Joshua Himmens

Engineering Physics Student

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Education

University of British Columbia **Vancouver, BC, Canada**

Bachelor of Applied Science in Engineering Physics Sep 2023 – May 2028

- Working knowledge of English and French.
- Specialized in entrepreneurship, machine learning, and embedded systems.

Work Experience

AltaML

Associate Machine Learning Developer Jan 2025 – Apr 2025

- Developed machine learning models using scikit-learn to save the Government of Alberta **>$4 million** annually.
- Developed novel evaluation metrics to minimize regional bias and maximize transferability of models.

TRIUMF

ATLAS Deep Learning Research Student May 2024 – Feb 2025

- Developed panoptic segmentation models for the ATLAS detector using the PointNet ML framework with wandb, TensorFlow, Keras.
- Used CERN's grid computing to parallelize compute across thousands of nodes.
- Worked independently to develop models using cutting-edge transfer learning approaches.
- Implemented models into production using NVIDIA Triton.

UBC Orbit Satellite Design Team

Command and Data Handling (CDH) Lead and Firmware Developer Oct 2023 – Present

- Led the CDH team to develop software to meet mission and testing objectives from ESA (European Space Agency) for the ALEASAT project.
- Managed a team of **10** firmware developers, with over **$15 000** worth of technical infrastructure.
- Developed mission testing, function testing, and acceptance testing procedures to meet ESA and ECSS standards.
- Programmed device drivers and electrical ground support equipment (EGSE).

Embedded Firmware Developer Jan 2023 – Present

- Programmed device drivers, electrical ground support equipment (EGSE).
- Developed the ALEASAT Avionics Test Bench (FlatSat).
- Worked on the ALEASAT onboard computing system using FreeRTOS on a TMS570 microcontroller.

Publications and Presentations

Developing Machine Learning Techniques for Particle Flow in the ATLAS Experiment at Canadian Astroparticle Physics Summer Student Talks Competition (CASST 2024) Jun 2024

- Placed 2nd of 44 presentations.

JetPointNet: A Machine Learning Approach to Cell-to-Track Attribution in the ATLAS Experiment at Canadian Undergraduate Physics Conference Oct 2024

3D Particle Flow in the ATLAS Calorimeter: How to Train Your Model at TRIUMF Science Week May 2024

ALEASAT ESA "Fly Your Satellite!" Training Week Presentation at European Space Agency's ESEC-GALAXIA (Transinne, Belgium) Mar 2024

Honors and Awards

Hector J. MacLeod Award

Issued by *IEEE Vancouver Section* Apr 2024

- Awarded to students who have demonstrated pioneering efforts in their chosen field of study and attained high scholastic honours.

Erich Vogt First Year Summer Research Experience (FYSRE) Award

Issued by *UBC Department of Physics and Astronomy* May 2024

- Awarded to promising students in physics for a 4-month research placement.

Alberta Centennial Award and Alberta Premier's Citizenship Award
Issued by *Government of Alberta* May 2023
- Awarded for outstanding community service.

Calgary Flames Foundation Community Involvement Scholarship
Issued by *Education Matters* Aug 2023
- Awarded for community involvement.

Julia Turnbull Leadership Award for exceptional community service
Issued by *The Calgary Foundation* Jul 2023
- Awarded for exceptional community service.

Leadership and Advocacy

Chair
UBC IEEE Aerospace Electrical Systems Student Branch Chapter Vancouver
Aug 2025 – Present
- Served as **Technical Program Chair** for the Student Aerospace Summit, September 2025.
- Organized events to unify aerospace-interested students across UBC.

Highly Qualified Personnel (HQP) Advisory Committee Member
Arthur B McDonald Astroparticle Physics Institute Canada (remote)
Jan 2024 – Present
- Worked with members across Canada to develop opportunity lists for students and recent graduates.
- Shared McDonald Institute opportunities with eligible HQP in BC and Alberta.

Advisory Team Member
Child Rights Connect Geneva, Switzerland (remote)
Jan 2021 – Dec 2023
- Provided guidance to UN delegations on communication strategies for high-level rights goals.
- Presented to governments and consulted on international initiatives to support the UN Convention on the Rights of the Child.
- Created and edited content on human and child rights in the Americas.
- Attended the 3rd Pan American Child and Youth Forum in Cartagena, Colombia with the Government of Canada.

Technical Skills

- **Machine Learning**: TensorFlow, Keras, PointNet, Weights and Biases (wandb), ONNX
- **Embedded Programming**: Experienced with FreeRTOS on TMS570, RP2040, and STM32
- **Software Development**: C, C++, Python, Java, MATLAB, Bash, Git
- **Particle Physics**: ROOT, CERN grid computing, Athena

Additional Experience

- **Quantum School for Young Students** (University of Waterloo and Institute for Quantum Computing): Participant in intensive quantum computing program
- **Introduction to Quantum Computing** (IBM): Participant in 8-month course using IBM's quantum infrastructure
- **Scientific Computing with Python certification** (freeCodeCamp): 300 hours of training