

Matthew Regehr

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Education

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

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

Research Experience

PhD Research Assistant <i>University of Waterloo</i>	September 2023–Present <i>Waterloo, ON</i>
I am advised by Gautam Kamath. My research focuses on the theory of privacy accounting.	
MMath Research Assistant <i>University of Waterloo</i>	September 2021–August 2023 <i>Waterloo, ON</i>
I was co-advised by Gautam Kamath and Shai Ben-David. I wrote my thesis on private statistical estimation.	
NSERC Undergraduate Student Research Assistant <i>University of Alberta</i>	May 2021–August 2021 <i>Edmonton, AB</i>
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 <i>University of Alberta</i>	May 2020–December 2020 <i>Edmonton, AB</i>
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 <i>University of Alberta</i>	May 2019–August 2019 <i>Edmonton, AB</i>
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 <i>University of Waterloo</i>	May 2022–Present <i>Waterloo, ON</i>
CS 485/685: Foundations of Machine Learning <i>University of Waterloo</i>	September 2022–December 2022 <i>Waterloo, ON</i>
CS 135: Designing Functional Programs <i>University of Waterloo</i>	January 2022–April 2022 <i>Waterloo, ON</i>
CS 116: Introduction to Computer Science 2 <i>University of Waterloo</i>	September 2021–December 2021 <i>Waterloo, ON</i>

Publications and Manuscripts

- Natural Privacy Filters Are Not Always Free: A Characterization of Free Natural Filters** 2026
Matthew Regehr, Bingshan Hu, Ethan Leeman*, Pasin Manurangsi*, Pierre Tholoni*, Mathias Lécuyer (*Alpha.)*
ArXiv preprint: <https://arxiv.org/abs/2602.15815>
- Query-Efficient Locally Private Hypothesis Selection via the Scheffé Graph** 2025
Gautam Kamath, Alireza F. Pour, Matthew Regehr, David P. Woodruff (*Alphabetical)
Published in NeurIPS 2025
ArXiv preprint: <https://arxiv.org/abs/2509.16180>
- Pitfalls for Privacy Accounting of Subsampled Mechanisms under Composition** 2024
Christian Lebeda, Matthew Regehr*, Gautam Kamath, Thomas Steinke* (*Alphabetical)
Published 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)
Published 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

Work Experience

- Software Engineering Intern** June 2025–August 2025
Google Mountain View, CA
I interned at Google Research. My main project focused on the theory of privacy budgeting for machine learning.
- 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.

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
<i>Ontario Student Assistance Program</i>	<i>Waterloo, ON</i>
Encourages excellence in graduate studies at publicly-assisted universities in Ontario.	
NSERC Canada Graduate Scholarship–Master’s	2022
<i>Natural Sciences and Engineering Research Council of Canada</i>	<i>Waterloo, ON</i>
Provides financial support to high-calibre scholars engaged in an eligible master’s program in Canada.	
Vector Scholarship in AI	2021
<i>Vector Institute</i>	<i>Waterloo, ON</i>
An entrance award for top students pursuing AI master’s degrees in Ontario.	
The Gold Medal in Computing Science	2021
<i>University of Alberta</i>	<i>Edmonton, AB</i>
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
<i>Natural Sciences and Engineering Research Council of Canada</i>	<i>Edmonton, AB</i>
Awarded to nurture interest and fully develop potential for a research career in the natural sciences and engineering.	
Kao Family Eisenco Scholarship	2020
<i>University of Alberta</i>	<i>Edmonton, AB</i>
Recognizes superior academic achievement in students whose focus is theoretical computing.	
Alberta Innovates Summer Research Studentship	2019
<i>University of Alberta</i>	<i>Edmonton, AB</i>
Supports students engaging in medical and health sciences research and innovation during the summer months.	
Louise McKinney Scholarship	2019
<i>University of Alberta</i>	<i>Edmonton, AB</i>
Awarded to the top 1.5–2% of students in the Faculty of Science by academic standing.	

Volunteer Experience

VP Website Development	October 2018–April 2020
<i>Tutors for Affordable Education</i>	<i>Edmonton, AB</i>
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
<i>Three Hills School</i>	<i>Three Hills, AB</i>
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
<i>University of Waterloo</i>	<i>Waterloo, ON</i>
Awarded annually to top graduate students on the basis of academic excellence.	
Dean’s Silver Medal in Science	2021
<i>University of Alberta</i>	<i>Edmonton, AB</i>
Awarded to convocating students with superior academic achievement in an Honors program in the Faculty of Science.	

Mathukumalli Venkata Subbamma Prize	2020
<i>University of Alberta</i>	<i>Edmonton, AB</i>
Awarded annually to an undergraduate student who has shown outstanding academic ability in Number Theory.	
The Dirk Snoeck Henkemans Memorial Scholarship	2019
<i>University of Alberta</i>	<i>Edmonton, AB</i>
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
<i>University of Alberta</i>	<i>Edmonton, AB</i>
Awarded annually to students with superior academic achievement.	
Faculty of Science Undergraduate Scholarship	2019
<i>University of Alberta</i>	<i>Edmonton, AB</i>
Awarded to upper-year students with superior academic achievement in the Faculty of Science.	
Hooper–Munroe Academic Scholarship	2019
<i>University of Alberta</i>	<i>Edmonton, AB</i>
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
<i>University of Alberta</i>	<i>Edmonton, AB</i>
Recognizes the efforts of a student who achieves outstanding merit in introductory honors analysis.	
Department of Mathematical Statistical Sciences Academic Excellence Scholarship	2017
<i>University of Alberta</i>	<i>Edmonton, AB</i>
Awarded to matriculating students based on exceptional mathematical ability or performance in high school mathematics.	