

*CURRICULUM VITAE***RYAN TENNANT**Email: ryan.tennant@uwaterloo.caWeb: <https://ryantennant.ca>ORCID: <https://orcid.org/0000-0002-0932-9510>**EDUCATION**

Doctor of Philosophy (Candidate), Systems Design Engineering	Department of Systems Design Engineering, University of Waterloo, Waterloo, Ontario	exp. 2025/26
Master of Applied Science, Systems Design Engineering	Department of Systems Design Engineering, University of Waterloo, Waterloo, Ontario	2021
Bachelor of Applied Science, Biomedical Engineering, <i>With Distinction</i>	Department of Systems Design Engineering, University of Waterloo, Waterloo, Ontario	2019

EMPLOYMENT HISTORY

Human Factors Graduate Student (Intern, Part-Time, Remote) 10/2023 – present
Defense Research and Development Canada – Atlantic Research Centre, Halifax, Nova Scotia, Canada

- Designing and conducting an empirical study on the effects of AI uncertainty communication for maritime operators in a mine detection task; drafting a manuscript for publication.

Human Factors Graduate Student (Intern, Part-Time, Remote) 07/2021 – 12/2022
Defense Research and Development Canada – Atlantic Research Centre, Halifax, Nova Scotia, Canada

- Performed a scoping review on geospatial uncertainty visualization literature to identify current design approaches and their impact on human performance; drafted a manuscript and presented the preliminary results to an annual international meeting of Defense Scientists.
- Statistically analyzed and visualized experimental human performance data for multiple interface design configurations (R); drafted the results section of a manuscript in collaboration with Defense Scientists who conducted the study.

COVID-19 Vaccine Clinic Assistant (Casual) 12/2021 – 03/2022
Region of Waterloo, Waterloo, Ontario, Canada

- Prepared the Pfizer-BioNTech and Moderna COVID-19 vaccine doses for immunizers at mass vaccination clinics that served 800-1500 clients daily following safety protocols.
- Collaborated with a multi-disciplinary team of registered nurses, pharmacists, and other students.

COVID-19 Vaccine Clinic Assistant (Casual) 07/2021 – 08/2021
The Centre for Family Medicine Family Health Team, Kitchener, Ontario, Canada

- Prepared the Pfizer-BioNTech COVID-19 vaccine doses for immunizers at their mass vaccination clinic at the University of Waterloo School of Pharmacy, which served 800-900 clients daily following safety protocols.
- Collaborated with a multi-disciplinary team of registered nurses, pharmacists, and other students.

Biomedical Research & Development Engineering (Intern, Full-Time) 01/2018 – 08/2018
Optotune AG, Dietikon, Zurich, Switzerland

- Simulated liquid flow patterns and magnetic actuators to inform the design of a tunable arterio-venous fistula valve concept that aims to improve the lives of hemodialysis patients (COMSOL).

- Led the design and development of the proof-of-concept medical device implant using liquid lens membrane technology and semi-permanent magnetic actuators (SolidWorks).
- Developed a fluidic testing system that models physiological flow patterns and pressures for prototype evaluation; successfully proved the feasibility of the valve to control simulated flow patterns seen in the human body (Arduino, Pressure Sensors, SolidWorks).
- Coordinated internal and client-facing meetings with engineers, physicians, and materials scientists to present project deliverable results and establish future development objectives.

Biomedical Research & Development Engineering (Intern, Full-Time) 05/2017 – 08/2017
The Hospital for Sick Children, Toronto, Ontario, Canada

- Performed a data-driven re-design of the software and mechanical components of a focused ultrasound hydrophone positioning robot; improved hydrophone positioning accuracy to within 20 microns (Arduino, SolidWorks).
- Analyzed and visualized ultrasound attenuation data through cadaveric neonate skulls to evaluate the initial feasibility of focused ultrasound technology in treating neonatal hydrocephalus (MATLAB).
- Designed and programmed a graphical user interface to measure hydrophone depth and movement efficiently and effectively from videos taken during ultrasound sonication (MATLAB).
- Improved the design of an MRI-safe, robotic, focused ultrasound device, resulting in a watertight system and the creation of fiducial marker holders for improved positioning visibility (SolidWorks).

