

Gavin Guinn – Embedded Software Developer

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Profile

Professional with over 3 years of experience in embedded software development (C/C++), system testing, and hardware validation. Skilled in adhering to professional software QA processes to document, track, and resolve bugs, driving solutions that enhance product quality. Expertise in designing test plans, validating complex IoT systems, and automating testing processes using Python. Passionate about leveraging technical skills to improve system performance and reliability.

Education

Bachelor of Science in Computer Science – University of Calgary

May 2018 – May 2022

President of the Computer Science Undergraduate Society, NSERC Undergraduate Student Research Award.

GPA: 3.49/4.00

Work Experience

Embedded Software Developer – Simply Embedded

Jan 2021 – May 2024

- **System Testing:** Designed and executed system-level test plans for embedded firmware, hardware, and user interfaces. Conducted regression testing to ensure consistent performance across updates.
- **Firmware Development:** Built and tested robust RTOS-based firmware solutions in C/C++ for ARM microcontrollers. Debugged hardware-software interactions using tools like GDB, JLink, and logic analyzers.
- **Quality Assurance:** Developed and executed test plans to validate circuit boards and commission assembled products. Designed comprehensive validation checklists with over 50 criteria, ensuring consistent product quality before shipment.
- **Python Development:** Customized an open-source Python project using OOP design principles for internal QA use. Developed Python scripts to unit-test network-based features of embedded devices.
- **Debugging Electrical Systems:** Debugged digital electrical systems by analyzing schematics, troubleshooting circuits, and validating hardware. Proficient in tools like multimeters, oscilloscopes, and basic soldering techniques.
- **GUI Design:** Led user interface development for resource-constrained embedded projects using LVGL.
- **Client Engagement:** Excelled in client interactions, from cold conversations at trade shows (CES 2023/2024) to in-depth meetings during international trips. Translated customer business needs into actionable development objectives.
- **Device Drivers:** Developed and maintained drivers for peripherals (DAC, ADC, modem, ect.) within a FreeRTOS environment, managing multi-threaded operation. Employed logic analyzers to debug digital signal protocols (UART, SPI, I2C).

Research Assistant – University of Calgary

Sept 2021 – Apr 2022

- **Mathematical Research:** Studied computational number theory under Dr. Michael J. Jacobson, applying algorithms and computational methods to analyze Aliquot sequences, contributing to the understanding of their statistical properties.
- **High-Performance Computing:** Developed scalable, parallel algorithms in C and OpenMP, leveraging an 800GB RAM, 80-thread research cluster to optimize Aliquot sequence computations.
- **Comprehensive Documentation:** Authored a detailed undergraduate thesis and Doxygen-generated code documentation, creating a foundation for future research in Aliquot sequence analysis.

	Skills	Tools / Libraries
Testing & QA	Test Planning, Regression Testing	Python, Jira, Git, Jenkins
Embedded Systems	C/C++, ARM Microcontrollers, FreeRTOS	JLink, Logic Analyzers
Hardware Expertise	Schematics, Serial Communication (I2C, SPI)	Multimeters, Oscilloscopes, GDB

Retail Sales Staff – Camper's Village

May 2014 – July 2021

- **Customer Service:** Built rapport with customers, identified needs, and recommended tailored outdoor equipment solutions.

Other Experience

President – Computer Science Undergraduate Society

Sept 2020 – Feb 2021

- **Organized CalgaryHacks 2021:** Led a 20-member volunteer team to host over 700 participants and distribute \$15,000 in prizes, fostering growth in Calgary's tech community.
- **Stakeholder Communication:** Managed sponsor relations, including package development, payments, and regular reporting to the Computer Science Department on club activities.