

ROHAN CALUM NUTTALL

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EDUCATION

UNIVERSITY OF ALBERTA

Jan 2020 - Present

Master of Science, Computer Science (thesis-based)

- *Technical Skills:* Python, JavaScript, C++, SQL, machine learning, scientific computing, data analysis.
- *Enrolled courses:* Reinforcement learning (II), real-time heuristic search, explainable AI in games.

UNIVERSITY OF BRITISH COLUMBIA

Sept 2014 – May 2018

Bachelor of Science, Honours Physics (Distinction)

- *Coursework:* software construction, computational physics, particle physics, electromagnetic theory, applied quantum mechanics, partial/ordinary differential equations, linear algebra, advanced calculus, probability models and anthropology.
- *Awards:* UBC Innovation Scholar, TD Scholarship for Community Leadership, Queen Elizabeth Golden Jubilee Citizenship Medal, Arthur Crooker Prize for Experimental Physics, Dean's Honour List, Chancellor's Scholar.

WORK EXPERIENCE

AI Research Intern, Kindred Systems

Oct – Dec 2019

(under Dr. James Bergstra)

- Implemented, benchmarked and tested recurrent convolutional neural network architectures for reinforcement learning algorithms in simulated environments in PyTorch. Helped refactor and improve the readability of internal libraries.

Research Assistant, Energy, Technology and Architecture Lab, UBC

Jun – Sept 2019

(under Dr. Adam Rysanek)

- Implemented gradient-boosting methods, recurrent neural networks and deep kernel Gaussian process techniques for predicting the thermal comfort of buildings under future climate weather scenarios (used PyTorch, TensorFlow, Sci-Kit Learn, Pandas, NumPy).
- Packaged and modularized the codebase to allow for greater efficiency in testing new algorithms on time-series data.

Urban Data Scientist, University Sustainability Initiative, UBC

Jun 2018 – Jun 2019

(under Mrs. Angelique Pilon, Dr. Martino Tran, Dr. James Tansey)

- Improved the speed of data transfer protocol from building automation systems.
- Automated parts of data generation code using RESTful APIs to improve efficiency and readability.
- Managed strategy, data governance and technical development of a data platform for sustainability data.
- Established and co-chaired the Chief Data Officer's Working Group on Open Data to draft a university open data policy.

Honours Thesis Student, Rare Decay Research Group, TRIUMF

Sept 2017 – May 2018

(under Dr. Douglas Bryman)

- Carried out experimental data analysis as part of an international research collaboration (PIENU Group) to search for new physics beyond the Standard Model. Specifically, my contribution comprised running Monte Carlo simulations to improve the precision of a small part of a very complex experiment (dissertation score: 93%).
- Rewrote components of data analysis pipeline from Python to C++ reducing analysis by 50%.
- Parallelized Monte Carlo simulations for large runs to increase number of runnable experiments/day.

Scientific Computing Analyst, Accelerator Division, TRIUMF

May 2016 – May 2017

(under Mrs. Aurelia Laxdal and Dr. Peter Kunz)

- Work began as a summer co-op position and finished as a year-long thesis project (dissertation score: 92%).
- Investigated radioactive isotope production using Monte Carlo codes (written in FORTRAN) to simulate physical processes and optimize the isotope production system's geometry for enhanced yields.

PUBLICATIONS

1. **Rohan Nuttall**, Adam Rysanek, *Data-driven learning for forecasting the impact of climate change on a naturally-ventilated building*, submitted to Building & Environment (2019)
2. Jerome R Mayaud, **Rohan Nuttall**. *A Job, Indeed! Accessibility Equity to Advertised Employment in Cascadia*. Transport Findings, October 2019
3. Jerome R. Mayaud, Martino Tran, **Rohan Nuttall**, *An urban data framework for assessing equity in cities: Comparing accessibility to healthcare facilities in Cascadia*, Computers, Environment and Urban Systems, Volume 78, 201
4. Jerome R. Mayaud, Martino Tran, Rafael H.M. Pereira, **Rohan Nuttall**, *Future access to essential services in a growing smart city: The case of Surrey, British Columbia*, Computers, Environment and Urban Systems, Volume 73, 2019, Pages 1-15

EXTRA-CURRICULAR

Executive Committee Member, Open Roboethics Institute

Sept 2014 – Present

- Worked on designing and disseminating an international survey to 54 different countries on the Ethics and Governance of Lethal Autonomous Weapons Systems (http://www.openroboethics.org/laws_survey_released/).
- Pushed the group through one of e@UBC's Lean Launchpad Accelerator Program workshops.

Vice-Curator, Global Shapers Community (Vancouver Hub), World Economic Forum

Jun 2015 – Jun 2017

- Led the first Canada-wide hub collaboration on the future of STEM education in Canada, [published white paper](#).
- Built partnerships with HiVE Center, Science World, Let's Talk Science, and BCG Centre for Public Impact).
- Helped lead *Shaping Davos 2017* (www.davos.vancouvershapers.com). The event, on the topic [Cities as Hubs of Innovation](#), attracted +200 people and insights were presented to 5,000 people at the Annual Meeting 2017 in Davos.
- Worked with Curator to revive hub to nearly 20 members from previous years of inactivity.

Co-Captain (and Safety Officer), UBC SailBot Design Team

Aug 2015 - Present

- Led a team of 60 students to continue ranking as the #1 autonomous sailboat team in the world.
- Raised \$7,000 for development and testing of [Ada](#), a transatlantic autonomous sailboat we built.

OTHER SELECT ACTIVITIES

- **The Ditchley Foundation** – invited to attend a conference on “Drones, remote weapons and other robots: the military, commercial, legal and ethical implications” in Oxford, UK in 2017. Re-invited for 2019 Annual Lecture.
- **Canadian Science Policy Conference (2018)** – panelist, “Lessons learned in building a national vision for STEM education”
- **Canada 2067** – spoke at the Vancouver Youth Summit and National Leadership Conference in Toronto.
- **Globe and Mail** – contributor to Education section, inaugural member of the Globe and Mail Student Advisory Council.
- **Through My Eyes** – directed acclaimed documentary film on youth homelessness, commissioned by the City of Edmonton.
- **Gen Y Inc.** – project manager for a multigenerational culture startup, published work with Conference Board of Canada.
- **Rotary Club of Edmonton** – 1st place in the “4-Way Test” speech contest.