Vaibhav Ambastha

Computer Engineering Student
Email: vaibhav.ambastha@gmail.com
LinkedIn: linkedin.com/in/vambastha/
Website: vaibhavambastha.github.io/personal-website/

TECHNICAL SKILLS

Programming: C/C++ | Python | HTML/CSS | Java | MATLAB | System Verilog | ARM Assembly | JUnit | FPGA

Software Programs: GitHub | VS Code IDE | IntelliJ IDEA | ModelSim | Intel Quartus | Microsoft Office

EDUCATION

University of British Columbia | Engineering **Vancouver, BC**
Bachelor of Applied Science
Expected Graduation: May 2026

- **Specialisation** – Computer Engineering.
- **Related Coursework** – Data Structures & Algorithms, Object-Oriented Programming, Software Construction, Computer Architecture

TECHNICAL WORK EXPERIENCE

UBC Geering Up Engineering Outreach **Surrey, BC**
Offsite Camps Instructor Jun 2023 – Sep 2023

- Proficiently taught a range of programming languages and tools, including **Python**, **Arduino**, and HTML, while adapting instruction to different age groups and skill levels.
- Facilitated hands-on coding projects, enabling students to create functional web applications, games, and software, enhancing their applied coding skills.
- Collaborated with camp organizers to improve the coding curriculum and designed adaptive learning activities.

TECHNICAL PROJECTS

Premier League Prediction Model Jan 2024

- Web scraped football data from open-source website utilizing **requests**, **BeautifulSoup**, and **Pandas** libraries to merge multiple DataFrames into a single CSV file consisting of essential match statistics for every squad in the league.
- Applied **Random Forest** algorithm from machine learning library **scikit-learn** to forecast match outcomes based on ranging conditions resulting in a 55.4% accuracy score based on training data.
- Compared machine learning method with rolling average statistical method to validate robustness of model.

IoT Data Analytics & Concurrent Client Handling Server Dec 2023

- Developed **Java** program to simulate an IoT analytics sever which received sensor data and provided various services to clients such as notification, aggregation, and predictive modelling.
- Handled concurrent clients through efficient implementation of server socket programming while ensuring QoS.
- Launched **AWS Lambda** to strengthen server networks, optimize event handling, and develop predictive services.

RISC Machine Nov 2023 – Dec 2023

- Assembled a RISC Machine utilizing **Verilog HDL** to maximize performance on the five-stage pipelined processor.
- Implemented range of instructions to optimize instruction executions through the processor and tested architecture through generating exhaustive Verilog testbenches in **ModelSim**.
- Improved CPU to process ARMv7 instructions such as LDR, ADD, CMP within 15 cycles and presented on **FPGA**.

Soundwave Analysis Program Oct 2023

- Implemented Java program to analyse soundwaves supporting wave operations of superimposition and transformation.
- Deployed a Discrete Fourier Transform (DFT) algorithm using complex numbers to apply low, high, and band pass filters on wave signals.
- Utilized **JUnit** to develop comprehensive test suites to achieve 95% branch coverage and 95%+ line coverage.

INTERESTS & LANGUAGES

Interests: Automation | Football (Barcelona Fan) | Journaling | Swimming | Violin | Sunset Watching | Formula One

Languages: Native English speaker | Native Hindi speaker | Proficient French speaker