Research Assistant (Casual) 05/2017 – 08/2017
Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

- Successfully developed a proof-of-concept microcatheter designed to improve guidewire re-entry success rates from a subintimal space of a coronary artery for interventional cardiology procedures using fluid-filled membrane technologies.
- Created engineering drawings of the design and alternative design configurations (AutoCAD).
- Communicated and collaborated with a patent attorney in the writing of a patent application.

Medventions Fellow (Intern, Full-Time) 09/2016 – 12/2016
Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

- Performed clinical observations by shadowing Dr. Bradley Strauss, Dr. Brian Courtney, and other cardiologists in the operating rooms, rounds in intensive care units, and catheterization laboratories to identify and document a clinical challenge that imposed a significant clinical burden.
- Analyzed the identified cardiovascular challenge through stakeholder and market analysis, studying the disease state fundamentals and treatment options; consulted with physicians and faculty and performed literature and patent reviews.
- Designed a medical device concept to address the identified clinical need and translated the idea into a functional prototype for further development and testing (SolidWorks).

Biomedical Research & Development Engineering (Intern, Full-Time) 01/2016 – 04/2016
Baylis Medical Company, Toronto, Ontario, Canada

- Performed failure mode analysis of a novel cardiac catheterization guiding tool for atrial tissue ablation devices to identify performance impacts from cardiologist misuse (SolidWorks, R).
- Designed and performed an empirical study on the impact of accelerated aging on adhesive strength to test product shelf-life performance against ISO requirements (SolidWorks, R).
- Performed validation & verification, operational qualification, process qualification, and installation qualification testing for commercialized medical device components (Instron).

Engineering IDEAs Clinic Teaching Assistant (Intern, Full-Time) 05/2015 – 08/2015
University of Waterloo, Waterloo, Ontario, Canada

- Programmed a single-axis link segment Lego model to lift a mass to a desired position using a sensor and shape memory alloy springs (Arduino, Accelerometer).

- Developed teaching materials for students to build and test a single-axis link segment Lego model, including the pseudocode, engineering drawings, and instructions for analyzing their design.
- Instructed a class of 100 first-year students through the activity during a one-hour tutorial period.

ACADEMIC, COMMUNICATION, AND LEADERSHIP AWARDS / DISTINCTIONS

Graduate:

05/2023	Canada Graduate Scholarships – Doctoral Program (Academic) Natural Sciences and Engineering Research Council of Canada	\$105 000 CAD
05/2023	President’s Graduate Scholarship CGS-D Match (Academic) Faculty of Engineering, University of Waterloo	\$30 000 CAD
05/2023	President’s Graduate Scholarship CGS-D Match (Academic) Graduate Studies and Postdoctoral Affairs, University of Waterloo	\$15 000 CAD
05/2021	Engineering Excellence Doctoral Fellowship (Academic) Faculty of Engineering, University of Waterloo	\$120 000 CAD
09/2021	QNX Graduate Scholarship (Academic) Faculty of Engineering, University of Waterloo	\$ 5 000 CAD
05/2021	President’s Graduate Scholarship QEII Match (Academic) Graduate Studies and Postdoctoral Affairs, University of Waterloo	\$ 5 000 CAD
05/2021	QEII Graduate Scholarship in Science & Technology (Academic) Faculty of Engineering, University of Waterloo	\$ 10 000 CAD
05/2021	Engineering Dean’s Entrance Award (Academic) Faculty of Engineering, University of Waterloo	\$ 5 000 CAD
09/2021	Human Factors Student Chapter Bronze Award (Leadership) Human Factors and Ergonomics Society	N/A
04/2021	2021 Canada-Israel Cardiovascular Forum – 2nd Place (Communication) Canada-Israel Cardiovascular Innovation Forum	N/A
01/2021	GRADflix Research Video Submission – Finalist (Communication) Graduate Studies and Postdoctoral Affairs, University of Waterloo	N/A
09/2020	UW Alumni @ Microsoft Scholarship (Academic) Faculty of Engineering, University of Waterloo	\$ 5 000 CAD
05/2020	President’s Graduate Scholarship OGS Match (Academic) Graduate Studies and Postdoctoral Affairs, University of Waterloo	\$ 5 000 CAD
05/2020	Ontario Graduate Scholarship (Academic) Faculty of Engineering, University of Waterloo	\$ 10 000 CAD
04/2020	Johns Hopkins Healthcare Design Competition Finalist (Communication) Centre for Bioengineering Innovation & Design, Johns Hopkins University	N/A
09/2019	Engineering Dean’s Entrance Award (Academic)	\$ 5 000 CAD

