Gavin Guinn – *221 6 Ave SE, Calgary, Canada*
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Profile

Embedded Engineer with 3 years of experience developing production-grade C/C++ software for microcontrollers and Linux environments. Demonstrated success in leading teams, mentoring interns, and managing complex firmware projects from design to deployment. In my spare time I enjoy spending my time skiing in the Rocky Mountains and experimenting with generative AI. *Based in Calgary, Canada, and seeking opportunities locally, nationally, and internationally.*

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

Firmware Engineer – Simply Embedded

Jan 2021 - May 2024

- **Firmware Development:** Engineered robust RTOS C/C++ firmware solutions on 32-bit ARM microcontrollers. Professionally utilized git for version control, managed devops and releases with Jenkins.
- **Quality Assurance:** Conducted thorough unit testing and collaborated closely with the QA team to ensure high-quality firmware releases. Collaborated with Electrical Engineers in developing firmware for hardware test fixtures.
- **Peripheral Driver Development**: Developed and maintained drivers for peripherals (audio, display, touch, modem, secure element, IMU) within a FreeRTOS environment, ensuring seamless hardware-software integration.
- **Advanced Debugging Techniques:** Utilized logic analyzers and oscilloscopes to debug bus protocols (UART, SPI, I2C, CAN). Employed emulation tools like QEMU to debug and validate driver quality.
- **Mentorship and Hiring:** Led the interview and selection process for five engineering interns, providing hands-on training in firmware development and debugging to ensure they quickly became productive team members.
- **Network Security:** Utilized TCP/IP stack and security protocols to manage secure communications, including certificate management. Developed OTA firmware updates as a key feature, ensuring reliable deployments over HTTPS.
- **Client Engagement:** Excelled in client interactions, from cold conversations at tradeshows (CES 23/24) to in-depth meetings during international trips. Experienced in converting customer business needs to concrete development objectives.

Programming Languages	Skills	Tools
C, C++, ARMv8 Assembly	Firmware Development, Hardware Debugging	Jlink, GDB, STM32Cube, MCUXpresso
Python, Bash, Makefile, CMake	Linux Programming, Cloud computing	Logic Analyzers, Oscilloscopes, QEMU
Java, Javascript, HTML, CSS	Web development, Public speaking	Git, Jenkins, GitHub

Retail Sales Staff – Camper's Village

May 2014 - July 2021

- **High Service Sales:** Engaged with customers to understand their requirements and recommend the best camping products.

Other Experience

President – Computer Science Undergraduate Society

Sept 2020 - Feb 2021

- **Organized CalgaryHacks 2021:** Led a 20-member volunteer team, bringing together over 700 participants and distributing $15,000 in prizes, fostering growth in Calgary's tech community.
- **Stakeholder Communication:** Managed sales, from package development to payments, with outside sponsors. Facilitated regular meetings with the Computer Science Department to report on club activities.
- **COVID-19 Adaptation:** Successfully transitioned CalgaryHacks to a remote format, leveraging Discord and Zoom for seamless event execution, communication, and judging.

Project in Theoretical Computer Science – NSERC Research Award

Sept 2021 - Apr 2022

- **High-Performance Compute:** Developed scalable and parallel algorithms in C and OpenMP, effectively leveraging an 800GB RAM, 80-thread research cluster to optimize the computation of Aliquot sequences.
- **Mathematical Research:** Studied computational number theory under Dr. Michael J. Jacobson, using algorithms and computational methods to explore Aliquot sequences, contributing to the understanding of their statistical properties and behaviors.
- **Comprehensive Documentation:** Produced a thorough undergraduate thesis and Doxygen-generated code documentation, providing a clear foundation for future research on Aliquot sequences.