Second Major in Data Science & Analytics (DSA)

Daniel PREVE
Associate Professor of Economics (Education)
DSA Programme Coordinator

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Outline

In this talk, we provide a brief overview of data science and SMU's Second Major in DSA:

- ✓ Prologue
  - What is data?
  - What is data science?
- ✓ DSA
  - Quick facts
  - Highlights
  - Job prospects

Quote

In God we trust, others must provide data.

Unknown

Prologue What is data?

/'deɪtə/

Data is a collection of information that can include alphanumeric characters, words, sounds, symbols, images, or videos, stored in a form suitable for computer processing.

Prologue What is data science?

The term **data science** has always been somewhat controversial.

Different perspectives:

- ✓ The science of extracting meaningful information from data
- ✓ The unification of **computer science** and **statistics**
- ✓ Lies at the intersection of the set of **hacking skills**, the set of **math & statistics knowledge**, and the set of **substantive expertise**

Prologue What is data science?

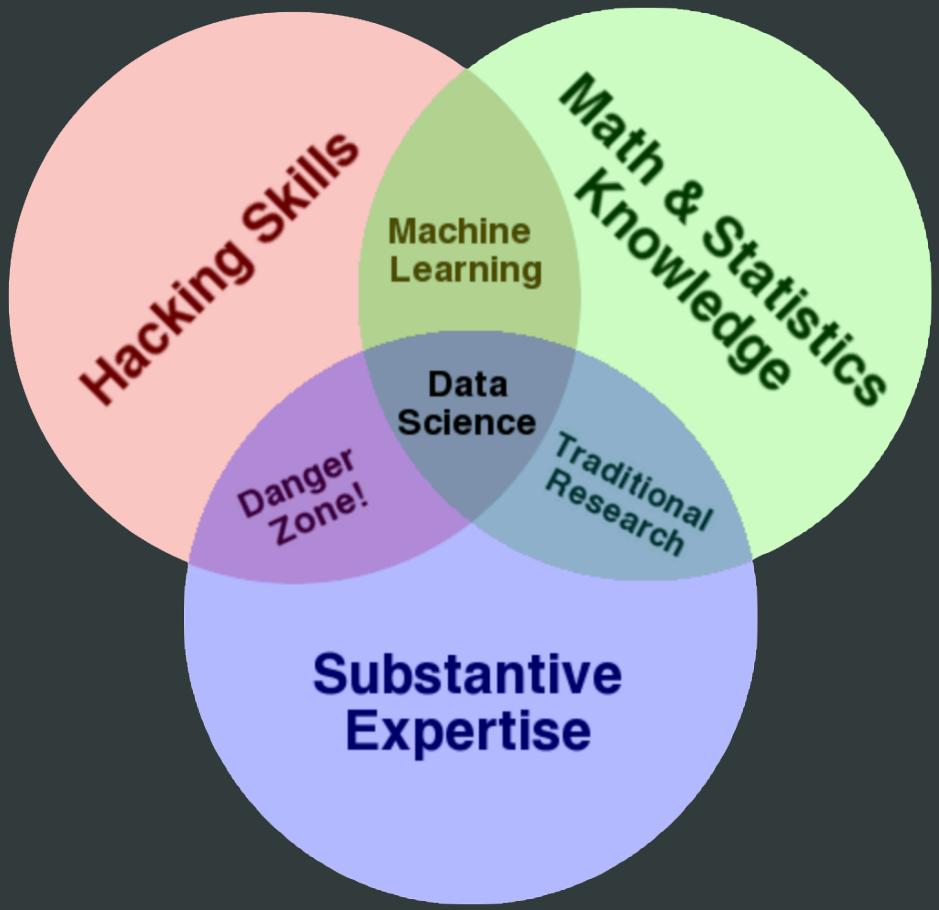

Figure 1: Conway's data science Venn diagram

Prologue What is data science?

The role of a data scientist is to turn data into insights.