Faculty of Engineering, University of Waterloo

Undergraduate:

04/2019	Norman Esch Entrance Scholarship for MBET Program (Communication) Conrad School of Entrepreneurship and Business, University of Waterloo	DECLINED
04/2019	Biomedical Engineering Best 4th Year Capstone Design Project (Academic) Department of Systems Design Engineering, University of Waterloo	N/A
04/2019	Norman Esch Entrepreneurship Capstone Design Award (Communication) Faculty of Engineering, University of Waterloo	\$ 10 000 CAD
10/2019	Medventions Entrepreneurship Award (Communication) Medventions Fellowship Program, Sunnybrook Health Sciences Centre	\$ 10 000 CAD
01/2018	Engineer of the Future Fund Recipient (Communication) Faculty of Engineering, University of Waterloo	\$ 1 500 CAD
10/2017	Pitch Perfect Competition (Communication) Health Innovation Hub, University of Toronto	\$ 5 000 CAD
09/2014	President's Scholarship of Distinction (Academic) University of Waterloo	\$ 2 000 CAD
09/2014	2014 Kitchener Rangers Entrance Scholarship (Academic, Leadership) Kitchener Rangers Hockey Club, Kitchener, Ontario	\$ 1 500 CAD
08/2014	2014 Execulink Telecom Scholarship Winner (Academic, Leadership) Execulink Telecom, Ontario	\$ 500 CAD

SCHOLARLY AND PROFESSIONAL ACTIVITIES

Professional Societies:

01/2020	Student Member	Human Factors and Ergonomics Society
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Media Interviews:

01/2023	Title: "Every shot, a shot of gold" URL: https://uwaterloo.ca/news/science/every-shot-gold Description: How interdisciplinary teamwork is invaluable to our health-care system Interviewer: Madzarac, M. School of Pharmacy, University of Waterloo
08/2021	Title: "Running a vaccine clinic? There's an app for that" URL: https://uwaterloo.ca/news/running-vaccine-clinic-theres-app Description: The deployment of a mobile app designed for COVID-19 vaccine clinics Interviewer: Rigby, A. School of Pharmacy, University of Waterloo

PUBLICATIONS

Refereed Journals:

