

Education & Certifications

- **MSC Physics, University of Ottawa, awaiting graduation**
 - Design and construction of free-space optics experiments for quantum communications.
 - Studying, writing, and presenting scientific research in the field of quantum cryptography.
 - Experience working with standard and niche optics equipment – lasers, waveplates, EOMs, adaptive optics, spatial light modulators.
 - Management of multiple projects at a time, both individual and collaborative.
 - Conducted lab tours for fellow researchers, politicians, and industry partners.
- **B Eng. Engineering Physics with COOP, McMaster University, 2022**
 - Course work: optics, laser physics, quantum information, quantum computation, control systems, circuit design, programming microcontrollers, data acquisition and analysis.
 - 12 months of systems engineering industry experience through coop program.
- **Certified LabVIEW Associate Developer (CLAD) (2018-2020)**
- **Delf B2 French**

Skills & Abilities

- 5+ years of experience with system automation and test using LabVIEW 20xx, NXG, FPGA, cRIO
- Experience with programming and physics simulation in Python, MatLAB, and more.
- Experience with written and spoken scientific communication and documentation for technical and non-technical audiences.
- Ability to independently prioritize work responsibilities and accomplish goals within deadlines.

Work Experience

- **CBIT Engineering, Systems Engineer** 2018-2024
 - Developed, documented, and patented algorithms for in-situ nerve mapping during minimally invasive orthopedic and neuro-surgical devices using accelerometers and bio-electrical stimulus.
 - Designed, built, and deployed automated end of line test equipment in electronic manufacturing environments.
 - Studied NI's LabVIEW Core, Advanced, and FPGA courses. Passed NI's CLAD test.
- **Dialco Medical Inc, Engineering Testing Intern** May-August 2021
 - Understood and translated electrical standards given by IEC and ISO for medical devices to non-technical co-workers.
 - Created automated tests of custom dialysis hardware to ensure proper performance within IEC and ISO specification.
- **University of Ottawa, Research Assistant Coop** May 2020-July 2021
 - Developed custom applications for experiments in UOttawa graphene laboratory using LabVIEW.
 - Prototyped and deployed automation solutions for experiments using programmable electrical test instrumentation for digital and analog data acquisition.
 - Weekly meetings for ongoing software support and bug fixes for multiple projects.

- **Fresh Consulting, Robotics Engineering Coop** **May-August 2019**
- Independently managed the full development of a prototype VR-enabled, wirelessly controlled robotics platform using Linux, ROS, and Python.

Publications

- Predicting atmospheric turbulence for secure quantum communications in free space, arXiv:2406.14768, under review
- Fast Adaptive Optics for High-Dimensional Quantum Communications in Turbulent Channels, arXiv:2311.13041, under review
- Arrays of functionalized graphene chemiresistors for selective sensing of volatile organic compounds, ACS Applied Electronic Materials
- Graphene field effect transistors: A sensitive platform for detecting sarin, ACS Applied Materials & Interfaces
- UV illumination as a method to improve the performance of gas sensors based on graphene field-effect transistors, ACS sensors

Patents

- Intraoperative neural monitoring system utilizing wavelet-based event detection, US Patent 11,980,474
- Intraoperative neural monitoring method, US Patent 11,980,476
- Intraoperative neural monitoring method utilizing wavelet-based event detection, US Patent 11,850,057
- Intraoperative neural monitoring method with statistical confidence determination, US Patent 11,850,040

Conferences, Presentations, and Awards

- QUINT Workshop Research Progress Report Presentation
- Max Planck - University of Ottawa Centre for Extreme and Quantum Photonics Research Progress Report Presentation
- 2024 International Conference on Optical Angular Momentum Oral Presentation
 - Best Presentation Award
- 2024 Photonics North Oral Presentation
 - Finalist - Best Presentation
- 2024 Quantum Days Poster Presentation
 - Best Poster Award
- 2024 ARAQNE Consortium Poster Presentation
- 2023 Italian Quantum Information Science Conference Poster Presentation