

# Aaron Wei

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## Education

University of British Columbia (UBC) | Faculty of Science

September 2021 – May 2026 (Expected)

BSc in Mathematics and Computer Science (GPA: 3.8/4.33, Dean's List 2025).

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## Research

UBC Computer Science Department | Lab of Prof. Danica Sutherland

September 2024 – Present

- *Conditional independence testing*: This is an ongoing project researching the foundations of conditional independence (CI) testing using kernel methods. In the nonparametric setting, vector-valued regression (possibly infinite-dimensional) is a crucial subtask in CI testing. We are currently developing novel methodology to improve this regression and studying how the convergence rates of the regression interact with common test statistics.
  - *Two-sample testing with unequal sample sizes*: Analyses of kernel two-sample testing often makes the restrictive assumption of paired data. Our project considers a test-statistic which accommodates unequal sample-sizes using the framework of generalized U-statistics. I made major contributions to the asymptotic theory of this statistic and validated our claim by running simulation experiments on DRAC computer clusters.
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## Employment

UBC Computer Science Department | Research Assistant

May 2025-Present

- Conducting research with Dr. Danica Sutherland, supported by the UBC SURE and AML-TN research awards.

Hillhouse Education | Instructor On-Call

June 2024 – November 2024

- Provided clear explanations of concepts and assistance with homework and exam preparation for K-12 students.
- Developed an introduction to programming with the Turtle graphics library, effectively teaching basic concepts (e.g. recursion, loops) to primary school students in a visually engaging manner.

JRG Building Engineering | Structural Engineering Intern

May – August 2021

- Accurately calculated structural loads using Excel and engineering software, contributing to technically sound designs on 7 building projects.
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## Awards

**UBC Enhanced Summer Research Experience Award (2025)**: Funding for undergraduate research projects from UBC's faculty of science.

**Advanced Machine Learning Training Network Research Award (2025)**: Funding for early-career undergraduate students participating in machine learning research.

**Livingston International Scholarship (2025)**: Achievement based scholarship for a child of a Livingston employee.

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## Technical Skills

**Programming languages**: Python, Java, C, C++, HTML/CSS, JavaScript, MATLAB.

**Software/libraries**: NumPy, Pandas, PyTorch, Scikit-Learn, Git, Poetry, OpenCV, Scrapy, Google Cloud Platform.

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## Technical Projects

Undergraduate Research | Honours Thesis

September 2024 – April 2025

- Research in kernel methods, conditional independence testing, and learning rates for infinite dimensional regression, resulting in a survey of proofs and results for kernel conditional independence testing.

Research Paper Web Scraping | Personal Project

July 2024

- Curated over 100 cutting-edge research papers by scraping the websites of university reading groups.
  - Accomplished the above by creating a policy compliant web scraping protocol in Python using the Scrapy library and Google's Custom Search Engine.
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## Extracurriculars and Volunteering

UBC Undergraduate Mathematics Society | Vice President of Communications

May 2025 – Present

- Respond to inquiries from collaborating clubs and manage corporate sponsorship opportunities.
- Maintained branding and visual identity of club through advertisements and the design of logos and merchandise.

31st Canadian Undergraduate Mathematics Conference | Organizing Committee

October 2023 – July 2024

- Designed the event logo and various merchandise worn by over 100 attendees, while ensuring the branding objectives of the conference are met.

UBC Uncrewed Aircraft Systems | Software team

September 2022 – December 2023

- Wrote a Python program to automate image processing tasks such cropping, blurring and colour adjustments, and experimented with Tesseract and OpenCV filters to perform optical character detection.