

Rachel Tyli | Toronto, Ontario | rachel.tyli@utoronto.ca | 647-802-9409**EDUCATION**

Sep 2021 – Present	Laboratory Medicine and Pathobiology, PhD , Temerty Faculty of Medicine, University of Toronto, Ontario Supervisor: Dr. James Scott Committee: Dr. Allison McGeer, Dr. Tracy Kirkham and Mr. Paul Bozek
Sep 2014 – May 2019	Honours Co-op Mechanical Engineering, BASc , University of Waterloo, Ontario

AWARDS AND DISTINCTIONS

- **NSERC Post Graduate Fellowship (Doctoral)** (starting Jan 2025) – (\$120,000; \$40,000/year for three years)
- **Institute for Pandemic Studentship 2024/2025 (\$10,000)**
- **Massey College Junior Fellow (2022 – Present)**
 - Governance Committees:
 - Lionel Massey Fund Co-Chair, Treasurer (2024 – Present) – elected 1-year term
 - Quarter Century Fund Co-Chair (2024 – Present) – elected 2-year term
 - Equity & Inclusivity Secretariat (2024 – Present)
 - Accessibility Co-Chair – elected 1 year term
 - Anti-Racism Co-Chair – elected 1 year term
 - Massey Grand Rounds Co-Chair (2025 – Present) – appointed 2 year term
 - Moira Whelan Award (\$250)
 - Evelyn Catherall scholarship (\$992)
 - Lochead Bursary (\$1000)
 - Massey College Junior Fellow Bursary (\$900)
- **Best Poster at Laboratory Medicine and Pathobiology Research Day, Infectious Disease, Inflammation and Immunology**, Temerty Faculty of Medicine, Department of Laboratory Medicine and Pathobiology (\$100)
- **University of Toronto Fellowship - Laboratory Medicine and Pathobiology**, Temerty Faculty of Medicine, Department of Laboratory Medicine and Pathobiology Fellowship offered to first-year graduate students in LMP (\$3000)
- **Mitacs-JSPS Summer Fellowship** (deferred due to COVID-19), Mitacs, Spring 2021 Fellowship offered in partnership with the Japan Society for the Promotion of Science (JSPS). Fellowship is for metallurgy research at the University of Hiroshima (\$5340 plus living and travel expenses).
- **Design Award for Sustainability (Capstone Project)**, May 2019, Scholarship for most sustainable design during the Mechanical Engineering Capstone Symposium for the graduating class of 2019 at the University of Waterloo (\$1200).
- **NSERC: Experience Award**, NSERC, May 2018 – Aug 2018 Baylis Medical Company, Mississauga, Ontario (\$4500).
- **NSERC: Experience Award**, NSERC, Sep 2017 – Dec 2018 Baylis Medical Company, Mississauga, Ontario (\$4500).
- **NSERC: Experience Award**, NSERC, May 2016 – Aug 2016

NeuRecall (Syngli) Inc., Waterloo, Ontario (**\$4500**).

- **Walterfedy Entrance Scholarship**, University of Waterloo, Sep 2015 – Dec 2015
Scholarship for excellence in extra-curricular activities (**\$1500**).

RESEARCH AWARDS

Grants Held

1. PI: TL Kirkham
Co-I(s): JA Scott, P Bozek, **R Tyli**
Agency: Ministry of Labour, Immigration, Training and Skills Development
Program: Research Opportunities Program
Title: Pilot investigation of the Singh Thattha technique among Sikh men
Amount: \$377,762
Status: In Progress (Jun 2024- Present)
2. PI: SC Wang
Co-I(s): T Nasser, **R Tyli**
Agency: Eczema Society of Canada
Program: Competitive Research Grant Program
Title: Equitable Assessment of Atopic Dermatitis: Thermal Imaging for Skin of Colour
Amount: \$24,868.65
Status: In Progress (Nov 2025- Present)

