Alex Wen

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https://alexwenym.github.io

I'd like to understand why things happen.

Education

2017–22 **University of British Columbia** (UBC)
BSc. Candidate, Major in Combined Honours Physics and Mathematics, Minor in History
Year 3 of 5 in 2019-20 (5 year co-op degree - all of year 4 is a co-op work term)

Research

2020 **University of Toronto & CERN** (July - August)
Summer Student, ATLAS Experiment
Physics analysis for reducing uncertainty on measurements of Higgs boson mass. CERN Summer Student; physical work at CERN in Switzerland cancelled due to COVID-19

2019 **Imperial College London** (July - August)
Research Student, LHCb Experiment
Development and analysis of two-sample statistical tests with extreme sensitivities for particle physics analysis (detection of CP violation with matter/antimatter decay asymmetry)

2019 **University of British Columbia** (May - June)
Summer Student, ATLAS Experiment
Application of machine learning (hybrid tree-sequence neural networks) to identify rare physics processes (top decays)

2017- **TRIUMF** (Summer 2017, since then part-time during school year)
Research Assistant, ElectroMagnetic Mass Analyzer (EMMA) Collaboration
Nuclear calculations and Monte Carlo simulations of detector to study astrophysical nuclear reactions

2018 **SNOLAB** (May - August)
Research Assistant, New Experiments With Spheres – Gas (NEWS-G) Collaboration
Calibration source simulations, detector simulations, and signal processing to characterize the effect of neutron radiation on the performance of light dark matter detector

From research and coursework, I have experience with **C/C++**, **Python** (and most common frameworks, including **PyTorch**), **MATLAB**, **TeX**, **Geant4**, **CERN ROOT**, and **Unix environments**. I'm always happy to learn new languages, packages, and frameworks.

I'm also skilled at public speaking, presenting, tutoring, and academic writing.

Projects

2019- **UBC Biomedical Engineering Student Design Team**
Machine Learning Engineer
Data processing and classifier training to discriminate between brain EEG signals for home automation applications. Led ML tutorials for teammates

Other Work Experience

2019- **UBC, Physics Department**
Teaching Assistant, Physics 100 (*Introductory Physics*) & 216 (*Intermediate Mechanics*)

2018-19 **AMS Student Society of UBC**
Physics & Math Group Tutor

2017-19 **Wesley Music and Arts Academy**
Speech and Debate Instructor

Conferences and Short Schools

2019 Canadian Undergraduate Physics Conference (McGill)

2019 Canadian Astroparticle Physics Summer School (McDonald Institute/Queen's)

2016 International Summer School for Young Physicists (Perimeter Institute)

Honours and Awards

2020 **Canada Institute of Particle Physics CERN Summer Student** *Among the most competitive Canadian summer fellowships for physics students*

2018,19 **UBC** Trek Excellence Award ($\times$2) - *academically top 5% of year and faculty*

2019 **UBC** Science Scholar - *total course average of 90%+*

2019 **UBC Faculty of Science** J. Fred Muir Memorial Scholarship

2019 **UBC Department of Mathematics** Stanley M. Grant Scholarship

2017-18 **UBC Science One** Gateway Program Class President

2017 **TRIUMF** High School Fellow

2017 **SOAR Philanthropic Society** Scholarship

Relevant Certifications

2019 Authorization and Training for Basic Machine Shop Tools (UBC Physics Department)

2018 Workplace Tagging and Lockout Procedures (SNOLAB/Vale Mining)

Relevant Coursework

2020 Applications of Quantum Mechanics - 96% (class avg. 85%) *4th year level*

2020 Introduction to Quantum Mechanics - 99% (class avg. 75%) *3rd year level*