COREY RAE HARRINGTON MCRAE

EDUCATION

Ph.D. Physics (Quantum Information) (2012 - 2018)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON
Thesis title: *Indium thin films in multilayer superconducting quantum circuits*
Advisor: Matteo Mariantoni

B.Sc. Honours Physics and Astronomy (2008 - 2012)
Department of Physics and Astronomy, University of Western Ontario, London, ON

PROFESSIONAL APPOINTMENTS

Research Assistant Professor (2022 - present)
University of Colorado, Boulder, CO
Electrical, Computing, and Energy Engineering Department

Project Leader (2022 - present)
Boulder Cryogenic Quantum Testbed
National Institute of Standards and Technology
Advisor: Joel Ullom

Quantum Applications and Strategy Consultant (2022)
FormFactor Inc.
Contact: Brandon Boiko

Research Associate (2021 - present)
University of Colorado, Boulder, CO & National Institute of Standards and Technology
Advisor: William Rippard (2021 - 2022), Joel Ullom (2022 - present)

Director, Boulder Cryogenic Quantum Testbed (2019 - 2022)
University of Colorado, Boulder, CO
Project Manager: Josh Mutus (2019 - 2021), Jeremy Hilton (2021 - 2022)

Postdoctoral Researcher (2018 - 2021)
National Institute of Standards and Technology & University of Colorado, Boulder, CO
Advisor: David Pappas

GRANTS

Research Grant: Continuing Funds for the Boulder Cryogenic Quantum Testbed (2021)
US $30,000
Research Sponsorship Grant, Google. PI: Corey Rae McRae
Held at the University of Colorado Boulder, Boulder, CO
Role on grant: PI

Centre Grant: Superconducting Quantum Materials and Systems (2020)
US $550,000 over 5 years
Quantum Information Science Research Center, U.S. Department of Energy. PI: Anna Grassellino
Held at the National Institute of Standards and Technology, Boulder, CO
Role on grant: Co-Investigator, Thrust Lead

Research Grant: Extension of Funds for the Boulder Cryogenic Quantum Testbed (2020)
US $50,000
Research Sponsorship Grant, Google. PI: David Pappas
Held at the University of Colorado Boulder, Boulder, CO
Role on grant: Co-PI

Research Grant: Boulder Cryogenic Resonator Testbed (2018)
US $685,000
Focused Research Award, Google. PI: David Pappas
Held at the University of Colorado Boulder, Boulder, CO
Role on grant: Co-PI (wrote proposal)

AWARDS

First Place Poster, Physical and Optical Sciences (2018)
Front Range Industry and Postdoctoral Summit ($250)

Forum on Physics and Society Travel Grant for Young Researchers (2017)
American Physical Society ($800)

IQC David Johnston Award for Scientific Outreach (2014)
Institute for Quantum Computing, University of Waterloo ($2,500)

Nanofellowship Award (2013)
Waterloo Institute for Nanotechnology, University of Waterloo ($10,000)

SELECT RESEARCH PROJECTS

Expansive Round Robin of Superconducting Quantum Devices (2020 - present)
University of Colorado Boulder, Boulder, CO
Facilitate and participate in the field's largest interlaboratory comparison of superconducting qubits and resonators at millikelvin temperatures and single photon powers.

Cryogenic Calibration (2019 - present)
University of Colorado Boulder, Boulder, CO
In a dilution refrigerator (DR) environment, develop and implement short-open-load, through-line-reflect, and power calibration protocols using standards at millikelvin temperatures. Published in Wang *et al.*, Quant. Sci. Tech. (2021).

Accurate Measurement of Novel Dielectrics (2018 - present)
University of Colorado Boulder, Boulder, CO
Determine the intrinsic dielectric loss of novel and known dielectrics, including epitaxial GaAs and sputtered Al_2O_3, by performing low temperature measurements of lumped-element resonators specifically designed to be sensitive to dielectrics within a parallel plate capacitor. Published in McRae *et al.*, APL (2020) and McRae *et al.*, JAP (2021).