PUBLICATIONS & PRESENTATIONS

Refereed Publications

- Chan E*, Ramsay K*, **Tyli R***, Geng RSQ, Nasser T, Piguet V, Fraser RDJ, Wang SC. Artificial intelligence-based alopecia assessment: A proof of concept for enhancing accuracy and objectivity in hair loss measurement. *JAAD Case Rep.* 2025 Oct 9;66:131-133. doi: 10.1016/j.jdcr.2025.09.023. PMID: 41550312; PMCID: PMC12805230. (*Co-First Authorship)
- Anders RO*, **Tyli R***, Capistran E, Guardiola YG, Bassi G, D'Arpino T, Scott JA, Mazzuli T. 2025. Worker risk from ultrasonicator aerosolization in medical device reprocessing, a particulate and bio-burden approach. *Journal of Hospital Infection* DOI: 10.1016/j.jhin.2025.01.012 (in press). (Co-First Authorship)
- Christie-Holmes N, **Tyli R**, Budylowski P, Guvenc F, Weiner A, Poon B, Speck M, Naugler S, Rainville A, Ghalami A, McCaw S, Hayes S, Mubareka S, Gray-Owen SD, Rotstein OD, Kandel RA, Scott JA. 2021. Vapourized hydrogen peroxide decontamination in a hospital setting inactivates SARS-CoV-2 and HCoV-229E without compromising filtration efficiency of unexpired N95 respirators. *American Journal of Infection Control.* doi: 10.1016/j.ajic.2021.07.012.
- Blom, K, Iancu, A, **Tyli, R**, Tai, M and Lee, K-S. *Assessing the Effect of E-Learning on Perineal Repair Knowledge and Skill Acquisition.* 2022. Peer Reviewed reports in Medical Education Research. doi: 10.22454/PRiMER.2022.425794.

Non-Refereed Publications

- Kirkham T, Demers PA, White PA, Stieb D, Jardine K, Lieu, **Tyli R.** Report Release: Firefighter Cancer Research Priorities Workshop. 2024. Occupational Cancer Research Centre and Health Canada.

Oral Conference Presentations (* presenting author)

- **Tyli R***, Bozek P, Scott JA, MacDonald C, Kirkham TL. Comparing Respirator Fit Among Ontario Male and Female Emergency Service Workers. Canadian Association for Research on Work and Health (CARWH). Ottawa, Ontario, June 4, 2025. Oral Presentation.
- **Tyli R***, Bozek P, McGeer A, Scott JA, MacDonald C, Kirkham TL. **Evaluating Respirator Fit in Ontario Emergency Service Workers.** Institute for Pandemics Symposium. Toronto, Ontario, May 13, 2025. Oral 3MT Presentation.
- Mathur V*, **Tyli R**, Stopps H, Li T. *Assessing Inter-Sensor Variability and Calibration of Low-Cost IAQ Sensors through Co-location with reference devices.* IBPSA (International Building Performance Simulation Association) Building Simulation Conference. Brisbane, Australia, Aug 2025
- **Tyli R***, Anders R, Capistran E, Guardiola YG, D'Arpino T, Bassi G*, Scott JA, Mazzuli T. *Worker risk from ultrasonic aerosolization in medical device reprocessing, a particulate and bio-burden approach.* Science of Care Institute: Quality and Safety Symposium. Toronto, ON, Sep 2024.
- **Tyli R***, Anders R, Capistran E, Guardiola YG, D'Arpino T, Bassi G*, Scott JA, Mazzuli T. *Worker risk from ultrasonic aerosolization in medical device reprocessing, a particulate and bio-burden approach.* Science of Care Institute: Quality and Safety Symposium. Toronto, ON, Sep 2024.
- Dussault M-M, Kang K, Zhan A, and **Tyli R***. *Source Emissions from a Consumer Iron and Steamer* (conference proceeding). Indoor Air Quality 2024. Honolulu, Hawaii, July 2024.
- **Tyli R***. *Make it Or Break It: Occupational Health Edition.* Junior Fellow Lecture Series: Massey College. Toronto, ON, Jan 2024.
- **Tyli R***, Anders R*, Capistran E, Guardiola YG, D'Arpino T, Bassi G, Scott JA, Mazzuli T. *Worker risk from ultrasonic aerosolization in medical device reprocessing.* Science of Care Institute: Quality and Safety Symposium. Toronto, ON, Oct 2023.
- **Tyli R***, Bozek P, McGeer A, Kirkham TL, Scott JA. *Validation of Respirator Fit for Paramedics.* Seminar for Laboratory Medicine and Pathobiology. Toronto, ON, Jan 2023. (*presenting author)
- **Tyli R**, Kirkham TL. *System for analyzing 3D scanned faces for respirator fit of face filtering respirators.* Ontario Health Research Week. Nov 28-Dec 1, 2022, virtual conference. Elevator pitch (poster and short oral presentation).
- Blom K*, Iancu A, **Tyli, R**, Tai M and Lee K-S. The development of E-learning module for family medicine residents in surgical repairs of perineal tears 2018-2019; family medicine and obstetrics and gynecology at Michael Garron Hospital. Convergence 2021 Healthcare Education Conference (The Michener Institute of Education at UHN), Toronto, ON, Feb 2021.

