

Akshat Kalra

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EDUCATION

University of British Columbia

Vancouver, BC

BSc Statistics with Thematic Concentration in Computer Science (Co-op)

Expected Graduation : May 2027

- **Dean's Honour List**
- **Awards:** Faculty Of Science International Student Scholarship [CAD 7,000], Outstanding International Student Scholarship [CAD 10,000].
- **Relevant coursework:** Software Construction in Java (**91%**), Models of Computation [Discrete Mathematics] (**93%**), Probability Theory (**91%**), Statistical Inference (**89%**), Computer Systems (**88%**), Data Science (**88%**)
- **Hackathons & Case Competitions:** **UBC WiDS Case Competition Winner** (1st Place), **UBC GDSC x Launchpad Hackathon Winner**, **UBC CIC x AWS Gen AI and Sustainability Hackathon 2024 Winner** (3rd Place), **nwPlus HackCamp 2024** (Mentor), **nwPlus cmd-f 2025** (Mentor & Judge), **ASA Datafest** (Mentor)

EXPERIENCE

Software Developer (Co-op)

Vancouver, BC

Summer 2025

May 2025

Software and Firmware Developer

Vancouver, BC

UBC Subbots [Engineering Design Team]

Sep 2024 – Present

- Co-leading the Software team developing an Autonomous Underwater Vehicle for the **RoboSub competition** in California.
- Spearheading the development of a real-time perception system for the AUV, integrating a custom computer vision model to detect and classify objects for RoboSub's object retrieval task.
- Developed and deployed a **containerized robotics development environment** with an Ubuntu 20.04 image, ROS2, Gazebo and other dependencies pre-installed reducing onboarding time for new members.

Undergraduate Teaching Assistant

Vancouver, BC

Department of Computer Science & Department of Philosophy, UBC

Sep 2023 – Present

- **CPSC 121 (Models of Computation):** Leading a weekly discussion section and co-leading 2 lab sections, facilitating students' understanding of discrete mathematics and computational theory.
- **PHIL 220 (Symbolic Logic):** Led 2 hours of office hours weekly to support students. Graded 200+ exams and assignments with detailed feedback on logical proofs and reasoning.

TECHNICAL PROJECTS

Tranquilo | Next.js, SQLite, Flask, Ngrok, RESTful APIs, BERTopic, RAG

Jan 2025

- Designed and implemented an AI-powered mental health journal that provides therapist-like responses to journal entries by leveraging RAG, Vector DBs and BERTopic modeling with areal world therapist response database.
- Designed and implemented a microservices architecture. **Reducing overall RTT from 15+ seconds to 2 - 4 seconds** by designing and , leveraging an API pipeline that orchestrated sequential API calls.
- **Achieved a fully local backend architecture ensuring data privacy** by **hosting Llama 3.2 locally** and accessing it via our **Flask API** exposed using **Ngrok**.

Predicting Revenue Impacts of Vancouver's Airbnb Policy | Scikit-learn, Pandas, NumPy

Nov 2024

- **Won 1st Place Overall** at the **UBC WiDS Case Competition @ UBC**.
- Developed an end-to-end machine learning pipeline using the scikit-learn library (Python) , **reduced Mean Squared Error from 1,638,519.88 to 1,189,222.25**, a **27.4% improvement over the baseline model**.
- Leveraged feature engineering, exhaustive hyperparameter search and recursive feature elimination to boost predictive accuracy and enhance model interpretability, also published a **Medium article** detailing the approach, results, and insights.

Eco-Circle | Hackathon Winning Project | AWS, Next.js, Python

Oct 2024

- **Secured 3rd out of 75+ participants** at the **UBC CIC x AWS Gen AI and Sustainability Hackathon** organised by UBC Cloud Innovation Centre in collaboration with **Amazon Web Services (AWS)**.
- Built an AI-powered marketplace promoting sustainable buying and upcycling, leveraging the **Llama 3.1 70B Instruct** model for recommendations.
- Implemented a fully AWS-based architecture integrating 5+ AWS services including **AWS Lambda**, **DynamoDB**, **API Gateway**, **Amazon Bedrock** and **Amazon S3**.

TECHNICAL SKILLS

Languages: C, C++, Java, JavaScript, TypeScript, SQL, Python, R, Racket (Dialect of Lisp)

Developer Tools: AWS, Postman, Docker, Git, GitHub, LaTeX, ROS2

Libraries/Frameworks: ReactJS, NextJS, NodeJS, Scikit-learn, Flask