Matthew Regehr

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Education

University of Waterloo	September 2023–Present
PhD in Computer Science	*Waterloo, ON*
University of Waterloo	September 2021–August 2023
Master of Mathematics in Computer Science	*Waterloo, ON*
University of Alberta	September 2017–June 2021
Bachelor of Science with Honors in Computing Science	*Edmonton, AB*
Three Hills High School	September 2015–June 2017
Diploma	*Three Hills, AB*

By taking on a heavier course load, I was able to graduate in two years.

Research Experience

PhD Research Assistant September 2023–Present
University of Waterloo *Waterloo, ON*

I am advised by Gautam Kamath. My research focuses on the theory of privacy accounting.

MMath Research Assistant September 2021–August 2023
University of Waterloo *Waterloo, ON*

I was co-advised by Gautam Kamath and Shai Ben-David. I wrote my thesis on private statistical estimation.

NSERC Undergraduate Student Research Assistant May 2021–August 2021
University of Alberta *Edmonton, AB*

I collaborated with Csaba Szepesvari's group to prove hardness results for reinforcement learning in the partially observable setting. I also worked with another of his students to write a manuscript on the convergence of Q-learning.

NSERC Undergraduate Student Research Assistant May 2020–December 2020
University of Alberta *Edmonton, AB*

I worked in the the Reinforcement Learning and Artificial Intelligence lab under Martha White's supervision. I wrote a report on the theoretical properties of reinforcement learning algorithms in a partially observable environment and worked with a team to empirically evaluate their effectiveness.

Alberta Innovates Summer Research Assistant May 2019–August 2019
University of Alberta *Edmonton, AB*

I was advised by Kumaradevan Punithakumar in the Servier Virtual Cardiac Centre. I developed a machine learning algorithm to automatically delineate the right atrial contour from MR images of the heart. I presented a paper on the technique at ISBI 2020.

Teaching and Instructional Assistantships

CS 240: Data Structures and Data Management May 2022–August 2022, January 2023–Present
University of Waterloo *Waterloo, ON*

CS 485/685: Foundations of Machine Learning September 2022–December 2022
University of Waterloo *Waterloo, ON*

CS 135: Designing Functional Programs January 2022–April 2022
University of Waterloo *Waterloo, ON*

CS 116: Introduction to Computer Science 2 September 2021–December 2021
University of Waterloo *Waterloo, ON*

MATH 154: Calculus for Business and Economics I January 2020–April 2020

University of Alberta *Edmonton, AB*

Publications and Manuscripts

Pitfalls for Privacy Accounting of Subsampled Mechanisms under Composition 2024

Christian Lebeda*, Matthew Regehr*, Gautam Kamath, Thomas Steinke *(*Alphabetical)*

To appear in SaTML 2025
ArXiv preprint: https://arxiv.org/abs/2405.20769

A Bias-Variance-Privacy Trilemma for Statistical Estimation 2023

Gautam Kamath, Argyris Mouzakis, Matthew Regehr, Vikrant Singhal, Thomas Steinke, Jon Ullman *(Alphabetical)*

To appear in the Journal of the American Statistical Association
ArXiv preprint: https://arxiv.org/abs/2301.13334

An Elementary Proof that Q-learning Converges Almost Surely 2021

Matthew Regehr, Alex Ayoub

ArXiv preprint: https://arxiv.org/abs/2108.02827

Automatic Right Atrial Segmentation from Magnetic Resonance Imaging 2019

Matthew Regehr, Andrew Volk, Michelle Noga, Kumaradevan Punithakumar

Published in 17th IEEE International Symposium on Biomedical Imaging (ISBI 2020)
Presented at University of Alberta Faculty of Medicine & Dentistry 52nd Annual Summer Students' Research Day
    Won best poster prize

Selected Awards

NSERC Canada Graduate Scholarship–Doctoral 2024–2026

Natural Sciences and Engineering Research Council of Canada *Waterloo, ON*

Promotes continued excellence in Canadian research by rewarding and retaining high-calibre doctoral students at Canadian institutions.