Invited Talks (* presenting author)

- **Tyli R***, Bozek P, McGeer A, Scott JA, MacDonald C, Kirkham TL*. **Study Update on Respirator Fit Test Study.** Joint First Responder S. 21 Committee Meeting. Richmond Hill, Ontario, June 8, 2025. Oral Presentation.
- **Tyli R***, Kirkham TL (2024), Validation of Respirator Fit for Emergency Service Workers, Paramedic Services Section 21 Committee. Section 21. Markham, ON, Nov 2024.
- **Tyli R***, Kirkham TL. Validation of Respirator Fit for Emergency Service Workers, CFNU discussion on pandemic preparedness. Canadian Federation of Nurses Union. Online, December 2024.
- Kirkham TL, **Tyli R***. *Validation of respirator fit testing for emergency workers during simulated life support tasks.* CUPE Ambulance Committee of Ontario Conference. Toronto, ON, Sep 2022.

Panels and Moderator Events

- Moderator, Panel Discussion: “Innovations in Healthcare: Translating Clinical Research into Practical Implementation”, Massey College Grand Rounds (with Massey Venture Society and Women in Leadership), University of Toronto, Toronto, Canada, February 2026.
- Invited Panelist, “Healthcare Barriers for People with Disabilities” Massey Dialogues featuring David Lepofsky, Massey College, University of Toronto, Toronto, Canada (January 2026).

Poster Presentations (* presenting author)

- Chan E, Ramsay K, **Tyli R**, Nasseri T, Geng R, Piguet V, Fraser RDJ, Wang SC. AI-Based Alopecia Assessment: Enhancing Accuracy, Reliability, and Objectivity in Hair Loss Measurement. European Association of Dermatology and Venereology Congress. Paris, France. Poster Presentation.
- Nasseri T*, **Tyli R**, Goldstone L, Mohammed HT, Fraser RDJ, Allport J, Wang SC. Advancing Equitable Wound Care: AI-Powered Predictive Algorithm for Diverse Populations. Canadian Dermatology Association Conference. Halifax, Nova Scotia. Poster Presentation.
- **Tyli R***, Bozek P, McGeer A, Scott JA, MacDonald C, Kirkham TL. **Sex Differences in Respirator Fit of N95 Respirators.** Laboratory Medicine & Pathobiology Research Conference. Toronto, Ontario, April 17, 2025. Poster Presentation.
- Chan E, Ramsey K, Soltaninejad, N, Bondoc C, Chan A and Wang SC (2025), Collaborative Healing Through AI-Driven Wound Care, April 2025. Women’s College Hospital | Healthcare Revolutionized. Quality Improvement. Toronto, Ontario, April 2025.
- **Tyli R***, Anders R, Bassi G, Mazzulli T, Scott JA. (2024), A Pilot Study, Aerosol Formation in Medical Device Reprocessing, July 2024. Indoor Air Quality 2024, Honolulu, Hawaii, July 2024 (2 page abstract).
- **Tyli R***, Bozek P, McGeer A, Scott JA, Kirkham TL. (2024), Validation of Respirator Fit for Ontario Paramedics and Firefighters, Apr 2024. Institute for Pandemics, University of Toronto, Apr 2024 (PhD Thesis work, institutional conference)
- **Tyli R***, Bozek P, Scott JA, Kirkham TL. (2022), System for Analyzing 3D Scanned Faces for Respirator Fit of Face Filtering Respirators (FFRs). Canadian Association for Research on Work and Health (CARWH) Online, Sep 2022.

