# Ali Raisolsadat (MMATH, BSc)

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## Summary of Qualifications

- Demonstrated exceptional research proficiency across varied projects including financial modeling, statistical analysis, and insight extraction, showcasing expertise in conceiving and executing innovative data-driven methodologies.
- Effectively communicated findings and insights by utilizing advanced quantitative analysis techniques in R, including the creation of visualization tools using RShiny dashboard and Tidyverse package, and demonstrated proficiency through presentations at international conferences.
- Programming skills:
  - **R**: Proficient (4+ years, RShiny, Tidyverse, ggplot2)
  - **Python**: Proficient (2+ years, Numpy, Pandas, PyTorch)
  - **SQL**: Experienced (1+ year, PostgreSQL, ETL)
  - **MATLAB**: Experienced (2 years)
  - **Java**: Experienced (2 years, Data Structures)
  - **Microsoft Excel**: Experienced (2 years)

## Relevant Experiences

**Canadian Center for Climate Change and Adaptation – Charlottetown, PEI**　　　　Summer 2021, Summer 2022, Summer 2024
*Researcher*

- Spearheaded development of groundbreaking a research project in collaboration with cross-functional teams, quantifying the international synergy among G7 nations using United Nations SDG data.
- Employed cutting-edge machine learning algorithms such as LASSO/Ridge regression and employed advanced dimension reduction techniques like PCA, using R (dplyr, Tidyverse, ggplot), to dissect and interpret SDG data effectively.
- Delivered presentation IME Conference 2022, demonstrating strong skill in presenting complex solutions to large audiences and published the manuscript for this research to Nature Communications journal (DOI: 10.1038/s41467-024-51663-5).

**University of Waterloo – Waterloo, ON**　　　　May 2023 – September 2023
*Research Assistant*

- Developed a framework for insurers to manage risk by retaining specific loss layers and transferring higher layers.
- Classified regional losses using "near maximum" and "near minimum" values with non-linear regression using R.
- Provided a comprehensive risk perspective integrating all loss values, enabling strategic asset allocation and improved coverage for catastrophic events.

**Veterans Affairs Canada – Charlottetown, PEI**　　　　May 2020 – September 2020
*Research Assistant*

- Worked on longitudinal research, forecasting insurance claim reimbursements for veterans' prescribed medications by utilizing novel time series models (e.g. ARIMA, autoregression, moving average) in R (Tidyverse, lubridate), to produce a 5-year forecast with a 95% confidence interval, revealing critical insights for policy-making.
- Presented findings to the research team through an interactive RShiny dashboard, facilitating informed decision-making.

**University of Prince Edward Island – Charlottetown, PEI**　　　　Summer 2018, Summer 2019
*Research Assistant*

- Applied advanced modeling techniques, including portfolio replication under the Black-Scholes model, to develop conservative and coherent risk measures that enhanced risk-averse portfolio management strategies using R, Python, and MATLAB.
- Achieved second place while showcasing the research project at *Science Atlantic 2018.*

## Key Project at University of Waterloo

**Satellite Image Classification**

*Student*　　　　February 2024 – April 2024

- Developed a Convolutional Neural Network (CNN) utilizing the PyTorch toolkit to classify satellite images into distinct categories including earth surface, cloud, water, and desert and achieved average test accuracy of 95% in predicting the earth surface classes showcasing my proficiency in image classification methodologies.

## Education

**Master of Mathematics (MMATH) in Computational Mathematics**, 4.0 GPA　　　　September 2022 – October 2023
*University of Waterloo, Ontario, Canada*
**Certificates**: Google Data Analytics Professional Certificate, DataCamp Associate Data Analyst in SQL (PostgreSQL), Data Analyst with Python (Pandas, NumPy, Seaborn), Developing Large Language Models (LLMs in PyTorch)

**Bachelor of Science in Actuarial Sciences**, 4.0 G.P.A　　　　September 2020 – May 2022
*University of Prince Edward Island, PEI, Canada*

**Bachelor of Science in Financial Mathematics**, 3.5 G.P.A　　　　September 2014 – May 2019
*University of Prince Edward Island, PEI, Canada*