Callum Mackenzie

Third Year Computer Science and Statistics Student
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Technical Skills

Languages: C, C++, Python, Rust, Java, C#, TypeScript, R, Swift, Kotlin
Frameworks: React, .NET, UWP, Qt, Node, Maven, Gradle, OpenGL, ESP-IDF
Developer Tools: Git, Linux, Vim, Docker, Jenkins, VSCode, Visual Studio, CMake, Make, AWS, Firebase

Experience

Embedded Software Engineer Co-op Jan – Dec 2025
General Dynamics *Calgary, AB, Canada*

- **Created robust, precise software** for critical military systems on an R&D team
- Developed **3 Linux device drivers and daemons**, tying hardware controls into current systems
- **Resolved 30+ defects** in embedded projects with Qt and C++
- **Reduced CI/CD system runtime by 50%** on multiple pipelines with Docker, Python, Jenkins, and AI
- Added **critical client functionality to .NET apps** interfacing with embedded devices & AI servers
- Created documentation and presented **demos for internal AI use cases**

Ice Hockey Official Jan – Nov 2024
Thunderbird and Todd Ice Hockey Leagues *Vancouver, BC, Canada*

- **Managed player conflicts by taking action decisively**, keeping calm, and communicating clearly
- Collaborated with fellow staff to maintain a positive and safe playing environment

Camp Counselor May 2022 – Aug 2023
IChallengeDiabetes *Western Canada*

- Received **positive feedback on communication** with parents regarding child safety and health while managing camper diabetes

Projects

FITNET - Embedded Motion Tracking with EMG — *C, ESP-IDF, Swift, iOS, Fusion360* Feb 2025 – Current

- Designed system **ground-up from electrical to software design**, including custom PCBs
- Utilized ESP32 microprocessor with **Bluetooth Low-Energy (BLE) to communicate** with iPhone
- **Achieved 90% accuracy** in muscle activation using custom EMG circuit and accelerometer data
- Created **iOS app** in Swift to **read and process device data** with BLE

RC Drone From Scratch | *Rust, C, C++, Autodesk Fusion 360, Robotics* Apr 2022 – Sep 2024

- Researched components based on electrical requirements (FPGA vs microprocessor, PWM channels, etc)
- Designed custom chassis with Autodesk Fusion 360 and electrical diagram
- **Ran no-std Rust on microprocessors** for memory safety and speed, reading a variety of sensors (I2C, SPI, PWM)

Deloitte ThinkTech | *React, AWS, Typescript, Javascript, Node, R, DocuSign, UIPath* Sep – Nov 2022

- Placed **4th out of 160+ candidates**
- Worked with two business competitors and a technical teammate to develop an **MVP for a real-world client business problem**
- **Presented** solution overview for **100+ Deloitte employees & executives**, fellow competitors, and visitors
- Used UIPath RPA, DocuSign, and AWS with a focus on security to manage sensitive records for client company

Education

The University of British Columbia Vancouver, BC, Canada
Bachelor of Science in Computer Science & Statistics (GPA 4.0) *Sep 2022 – May 2027*
Relevant Coursework: Intermediate Algorithm Design/Analysis, Computer Hardware & OS, Applied Linear Algebra