- **Tyli R***, Parkinson D, Bodley M, Rada Rojas D.J., Rizvi S, Mohan K, Frank H, Simeonov D, Kilian R, Richardson D, Urch B and Scott JA. (2021) Design and Testing of Reusable Open-Source Equipment (ROSE) ASTM Level 1 Medical Facemask. Laboratory Medicine and Pathobiology Research Conference. (Research Technician Work, institutional conference), May 2021. **Award for best poster.**
- Braff A*, Ahn S*, Quinn M*, Stienstra N*, **Tyli R***, and Fraser R. *Elevated Thermal Imaging for Agriculture*. University of Waterloo 2019 Mechanical Engineering Capstone Symposium, Waterloo, ON, May 2019. (*presenting author were equal in research project)

Press and Editorial Recognition

- **CBC Marketplace**. *Counterfeit N95 and KN95 respirators* (April 2021) with Dr. James Scott (Contribution: testing of masks from CBC, consulting producers on content, and demo testing of the filtration efficiency set up).
 - This episode examined the filtration efficiency claims of consumer N95-style masks during the COVID-19 pandemic. Despite widespread use, the results varied greatly among tested batches. The labeling and symbols were insufficient indicators of filtration quality. The episode educated the Canadian public on filtration testing and standards. Consequently, retailers like Walmart removed low-efficiency masks from their inventory.
- **CBC Marketplace**. *Consumer market face masks* (November 2020) with Dr. James Scott (Contribution: experimental testing of masks from CBC, demo of testing set up filtration efficiency set up with filmed explanation and consulting producers on content)
 - This episode and article received widespread feedback from the public and as of writing this, has **1.8M views** on YouTube. The impact of this episode is the education and knowledge translation of how face masks protect wearers. It also highlights masks to avoid (e.g., gaiters, one-way exhalation valve masks, etc.) to better protect mask wearers and others around them. Prior to this episode, there were few trusted and accessible forms of media that the public could reach to understand the quality of protection from different mask materials.

RESEARCH EXPERIENCE

Founder

STATMask Project, Toronto, ON

March 2020 - Present

- The STATMask Project is a non-profit humanitarian grassroots organization of engineers academics and physicians that aimed to develop and test alternative masks.
- Our goal was to publish results as alternatives to N95 respirators with a prototype using common hospital items: an anesthesia mask, in-line ventilation anesthesia filter, and hook ring, assembled quickly. After testing masks and filters for worker safety, we developed cleaning protocols to reduce waste and meet infection protection and control standards.
- My doctoral research extends this project, testing various prototypes with my team and co-founders on a volunteer basis. We sought advice from local hospitals, researchers, and experts, and pitched the core ideas to potential backers for support. I designed and executed prototype testing and continue to gather essential data for viability, focusing on total inward leakage.

Research Consultant

Feb 2021 – May 2023

ROSE (Reusable Open-Source Equipment) Project, Toronto, ON

- Lead tutorial lessons for students on general mechanical design
- The ROSE project is a volunteer initiative that aims to create an open source design for an economic reusable ASTM Level I medical mask for health care workers. The mask material had to be commonly sourced – thereby excluding more expensive engineered polypropylenes and fabrics
- In my role as a consulting scientist, I performed literature review on cloth and home-made masks for general public-use.
- I conducted testing on filtration efficiency and pressure differential for over 20 different combination of mask material.
- We are currently developing new protocols for cleaning, disinfecting and reusing mask. We have found a material that has passed all ASTM Level I test and are currently writing a manuscript for dissemination of results.

