

# Alicia Pan

✉ alicia.pan@uwaterloo.ca

🌐 aliciajpan.github.io

in panalicia

## Skills

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**Hardware:** STM32, Arduino, DMM, oscilloscope, signal generator, soldering

**Design:** Altium, KiCad, Cadence, LTspice, SolidWorks, AutoCAD

**Programming & Tools:** C/C++, MATLAB, Python, Java, Keil µVision, STM32CubeIDE, Git, BitBucket, JIRA (Agile)

## Experience

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**Electrical Engineering Co-op | Hyvix Health | Kitchener, ON | Jan - Aug 2023**

- Prepared pelvic rehabilitation devices for clinical trials by diagnosing and correcting grounding/heat dissipation issues and creating an inventory tracking system
- Decreased UX testing time by designing and bringing up debugger module PCB to consolidate and replace finicky connectors
- Reduced damaged boards by redesigning temperature sensor PCB in Altium for better mechanical fit and sensor protection
- Implemented firmware in C to clean temperature sensor data and investigated alternative testing setups to minimize noise

**Embedded Systems Developer | onsemi (ON Semiconductor) | Waterloo, ON | May - Aug 2022**

- Implemented firmware updates for a low-power Bluetooth-enabled SoC designed for wearable health tech applications
- Used oscilloscope, J-Link debugger, and FPGA prototyping kit to test bug fixes for clock, memory, and voltage trim functions
- Created detailed documentation for code change decisions and technical reference material for future new hires

**Hardware & Embedded Systems Intern | CleanSlateUV | Toronto, ON | Sep - Dec 2021**

- Led a photodiode sensor project to design a UV-C light dosage testing device and signal processing circuit
  - Characterized sensors with an oscilloscope to compare options for a device that saves and displays readings
- Worked with I2C and UART communication in STM32CubeIDE using FreeRTOS (C) for ARM Cortex-M3 core
  - Created firmware tests to analyze hardware/data frame configuration responses for ballast functions
  - Developed workflow for PID control of two synchronized motors
- Independently researched noise attenuation and assembled EMC filters from a kit-of-parts

**Linear Circuits & Electromagnetism Teaching Assistant | University of Waterloo | Waterloo, ON | Jan - Apr 2021**

- Stress-tested labs involving op-amps, capacitors, and AC signals with simulations
- Reliably met deadlines to grade 100+ student submissions every week
- Communicated effectively with instructors, first-year students, and admin staff to coordinate scheduling

## Projects

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**Menopatch: Hot Flash Relief Wearable (Capstone) | KiCad, STM32 Nucleo, Peltier Module | 2023 - Present**

- Conducted user research to understand quality of life impact and biological mechanisms of menopausal hot flashes
- Analyzed datasheets and MCU documentation to select compatible and cost-effective biometric sensors
- Iterated through several electrical system designs from design review feedback

**Autonomous Search & Rescue Robot | STM32 Nucleo, Adafruit TOFs, PID Control | 2022**

- Designed and built an autonomous robot that navigates an obstacle course using TOF proximity sensors
- Acted as electrical lead to select components, manage battery and wiring, and test sensors
- Took initiative as project manager to schedule tasks, facilitate check-ins, and ensure that requirements were met

**Modeling & Analysis Course Projects | MATLAB, C++ | 2021**

- Created MATLAB model of 3D heat equation for thermodynamic analysis
- Used C++ to process raw ISS data for use in a MATLAB spacecraft simulation to analyze velocity and positioning
- Used MATLAB's Control System Toolbox to create bode plots for a low-pass filter

## Education

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**University of Waterloo – Mechatronics Engineering, Class of 2024**

Class Representative (2019 – 2022)

Engineering Ambassador (40+ speed mentoring sessions with high school students)

**Courses:** Biomedical Signal Processing, Transistor-Level Design, Data Fusion, Real-Time Systems, Digital Control Applications