Novel Merged-Element Qubit Designs (2018 - present)
National Institute of Standards and Technology, Boulder, CO
Develop a novel superconducting qubit design that merges the capacitance and effective inductance of a transmon qubit into a low-loss epitaxial trilayer. Following that, develop a spin on the merged-element transmon (MET) that combines well-established semiconductor fin technology with the scalability and materials benefits of a standard MET. Published in Zhao *et al.*, Phys. Rev. Appl. (2020) and Goswami *et al.*, APL (2022).

In/In Thermocompression Bonding and Characterization of In and Al/In Films for 3D Integration of Superconducting Qubits (2017)
University of Waterloo, Waterloo, ON, Canada
Develop a qubit-friendly bonding technique that uses thin In films as a welding agent to attach pairs of lithographically patterned chips, and apply this technique to the fabrication of tunnel-capped, bonded coplanar waveguide resonators. Compare In and Al/In films deposited by thermal evaporation, sputtering, and molecular beam epitaxy using thin film characterization techniques and microwave loss measurements. Published in McRae *et al.*, APL (2017) and McRae *et al.*, JAP (2018).

3D Wiring for Scalable Quantum Computing (2016)
University of Waterloo, Waterloo, ON, Canada
Develop a high density, high performance interconnect solution between classical electronics and solid-state qubits based on spring-mounted microwires. Published in Bejanin *et al.*, Phys. Rev. Appl. (2016).

PUBLICATIONS

Cardani, L., Colantoni, I., Cruciani, A., De Dominicis, F., D'Imperio, G., Laubenstein, M., Mariani, A., Pagnanini, L., Pirro, S., Tomei, C., Casali, N., Ferroni, F., Frolov, D., Gironi, L., Grassellino, A., Junker, M., Kopas, C., Lachman, E., **McRae, C.R.H.**, Mutus, J., Nastasi, M., Pappas, D.P., Pilipenko, R., Sisti, M., Pettinacci, V., Romanenko, A., Van Zanten, D., Vignati, M., Withrow, J.D., Zhelev, N.Z. Disentangling the sources of ionizing radiation in superconducting qubits. Accepted (2022).

Cover article: Goswami, A., McFadden, A.P., Zhao, T., Inbar, H., Dong, J.T., Zhao, R., **McRae, C.R.H.**, Simmonds, R.W., Palmstrom, C.J., Pappas, D.P. Towards merged-element transmons using silicon fins: the FinMET. *Applied Physics Letters* **121**, 064001 (2022).

Kopas, C.J., Lachman, E., **McRae, C.R.H.**, Mohan, Y., Mutus, J.Y., Nersisyan, A., Poudel, A. Simple coplanar waveguide resonator mask targeting metal-substrate interface. White paper (2022).

Alam, M.S., *et al.* (39 alphabetical authors). Quantum computing hardware for HEP algorithms and sensing. White paper (2022).

Lu, X., Goronzy, D.P., Torres-Castanedo, C.G., Masih Das, P., Kazemzadeh-Atoufi, M., McFadden, A., **McRae, C.R.H.**, Voorhees, P.W., Dravid, V.P., Bedzyk, M.J., Hersam, M.C., Rondinelli, J.M. Stability, metallicity, and magnetism in niobium silicide nanofilms. *Physical Review Materials* **6**, 064402 (2022).

Asfaw, A., *et al.* (38 alphabetical authors). (McRae is one of four editors on this paper). Building a Quantum Engineering Undergraduate Program. *IEEE Transactions on Education* **65**, 2 (2022).

Invited review: **McRae, C.R.H.**. Measurement Techniques for Superconducting Microwave Resonators Towards Quantum Device Applications. Accepted, IEEE International Microwave Symposium (2022).

Featured article, invited Perspective: **McRae, C.R.H.**, Stiehl, G., Wang, H., Lin, S.-X., Caldwell, S.A., Pappas, D.P., Mutus, J., Combes, J. Perspective: Reproducible Coherence Characterization of Superconducting Quantum Devices. *Applied Physics Letters* **119**, 100501 (2021).

Wang, H., Singh, S., **McRae, C.R.H.**, Bardin, J.C., Lin, S.-X., Messaoudi, N., Castelli, A.R., Rosen, Y.J., Holland, E.T., Pappas, D.P., Mutus, J.Y. Cryogenic single-port calibration for superconducting microwave resonator measurements. *Quantum Science and Technology* **6**, 035015 (2021).

