

MAXIM FABER

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EDUCATION

Queen's University

Kingston, ON

Bachelor of Applied Science in Computer Engineering

04-2029

VEX U Design team | Firmware/Software:

- Maintainer working on the **vex-rt crate**, maintaining a feature complete safe interface for the PROS OS, CI/CD maintenance, managing issues from cross functional teams.

EXPERIENCE

Undergraduate Research Assistant

05-2026 – Present

Queen's University SSRL

Kingston, ON

- Developed an electromechanical “advancer” system for a magnetic soft continuum robot (MSCR) for lung navigation and mechanical sensing, supporting early lung cancer detection research in collaboration with Kingston General Hospital.
- Designed and fabricated custom catheter interfaces and mechanical mounts, integrating live force feedback for improved robotic control and mechanical sensing.
- Implemented deterministic stepper-motor control on an STM32 using Rust and Embassy Async, maintaining real-time timing while concurrently handling asynchronous UART communication.
- Integrated embedded firmware with the robotic system to support reliable motion control, sensing, and experimental operation.

Engineering Consultant Intern

05-2025 – 08-2025

Senezco Fire Engineering

Ontario, CA

- Reviewed engineering design packages for code compliance, identifying issues prior to PE review and reducing revision risk.
- Produced drawing markups and technical revisions while coordinating with engineers and clients throughout project delivery.

PROJECTS

Meatball-rs | Open source SDK for the Open-Meteo API | Rust

- Built a type-safe Rust SDK for the Open-Meteo API with compile-time validated queries.
- Integrated procedural macros to auto-generate builder trait implementations, enabling ergonomic and extensible query construction.
- Custom Serialization and Deserialization serde implementations.

Async Channels | Lock-Free Async Channel Library | Rust

- Developed a library of lock-free asynchronous channels supporting SPSC, MPSC, and MPMC patterns.
- Designed all channel implementations using atomic operations to provide lock-free performance.
- Optimized for high throughput and low latency in asynchronous, multi-threaded workloads.
- Built GitLab CI/CD pipelines automating formatting, builds, tests, and security analysis (cargo deny) across the project.

SKILLS

Programming Languages: Rust, C/C++, ARMv7 ASM, RISC-V, Go, Python, SQL

Technologies: Docker, Tokio, ROS, Linux/WSL, SDL, MIRI, embassy

CAD: Solidworks, Fusion, Bluebeam REVU