1. ***Tennant, R.**, *Allana, S., Mercer, K., & Burns, C. M. (2024). Capturing Home Care Information Management and Communication Processes Among Caregivers of Older Adults: Qualitative Study to Inform Technology Design. *JMIR Formative Research*, 8, e53289. <https://doi.org/10.2196/e53289>.
2. Tetui, M., ***Tennant, R.**, *Adil, M., *Bala, A., Burns, C. M., Waite, N., & Grindrod, K. (2023). “Flying a plane and building it at the same time”: Lessons learned from the dynamic implementation of mass vaccination clinics in the Region of Waterloo, Ontario, Canada. *Health Policy and Systems*, 21(1), 102. <https://doi.org/10.1186/s12961-023-01036-z>
3. Tetui, M., ***Tennant, R.**, *Patten, A., *Giilck, B., Burns, C. M., Waite, N., & Grindrod, K. Role satisfaction among community volunteers working in mass COVID-19 vaccination clinics, Waterloo Region, Canada. (2023) *BMC Public Health*, 23(1), 1199. <https://doi.org/10.1186/s12889-023-15597-9>
4. ***Tennant, R.**, Tetui, M., Grindrod, K., & Burns, C. M. (2022). Multi-Disciplinary Design and Implementation of a Mass Vaccination Clinic Mobile Application to Support Decision-Making. *IEEE Journal of Translational Engineering in Health and Medicine*, 11, 60–69. <https://doi.org/10.1109/JTEHM.2022.3224740>.
5. ***Tennant, R.**, *Graham, J., Mercer, K., Ansermino, J. M., & Burns, C. M. (2022). Automated digital technologies for supporting sepsis prediction in children: a scoping review protocol. *BMJ Open*, 12(11), e065429. <https://doi.org/10.1136/bmjopen-2022-065429>.
6. ***Tennant, R.**, Tetui, M., Grindrod, K., & Burns, C. M. (2022). Understanding Human Factors Challenges on the Front Lines of Mass COVID-19 Vaccination Clinics: Human Systems Modeling Study. *JMIR Human Factors*, 9(4), e39670. <https://doi.org/10.2196/39670>.
7. ***Tennant, R.**, *Allana, S., Mercer, K., & Burns, C. M. (2022). Caregiver Expectations of Interfacing With Voice Assistants to Support Complex Home Care: Mixed Methods Study. *JMIR Human Factors*, 9(2), e37688. <https://doi.org/10.2196/37688>.
8. *Faisal, S., *Ivo, J., ***Tennant, R.**, *Prior, K.-A., Grindrod, K., McMillan, C., & Patel, T. (2022). Integration of a smart multidose blister package for medication intake: A mixed method ethnographic informed study of older adults with chronic diseases. *PLOS ONE*, 17(1), e0262012. <https://doi.org/10.1371/journal.pone.0262012>.
9. ***Tennant, R.**, *Allana, S., Mercer, K., & Burns, C. M. (2022). Exploring the Experiences of Family Caregivers of Children With Special Health Care Needs to Inform the Design of Digital Health Systems: Formative Qualitative Study. *JMIR Formative Research*, 6(1), e28895. <https://doi.org/10.2196/28895>.
10. Mercer, K., Carter, C., Burns, C., ***Tennant, R.**, Guirguis, L., & Grindrod, K. (2021). Including the Reason for Use on Prescriptions Sent to Pharmacists: Scoping Review. *JMIR Human Factors*, 8(4), e22325. <https://doi.org/10.2196/22325>.
11. Faisal, S., Ivo, J., ***Tennant, R.**, Prior, K.-A., Grindrod, K., McMillan, C., & Patel, T. (2021). Implementation of a Real-Time Medication Intake Monitoring Technology Intervention in Community Pharmacy Settings: A Mixed-Method Pilot Study. *Pharmacy*, 9(2), 105. <https://doi.org/10.3390/pharmacy9020105>.

Articles Under Review in Refereed Journals:

1. ***Tennant, R.**, Graham, J., Kern, J., Mercer, K., Ansermino, J.M., Burns, C.M. (2024). Data-Driven Approaches to Pediatric Sepsis Prediction in Healthcare Settings: A Scoping Review. Under Review in npj Digital Medicine.
2. ***Tennant, R.**, Randall, T. (2024). Human Performance and Perception of Uncertainty Visualizations in Geospatial Applications: Scoping Review. Under Review in IEEE Transactions on Visualization and Computer Graphics.