McRae, C.R.H., McFadden, A., Zhao, R., Wang, H., Long, J. L., Zhao, T., Park, S., Bal, M.,

Palmstrom, C.J., Pappas, D.P. Cryogenic microwave loss in epitaxial Al/GaAs/Al trilayers for superconducting circuits. *Journal of Applied Physics* **129**, 025109 (2021).

Bal, M., Long, J.L., Zhao, R., Wang, H., Park, S., **McRae, C.R.H.,** Zhao, T., Lake, R.E., Frolov, D., Pilipenko, R., Zorzetti, S., Romanenko, A., Pappas, D.P. Overlap junctions for superconducting quantum electronics and amplifiers. *Applied Physics Letters* **118**, 112601 (2021).

Cover article, invited review: **McRae, C.R.H.**, Wang, H., Gao, J.S., Vissers, M.R., Brecht, T., Dunsworth, A., Pappas, D.P., Mutus, J. Materials loss measurements using superconducting microwave resonators. *Review of Scientific Instruments* **91**, 091101 (2020).

McRae, C.R.H., Lake, R.E., Long, J.L., Bal, M., Wu, X., Jugdersuren, B., Metcalf, T.H., Liu, X., Pappas, D.P. Dielectric loss extraction for superconducting microwave resonators. *Applied Physics Letters* **116**, 194003 (2020).

Zhao, R., Park, S., Zhao, T., Bal, M., **McRae, C.R.H.,** Long, J.L., Pappas, D.P. Merged-element transmon. *Physical Review Applied* **14**, 064006 (2020).

McFadden, A., Goswami, A., Seas, M., **McRae, C.R.H.,** Zhao, R., Pappas, D.P., Palmstrøm, C.J. Epitaxial Al/GaAs/Al tri-layers fabricated using a novel wafer-bonding technique. *Journal of Applied Physics* **128**, 115301 (2020).

McRae, C.R.H., Bejanin, J.H., Earnest, C.T., McConkey, T.G., Rinehart, J.R., Deimert, C., Thomas, J.P., Wasilewski, Z.R., Mariantoni, M. Thin film metrology and microwave loss characterization of indium and aluminum/indium superconducting planar resonators. *Journal of Applied Physics* **123**, 205304 (2018).

Pappas, D.P., David, D. E., Lake, R. E., Bal, M., Goldfarb, R.B., Hite, D.A., Kim, E., Ku, H.S., Long, J.L., **McRae, C.R.H.**, Pappas, L.D., Roshko, A., Wen, J.G., Plourde, B L.T., Arslan, I., Wu, X. Enhanced superconducting transition temperature in electroplated rhenium. *Applied Physics Letters* **112**, 182601 (2018).

McConkey, T.G., Bejanin, J.H., Earnest, C.T., **McRae, C.R.H.**, Pagel, Z., Rinehart, J.R., Mariantoni, M. Mitigating coherent leakage of superconducting qubits in a large-scale quantum socket. *IOP Quantum Science and Technology* **3**, 3 (2018).

McRae, C.R.H., Bejanin, J.H., Pagel, Z., Abdallah, A.O., McConkey, T.G., Earnest, C.T., Rinehart, J.R., Mariantoni, M. Thermocompression bonding technology for multilayer superconducting quantum circuits. *Applied Physics Letters* **111**, 123501 (2017).

Bejanin, J.H., McConkey, T.G., Rinehart, J.R., Earnest, C.T., **McRae, C.R.H.**, *et al.* The quantum socket: Three-dimensional wiring for extensible quantum computing. *Physical Review Applied* **44010**, 31 (2016).

SELECT INVITED TALKS

Mechanisms leading to dielectric loss in superconducting quantum circuits (09/2022)
Imec Research and Development, Virtual

Device Design: Materials Loss Measurements Using Superconducting Microwave Resonators (06/2022)
CMC Microsystems Workshop, Virtual

QED-C Update: The Boulder Cryogenic Quantum Testbed (06/2022)
Quantum Economic Development Consortium Plenary Meeting, Denver, CO

Measurement Techniques for Superconducting Microwave Resonators Towards Quantum Device Applications (06/2022)
IEEE International Microwave Symposium, Denver, CO

Measurement Techniques for Superconducting Microwave Resonators Towards Scalable Quantum Computing (02/2022)
Center for Quantum Technology, University of Glasgow, Virtual

