

Nick Mertin

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EMPLOYMENT HISTORY

May 2021–Present	Undergraduate Student Researcher, Discrete Event Systems Lab, Queen’s University —Working on applying the theory of discrete event systems control to synthesize digital hardware systems with desirable behaviour.
March 2021–Present	Software Architecture Consultant, Cotton Candy —Coordinating the development of a full-stack system with customer-facing and internal user interface and business automation components.
May 2020–Present	Workshops and Resources Tutor, EngLinks —Running review workshops and making study resources for a student-run tutoring and exam preparation service.
July 2020–September 2020	Junior Research Assistant, Computer Security Lab, Royal Military College of Canada —Developing C++ software and producing technical documentation in support of research activities.
May 2019–August 2019	Software Developer Intern, Google —Developing command-line tools and background systems in Go as part of the Stadia SDK.

EDUCATION

- **B.A.Sc. in Computer Engineering** (in progress), Queen’s University, Class of 2022
- **Certificate in Law** (in progress), Queen’s University

ACADEMIC AWARDS

- **4.08 Grade Point Average**—scale from 0 to 4.3
- **Undergraduate Student Research Award, Natural Sciences and Engineering Research Council of Canada (NSERC)**—to work under Dr. Karen Rudie in the Queen’s Discrete Event Systems Lab
- **AP National Scholar (Canada)**

PROJECTS

- **Rust on V5 Runtime**—Co-lead the development of an open-source framework/runtime for running Rust on the VEX V5 microcontroller, used in educational and competitive robotics.
<https://gitlab.com/qvex/vex-rt>

KEY EXTRACURRICULARS

- **President (2019–2020) and Co-founder, Queen’s VEX U Robotics Team**
 - As President, I led a team of 24 students, managed and contributed to several technical projects across the team, and acted as a liaison with the league, student government and University.
 - Taught mini-courses and developed educational resources for the team and broader community.
 - 2020 VEX U 1st place in the *Make It Real CAD Challenge* sponsored by Autodesk.
- **Head Programmer (2017–2018), E-Bots πlons VEX Robotics Team**
 - Led development of and was the primary contributor to the robot’s control software.
 - 2018 VEX Robotics Competition World Champions and Robot Skills World Champions.

TECHNICAL EXPERIENCE AND PROFICIENCY

- **C# Programming**—8 years, including networking, LINQ, EntityFramework, ASP.NET, and WPF.
- **C/C++ Programming**—6 years, including advanced features and template metaprogramming.
- **Python Programming**—5 years.
- **Java Programming**—3 years.
- **JavaScript/TypeScript Programming**—3 years, server-side code and Vue.js/React user interfaces.
- **Rust Programming**—6 months, with a focus on embedded systems.
- **Haskell Programming**—6 months. Familiarity with relevant technical/research papers.
- **Kotlin Programming**—6 months.
- **Embedded Systems**—Experience with realtime concepts and firmware development for STM32-based devices. Experience with FPGA programming in Verilog.
- **PCB Design**—Experience designing PCBs with ARM Cortex-M microcontrollers and various peripherals.
- **Controls Engineering**—Familiarity with basic linear controls concepts and applications. Significant experience with dead reckoning systems.
- **Database Systems**—Significant experience with relational SQL databases, especially MySQL.
- **Technical Writing**—Significant experience writing and editing technical documentation and reports in academic, extracurricular and industry contexts. Competence with L^AT_EX typesetting.
- **Mechanical CAD**—Experience creating 3D-printable parts and assemblies for robots in Autodesk Inventor.

References available upon request.