Refereed Conference Proceedings:

1. *Faisal, S., *Ivo, J., ***Tennant, R.**, *Prior, K. A., McMillan, C., Grindrod, K., & Patel, T. (2021). Implementation of a smart adherence technology intervention in community pharmacy settings: A qualitative study. Poster presentation – American College of Clinical Pharmacy Virtual Annual Meeting.
2. *Faisal, S., *Ivo, J., ***Tennant, R.**, *Prior, K. M., McMillan, C., Grindrod, K., & Patel, T. (2021). Integration of a smart adherence device by older adults with chronic diseases – An ethnographic study. Poster presentation – Virtual Annual Scientific Meeting of the American Geriatrics Society.
3. *Looi, T., ***Tennant, R.**, Constantiel-Collas, E., Pichardo, S., Waspe, A., Hynynen, K., & Drake, J. M. (2018). Pressure Characterization for Transcranial Sonication of a Neonatal Skull. Poster presentation – 18th International Symposium on Therapeutic Ultrasound.

Non-Refereed Conference Proceedings:

1. ***Tennant, R.**, *Leggett, A., *Smith, C., *Tan, L., Mercer, K., and Burns, C.M. (2020). Addressing human factor challenges in paediatric home care: development and evaluation of a mobile home care communication app. Proceedings of the 9th International Symposium on Human Factors and Ergonomics in Health Care. 9(1): 37-39. <https://doi.org/10.1177/2327857920091051>

Refereed Scientific Reports:

1. Randall, T., Hunter, A., & ***Tennant, R.** (2023). Evaluation of geospatial information integration for naval planning. *Defence Research and Development Canada*. DRDC-RDDC-2023-R138. https://cradpdf.drdc-rddc.gc.ca/PDFS/unc454/p817457_A1b.pdf

Technical and Consulting Reports:

1. ***Tennant, R.**, *Faisal, S., *Ivo, J., & Patel, T. (2020). Adherence Analysis and Other Challenges in Jones 28-Cavity eCard System Study. Technical Report for Jones Healthcare Group.

Patents and Copyrights:

1. ***Tennant, R.**, Di Bartolomeo, L., Strauss, B. H., Abuzeid, W., Ardeshiri, R., & Cibulski, G. Catheter Device for Lumen Re-Entry And Methods For Use Thereof. Patent Application. Canada. WO2019046976. 2018/09/11.
2. ***Tennant, R.** Mass Vaccination Clinic Mobile App. Registered Copyright. Year Issued: 2021. Canada. Filed July 1st, 2021. Awarded August 17th, 2021.
3. ***Tennant, R.** & Biomechanics and Injury Prevention Lab. Electronic Visual Analog Scale App. Unregistered Copyright. 2023.

Newspaper Publications:

1. Chittle, A. & ***Tennant, R.** Universities can lead the clean indoor air revolution. Waterloo Region Record. 11 July 2023. https://www.therecord.com/opinion/universities-can-lead-the-clean-indoor-air-revolution/article_bcfca1dc-17e9-599c-9b6c-1501e85eb0af.html

THESES / DISSERTATIONS

- 05/2021 Supporting Caregivers in Complex Home Care: Towards Designing a Voice User Interface
University of Waterloo
Master's Thesis. 202 pages.
Supervisors: Burns, C. M. & Mercer, K.

PRESENTATIONS TO SCHOLARLY GROUPS

Self-Initiated:

