

# ZELIHA URAL MERPEZ

Data Scientist, Data Analyst

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Richmond, British Columbia, V6Y 2X9, Canada

I am a data scientist and mathematician with a background in advanced research, having held two consecutive post-doctoral positions at UBC, one in Sauder Business School and the other in the Linguistics Department. My expertise spans data analysis, statistical modeling, machine learning and advanced mathematics. A strong problem-solver, I seek opportunities with firms that support personal growth and empower women in tech.

## Work Experience

### AI Development Specialist, AI Math Analyst

Mar 2024 - Present

*Outlier*

- Contributed expertise in both mathematics and computer science to train and improve generative AI models by evaluating and ranking domain-specific responses and code generated by AI
- Crafted and answered complex questions related to math and computer science to ensure the accuracy and relevance of AI-generated content
- Leveraged deep knowledge in mathematics, coding (Python), and AI to assess the factuality of AI outputs and provide constructive feedback for model optimization
- Worked half-time remotely during my maternity leave.

### Post-Doctoral Researcher

Sep 2021 - Oct 2023

*The University of British Columbia | Vancouver*

Conducted advanced research and development at the intersection of Data Science and Finance, employing innovative methodologies to derive actionable insights and solutions (UBC, Sauder Business School, 1 year). Additionally, explored the intersection of Data Science and Linguistics, applying cutting-edge techniques to uncover valuable insights and enhance data-driven decision-making (UBC, Linguistics, 1 year).

- Contributed to several projects as a Data Scientist, developing an automated ETL pipeline to efficiently transform data from large Excel files into a customized database for streamlined processing and analysis.
- Collaborated on the collection, integration, and optimization of data from U.S. firms to support business intelligence initiatives, ensuring efficient data flow and availability for analysis and decision-making.
- Developed statistical models to mitigate information risk and leveraged large language models to enhance data-driven decision-making in the stock market.
- Collaborated on research, using WRDS and scraping data from platforms like Twitter, while preprocessing, cleaning, and ensuring data correctness for team projects.
- Developed machine learning models for time series forecasting, including stock prediction, by incorporating firm metrics such as growth, profitability, and momentum to enhance predictive accuracy.
- Worked with large document datasets, including Earnings Announcements, leveraging FinBERT and large language models (LLMs) to extract valuable insights and drive data-driven decision-making.

### Database Technology Course Instructor

Sep 2021 - Dec 2022

*The University of British Columbia | Vancouver*

- Developed and delivered a comprehensive database technology course for four classes, including two undergraduate and two MBAN cohorts. The curriculum covered key concepts such as database design, management, and SQL querying.
- Delivered hands-on training with various database systems, emphasizing best practices for data storage and retrieval, and enhancing both the practical skills and theoretical knowledge of students.

- Developed and delivered engaging Precalculus Plus and Calculus courses, incorporating diverse teaching methods to cater to various learning styles and enhance student comprehension
- Created comprehensive course materials and assessments to effectively track student progress and foster a strong foundation in mathematical concepts.

## Projects

### Evaluating Five Time Series Methods to Predict Stock Prices

Present

The project aimed to predict next-day stock prices using historical data, testing ARIMA, ETS, LSTM, Facebook Prophet, and Random Forest Regression. Hyperparameter tuning improved ARIMA accuracy, while LSTM and Random Forest outperformed traditional models in capturing complex patterns.

### Optimizing Stock Trading Decisions: Utilizing Agent-Based Models and Historical Data for Buy/Sell Predictions

Present

This project optimized stock trading decisions using agent-based models and historical data to predict buy/sell opportunities. The fast agent outperformed the slow agent, achieving a 46.2% higher return, demonstrating enhanced efficiency and superior investment performance over 3 years.

### Comic Book Character Alignment Predictor

Present

Prepared reproducible analysis of comic book characters to find the most important features in determining a comic book characters' alignment. Techs: Docker, Make, Docopt, Sklearn

### Business Risk Dashboard

Present

ESDC Integrity Hackathon in collaboration with Simon Fraser University: "Canadian Companies Deep Dive" – Secured Second Place. Techs: R, Dash, Make, Python, BeautifulSoup, ...

## Core Skills

Python, R, MATLAB, LaTeX, SQL, Databases, Data Visualization & Reporting, Statistical Modeling & Machine Learning, Data Analysis, Jupyter, Tensorflow & Pytorch, Web Scraping, HTML & JavaScript, Natural Language Processing, A/B Testing, Deep Learning, Experimental Design, Exploratory Data Analysis, Statistical Analysis, Time Series Forecasting, AWS, Microsoft Azure, Splunk, C, ETL, Data Storytelling, Data-Driven Decision Making

## Education

### University of British Columbia

Sep 2020 - Jun 2021

#### Master Data Science

Relevant Coursework: Programming & Data Manipulation, Statistics & Probability, Ethics, Privacy & Cloud Computing, Data Structures, Algorithms & Machine Learning, Data Visualization & Communication, Databases, Data Retrieval & Workflows  
GPA: 96

### Bilkent University

Sep 2011 - Apr 2017

#### Doctor of Philosophy

Relevant Coursework: Functional Analysis & Operator Theory, Polynomial Bases & Approximation Theory, Advanced Mathematical Modelling & Analysis, Measure Theory & Banach Spaces, Mathematical Research & Proof Techniques

## Languages

English (*fluent*), Turkish (*fluent*)

Certificates

<b>Become Splunk Master In Just 5 Days</b> <i>thinkcloudly</i>	Dec 2024
<b>YWCA Focus at Work</b> <i>YWCA Metro Vancouver</i>	Jul 2018
<b>Mental Health First Aid Canada</b> <i>Mental Health Commission of Canada</i>	Jul 2018