Reproducible materials measurements for superconducting qubits and resonators (12/2021)
Materials Research Society Fall Meeting

Materials Loss Measurements Using Superconducting Microwave Resonators (10/2021)
American Vacuum Society Symposium, Virtual

Materials Measurements for Superconducting Quantum Computing at the Boulder Cryogenic Quantum Testbed (10/2021)
Institute for Quantum Computing at the University of Waterloo, Virtual

Enabling Scalable Superconducting Quantum Computing using Reproducible Materials Measurements (07/2021)
Cryogenic Engineering Conference and International Cryogenic Materials Conference, Virtual

The Boulder Cryogenic Quantum Testbed (07/2021)
Google AI Quantum, Virtual

Materials loss measurements using superconducting microwave resonators (02/2021)
Arizona State University, Virtual

Interlaboratory comparison for superconducting quantum computing (11/2020)
Superconducting Quantum Materials and Systems Center Kickoff, Virtual

Materials losses in superconducting quantum circuits (11/2020)
Materials Research Society Fall Meeting, Virtual

The Boulder Cryogenic Quantum Testbed (02/2020)
Open Quantum Frontier Institute Workshop, Golden, CO

Microwave dielectric loss in superconducting quantum circuits (05/2019)
IBM T.J. Watson Center, Yorktown Heights, NY

Indium thin films applied to superconducting quantum circuits (09/2017)
Rigetti Computing, Berkeley, CA

Physical and microwave characterization of superconducting indium and aluminium/indium thin films (05/2017)
Student seminar, Institute for Quantum Computing, University of Waterloo, Waterloo, ON

Increasing the quality factor of superconducting resonators using circuit shielding and epitaxial films (05/2016)
Student seminar, Institute for Quantum Computing, University of Waterloo, Waterloo, ON

Techniques for the fabrication of high quality factor resonators (05/2015)
Student seminar, Institute for Quantum Computing, University of Waterloo, Waterloo, ON

SELECT CONFERENCE ACTIVITY

McRae, C.R.H.. (04/2021) *Probing Materials Losses With Planar Superconducting Resonators.* Presentation for the Materials Research Society Spring Meeting, Virtual.

McRae, C.R.H.. (01/2021) *The Boulder Cryogenic Quantum Testbed.* Canada Quantum Days (virtual poster).

McRae, C.R.H., McFadden, A., Bal, M., Long, J.L., Arslan, I., Palmstrom, C., Pappas, D., Lake, R. (03/2020) *Accurate measurement of microwave dielectric loss in epitaxial trilayers.* Presentation for the American Physical Society March Meeting, Denver, CO (virtual).

McRae, C.R.H., McFadden, A., Bal, M., Long, J.L., Arslan, I., Palmstrom, C., Pappas, D., Lake, R. (04/2019) *Accurate measurement of microwave dielectric loss in epitaxial trilayers.* Presentation for the Materials Research Society Spring Meeting, Phoenix, AZ.

McRae, C.R.H., McFadden, A., Bal, M., Wu, X., Long, J.L., Ku, H.-S., Wen, J., Wang, J., Arslan, I., Palmstrom, C., Pappas, D., Lake, R. (03/2019) *Low-loss dielectric materials and the merged element transmon.* Presentation for the American Physical Society March Meeting, Boston, MA.

Superconducting microwave resonator testbed for quantum computing applications (12/2018) PREP poster session, NIST, Boulder, CO

McRae, C.R.H., Wu, X., Bal, M., Long, J.L., Ku, H.S., Pappas, D.P., Lake, R. E. (10/2018) *Metrology of dielectric loss using lumped-element microwave resonators.* Presentation for the American Vacuum Society Symposium, Long Beach, CA.

McRae, C.R.H., Bal, M., Ku, H.S., Long, J.L., Wu, X., McFadden, A., Palmstrom, C., Pappas, D.P., Lake, R.E. (10/2018) *Investigation of dielectric loss using lumped-element microwave resonators.* Poster for the Front Range Industry and Postdoctoral Summit, Boulder, CO.

