Amraj Aujla

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EDUCATION

University of British Columbia **Sept 2021 - May 2026**
Bachelor of Applied Science in Computer Engineering; CGPA: 81% *Vancouver, BC*
Coursework: Software Construction in Java, Data Structures and Algorithms, Computer Hardware/Firmware

TECHNICAL EXPERIENCE

Subbots **University of British Columbia**
Software Developer *Sept 2022 - Present*

- Utilized ROS2 on a Teensy microcontroller to develop and implement thruster system publisher nodes, enabling crucial real-time telemetry for the submarine
- Developed a C++ node to enhance robotic movements by enabling dynamic and fluid motions in a sinusoidal pattern
- Utilized the Windows Subsystem for Linux to run Bash scripts and design comprehensive command line tests for the submarine's control system
- Employed simulation software, including Gazebo, to conduct extensive testing and performance evaluation of the submarine's navigation system in diverse scenarios, ranging from varying water currents to depths
- Collaborated with 30+ cross-functional engineers to successfully deliver high-quality products within challenging cost and time constraints, while fostering effective communication and teamwork throughout the project lifecycle

PROJECTS

Multi-Client Server

- Developed a Java-based messaging platform that ensured thread safety and enabled users to subscribe to different themes, topics, and Twitter users
- Engaged with Twitter API and integrated fundamental cryptography techniques such as password salting and JSON encryption
- Established a client-server architecture that allowed users to retrieve information through the utilization of sockets and ports

Kamino Game

- Implemented a versatile graph data type in Java, utilizing both adjacency list and matrix representations
- Applied Dijkstra's shortest path and Kruskal's minimum spanning tree algorithms to enhance the precision of the graph traversal
- Employed JUnit to generate a comprehensive test suite to ensure 90+% branch coverage and 95+% statement coverage

RISC Machine

- Constructed a Turing Complete 16-bit RISC with a Datapath, Controller FSM, RAM, and different register modules in Systems Verilog
- Developed the CPU to interpret HALT, STR, LDR, and other ARMv7 instructions within 6 clock cycles
- Sectioned the machine into 7 smaller modules to design, debug, and test with Quartus and ModelSim

OTHER EXPERIENCE

JOE'S BBQ BOAT **Vancouver, BC**
Assistant Manager *June 2022 - Sept 2022*

- Assigned, prioritized, and delegated tasks and responsibilities to a team of three employees
- Maintained a positive and friendly attitude while handling a high volume of customer interactions, contributing to a positive customer experience and brand reputation
- Acquired a Pleasure Craft Operator Card within 2 weeks of employment to assist the business with certified employees
- Managed and kept track of over $30,000 worth of inventory

SKILLS

- **Languages:** Java, C, C++, Python, HTML/CSS, Arduino, ARM Assembly, Systems Verilog, ROS 2, Gazebo
- **Tools/Framework:** Git, Linux, SSH, VS Code, IntelliJ, Visual Studio, MATLAB, JUnit
- **Activities/Credentials:** Tutoring, Soccer, Basketball, and Pleasure Craft Operator Card