

Amber Richardson

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Research Interests

Computing Education, Self-regulated Learning, Sense of Belonging, First-year Transition, Development of Educational Tools, and the Intersection of Computing and Communication.

Education

Sep 2022 - **University of Toronto Mississauga** – Mississauga, Ontario
Jun 2026 HBSc in Computer Science; Minors: Mathematical Sciences, Professional Writing and Communication
Dean's List Scholar: 2023, 2024, 2025

Honors and Scholarships

- 2022 **Bennett Scholar**
Awarded based on financial need for being a first-generation student. Award value: \$10,000.
- 2022 **Ontario Hockey Association War Memorial Scholarship**
Awarded based on academic merit and financial need for being a descendant of a Canadian Armed Forces member that served in an overseas war. Award value: \$2,300 over four years.
- 2022 **Principal's Entrance Award**
Awarded for a high school graduating average of over 95%. Award value: \$12,000 over four years.

Publications (Papers)

- Nov 2025 **From State to Structure: Towards Abstraction Support in CS2.**
Naaz Sibia, Jessica Wen, Amber Richardson, Yashika Jain, Angela Zavaleta Bernuy, Bogdan Simion, Andrew Petersen, Carolina Nobre and Michael Liut.
25th Koli Calling International Conference on Computing Education Research. (Accepted, to be published)
- Aug 2025 **Interactive Effects of Prior Experience and Gender on Self-Efficacy and Achievement in CS1.**
Khushi Malik*, Amber Richardson*, Michelle Craig, and Andrew Petersen.
In Proceedings of the 2025 ACM Conference on International Computing Education Research - Volume 1 (ICER 2025)
- Jun 2025 **Student Perspectives on the Challenges in Machine Learning.**
Naaz Sibia, Amber Richardson, Alica Gao, Andrew Petersen, and Lisa Zhang.
In Proceedings of the 2025 Conference on Innovation and Technology in Computer Science Education V.1 (ITiCSE 2025)

Publications (Posters and Presentations)

- Nov 2025 **Interests and Challenges in Machine Learning: Differences by Gender, Prior Experience, and First Generation Status**
Amber Richardson, Khushi Malik, Saayna Halder, Fatima Ahmed and Lisa Zhang.
25th Koli Calling International Conference on Computing Education Research. (Accepted, to be published)

- Feb 2025 **Reducing Isolation through Peer-Modeled Posts.**
Naaz Sibia, Angela Zavaleta Bernuy, Amber Richardson, Khushi Malik, Prajna Pendharkar, Carolina Nobre, Michael Liut, and Andrew Petersen.
56th ACM Technical Symposium on Computer Science Education V. 2
- Jun 2024 **Tracing Transfer: Preliminary Results of a Longitudinal Study of Teaching First Year Writing for Transfer.**
Mark Blaauw-Hara, Sarah Seeley, Amelie Desroches, Sabeen El Mougabatt, Shona Goodkin, and Amber Richardson.
Canadian Association for the Study of Discourse and Writing/Association Canadienne de Rédactologie, 2024

Research Coursework

- Fall 2025 - **CSC499: Enhancing Introductory Computer Science Education through Interactive Visual-**
Winter 2026 **izations (University of Toronto)**
Supervisor: Professor Michael Liut
Developing a first-author publication examining the impact of visualizations on student self-efficacy and sense of belonging in an introductory computer science setting.
- Fall 2024 - **CSC399: Evaluation of Educational Interventions in Computing (University of Toronto)**
Winter 2025 *Supervisor: Professor Andrew Petersen*
Produced a research paper for ICER 2025 on gender and prior experience's impact on self-regulated learning and performance in CS1. Utilized path analysis, correlations, t-tests, mixed ANOVA, and EFA to analyze survey data.
- Fall 2023 - **ISP299: Exploring Undergraduate Student Experiences with Writing (University of Toronto)**
Winter 2024 *Supervisors: Professor Sarah Seeley and Professor Mark Blaauw-Hara*
Assisted in research on the longitudinal impacts of a first-year writing course. Conducted semi-structured interviews with two students, cleaned transcripts, and completed thematic analysis.

Research Experience

- Summer 2025 **Research Assistant, Computing Education (University of Toronto)**
Supervisor: Professor Andrew Petersen
Developed an discussion board chatbot using retrieval-augmented generation to be deployed in an introductory computer programming course. Collected resources, fine-tuned the model using existing discussion board data, and produced documentation for the chatbot.
- Summer 2024 - **Research Assistant, Machine Learning Education (University of Toronto)**
Summer 2025 *Supervisor: Professor Lisa Zhang*
Examined the interests and challenges of students in an introductory machine learning course. Completed thematic analysis on a dataset of over 5000 responses. Led a follow-up study on differences between subpopulations, overseeing research direction, statistical analysis, and paper writing.
- Winter 2024 - **Research Assistant, First Year Writing (University of Toronto)**
Winter 2025 *Supervisors: Professor Sarah Seeley and Professor Mark Blaauw-Hara*
Assisted in two studies examining the impacts of a First-Year Writing course. Facilitated four focus groups and cleaned transcripts examining integration into university. Continued research from the course ISP299 in a paid capacity.

Teaching Experience

Fall 2025 **Teaching Assistant, CSC108: Introduction to Computer Programming (University of Toronto)**

Coordinator: Professor Michael Liut

Led two laboratory sections of 40-50 students on the basics on computer programming. Invigilated the midterm and exam, and graded these assessments.

Winter 2025 **Head Teaching Assistant, CSC209: Software Tools and Systems Programming (University of Toronto)**

Coordinator: Professor Andrew Petersen

Supported 21 lecture and lab TAs with their weekly activities on system programming concepts in C. Organized TA grading and office hour schedules. Invigilated the course's midterm and exam.

Mentorship Experience

Summer 2025 - **Research Mentor, Machine Learning Education Research (University of Toronto)**

Present Mentored two undergraduate students through their first research project. Taught conducting statistical tests, reading literature, and writing a literature review, and developing a research poster.

Fall 2024 **LAUNCH Leader, UTM020 LAUNCH: Science, Mathematics and Psychology (University of Toronto)**

Facilitated weekly 2-hour sessions for 8 first-year undergraduates on soft skills and campus resources. Modified slides, activities and ice-breaker activities for my mentee's needs. Developed and delivered a lesson plan on reading research papers and academic writing.

University Service

2025 - Present **UTM CER Reading Group Co-Lead**

University of Toronto Mississauga

Engages with students and faculty in computing education research (CER) by analyzing a paper bi-weekly. Leads some sessions by summarizing a paper and moderating discussion.

2024-2025 **Director of Operations**

Computer Science Student Community, University of Toronto Mississauga

Led the marketing and logistics branches of the club. Ensured consistent marketing of club activities across various platforms, and oversaw the development of advising and destressor events.

2023-2024 **Social Media Coordinator**

Computer Science Student Community, University of Toronto Mississauga

Managed the club's Instagram account, posting and responding to inquiries in a timely manner. Co-led the annual crochet destressor event.