Emily Berlinghoff

Computer Science Student
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Summary Statement

Dynamic and detail-oriented Computer Science student with hands-on experience in quantum computing, data analysis, machine learning, and hardware integration. Skilled in Python, C, SQL, circuit design, and IoT prototyping, with a strong foundation in quantum algorithms, predictive modeling, and hybrid classical–quantum solutions. Adept at collaborating across disciplines to develop hardware–software integrations, optimize systems, and create user-focused applications. Passionate about leveraging cutting-edge technologies to solve complex computational challenges and drive impactful research.

Experience

Software Developer – Western Quantum Club
London, Ontario, Canada Mar 2024 – Present
Worked as a developer, continuing the Toronto Bikeshare Optimization project. Represented the club at Quantum Days 2025 in Toronto, sharing project insights and networking with industry professionals.

Teacher/Tutor – Scholars Education
London, Ontario, Canada Jan 2023 – Present
Taught and tutored elementary and high school students in Reading, Writing, Math, and Science to strengthen academic skills and confidence inside and outside the classroom. Developed customized lesson plans and learning strategies to meet individual student needs and learning styles. Built strong relationships with students and parents to support ongoing progress and engagement.

Research Intern – Western University
London, Ontario, Canada Apr 2025 – Aug 2025
Enhanced a traffic data monitoring system that utilized Arduino sensors by improving the user interface for clearer, real-time data presentation. Resolved ServiceBusErrors and optimized indicators to accurately display ATR device status. Collaborated with the research team to test and refine hardware-software integrations, ensuring reliable data collection and system performance.

Information Technology - The Corporation of the Municipality of Black River-Matheson
Matheson, Ontario, Canada May 2024 – Aug 2024
Supported municipal operations during a by-election by handling tax and utility payments, resident inquiries, and data entry using Vadim and CGIS systems. Crested infographics in Canva and updated the municipal website with Govstack, enhancing communication and accessibility for residents. Processed building permits through CBO, maintained accurate records, and ensured timely responses to public requests. Balanced technical tasks with front-desk duties, demonstrating strong multitasking, customer service, and IT problem-solving skills.

Education

Honours Specialization in Computer Science
Western University - London, Ontario, Canada
Excepted Graduation: April 2027
Relevant Courses: Data Structures & Algorithms, Computer Science Fundamentals I & II, Computer Graphics, Intro to Machine Learning, Operating Systems, Programming Languages, Software Tools & Systems Programming, Statistics for Science, Linear Algebra, Calculus I for Math Sciences, Intro to Computer Organization & Architecture

Projects

Toronto Bikeshare Optimization
Developed quantum computing solutions to optimize bike redistribution for Toronto's bikeshare program, modeling the problem as a Travelling Salesman optimization challenge. Applied quantum algorithms to identify efficient pickup routes in real time, improving station balance and demonstrating the potential of quantum computing for urban mobility.

AI Health Monitor Student Innovation Project
Collaborated on the hardware team to design and prototype a wearable health monitoring device using Arduino, ESP32, and IoT technologies. Utilized TinkerCAD for rapid prototyping, circuit simulation, and component testing to accelerate development. Integrated AI algorithms for real-time health data analysis, enabling early detection of potential disease symptoms. Developed IoT-enabled features for remote monitoring, ensuring secure data transfer to cloud platforms via Wi-Fi and Bluetooth. Designed sensor modules to accurately measure key vitals including heart rate, temperature, and oxygen levels.