Beau McCartney

+1 (403) 619-4309 | Calgary, AB | mccartney.beausl@gmail.com | linkedin.com/in/beaumccartney | beaumccartney.com

SUMMARY

New graduate software engineer specializing in graphics programming and compilers. Currently building from-scratch C meta-framework to serve as a base layer for any C project.

EDUCATION

University of Calgary   Calgary, AB
MEng in Electrical and Computer Engineering, Software Engineering Specialization   *Sep 2025 — May 2026*

University of Calgary   Calgary, AB
BASc in Software Engineering with distinction   *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)   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)   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 project team as Project Manager, coordinating meetings between various stakeholders and managing deliverable deadlines

Contributor, Bear (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 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)   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
- **Previous Experience**: C++, Python, Rust, Objective C, D3D11, Jai, Batch, Bash, OpenGL, Zig, 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, Java, Typst
- **Ask me about**: Classical and Jazz Bass, Music theory, History