

# Beau McCartney

[mccartney.beausl@gmail.com](mailto:mccartney.beausl@gmail.com) | [github.com/beaumccartney](https://github.com/beaumccartney) | [linkedin.com/in/beaumccartney](https://linkedin.com/in/beaumccartney) | [beaumccartney.com](https://beaumccartney.com)

## EDUCATION

### University of Calgary

*MEng in Electrical and Computer Engineering, Software Engineering Specialization*

Calgary, AB

Sep 2025 — May 2026

### University of Calgary

*BASc in Software Engineering with distinction*

Calgary, AB

Sep 2019 — May 2024

- GPA: 3.705/4.0 | Jason Lang Scholarship (Fall 2020, Winter 2021)

## PROJECTS

### Solo Developer, root c ([github.com/beaumccartney/root\\_c](https://github.com/beaumccartney/root_c))

Dec 2024 — Present

- ~11000 SLOC C99 codebase
- Modules for string operations, OS operations, virtual memory, linear algebra, command line parsing, logging, and arena-based allocation, built from-scratch on top of OS APIs
- Custom metaprogramming domain-specific language to generate C code from JSON-like tables
- Cross-platform window management and event processing system
- Currently developing a unified rendering API abstraction layer for cross-platform graphics programming

### Project Manager, Heat Pump Calculator ([github.com/beaumccartney/heat-pump-calculator](https://github.com/beaumccartney/heat-pump-calculator))

Jan 2024 — April 2024

- Architected and implemented FastAPI-based REST API backend to process frontend computation requests via Excel integration, serving results with structured CSV responses
- Executed comprehensive project planning and stakeholder management, conducting pre-project research and requirements gathering to define technical scope and deliverables
- Led cross-functional project team as Project Manager, coordinating meetings between various stakeholders and managing deliverable deadlines

### Contributor, Bear ([github.com/beaumccartney/Bear](https://github.com/beaumccartney/Bear))

Jan 2024 — April 2024

- Automated database infrastructure setup by developing initialization and seeding scripts to populate the database with credible data, eliminating manual setup and enabling work from a known, fixed database
- Designed a comprehensive API test suite using Postman, finding 10+ backend bugs before project submission
- Facilitated cross-functional collaboration between frontend and backend teams by translating UI requirements into REST API specifications, implementing endpoints to meet frontend needs
- Automated API endpoint extraction with a python script that parses all Express API endpoint definitions, streamlining API documentation and testing

### Solo Developer, GoLF (GoLang Fragment) ([github.com/beaumccartney/golf](https://github.com/beaumccartney/golf))

Jan 2023 — April 2023

- ~2900 SLOC C++17 compiler that compiles a subset of go to MIPS assembly
- Recursive-descent parser for go syntax that correctly handles semicolon insertion and arbitrarily nested expressions
- Stack-based symbol table with lexical scoping to typecheck identifiers

## WORK EXPERIENCE

### Programming Educator

Jul 2021 — Nov 2022

Code Ninjas Marda Loop

Calgary, AB

- Instructed students (ages 8-15) in computer science fundamentals, game development, and web development, adapting technical concepts to degrees of experience and learning needs
- Led project-based web development summer camps where each student designed and built a personal website

## TECHNOLOGIES AND TOOLS

- **Proficient:** C, Odin, Git, Win32, Raddebugger, Neovim
- **Previous Experience:** C++, Python, Rust, Objective C, D3D11, Jai, Batch, Bash, OpenGL, Zig, VSCode, Make, CMake, HTML, CSS, Tailwind, Javascript/Typescript, React, Nextjs, Vercel, Github Actions, Github Pages, FastAPI, Express, SQLite, MySQL, Postman, Node, Astro, Numpy, PlatformIO, Tensorflow, Django, MPLAB X, Java, Typst
- **Ask me about:** Classical and Jazz Bass, Music theory, History