University of Toronto (Gage Aerosol Testing Lab) Representative Jan 2021 – Present

National Research Council – Canadian Personal Protective Equipment Lab Network

- Because of the lack of Canadian proficiency testing for filtration efficiency and other characterization of medical facemasks, the National Research Council (NRC) created a network to address this.
- On the committee we meet monthly to discuss general updates of the subgroups. I am currently a participant of 2 subgroups: (1) Interlaboratory Comparison (ILC) Laboratory Testing Subgroup and (2) Shelf Life Testing Subgroup.
- In the ILC Testing subgroup, I have run interlaboratory testing on two filtration efficiency systems and the data will disseminated by NRC in a report format.
- Within the Shelf-Life Testing subgroup, which has just started this year, I am responsible for researching and writing testing methods for the participating labs.

University of Toronto (Gage Aerosol Testing Lab) Representative Feb 2021 – Feb 2023

ASTM (American Society for Testing and Materials) International F23 Committee Meeting

- On this committee, we have successfully developed and voted for the ASTM F3502 Standard for Face Barrier Coverings.
- Currently, we are working towards revising ASTM F2100 to use a filtration efficiency method that is based on the National Institute of Safety and Health's (NIOSH) filtration efficiency test. This transition began because the NIOSH test mimics more realistic conditions of exposure than the current ASTM standard.
- I am a representative of the Gage Aerosol Testing Lab for the University of Toronto. I have conducted and participated in multiple interlaboratory comparisons for this committee.

Research Technician

Apr 2020 – Aug 2021

Division of Occupational and Environmental Health Dalla Lana School of Public Health, University of Toronto, Toronto, ON

- Supervisors: Prof. James Scott

- Worked with supervisors, instrumental in setting up new facility (Gage Aerosol Testing Lab) for face mask efficiency testing in response to the COVID-19 crisis.
- Wrote and developed laboratory Standard Operating Procedures (SOPs) for mask testing and other equipment, guidance documents and forms used in the Facility specific to quality management system for ISO 17:025 (Testing and Calibration Laboratories) accreditation.
- Responsible for daily operation and maintenance of the facility including face mask testing, data calculations and summary reports.
- Supervised five students of graduate and undergraduate level. Trained students to operate aerosol testing equipment and advised on their independent research projects.
- Performed literature review on cloth and home-made masks for general public-use in partnership with Reusable Open-Source Equipment (ROSE) Project and the University Health Network.

R&D Engineering Associate

May 2018 – Aug 2018

Baylis Medical Company, Mississauga, ON

- Composed and executed testing methods to ensure product was within specifications, which included conducting and development of Design of Experiments (DOE).
- Investigated possible material deformities in 304 Stainless Steel in new guidewire curving processes using Instron pull tests, VHX microscopes and ISO testing methods.
- Created detailed design drawings with proper geometric dimensioning and tolerancing as per ASME Y 14.5 standard with Solidworks.
- Performed mechanical and statistical analysis (e.g., gap tolerancing for dimensions, design of experiments) in product design.

Research Engineer for Masks for Covid

May 2020 – Sep 2020

Masks for Covid, Toronto, ON

- Supervisors: Dr. Brian Courtney, Dr. Brian Li and Alan Soong.
- Volunteer project for the development of retrofit off-the shelf, snorkel mask as personal protective equipment for healthcare workers at Sunnybrook Hospital.
- Completed quality engineering tasks such as experiment design, execution, and reporting.
- Development of manufacturing processes and manufacturing instruction sheets.
- Responsible for all documentation with respect to regulatory affairs and systems testing.

