ZELIHA URAL MERPEZ

DATA SCIENTIST RICHMOND, CANADA (778) 939-7183

DETAILS

Richmond
Canada
(778) 939-7183
zelihamerpez@gmail.com

LINKS

LinkedIn

GitHub

Portfolio Website

SKILLS

Programming & Data Manipulation

Python

R

MATLAB

LaTeX

SQL Databases

Data Visualization & Reporting

Statistical Modeling & Machine Learning

Data Analysis

Jupyter

Tensorflow & Pytorch

Web Scraping

HTML & JavaScript

Deep Learning (CNNs, PINNs)

Natural Language Processing

A/B Testing

LANGUAGES

Turkish

English

HOBBIES

Spending time with my family

Playing games (mostly DOTA 2 & Hearthstone) & sports (volleyball)

Pet programming projects (Data Gathering, Financial Analysis & Data Visualization)

PROFILE

I am a results oriented data scientist & mathematician trying to switch over to working in the industry leaving my life in academy behind. Skilled in enhancing decision-making, optimizing processes and driving growth across diverse industries through effective data analysis and visualization. Interested in learning a bit of everthing programming related, trying to improve myself every day, learning new technologies and trying new approaches. Open to possibilities of starting from entry level positions if need be, as I'm returning to work life after my maternal leave.

EMPLOYMENT HISTORY

AI Development Specialist, AI Math Analyst at Outlier, Remote
March 2024 — Present

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 at The University of British Columbia, Vancouver
September 2021 — October 2023

Contributed to multiple projects as a data scientist, where I developed an automated pipeline to convert data from large Excel files into a selfdefined database. Collaborated on the collection and integration of data from U.S. firms for business intelligence initiatives. Developed statistical models to mitigate information risk and utilized large language models to support informed decision-making in the stock market. Worked with large data repositories like WRDS & scraped large amounts of data from various websites like Twitter & provided data for other researchers to use in their projects.

Database Technology Course Instructor at The University of British Columbia, Vancouver
September 2021 — December 2022

Designed and delivered a comprehensive database technology course, covering key concepts such as database design, management, and SQL querying.Provided-hands-on training with various database systems, emphasizing best practices for data storage and retrieval to enhance students'practical and theoretical understanding.

Calculus Course Instructor at Various Colleges & Universities, Vancouver
September 2016 — December 2019

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

PROJECTS

Evaluating Five Time Series Methods to Predict Stock Prices

GitHub Link - The goal was to predict next-day stock prices using historical stock data, with the project assessing how each model could handle stock price fluctuations, trends, seasonality, and market events.

Models tested: ARIMA, ETS, LSTM, Facebook Prophet, Random Forest Regression.

Hyperparameter Tuning of ARIMA: Enhanced model accuracy by reducing the average

MSE score from 611 to 21 through optimal hyperparameter selection. Advanced models like LSTM and Random Forest outperformed traditional methods in capturing complex patterns. Hyperparameter tuning of ARIMA yield stronger performance than ETS and FB Prophet default models.

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

GitHub Link -This project focuses on optimizing stock trading decisions by utilizing agent-based models alongside historical data to predict buy and sell opportunities. By simulating market behaviors, it aims to enhance predictive accuracy and improve investment strategies in a dynamic trading environment.

Agent-based modeling simulates the actions and interactions of individual traders (agents) in the market. By incorporating historical data, we can create realistic trading scenarios that reflect past market behavior. Our project explores the performance of two different trading agents, each with unique strategies for making buy and sell decisions based on historical stock price movements.

We optimized expected return thresholds through several methods: first, by applying a consistent unique constant across all symbols; second, by deriving firm-specific values directly from the data. Lastly, we combined these scores after normalizing the data into a formula, represented as ax+y. to enhance decision-making processes. Solved the equation to maximize the agents final portfolio values.

The maximum final portfolio values for a $10,000 investment over 3 years were $28,555 for the slow agent and $41,750 for the fast agent, resulting in a performance improvement of approximately 46.2% for the fast agent.

Comic Book Character Alignment Predictor

GitHub Link - 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

Country Happiness Visualization App

GitHub Link - Prepared interactive dashboards in Python and R, to present customized information for countries through a series of data visualization tools. Techs: Dash, Heroku

EDUCATION

Master of Data Science, The University of British Columbia
January 2021

PhD Mathematics, Bilkent University
January 2017

B.S. Mathematics, Bilkent University
January 2011