1. Cohen, R., *Sahu, G., *Hebert, L., ***Tennant, R.** Online Seminar-Based Small-Sized STEM Graduate Courses: A Novel Pathway to Engage Student Interest and Empower Tomorrow's Generation. (2024). Workshop – University of Waterloo Teaching and Learning Conference. Virtual.
2. ***Tennant, R.** Methods for Visualizing Uncertainty in Geospatial Data and their Impact on Human Performance: Preliminary Results of a Scoping Review. (2022). Podium presentation – The Technical Cooperation Program Human Research and Performance Joint Panel 2 Virtual Annual Meeting. Virtual.
3. ***Tennant, R.**, *Allana, S., Mercer, K., & Burns, C. M. (2021). Exploring Information Management and Health Communication in Complex Home Care: A Qualitative Study. Podium presentation – 2021 Inter-University Workshop. Virtual.
4. ***Tennant, R.**, *Leggett, A., *Smith, C., *Tan, L., Mercer, K., and Burns, C.M. (2020). Addressing human factor challenges in paediatric home care: development and evaluation of a mobile home care communication app. Podium presentation – 9th International Symposium on Human Factors and Ergonomics in Health Care. Virtual.
5. ***Tennant, R.**, *Leggett, A., *Smith, C., *Tan, L., Mercer, K., and Burns, C.M. (2020). A Comparative Task Analysis Between a Developed Mobile Health Communication App and Current Healthcare Tracking Tools for Families of Children with Medical Complexities who Receive Home Care Services. Poster presentation – 2020 Inter-University Workshop. University of Waterloo. Waterloo, Ontario.

OTHER PRESENTATIONS

Self-Initiated:

1. ***Tennant, R.**, Strauss, B. H., Abuzeid, W., Ardeshiri, R., & Cibulski, G. (2021). A novel re-entry catheter for angioplasty of coronary and peripheral chronic total occlusions. Podium presentation – The Canadian-Israel Cardiovascular Innovation Forum. Virtual.
2. ***Tennant, R.** (2020). Co-op Experiences in Biomedical Engineering. Podium presentation – University of Waterloo 1st Year Biomedical Engineering Student Cohort. Virtual.
3. ***Tennant, R.** (2020). A Mobile Communication App for Paediatric Home Care. Podium presentation – Johns Hopkins University Healthcare Design Competition. Virtual.

4. ***Tennant, R.**, *Leggett, A., *Smith, C., & *Tan, L. (2019). Stellar Care Mobile App. Podium presentation – Norman Esch Entrepreneurship Competition for Capstone Design. University of Waterloo. Waterloo, Ontario.

SERVICE

Faculty of Engineering:

09/2022 – Present	Graduate Student Representative	Engineering Faculty Council
09/2022	Graduate Panel Representative	Canadian Graduate Engineering Consortium
06/2022	Graduate Panel Representative	Virtual Engineering Graduate Student Panel
01/2020 – 04/2022	Engineering Student Representative	Graduate Student Endowment Fund
08/2015 – 09/2015	Engineering Orientation Leader	Undergraduate Engineering Society

Department of Systems Design Engineering:

11/2022	Graduate Panel Representative	3rd Year Biomedical Engineering Cohort
01/2022 – 04/2022	Co-op Student Co-Supervisor	Advanced Interface Design Lab
09/2020 – 02/2021	Undergraduate Student Mentor	1st Year Biomedical Engineering Cohort

Anonymous Student Feedback:

“I just wanted to take a minute to sincerely thank you again for all the advice you gave me a couple weeks ago about applying for co-ops. I actually got matched for a job yesterday, and I’m certain that it was largely in part to the descriptive feedback you gave me on my resume.”

Human Factors and Ergonomics Society:

01/2022 – 12/2023	Student Chapter President	University of Waterloo Student Chapter
01/2021 – 12/2021	Student Chapter Vice-President	University of Waterloo Student Chapter
10/2020	Social Media Communications	64 th International Annual Meeting
05/2020	Session Chair	9 th International Symposium on Human Factors and Ergonomics in Healthcare

Community:

03/2024 – Present	Website and Research Volunteer	COVID-19 Resources Canada Canada
09/2023 – Present	Spokesperson, Volunteer	Ontario School Safety Ontario, Canada
09/2017 – 08/2022	Fundamentals Skating Leader	KW Sertoma Speed Skating Club, Kitchener- Waterloo, Ontario
04/2021 – 08/2021	Vaccine Clinic Volunteer	The Centre for Family Medicine,