Ontario Graduate Scholarship 2023

Ontario Student Assistance Program *Waterloo, ON*

Encourages excellence in graduate studies at publicly-assisted universities in Ontario.

NSERC Canada Graduate Scholarship–Master's 2022

Natural Sciences and Engineering Research Council of Canada *Waterloo, ON*

Provides financial support to high-calibre scholars engaged in an eligible master's program in Canada.

Vector Scholarship in AI 2021

Vector Institute *Waterloo, ON*

An entrance award for top students pursuing AI master's degrees in Ontario.

The Gold Medal in Computing Science 2021

University of Alberta *Edmonton, AB*

Awarded to the convocating Computing Science student with the highest average over the last three years of the program.

NSERC Undergraduate Student Research Award 2020–2021

Natural Sciences and Engineering Research Council of Canada *Edmonton, AB*

Awarded to nurture interest and fully develop potential for a research career in the natural sciences and engineering.

Kao Family Eisenco Scholarship 2020

University of Alberta *Edmonton, AB*

Recognizes superior academic achievement in students whose focus is theoretical computing.

Alberta Innovates Summer Research Studentship 2019

University of Alberta *Edmonton, AB*

Supports students engaging in medical and health sciences research and innovation during the summer months.

Louise McKinney Scholarship 2019

University of Alberta *Edmonton, AB*

Awarded to the top 1.5–2% of students in the Faculty of Science by academic standing.

Work Experience

Web Developer   October 2016–Present
Kneehill Regional Family and Community Support Services   *Three Hills, AB*
I developed an online volunteering platform as well as a website providing resources to local families and young parents.

Web Developer   March 2016–Present
Bermuda King   *Kingfisher, OK*
I redesigned and extended the capabilities of the client's existing website, which I still regularly maintain today.

Web Developer   June 2018–August 2018
Altawest Services   *Three Hills, AB*
I implemented a modern, responsive website redesign and helped the client update and expand their online presence.

Volunteer Experience

VP Website Development   October 2018–April 2020
Tutors for Affordable Education   *Edmonton, AB*
I improved the usability and discoverability of the club's website. I also tutored high school students in math and physics.

Web Developer   November 2015–January 2016
Three Hills School   *Three Hills, AB*
I developed a web application for players and organizers to track and manage the progress of Badminton tournaments.

Skills

Programming
Python, Haskell, JavaScript, C/C++, Matlab

Languages
English (native), German (B2)

Other Awards

David R. Cheriton Graduate Scholarship   2021–Present
University of Waterloo   *Waterloo, ON*
Awarded annually to top graduate students on the basis of academic excellence.

Dean's Silver Medal in Science   2021
University of Alberta   *Edmonton, AB*
Awarded to convocating students with superior academic achievement in an Honors program in the Faculty of Science.

Mathukumalli Venkata Subbamma Prize   2020
University of Alberta   *Edmonton, AB*
Awarded annually to an undergraduate student who has shown outstanding academic ability in Number Theory.

The Dirk Snoeck Henkemans Memorial Scholarship   2019
University of Alberta   *Edmonton, AB*
Preferentially awarded to a student who has made contributions to student life in the Department of Computing Science.

Max and Marjorie Ward Undergraduate Scholarship 2019
University of Alberta   *Edmonton, AB*
Awarded annually to students with superior academic achievement.

Faculty of Science Undergraduate Scholarship   2019
University of Alberta   *Edmonton, AB*
Awarded to upper-year students with superior academic achievement in the Faculty of Science.

Hooper–Munroe Academic Scholarship   2019

University of Alberta   *Edmonton, AB*

Awarded to the student of the highest academic standing in the preceding Winter Term of all those who apply.

JW Campbell Memorial Prize in Mathematics   2018

University of Alberta   *Edmonton, AB*

Recognizes the efforts of a student who achieves outstanding merit in introductory honors analysis.

Department of Mathematical Statistical Sciences Academic Excellence Scholarship   2017

University of Alberta   *Edmonton, AB*

Awarded to matriculating students based on exceptional mathematical ability or performance in high school mathematics.