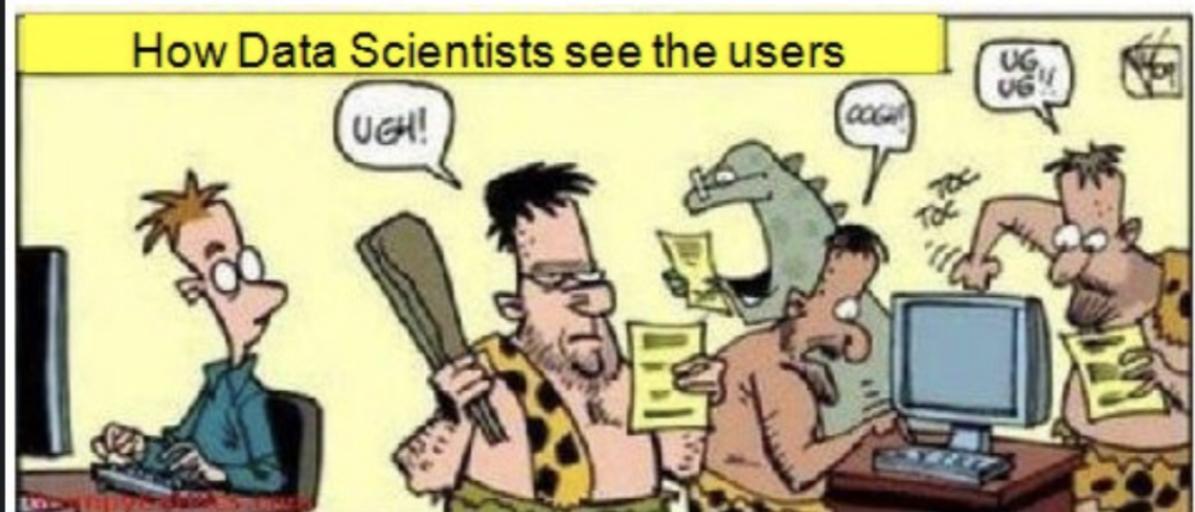
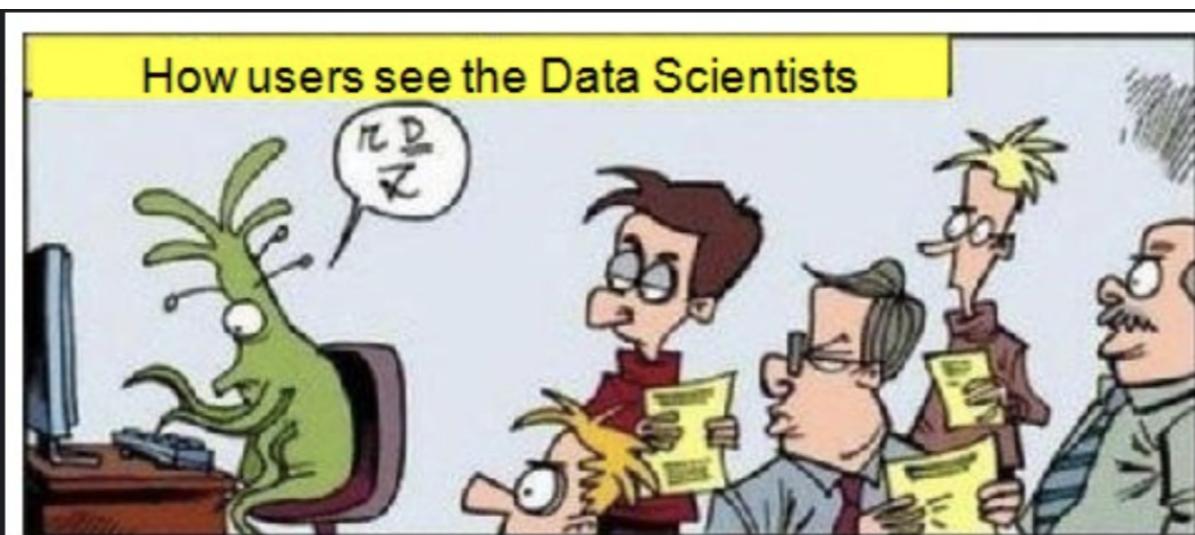
**Source:** Top 9 Job Roles in the World of Data Science for 2020, By Marina Chatterjee - Apr 29, 2020  
<https://www.mygreatlearning.com/blog/different-data-science-jobs-roles-industry/>

# What do Job Roles in DSc do? ➤

## Data Science Program

The program focuses on the roles that companies most demanded, including fundamental and common skills in the domain of data science:

1. Data Analyst
2. Business Analyst
3. Data Scientist
4. Machine Learning Engineer



# What do Job Roles in DSc do?



## Data Analyst



### Tasks:

- Work on specific questions and find results by organizing and analyzing the given data.
- Responsible for a variety of tasks including data cleaning, processing, and visualisation of data
- Serve as a bridge between data scientists, and business analysts.
- Translate technical analysis to action items and communicate these results to concerned stakeholders.

