MIE 1624
Final Project

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Prof. Oleksandr Romanko
Group 15

Meet Our Team

Mostafa Kouchakzadeh
(1006131240)

m.Kouchakzadeh@mail.utoronto.ca

Zhaohui Qu
(1005783127)

zh.qu@mail.utoronto.ca

Zichuan Wang
(1000474300)

zichuan.wang@mail.utoronto.ca

Sam Weinberg
(1005347634)

sam.weinberg@mail.utoronto.ca

Course Structure Design

In-demand Skills

- Analyzing the results of a global survey of data science professionals by Kaggle

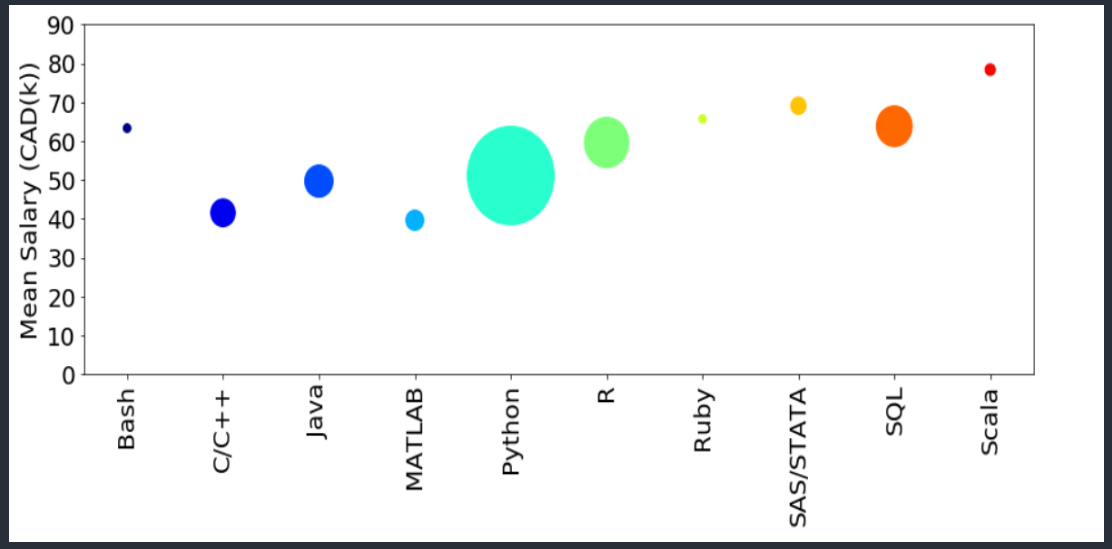
Popular Topics

- Web scraping of online job board for data science and analytics roles

The techniques we employed for analysis included:

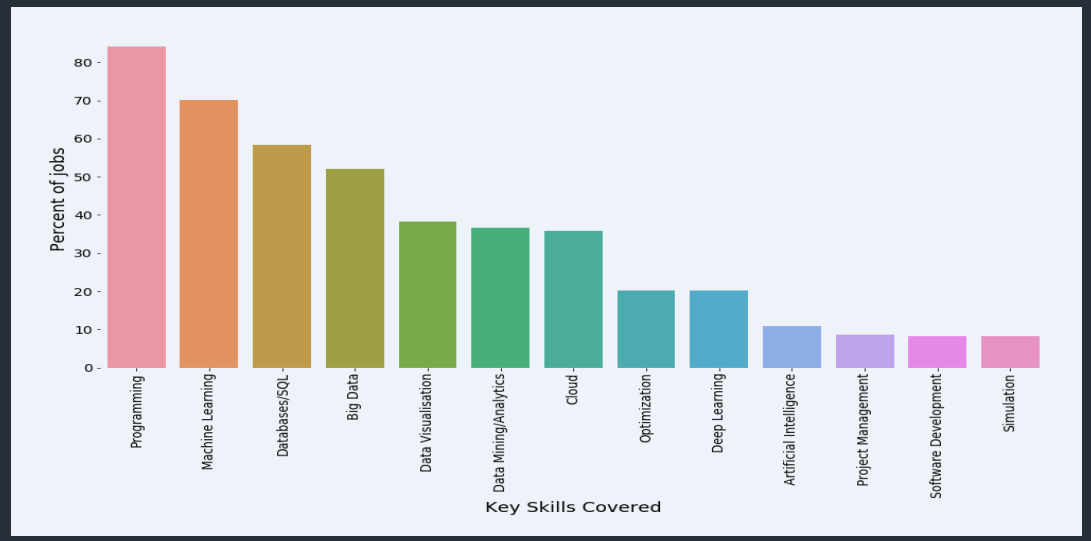
Web Scraping → **Term Frequency** → **Clustering Algorithms** → **Data Visualization**