McRae, C.R.H., Bejanin, J.H., Earnest, C.T., Abdallah, A.O., McConkey, T.G., Rinehart, J.R., Deimert, C., Thomas, J.P., Wasilewski, Z.R., Mariantoni, M. (03/2018) *Physical and microwave characterization of superconducting indium and aluminium/indium thin films.* Presentation at APS March Meeting, Y39.00004, Los Angeles, CA.

McRae, C.R.H., Abdallah, A.O., Bejanin, J.H., Earnest, C.T., McConkey, T.G., Pagel, Z., Mariantoni, M. (03/2017) *Quantum devices bonded beneath a superconducting shield.* Presentation at APS March Meeting, H46.00010, New Orleans, LA.

PROFESSIONAL AND DEPARTMENTAL SERVICE

Advisory Committee Member, Quantum Engineering Initiative (2022 - present)
University of Colorado Boulder, Boulder, CO

Diversity, Equity and Inclusion Committee Co-Chair, Electrical, Computer, and Energy Engineering Department (2022 - present)
University of Colorado Boulder, Boulder, CO

Program Committee Member, Quantum Information Science Focus Topic (2022)
Pittsburg, PA
American Vacuum Society 68th International Symposium & Exhibition

Invited Panelist, Inside Quantum Technology (2021)
New York, NY
Spoke as one of two invited panelists on the Emerging Materials for Quantum Technology panel.

Conference Organizer and Introductory Speaker, Open Questions in Materials for Quantum 2.0 Devices (2021)

Virtual Workshop
Focused workshop topic, chose and invited speakers, and made introductory presentation.

Hardware Champion, Quantum BC Roadmapping Workshop (2021)
Virtual Workshop
Led a breakout group of industry scientists as well as graduate and undergraduate students to brainstorm a roadmap for quantum computing research and innovation in British Columbia.

Panelist, Superconducting Quantum Materials and Systems Center Job Fair (2021)
Virtual Fair
Participated in the National Labs job panel for undergraduate students.

Session Chair, American Physical Society March Meeting (2021)
Virtual Conference
Chaired the session "Materials and Fabrication in Superconducting Qubits II - Materials".

Conference Organizer and Session Chair, QED-C Qubit Materials Workshop (2020)
University of California Santa Barbara, Goleta, CA
Chose focus topics and speakers, as well as chaired a session, for invitational workshop for leaders in superconducting qubit loss research and metrology.

Conference Chair, Cryogenic Resonator Workshop (2019)
University of Colorado Boulder, Boulder, CO
Created and developed a technical conference for leading researchers in superconducting microwave resonator fabrication and metrology.

Editorial Board Member (2018-2022)
STEM Fellowship Journal

Volunteer, Front Range Industry and Postdoctoral Summit (2018)
University of Colorado Boulder, Boulder, CO
Recruited regional companies in scientific industries to attend conference.

Nanofabrication Workshop Developer and Instructor (2016 - 2017)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON
Developed the curriculum and led a hands-on introductory cleanroom workshop on superconducting quantum circuit fabrication for undergraduate students as part of the University of Waterloo's Undergraduate School for Experimental Quantum Information Processing (USEQIP).

Mentor, Quantum Cryptography School for Young Students (2016)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON
Spoke with enthusiastic high school students about their visions of their future careers in science and shared personal experiences of physics academia.

Event Organizer, Entrepreneurship on Campus (2014)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON
Organized an event to connect students in entrepreneurship and business programs with those in science and technology programs. Event included speakers from local incubators and academic institutions.

Founder, Quantum Entrepreneurship Student Group (2014 - 2015)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON
Founded and organized a group of entrepreneurship-minded graduate students and postdocs. Meetings included patent workshops and informational seminars.

Founder, Lecture Series on Quantum Industry (2014 - 2015)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON
Founded and organized a lecture series in which professionals in the quantum industry shared their research, day-to-day job experience, and transition from academia to industry.

President, Graduate Student Association (2014 - 2015)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON
Led a group of elected officers in the organization of academic and social activities for institute members. Acted as a spokesperson and advocate for the multidisciplinary student body.

Student Member, Scientific Advisory Committee (2014 - 2016)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON
Met yearly with IQC's scientific advisors to discuss the progress of the institute.

Conference Panelist (2015)
University de Laval, Quebec City, QC
Sat on a graduate student panel at the Canadian Conference for Undergraduate Women in Physics.

