KUMAR VARENYA

(604) 727-7638 | kvarenya@student.ubc.ca

kvarenya.github.io | LinkedIn | GitHub | ORCiD | Canadian Permanent Resident

EDUCATION

University of British Columbia   Vancouver, BC
Bachelor of Applied Science in Computer Engineering and Honours Mathematics   *2021 – 2026*

EXPERIENCE

UBC Investment Management Trust Inc.   Vancouver, BC
Risk/Systems Engineer (UBC CS DMM: Operations Research & Financial Engineering)   *September 2025 – Present*
- Developed quantitative optimization models for allocation across multi-asset $2.336 billion endowment portfolio.
- Engineered risk analytics infrastructure integrating factor models, scenario simulations, and stress-testing.
- Collaborated with UBCiM to translate operational research outputs into actionable allocation and hedging strategies.

Population Data BC   Vancouver, BC
Software Programmer (Work Learn)   *September 2022 – December 2025*
- Built Python and SQL ETL pipelines to boost data throughput and reduce latency for large epidemiological datasets.
- Developed containerized microservices with API gateways to enable secure, compliant data access.
- Refactored legacy code using design patterns and optimizations to improve scalability and maintainability.

Amazon   Vancouver, BC
Software Development Engineer Intern (AWS)   *May 2024 – Dec 2024*
- Built AI software package using Docker, Kubernetes, and AWS (CDK, Fargate, Bedrock), improving efficiency by 50%.
- Designed secure LLM prompt templates and PII detection, cutting errors by 70% with zero breaches.
- Implemented unit and integration tests (100% pass rate); contributed to key feature deployment for Prime Day.

University of British Columbia, Department of Computer Science   Vancouver, BC
Teaching Assistant (CPSC 110, CPSC 121)   *January 2023 – April 2024*
- Led weekly tutorials for 2000+ students, improving understanding of functional programming and discrete math.
- Graded over 500 assignments and exams per week and provided constructive feedback to improve student performance.
- Collaborated with course instructors to update course materials, aligning content with current programming practices.

Oil and Natural Gas Corporation   New Delhi, IN
Summer Intern   *Summer 2022, 2023*
- Analyzed pipeline monitoring data to identify potential failures, reducing unplanned maintenance incidents by 20%.
- Supported the implementation of GIS mapping tools for resource allocation and logistics planning.
- Assisted in designing database systems to track over 1,000 equipment inspections and maintenance schedules.

RESEARCH EXPERIENCE

Carnegie Mellon University   Pittsburgh, PA
Undergraduate Research Assistant   *May 2025 – Present*
- Investigating compositional verification techniques for concurrent software systems to enhance modular analysis.
- Applied static analysis to identify data races and synchronization bugs in multithreaded C/C++ programs.

UBC Pacific Laboratory of Artificial Intelligence   Vancouver, BC
Data Engineering Research Assistant   *Sep. 2023 – Apr. 2024*
- Collected, curated, and annotated Minecraft gameplay datasets to support behavioral and AI-driven analysis.
- Built preprocessing pipelines to structure spatial-temporal data for downstream machine learning tasks.

Tokyo Institute of Technology   Tokyo, JP
Indian Delegate, Sakura Science Plan (Collaborative Research Activities Course)   *2020*
- Led an 8-member team to develop a fiducial-marker-based localization model for an unstable camera feed.
- Optimized real-time performance in V-rep, achieving calibration error $\leq 0.5\%$.

Toyohashi University of Technology   Aichi, JP
Indian Delegate, Sakura Science Plan (Collaborative Research Activities Course)   *2020*
- Directed development of a multi-tasking autonomous robot, integrating sensors and actuators for real-time control.
- Enhanced navigation by optimizing A* and Dijkstra algorithms, reducing execution time by 22%.

TECHNICAL SKILLS

Languages: Java, C/C++, Python, R, SQL, HTML/CSS, MATLAB, Lua, ARM Assembly, Verilog
Frameworks: Git, JUnit, Swing, JavaFX, Jupyter, NumPy, TensorFlow
Tools: Valgrind, Bash & Shell, Altium Designer, Arduino, Raspberry Pi, Solidworks