**Skills:** Mathematical and analytical skills (algebra, calculus), probability, statistics, programming, data processing, data visualization, and database knowledge

**Tools&Tech:** Python (Pandas, NumPy, plotly, matplotlib, seaborn), Spreadsheet tools, SQL, Database design and modelling

# Data analytics in 5 steps



# What do Job Roles in DSc do?



## Business Intelligence Analyst



### Tasks:

- Focusing on analyzing market and business domain and its trends
- Helping the company to answer questions and solve business-related problems.
- Responsible to bring and manage changes in the business and improve the company's products and services. Every business requires change, so for this purpose, the guidance of a business analyst is required.

**Skills:** Mathematical and analytical skills (algebra, calculus), probability, statistics, data analysis, data visualization, having specialized knowledge of the business domain, and database knowledge

**Tools&Tech:** Tableau/PowerBI, Advanced knowledge of Spreadsheet tools, advanced SQL, Database design and modelling



# What do Job Roles in DSc do?



## Machine Learning Engineer

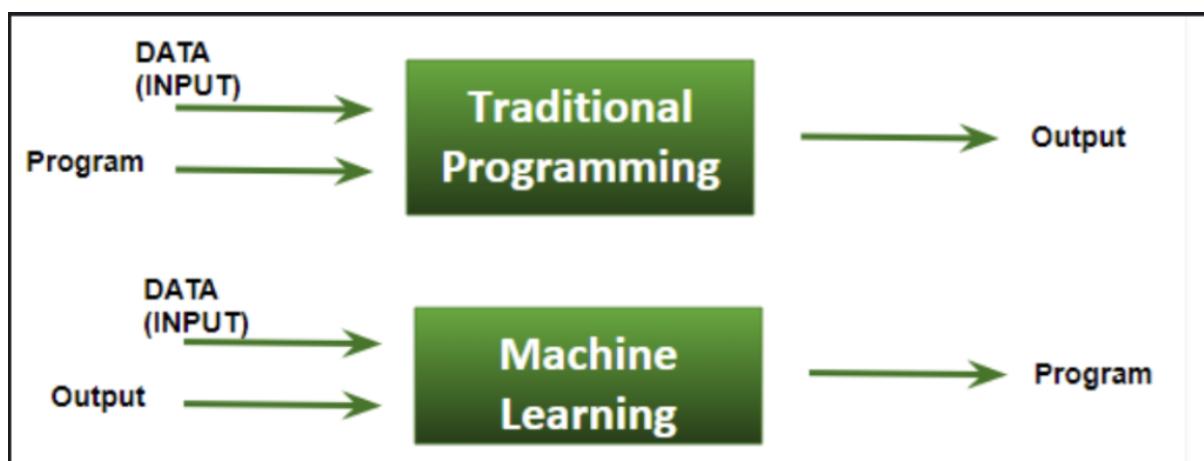


### Tasks:

- There is a lot of overlap between a ML engineer and a data scientist.
- At some companies, this title just means a data scientist who has specialized in ML.
- At others, “ML engineer” is more of a software engineering role that involves taking a data scientist’s analysis and turning it into deployable software.
- ML Engineer often focus more on producing great data-driven products than they do answering operational questions for a company. Simply puts machine learning models into production.

**Skills:** Mathematical and analytical skills (algebra, calculus), probability, statistics, programming, feature engineering, machine learning, deep learning, database and Software Engineering knowledge

**Tools&Tech:** Python (Pandas, NumPy, SciPy, scikit-learn, TensorFlow, Keras), machine learning algorithms and libraries, SQL, Database design and modelling





# What do Job Roles in DSc do?



## Data Scientist



### Tasks:

- Performing many of the same things as data analysts, but also typically building machine learning models to make accurate predictions about the business problems based on past data.
- Responsible for finding interesting patterns and trends hidden in the data.
- Focusing on the statistical analysis and research needed to determine which machine learning approach to use, then they model the algorithm and prototype it for testing.

