ROMINA MAHINPEI

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EDUCATION

M.S.E. in Computer Science **09/2024 – 05/2026**
Princeton University
- **Research Interests**: Human-Centred AI, Human Computer Interaction, Educational Technologies.
- Enrolled in the **McGraw Center Teaching Transcript Certificate Program**.

B.Sc. in Honours Computer Science with a Mathematics Minor **09/2020 – 05/2024**
University of British Columbia (UBC) GPA: 4.0 / 4.0
- **Relevant Courses**: Advanced ML, Human-Centred AI, Parallel Computation, Operating Systems, Relational Databases, Numerical Computation & Approximation, Computational Optimization, Linear Algebra, Probability.

PUBLICATIONS

Romina Mahinpei. 2024. **Mixed Precision MINRES**. SIAM Undergraduate Research Online, Volume 17. Society for Industrial and Applied Mathematics, Philadelphia, PA, USA. DOI: 10.1137/24s1678489. [pdf]

Romina Mahinpei*, Iris Xu*, Steven Wolfman, and Firas Moosvi. 2024. **A Generalized Framework for Describing Question Randomization**. In Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2 (SIGCSE 2024). Association for Computing Machinery, New York, NY, USA, 1736-1737. [pdf]

** Both authors contributed equally to this work.*

RESEARCH EXPERIENCE

Undergraduate Research Assistant | Systopia Lab, UBC **02/2022 – 01/2023**
- Designed, implemented, and tested the Model Card package for Tribuo, Oracle's open-source Java ML library, to allow users to create partially automated documentation cards for various ML models.
- **Advisor**: Dr. Margo Seltzer – Department of Computer Science.

Undergraduate Research Assistant | Quantum Matter Institute, UBC **05/2021 – 08/2021**
- Created heterostructures for collecting longitudinal resistance measurements and implemented the pipeline for the visualization and categorization of those measurements in IgorPro.
- **Advisor**: Dr. Joshua Folk – Department of Physics.

TEACHING EXPERIENCE

COS 324 – Introduction to Machine Learning | Princeton University **09/2024 – 12/2024**
- Hosting weekly tutorials and office hours covering the foundations of machine learning.

CPSC 313 – Hardware & Operating Systems | UBC **09/2023 – 04/2024**
- Held weekly tutorials and implemented computer-based assessment questions on the PrairieLearn platform.

CPSC 210 – Software Construction & Development | UBC **09/2022 – 04/2023**
- Held weekly labs, hosted weekly office hours, and graded midterms and final exams.

Science One – Differential & Integral Calculus | UBC **09/2021 – 04/2022**
- Held review sessions, hosted weekly office hours, and graded midterms and final exams.

WORK EXPERIENCE

Software Engineering Intern | Xbox, Microsoft **06/2024 – 08/2024**
- Implemented new Semantic Kernel plugins for an AI Copilot owned by one of Xbox's experimentation teams.
- Defined and implemented success metrics for evaluating the response quality of the AI Copilot in Power BI.

Software Engineering Intern | Xbox, Microsoft **06/2023 – 08/2023**

- Defined new metrics to track the availability of core streams owned by one of Xbox's data engineering teams.
- Implemented the backend infrastructure, the Azure Data Factory pipelines, and the Power BI report to summarize and visualize the defined metrics.

Software Engineering & Product Management (Explore) Intern | Xbox, Microsoft **06/2022 – 08/2022**

- Defined a new feature aimed at improving the user experience and conducted user interviews to collect feedback.
- Implemented and tested the data model, the backend infrastructure, and the API supporting the new feature.

HIGHLIGHTED PROJECTS

Leveraging Collaborative Filtering for Personalized Practice in Computer-Based Assessments [pdf]

- Explored collaborative filtering (CF)-based recommender systems for personalizing question selection in computer-based assessments by predicting student performance on new, unseen questions using past scores.
- Developed and evaluated six CF models against baseline model using Dietterich's 5×2 cross-validation method on two datasets from an undergraduate computer systems course and assessed model performance using Mean Absolute Error and Root Mean Squared Error, with statistical significance determined through a paired t-test.

Low Precision Training of Deep Learning Models [pdf]

- Analyzed the effects of four low precision training schemes on both the training time and classification accuracy of four deep learning models from the domains of image and text classification.
- Implemented these low precision variants and a baseline version using TensorFlow and conducted a comparative study on Google Colab's Tesla T4 GPU to evaluate the trade-offs in speed and accuracy for each model.

Enhancing Transparent Model Reporting with Automated Model Cards in Tribuo [pdf]

- Conducted semi-structured interviews with ML and data professionals from academia (N = 6) and industry (N = 6) to assess current workflows and explore how data provenance could streamline these processes.
- Identified ML model documentation as a key pain point for many participants and subsequently designed, implemented, and tested the Model Card package for Tribuo, Oracle's open-source Java ML library, to facilitate the creation of partially automated documentation cards for ML models.

HIGHLIGHTED AWARDS

McGraw Center for Teaching & Learning Fellowship | Princeton University **2024**

- Awarded for the 2024-2025 academic year to support the research and enhancement of the university's STEM pedagogical resources.

Academic Award of Excellence | Department of Computer Science, UBC **2024**

- Awarded to the student with the highest graduating average of the B.Sc. in Honours Computer Science.

Markus Meister Memorial Prize | Department of Computer Science, UBC **2024**

- Awarded to the graduating student with the highest standing in the final year of the B.Sc. in Computer Science.

Trek Excellence Scholarship for Continuing Students | UBC **2021, 2022, 2023**

- Awarded yearly to domestic undergraduate students in the top 5% of their year, faculty, and school.

Schulich Leader Scholarship | The Schulich Foundation **2020**

- Four-year undergraduate STEM scholarship awarded every year to a total of 100 Canadian students based on academic performance, leadership potential, and community involvement.