		Kitchener, Ontario
12/2018 – 05/2019	Congregate Dining Volunteer	Community Care Concepts, Woolwich- Wellesley- Wilmot, Ontario
01/2013 – 07/2014	Hospital Greeter/Porter	Grand River Hospital Corporation-Freeport, Kitchener, Ontario
10/2008 – 03/2014	Hockey Fundamentals Instructor	Kitchener’s Fundamentals Hockey School, Kitchener, Ontario

AREAS OF TEACHING EXPERTISE

Engineering Design:

Teaching Assistant (Full) for Dr. Jennifer Howcroft 09/2023 – 12/2023
BME 362: Biomedical Engineering Design Workshop 1, Department of Systems Design Engineering

- Provided quality-based feedback on the grading of group assignments and design presentations.
- Supported student design teams during office hours to discuss project scope and direction.
- Facilitated two workshops for 90 students on the FDA PMA and 510(k) regulatory pathways.

Teaching Assistant (Full) for Dr. Jennifer Howcroft 09/2022 – 12/2022
BME 362: Biomedical Engineering Design Workshop 1, Department of Systems Design Engineering

- Provided quality-based feedback on the grading of group assignments and design presentations.
- Supported student design teams during office hours to discuss project scope and direction.
- Facilitated two workshops for 90 students on the FDA PMA and 510(k) regulatory pathways.

Teaching Assistant (Full) for Dr. Matthew Borland 05/2021 – 08/2022
SYDE 361: Engineering Design, Department of Systems Design Engineering

- Provided quality-based feeding on the grading of essay-style written assignments.
- Led engineering design project critique sessions with 10 design teams to support prototype development and evaluation.

Teaching Assistant (Full) for Dr. Jennifer Howcroft 09/2020 – 12/2020
BME 161: Introduction to Biomedical Design, Department of Systems Design Engineering

- Provided support for 10 design teams through weekly meetings to discuss deliverables and support student achievement in a virtual learning environment.
- Supported students beyond the course content to help with transitioning to university virtually.
- Informed that I was nominated for a Teaching Assistant award.

Anonymous Student Feedback:

“Not technically a team member but Ryan is really great at TA meetings. Always really friendly and provides very helpful feedback.”

“Also Ryan Tennant is a godsend; he is very kind, insightful, and helpful. You can tell that he cares. He’s even helping us out outside the scope of this course (e.g. coop info).”

Human Factors Engineering:

Teaching Assistant (Full) for Dr. Jennifer Howcroft 01/2023 – 04/2023
BME 162: Human Factors in Biomedical Engineering, Department of Systems Design Engineering

- Providing quality-based feedback on the grading of written group assignments and examinations to a class of 100 students.

- Facilitated case study workshops on signal detection theory.
- Designed and facilitated a new workshop on link analysis in the context of mass vaccination clinics.

Anonymous Student Feedback:

“The presentation was very appealing and well designed. I like that there were aspects that catered to everyone’s learning style i.e. the embedded video, hands on work, collaborative discussion, etc.”

“It was very engaging and the PowerPoint was very well done and informative. The activity for the link analysis was effective as well and the desk handout was made very nicely.”

“You were interesting to listen to, and clear to understand.”

Instructor Evaluation: Excellent

“Ryan is an exemplary TA. He can always be counted on to complete his tasks on time to a high quality. He ran a few tutorials this semester, and he did an excellent job. Of particular note, he created a task analysis tutorial based on his own research.”

Teaching Assistant (Full) for Dr. Jennifer Howcroft 02/2022 – 04/2022
BME 162: Human Factors in Biomedical Engineering, Department of Systems Design Engineering

- Provided quality-based feedback on the grading of written assignments and examinations.

Teaching Assistant (Full) for Dr. Jennifer Howcroft 05/2020 – 08/2020
SYDE 162: Human Factors in Design, Department of Systems Design Engineering

- Provided quality-based feedback on the grading of written assignments and examinations.