**Skills:** Mathematical skills and analytical (algebra, calculus), probability, statistics, data processing and analysis, data visualization, Programming, feature extraction, machine learning, deep learning, and database knowledge, Effective communication skills and business expertise

**Tools&Tech:** Python (Pandas, NumPy, SciPy, scikit-learn, TensorFlow, Keras), machine learning algorithms and libraries, SQL, Database design and modelling

# What is the Curriculum?

## What You Will Learn?

### Data Analysis Module

- Statistics
- Data Analysis with Python
- Data Visualisation with Python
- Database Modelling and Design
- Data Analysis with SQL
- Google Sheets
- Data Visualization with Tableau
- Small projects, Medium projects,
- Capstone project

### Machine Learning Module

- Machine Learning
- Deep Learning
- Natural Language Processing
- Model Deployment and Cloud for ML
- Small projects, Medium projects,
- Capstone project

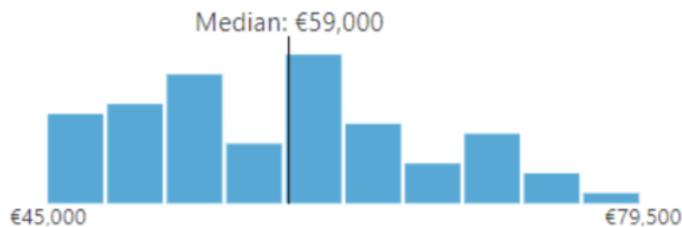
### Data Scientist salaries

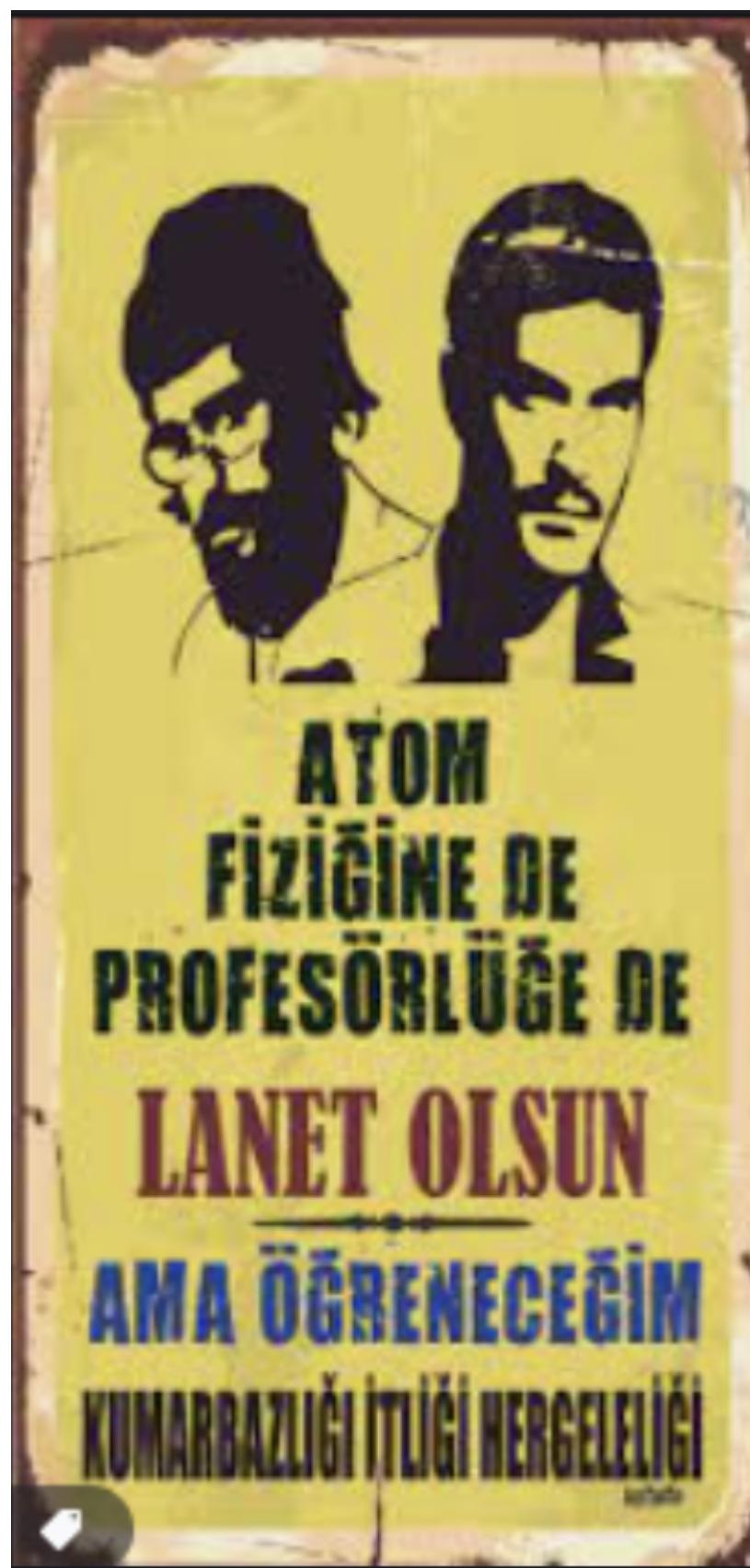
Germany

Base salary

€59,000/yr

Range: €45,000 - €79,500

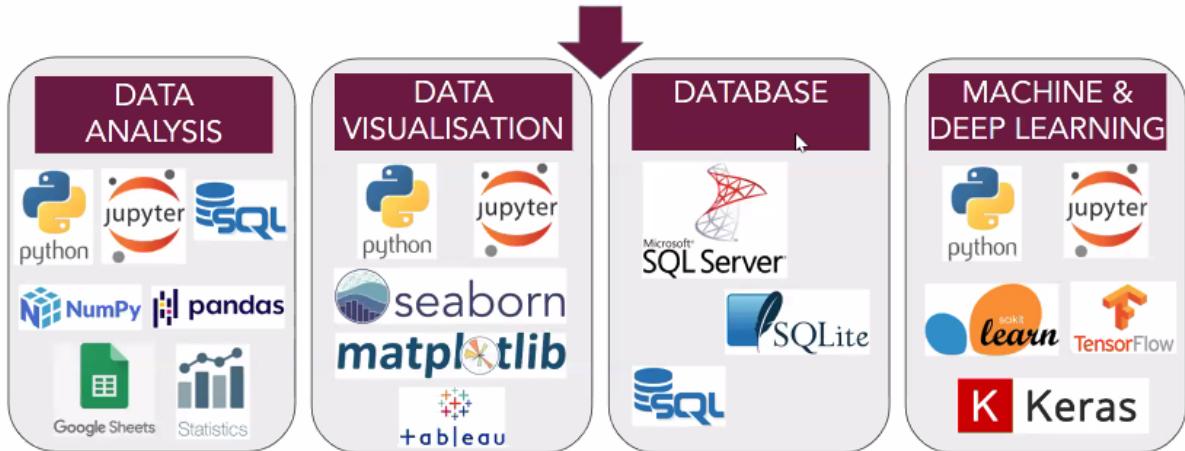






## What is the Curriculum? ➔

**What Skills Will You Gain?**



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WAY TO REINVENT YOURSELF

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## What is the Curriculum? ➔

**What Skills Will You Gain?**

### Data Analysis Skill

- Jupyter Notebook
- Pandas
- NumPy
- SciPy
- Matplotlib
- Seaborn
- SQL
- Google Sheets
- Tableau

