



# Callum Mackenzie

Third Year Computer Science and Statistics Student

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## TECHNICAL SKILLS

**Languages:** Python, C, C++, Swift, Kotlin, TypeScript, C#, Java, R, Rust

**Frameworks:** .NET, UWP, Qt, React, Node, Maven, Gradle, OpenGL, FreeRTOS, ESP-IDF, Jetpack Compose

**Developer Tools:** Git, Linux, Vim, Docker, Jenkins, VSCode, Visual Studio, CMake, Make, AWS, Firebase

## EDUCATION

*The University of British Columbia*

Vancouver, BC, Canada

Bachelor of Science in Computer Science & Statistics (GPA 4.0)

Sep 2022 – May 2027

## 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
- Utilized networking principles for embedded distributed systems for modularity and efficiency
- Developed 3 Linux device drivers and daemons, informing soldiers with battlefield insights
- Resolved 30+ defects in embedded projects (Qt/C++), improving reliability in safety-critical environments
- Reduced CI/CD system runtime by 50% on multiple pipelines with Docker, Python, Jenkins, and AI
- Shipped scalable client functionality in .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

## PROJECTS

**FITNET - Embedded Motion Sensing with EMG** | C, Swift, iOS, FreeRTOS, Fusion360 Feb 2025 – Current

- Motion-tracked & analyzed body position with custom wearables measuring EMG and IMU data
- Created iOS app with SwiftUI & SceneKit to read & process device data with optimized BLE
- Predicted movement category with dynamic time warping KNN classification
- Designed system ground-up from electrical to software design, including custom PCBs
- Utilized microprocessor with Bluetooth Low-Energy (BLE) to communicate with iPhone CoreBluetooth
- Achieved 99% accuracy in muscle activation using custom EMG circuit and accelerometer data

**Deloitte ThinkTech** | React, Typescript, Javascript, Node, R, DocuSign, UIPath

Sep – Nov 2022

- Developed an MVP for a real-world client business problem regarding document tracking in the healthcare industry with two business and one technical teammate
- Placed 4th out of 160+ candidates
- Presented solution overview for 100+ Deloitte employees & executives, fellow competitors, and visitors
- Used UIPath RPA, DocuSign, and AWS , focusing on security to manage sensitive records for client company

**Exvi Fitness** | Java, Kotlin, AWS, R, Android, Git

Dec 2021 - Jun 2022

- Developed a full-stack desktop & Android application for tracking personal workouts and sharing with others
- Webscraped and cleaned the data of 2000+ exercises from online datasets using Java and R
- Created a custom login system with 2FA using cryptography to store sensitive user data
- Synced across devices with a serverless backend (AWS), allowing sharing workouts with friends
- Followed responsive UI design principles, allowing multi-platform capability and intuitive use with Kotlin