Chemistry Principles:

Teaching Assistant (Full) for Dr. Nima Khadem Mohtaram 01/2021 – 04/2021
BME 186: Chemistry Principles, Department of Systems Design Engineering

- Led the creation of updated assignments and solution manuals that include real-world applications of chemistry principles in biomedical engineering.
- Created a midterm study package to provide students with supplementary practice questions.
- Coordinated the creation of the midterm exam and solution manual with the teaching team.
- Led bi-weekly tutorials on solving application questions about fundamental chemistry principles.

Teaching Assistant (Full) for Dr. Nima Khadem Mohtaram 01/2020 – 04/2020
BME 186: Chemistry Principles, Department of Systems Design Engineering

- Provided quality-based feedback on the grading of written assignments and examinations.
- Reviewed assignment question solutions with students in office hours to support learning.

Other Guest Lectures:

Unraveling the Power and Perils of Large Language Models 11/2023
Course: BME/SYDE 101 – Engineering Communications: Written & Oral, Systems Design Engineering
Instructor: Dr. Kate Mercer

- Employing the BOPPPS model for effective interactive lesson planning, I instructed four 1.5h workshops about generative AI. Students learned about the basics of large language models and how they work, they critiqued the potential benefits, drawbacks, and ethical concerns of LLMs for different applications, and they learned how to generate prompts to interact with LLMs for different tasks.

Qualitative Coding in Engineering Design Research 01/2022
Course: SYDE 548 – User Centred Design Methods, Systems Design Engineering
Instructor: Dr. Carolyn MacGregor

- Presented the application of qualitative coding in engineering research done in mass vaccination clinics, the importance of qualitative methods in systems design modelling, and how to systematically apply user feedback to improve prototype designs.

COURSES AND CERTIFICATES

Ongoing	Certificate in University Teaching (Certificate)	Centre for Teaching Excellence, University of Waterloo
11/2022	2SLGBTQ+ Fundamentals	Office of Equity, Diversity, Inclusion & Anti-racism, University of Waterloo
10/2022	Disrupting and Decentering Whiteness	Office of Equity, Diversity, Inclusion & Anti-racism, University of Waterloo
09/2022	Fundamentals of University Teaching (Certificate)	Centre for Teaching Excellence, University of Waterloo
11/2021	Getting Ready to Facilitate Online Courses (Certificate)	Centre for Extended Learning, University of Waterloo
10/2021	Blended Learning for TAs	Centre for Teaching Excellence, University of Waterloo
10/2021	Effective Lesson Plans	Centre for Teaching Excellence, University of Waterloo
09/2021	Introduction to Equity	Office of Equity, Diversity, Inclusion & Anti-racism, University of Waterloo
09/2021	Special Topics in Teaching: 1. Self-Confidence in Mathematics 2. Self-Efficacy Among Women in STEM Courses	Centre for Teaching Excellence, University of Waterloo
08/2021	Shaping Classroom Dynamics	Centre for Teaching Excellence, University of Waterloo
05/2021	Building TA-Instructor Rapport	Centre for Teaching Excellence, University of Waterloo
03/2021	Teaching Practices to Cultivate Well-Being and Compassion	Centre for Teaching Excellence, University of Waterloo
09/2020	TA Facilitation in a Remote Teaching Environment	Centre for Teaching Excellence, University of Waterloo
09/2020	Academic Integrity for TAs	Centre for Teaching Excellence, University of Waterloo
10/2019	Interactive Lectures	Centre for Teaching Excellence, University of Waterloo
09/2019	Teaching Tutorials in STEM Fields	Centre for Teaching Excellence, University of Waterloo

CURRENT RESEARCH INTERESTS

- Human Factors; Human Factors Engineering; Cognitive Work Analysis
- Interface Design for Complex and Collaborative Information Systems; Mobile App Development
- Clinical Engineering for Home Care Technologies
- Human Interaction with Machine Learning; Clinical Prediction Technologies for Paediatric Sepsis