Most data analysis projects follow a series of steps:

- First, we *import* the data
- Next, we *wrangle* the data by tidying and transforming it
- To identify relationships and trends, we *visualize* the data
- For deeper insights, we typically fit one or more statistical *models* to a subset of the data
- Finally, we *communicate* the results

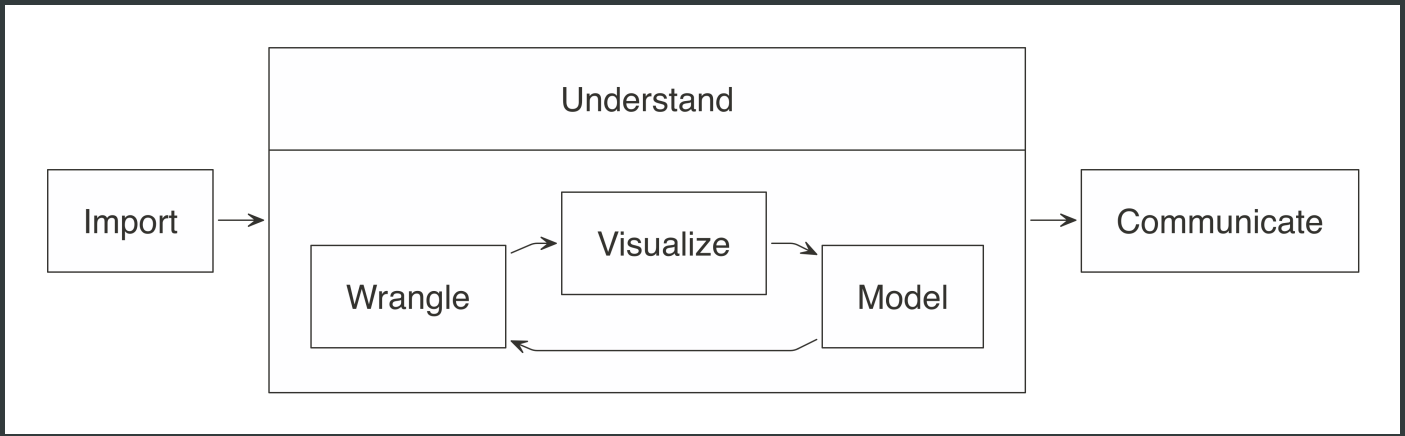

Figure 2: The basic steps of data analysis

DSA Quick facts

DSA Second Major:

- ✓ Launched in AY 2019-20 by the School of Economics (SOE)
- ✓ Open to *all* SMU students
- ✓ SMU's second-largest Second Major (as of Jan 2025), with students from six schools (SOE, SCIS, LKCSB, SOSS, SOA, CIS)
- ✓ 165 graduates to date (50% female representation)
- ✓ 50% of graduates earned Cum Laude or higher

DSA Highlights

Why join the **DSA** Second Major?

- ✓ A curriculum designed to develop industry-valued skills
- ✓ Work on industry-relevant projects using the most in-demand programming languages for data science
- ✓ Receive mentorship and guidance from faculty and practitioners
- ✓ Benefit from support provided by the DSA Society at SMU

DSA Highlights

What will **DSA** students learn?

Core courses:

- ✓ Computational thinking
- ✓ Data import, wrangling, visualization, and analytics
- ✓ Probability theory and statistical inference
- ✓ Statistical learning (modeling)
- ✓ Coding in **Python**, **SQL**, and **R**

Elective courses:

- ✓ Communication (hands-on projects)
- ✓ Natural language processing
- ✓ Artificial intelligence
- ✓ Machine learning
- ✓ Big data (**Spark** and **NoSQL** databases)

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- ✓ Coding in **Python**, **SQL**, and **R**

DSA Job prospects

Figure 3: Selected local companies and institutions hiring DSA graduates

- ✓ Former DSA students have secured positions at major technology companies, financial institutions, and emerging startups
- ✓ Others have pursued graduate studies in fields like computer science, applied mathematics, and other related disciplines

DSA

To learn more about the **DSA** Second Major, visit the **DSA webpage** and download the DSA flyer.

The **DSA Society** is connected to the **DSA** Second Major and supports students throughout their data science journey at SMU.