Nathan Phan

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Education

University of Calgary — Calgary, AB
Bachelor of Science in Computer Science — *September 2023 - December 2026*

- GPA: 3.5/4.0

Experience

Co-President — University of Calgary, AB
Code the Change YYC — *January 2025 - Present*

- **Assumed** leadership of a student-led initiative, driving efforts to expand tech-related volunteer and learning opportunities for students
- **Managed** a team of **9** student executives to ensure all deliverables are completed on time with high standards
- **Organized and executed** Hack the Change 2024 by coordinating venue booking, logistical planning, and day-of operations for 373 participants and a 10,000 thousand dollar prize pool, **resulting** in a seamless attendee experience and high event satisfaction

Projects

CTC Wallet | *React, Next.js, Supabase, TypeScript, Tailwind CSS, HTML* — April 2025

- **Designed and built** the main welcome page for CTC Wallet, making it easy for new visitors to understand what the app offers and how to get started
- Developed an admin control panel using **React, TypeScript, Tailwind CSS, and shadcn/ui**, **enabling** administrators to efficiently manage user accounts and financial data while maintaining smooth system operations
- Designed and implemented the **PostgreSQL** database by translating RM and EER diagrams into **SQL schemas**, and integrated it with the frontend using **Supabase** to ensure secure, accurate, and seamless handling of user and financial data

Invasion of the Blobs | *C, Python, PySerial, UART, SPI* — April 2025

- Developed low-level **C drivers** for **SPI communication** on a **Raspberry Pi** to interface with external hardware peripherals (**MCP3008** ADC, **MCP23S08** GPIO expander), enabling real-time data acquisition and control
- Engineered a communication pipeline involving **SPI data acquisition** in **C**, **UART transmission**, and **Python-based serial parsing** with **PySerial** to integrate hardware inputs into a software application
- Implemented hardware interfacing solutions using **SPI protocols** for sensor data collection and input handling, bridging physical controls with a **Python** application through **UART** and **PySerial**; optionally extended functionality with **Pygame** for real-time interaction

Condensation | *Java, JavaFX, JUnit, Git, GitLab* — December 2024

- **Achieved 100% and live coverage** in the Leaderboard class by designing and implementing **30+ unit tests** using JUnit, ensuring robust validation and covering edge cases
- **Improved reliability of leaderboard features** by simulating real-world scenarios with mock JSON data, resulting in verified functionality for Elo updates, game tie scenarios, and leaderboard sorting
- **Enhanced test efficiency and maintainability** by utilizing black-box and equivalence-based selection, leading to comprehensive coverage of edge cases and invalid inputs
- **Applied Agile methodologies**, organizing sprints and coordinating with cross-functional teams to ensure timely feature delivery, foster continuous improvement, and maintain transparent communication

Technical Skills

Languages: Java, Python, C/C++, HTML, CSS, SQL, JavaScript, TypeScript
Frameworks: JUnit, Gradle, React, Next.js, Tailwind CSS
Developer Tools: Git, VS Code, PyCharm, IntelliJ, Jira, MySQL, Supabase, OracleDB
Tools: Excel, MyLab, Word, PowerPoint, Outlook
Libraries: pandas, NumPy, Matplotlib, TensorFlow, Keras