SIMRAN MANN

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EDUCATION

Simon Fraser University Sept 2022 – April 2027
Bachelor of Applied Science – Computing Science GPA: 4.04/4.33
Relevant courses: Distributed Systems, Compilers, Computer Architecture, Operating Systems

TECHNICAL SKILLS

Programming Languages: C/C++, Python, x86-64 Assembly, Bash, Java
Embedded Systems & Firmware: STM32 MCUs, SPI, I2C, GPIO, DMA, DAC, ADC, Interrupts, RTOS
Software Tools: Visual Studio Code, STM32Cube IDE, Git, Linux/Unix , Docker

PROJECTS

Concurrent Data Structures Benchmarking – Academic Project October 2025

- Implemented and benchmarked various concurrent data structures such as non-blocking Queues, Stacks and Sets with multi-producer/multi-consumer test suites.
- Addressed ABA problems via version-tagged pointers and CAS, analyzed throughput, scalability, and contention bottlenecks.

C Language Compiler – Academic Project June - August 2025

- Developed a compiler for a C-like language using Flex/Bison and LLVM IR, including SSA-form code generation and short-circuit evaluation
- Gained practical experience with parsing, semantic analysis, and machine code generation pipelines
- Built C runtime and Python scripts to automate testing, validating compilation and execution of code

Digital Embedded Clock – Personal Project April - May 2025

- Developed a digital clock with real-time display, date/time adjustments, and alarm functionality on an embedded MCU
- Implemented touchscreen functionality using interrupt-driven event handling to allow efficient data updates.

EXPERIENCE

SFU Robot Soccer – Firmware Developer May 2025 – Present

- Designed and implemented the basestation firmware, enabling robots to receive and parse commands through UART from the software team and relay commands via LoRa to the motherboards for each robot
- Contribute to motherboard firmware development and testing, ensuring real-time task scheduling and responses
- Collaborate in a multidisciplinary team spanning firmware, software, and electronics to achieve robust match-ready performance

NETGEAR - Orbi Software Test Engineer Sep 2024 – April 2025

- Developed a tool to parse UART serial output. Debugged, tested, and resolved issues with UART interfaces on devices.
- Automated the main test plan, reducing test time from a full day to 2 hours.
- Designed and maintained two automation testbeds used daily to verify device stability and performance
- Automated a repetitive task involving rebooting or resetting a router or satellite, parsing raw console data to check that all interfaces were up, and calculating average boot-up time over multiple iterations.
- Used Docker to transfer the automated tests onto all lab PCs without any setup issues.
- Logged and tracked bugs using Jira, documented test reports and automated plans in Confluence.