Analysis Results



Salary Based Analysis

- Size shows the frequency
- Primary programming languages: Python, R and SQL



Position Based Analysis

- Machine learning, Database and SQL, Cloud
- Data visualization, Optimization, Big data

Course structure

Curriculum Overview

Technical Stream

The technical stream explores advanced data science topics including natural language processing, neural networks, and other cutting-edge topics in AI.

Core Courses

Core courses include fundamental skills for any individual seeking a career in data science and artificial intelligence. These courses will lay the foundation for more advanced topics in either the business stream or technical stream.

Business Stream

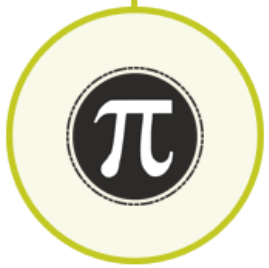
The business stream emphasizes how to leverage AI and machine learning to solve practical real-world business problems in a variety of industries.

Masters of Data Science and AI Program

Master of Data Science and AI program is separated into two streams: Technical Stream and Business Stream. All students are required to take four core courses on fundamental data science topics before splitting off into specialized courses.

Core Courses

Statistics Linear Algebra Calculus

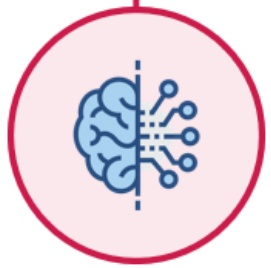


- Basic Statistics
- Sampling Statistics
- Statistical Tests
- Probability Theory
- Matrix Computations
- Optimization

Database Fundamentals

- SQL, MySQL, PostgreSQL
- HTML, Web-Scraping, APIs
- ETL
- Database Management

Machine Learning



- Data Extraction
- Data Cleaning
- Feature Selection
- Classification
- Regression
- Clustering
- Python

Data Visualization

- Data Exploration
- Matplotlib, Seaborn
- Tableau, Power BI
- R
- Professional Presentation Skills

Big Data & Cloud Computing

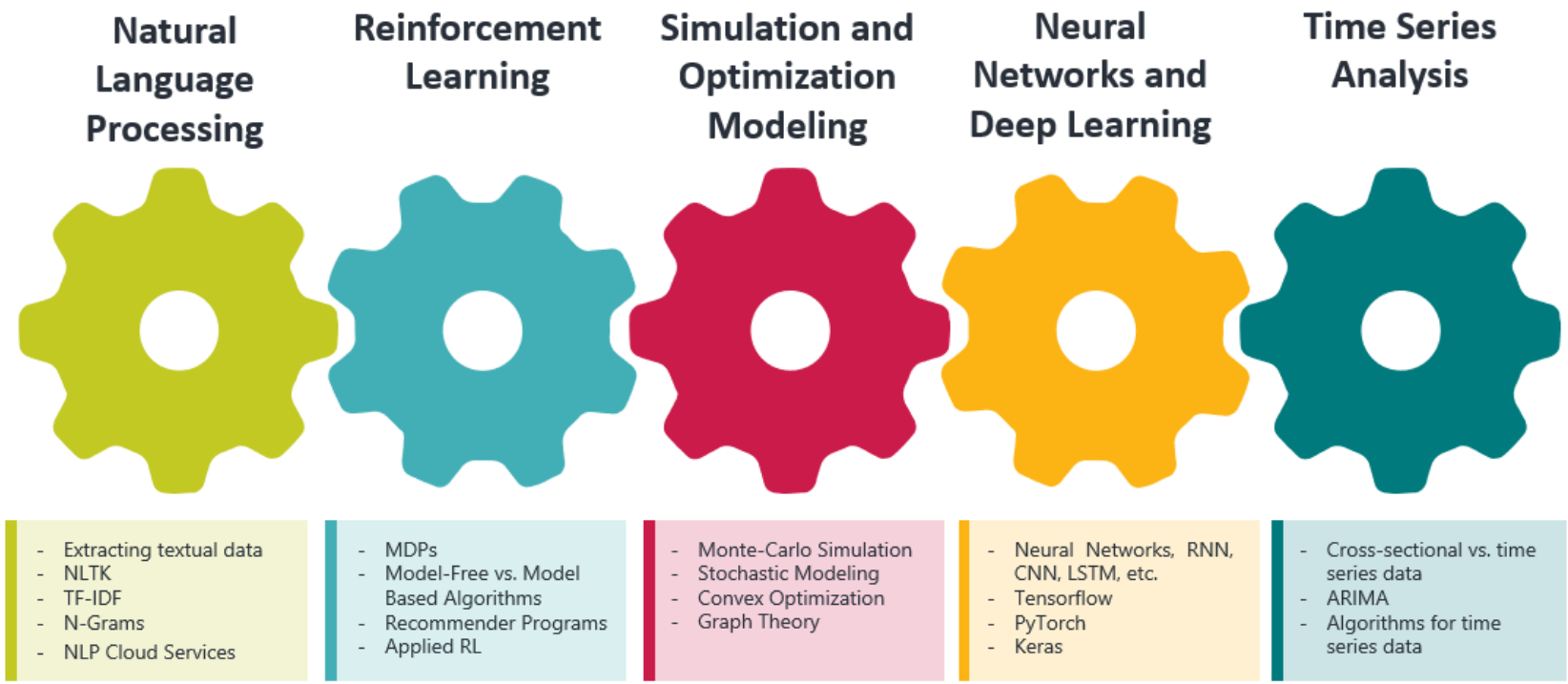
- Distributed Computing
- Spark, Hive, Hadoop
- Cloud Services and APIs
- Microsoft Azure
- IBM Watson
- AWS
- Google Cloud