Volunteer, International Conference for Women in Physics (2014)
Wilfred Laurier University, Waterloo, ON

Organizer, Physics Undergraduate Student Conference (2011)
University of Western Ontario, London, ON

Elected Member, Physics and Astronomy Students' Association (2009-2012)
University of Western Ontario, London, ON

SELECT REFEREE SERVICE

Ad Hoc Article Reviewer (2017 - 2022)
Peer-reviewed scientific articles for Nature Physics, npj Quantum Information, Physical Review Materials, Applied Physics Letters, IOP Quantum Science and Technology, and Langmuir, among other journals.

Grant Reviewer (2018 - 2019)
Reviewed seed fund support proposals for the Regional Innovation Strategies program from the U.S. Economic Development Agency, as well as student and faculty team grant applications for the University of Colorado Boulder's Undergraduate Research Opportunities Program.

Science Policy Workshop Applicant Reviewer (2019)
Reviewed graduate and postdoctoral participant applications for the Canadian science policy workshop Science Outside the Lab North.

STUDENT AND POSTDOCTORAL MENTORSHIP

Graduate Student Mentorship (2021 - present)
John Pitten, University of Colorado Boulder

Graduate Student Mentorship (2021 - present)
Nicholas Materise, Colorado School of Mines

Undergraduate Student Mentorship (2022-2023)
Scott Hardman, University of Colorado Boulder

Undergraduate Student Mentorship (2022)
Svetlana Doroshevich, Columbia University

Undergraduate Student Mentorship (2022)
Kyle Thompson, Colorado Mesa University

Undergraduate Student Mentorship (2022)
Nicholas Price, University of Colorado Boulder

Graduate Student Mentorship (2020 - 2022)
Sheng-Xiang Lin, University of Colorado Boulder

Undergraduate Student Mentorship (2019 - 2021)
Keegan Mullins, University of Colorado Boulder

Postdoctoral Mentorship (2019 - 2021)
Haozhi Wang, NIST / University of Colorado Boulder

TEACHING EXPERIENCE

Program Developer and Instructor (2016 - 2017)
University of Bristol and University of Waterloo, Waterloo, ON
Established, developed and led hands-on nanofabrication workshops for graduate students. Workshops included an introduction to photolithography and reactive ion etching.

Teaching Assistant - Tutorial Instructor (2016)
Physics of Electrical Engineering I, University of Waterloo

Teaching Assistant (2016)
Physics and the Solid State, second year materials and nanosciences, University of Waterloo

Teaching Assistant (2016)
Electrical and Optical Properties of Materials, third year materials and nanosciences, University of Waterloo

Teaching Assistant - Tutorial Instructor (2015)
Quantum Physics III, fourth year physics, University of Waterloo

Teaching Assistant - Tutorial Instructor (2015)
Quantum Physics II, third year physics, University of Waterloo

Teaching Assistant (2014)
Electricity and Magnetism I, second year physics, University of Waterloo

Teaching Assistant (2012)
Physics I, first year general, University of Waterloo

Teaching Assistant (2012)
Digital Electronics, third year electric engineering, University of Waterloo

COMMUNITY OUTREACH AND VOLUNTEERISM

Archivist, Board of Directors (2020-present)
Commerce Children's Center non-profit
Sat on board as an elected member to assist in the operation of the childcare center.

Article Author, "Is Your Qubit Better Than My Qubit?" (2021)
NIST Taking Measure Blog
Wrote a popular science blog post about my research at the Boulder Cryogenic Quantum Testbed.

Mentor, Girls in Science, Technology, Art/Design and Mathematics (2017)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON

Workshop Organizer, Canadian Association for Girls in Science (2014 - 2015)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON

Volunteer, Girls in Science Fair (2013)
Wilfred Laurier University, Waterloo, ON

Volunteer, Science Open House (2012-2016)
Institute for Quantum Computing, University of Waterloo, Waterloo, ON

PROFESSIONAL SKILLS AND DEVELOPMENT

Course Completion, Indigenous Canada (2020)
University of Alberta, Virtual

Participant, Science Policy Workshop (2018)
Science Outside the Lab North, Ottawa, ON and Montreal, QC
Participated in a week-long immersive science policy workshop in Ottawa and Montreal. Gained knowledge about the science policy landscape in Canada and Quebec.