Elevated Thermal Imaging for Agriculture (Capstone Project)

Jan 2019 – May 2019

University of Waterloo, Waterloo, ON

- Supervisor: Prof. Roydon Fraser at University of Waterloo, Department of Mechanical and Mechatronics Engineering.
- Utilized Planck's law and different optical and pass filters to improve temperature accuracy of existing industrial thermal imaging cellular camera (Caterpillar S60).
- Applied radiation/heat transfer theory to design filters by using MATLAB models.
- Awarded the Design Award for Sustainability (\$1200 from the University of Waterloo).

Watfly Thermal Team Lead

Jan 2019 – Apr 2019

University of Waterloo, Waterloo, ON

- Designed a thermal battery cooling system for unmanned aircraft vehicle.
- Developed conductive heat sinks and convective heat flow solutions using thermal simulations.
- Designed and conducted experiments to gather data on battery cooling capabilities and thermal processes of the battery.

Movement Imitator for Lab Mice

May 2016

McMaster University, Hamilton, ON

- Supervisor: Prof. Howard Chan. at Department of Medicine (Hematology and Thromboembolism), McMaster University,
- Used Solidworks to prototype autonomous machine for a medical thrombosis lab.
- Prototyped and manufactured rat exercise device including stepper motors and controller to simulate long term and strenuous exercise of a rat's foreleg.

TEACHING EXPERIENCE

Teaching Assistant

Jan 2022 – Apr 2022

Toronto Metropolitan University

- Course: OHS 421 Occupational Hygiene I
- Developed and marked course material including creating assignment, midterms, and finals

Graduate Teaching Assistant

Sep 2019 – Aug 2020

University of Waterloo, Waterloo, ON

- Assisted teaching undergraduate courses at the University of Waterloo including marking, leading tutorials and exam prep sessions.
- Courses taught:
 - MTE111 (Structure and Properties of Materials for Mechatronics Engineering Students) – First Year Course
 - Taught weekly in-person tutorials.
 - Led different labs to demonstrate materials engineering principles like tensile strength, Brinell hardness and Charpy impact test.
 - Marked exams, midterms and tutorial exercises.
 - ME538 (Welding Design, Fabrication and Control) – Fourth Year Course
 - Marked assignments and tutorials.
 - Held in person TA office hours.
 - Assisted in labs on welding quality control and quality assurance methods at the University of Waterloo and Conestoga College. This includes weld measurement, non-destructive testing.
 - ME435 (Industrial Metallurgy) – Fourth Year Course
 - Assisted in outline course material, syllabus and course research project.
 - Guest lectured virtually for one session on welding in research and sensing technologies.

Waterloo Engineering Endowment Fund Teaching Assistant

Sep 2015 – Dec 2015

University of Waterloo, Waterloo, ON

- Gained teaching-level proficiency of SolidWorks and AutoCAD.
- Taught proper geometric and tolerancing, and engineering design concepts.
- Demonstrated excellent verbal communication and presentation skills through mentoring and supervising over 60 students.
- Lead tutorial lessons for students on general mechanical design.
- Courses taught:
 - ME100 (Introduction to Mechanical Engineering)
 - MATH116 (Calculus for First Year Engineers)
 - PHYS115 (Physics for First Year Engineers)

OTHER SERVICE ACTIVITIES

Massey College Junior Fellow

Sep 2021 - Present

Massey College, ON

- Junior Fellows are postgraduate students “of distinguished ability” at the University of Toronto and election to Junior Fellowship is based on academic achievement, scholarship and honours, and community engagement outside academia.
- Elected Governance Committees:
 - Lionel Massey Fund Co-Chair/Treasurer (2024 – Present) – elected 1-year term
 - The LMF promotes social, cultural, and intellectual life within the College, and organises a wide variety of activities. We provide financial support for other committees and supplements the costs of events at Massey College
 - Responsible as treasurer for managing and overseeing the financial affairs and transactions of the fund.
 - Equity & Inclusivity Secretariat Accessibility Co-Chair and Anti-Racism Co-Chair (2024 – Present) - elected 1 year term
 - Quarter Century Fund Co-Chair (2024 – Present) – elected 1 year term
- Organized multiple events at Massey College including the following:

Pathways Volunteer Tutor

Jan 2022 – May 2022

Regent Park Health Centre, ON

- 2 hours of one-on-one tutoring for grade 10-12 physics, chemistry and math for the Regent Park Pathways program.