Masters of Data Science and AI Program

Students are required to complete Udemy bootcamps in Statistics, Linear Algebra, and Calculus as a prerequisite to the program. The four core courses provide a solid foundation in essential, high-demand data science skills.

Technical Program

Masters of Data Science and AI Program



The technical program is designed to provide students with a comprehensive technical background in the most current and state-of-the-art technologies in AI.

Business Program

Marketing Analytics

- Market segments construction
- Product design and positioning
- Advertising

Financial Analytics

- Predictive sales analytics
- Client/Product profitability analytics
- Cash flow analytics

eCommerce Analytics

- KPI hierarchy for task prioritization
- Customer life-time value
- Customer acquisition cost

Risk Analytics

- Operational risk & fraud analytics
- Credit risk modeling
- Investment & Insurance analytics

Supply Chain Analytics

- Network design
- Assortment and price optimization
- Inventory management

Masters of Data Science and AI Program

The business program in Analytics is designed to meet the growing need for talented professionals with the skills and advanced applied knowledge to create, implement and evaluate AI-related applications and technologies.

Data Science Consulting Practicum

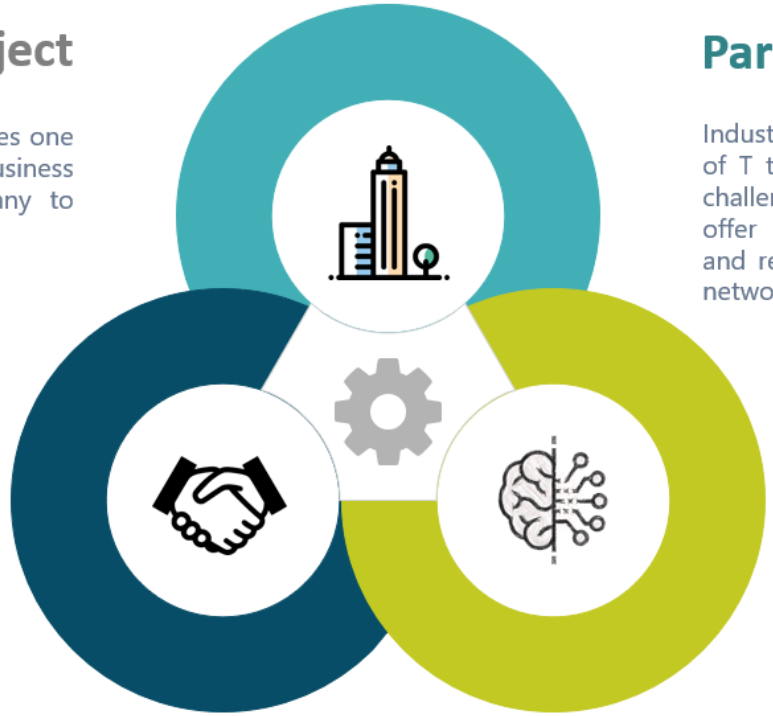
Masters of Data Science and AI Program

Project

The capstone industry project matches one technical stream student, one business stream student, and a top company to solve a real-world industry challenge.