### Data Visualisation Skill

- Matplotlib
- Seaborn
- Pandas Built-in
- Google Sheets
- Tableau

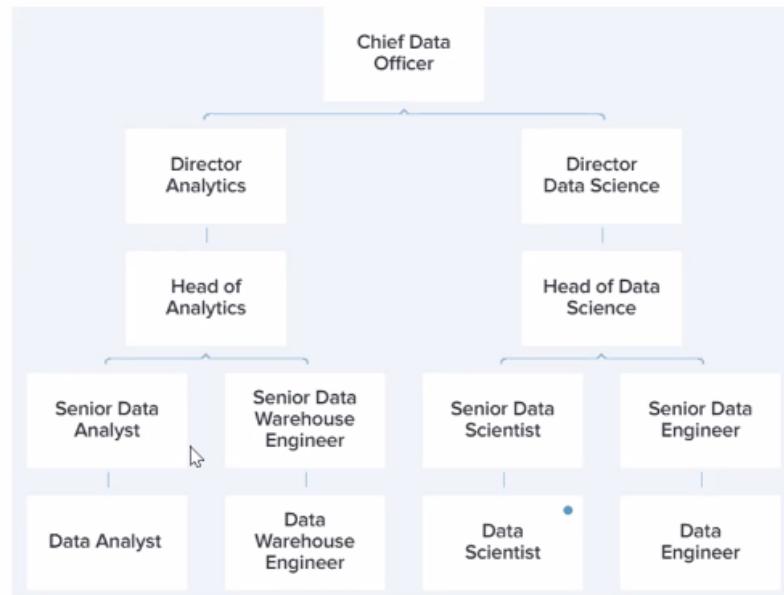
### Database Skill

- MS SQL Server Management Studio
- SQLite
- SQL Script

### Machine Learning and Deep Learning Skill

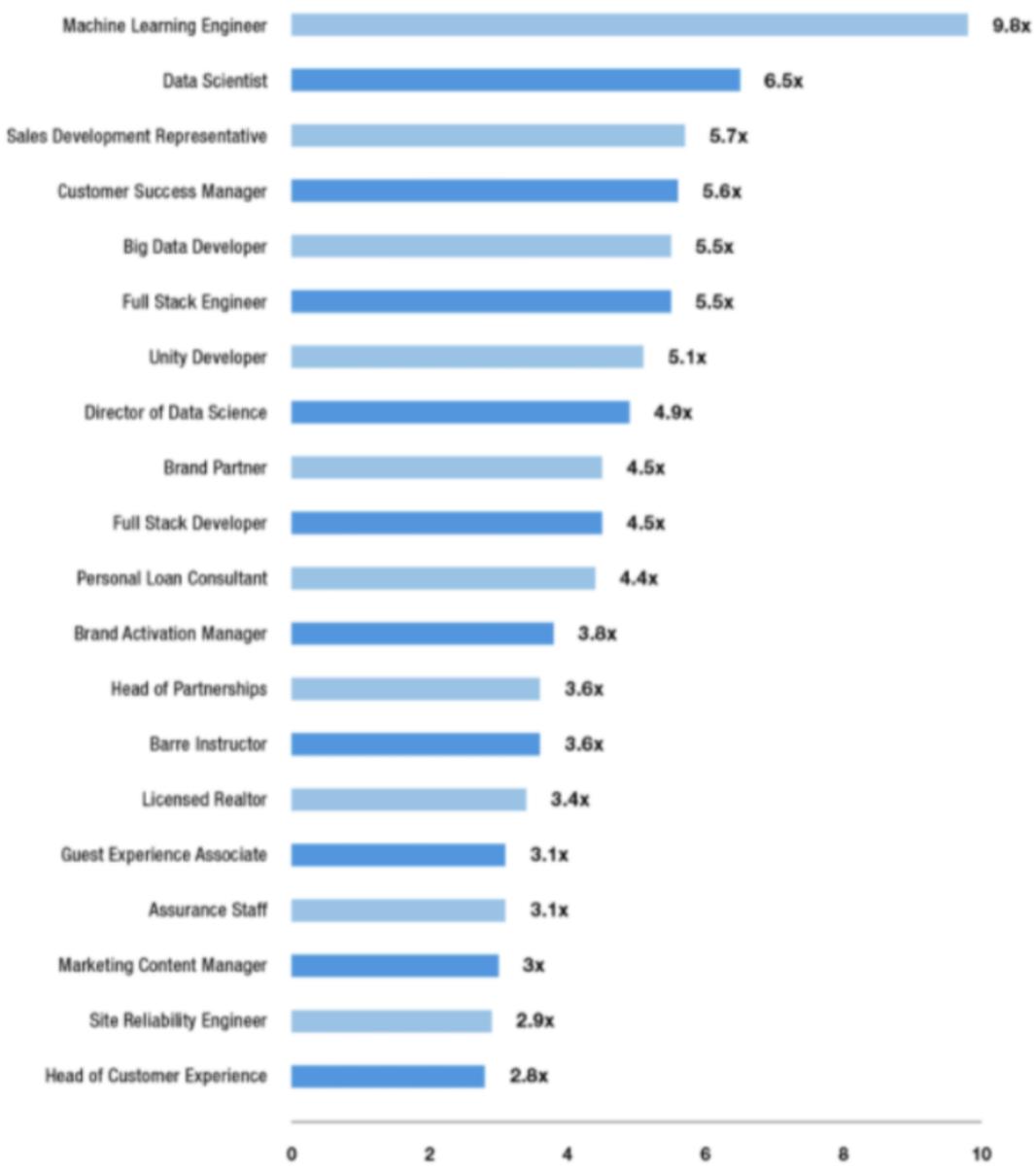
- Jupyter Notebook
- Scikit-learn
- TensorFlow
- Keras
- AWS Essentials
- Streamlit
- Flask
- Fast API

# How does the DS career path shape?



DATA SCIENCE ©

## Top 20 Emerging Jobs



Me when I am coding alone    Me coding with my boss watching