≤

Student Chapter Organizer

Oct 2022 – Present

Canadian Association of Aerosol Researchers (CAAR)

- In 2022, the Canadian Association of Aerosol Researchers was formed consisting of Canadian researchers studying aerosols in engineering & natural sciences.
- Responsible for starting the first newsletter, student-led conference, and career workshop.

Saturday Program – Volunteer Tutor

Jan 2022 – May 2022

University of Toronto, Toronto, ON

- 4 hours of one-on-one tutoring per week for 10 weeks for subjects including science, computer programming, social studies, math, and English.

Graduate and Life Science Education Mentor Jan 2022 – May 2022
University of Toronto, Toronto, ON

- Mentoring of 4 undergraduate students in a life/health sciences program to introduce them to careers in research
- Providing online shadowing time and mentorship. Shadowing time occurs in the month of February for 1-3 days per a student depending on interest.

Sexual Violence Advocacy Volunteer Apr 2017 – May 2019
University of Waterloo, Waterloo, ON

- Advocated for more sexual violence awareness and immediate action for victims of sexual violence to Policy 42 (Prevention of and Response to Sexual Violence) Committee for the 2019 revision.
- Worked with Federation of Students (FeDS) to raise awareness of consent culture, aftermath of sexual assault and educating the student community on sexual violence.
- Volunteering as student panelist and other initiatives to promote sexual violence advocacy and destigmatise conversations about sexual violence in a safe space

Violinist Sep 2013 - Apr 2017
Rose Orchestra, Brampton, ON

- First Violinist who played in four seasons with five concerts per season.

OTHER EMPLOYMENT

Quality Engineering Associate Sep 2017 – Dec 2017
Baylis Medical Company, Mississauga, ON

- Used manufacturing statistical methods to analyze quality issues in the manufacturing line (i.e., Pareto chart, Taguchi method, Design of Experiments, ANOVA analysis and Ishikawa diagrams).
- Investigated corrective and preventative actions (CAPAs) and non-conformance reports (NCRs) including interviewing operators, reviewing processes, and presenting findings to the investigation team.
- Coordinated tools team, metrologist and quality inspectors to ensure that measurement procedures and tools were suitable for quality inspection of incoming inventory.

Mechanical Engineering Intern (Medical Robotics Division) Jan 2017 – Apr 2017
MDA Corporation (Maxar Technologies), Brampton, ON

- Collaborated on manufacturing and design of a 6-axis neurosurgical surgical robot.
- Designed test fixtures and custom parts for assembly of robot with NX CAD software. Reduced touch-time of manufacturing by 2 hours per robotic arm.
- Wrote Manufacturing Instruction Sheets, design specifications, drawings and other technical documents for business processes and new manufacturing solutions for Quality Assurance/Quality Control.

Project Engineering Co-op May 2016 – Oct 2016

NeuRecall, Inc (Syngli), Waterloo, ON

- Drafted provisional patents under United States Patent Trademark Office.
- Prototyped a 3D printed Brain Computer Interface with passive dry electrodes.
- Created simulations for ray-tracing and geometric optics in MATLAB.

Systems Test Engineer Jan 2015 – Apr 2015

Synaptive Medical, Toronto, ON

- Designed and executed tests to identify software bugs with proper documentation.
- Documented testing and data collection for approval processes by formal bodies (including FDA, Health Canada and ISO).
- Used Coordinate Measuring Machine (FaroArm) to collect positional data and test accuracy of Surgical Navigation Software and stereotactic surgical tools.

Mechanical Engineering Intern Apr 2014- Sep 2014

Echologics Inc (A Division of Mueller), Mississauga, ON

- Built prototypes Computer-Aided Design (CAD) models and prints.
- Conducted quality control checks for customers and field operators.
- Repaired leak detection modules and acoustic sensors for customers and operators.