Partner Company

Industry leading companies partner with U of T to work with Masters students on a challenging industry problem. Companies offer mentorship throughout the project and represent an excellent opportunity to network with a prospective employer.



Business Student

Business students apply there newly acquired methods of leveraging artificial intelligence to solve an engaging industry problem in a field of their choice. Develop professional teamwork and communication skills by working with a technical student and mentors within the partner company.

Technical Student

Technical students utilize their highly specialized knowledge to offer valuable insights to an existing industry problem. Gain invaluable experience working within a team environment and learn how to communicate complex technical findings to general audiences.

Data Science Consulting Practicum is a capstone project that matches one business student, one technical student and a partner company to collaborate on a challenging business problem using their newly acquire knowledge of artificial intelligence.

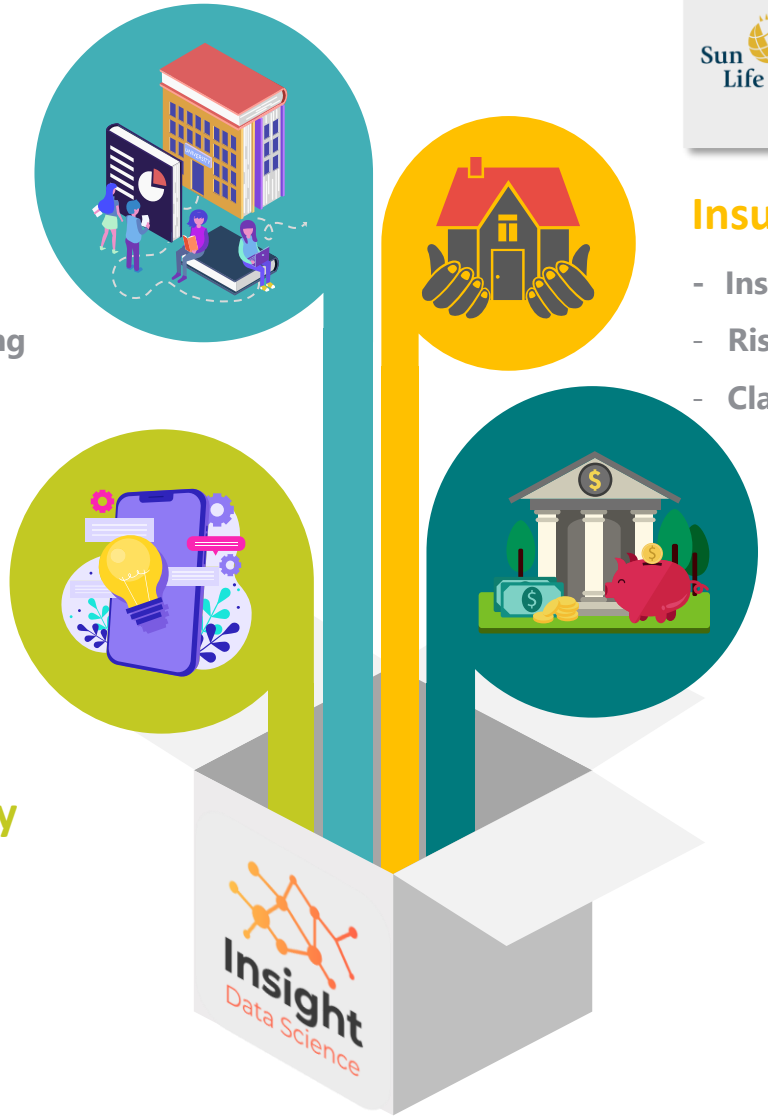
EdTech Program

Academic Research

- Natural Language Processing
- Computer Vision
- Deep Learning

Information Technology

- Virtual Personal Assistant
- Product Recommendation
- Email Spam Filtering



Insurance Analytics

- Insurance Underwriting
- Risk Management
- Claims Prediction

Financial Analytics

- Portfolio Management
- Algorithmic Trading
- Fraud Detection

Insight Data Science aims at answering the fast-growing demand of the job market for new skills and competencies related to advanced fields of Data Science and Artificial Intelligence and relevant for IT, Banking, Insurance industries as well as research institution.

Questions?