Alicia Pan

alicia.pan@uwaterloo.ca aliciajpan.github.io panalicia

Hardware: STM32, Arduino, DMM, oscilloscope, signal generator, soldering, FPGA prototyping
PCBs & Design: DipTrace, LTspice, TinkerCAD, SolidWorks, AutoCAD, GD&T
Programming & Tools: C/C++, MATLAB, Python, Java, Eclipse, Keil µVision, STM32CubeIDE, Git, BitBucket, JIRA (Agile)

Experience

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 | *Sept - 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

Robotics Team Lead | Team 6070 Gryphon Machine | Mississauga, ON | Sept *2016 - Apr 2019*
- Worked with solenoids, double-acting cylinders, **encoders,** and **motor controllers** to build industrial-sized robots
- **Coordinated 20+ people** to collect data and develop successful match strategies
- Led a drive team of 5 people during high-pressure playoffs to win **1st place** in several district competitions

Projects

555 Timer LED Flasher PCB | DipTrace, LTspice, SnapEDA, TinkerCAD | *2021*
- Created a block diagram, circuit schematic, and simulation to capture **NE 555 IC** behaviour
- **Analyzed datasheets** to select compatible and cost-effective components
- Iterated through several PCB layouts and routing options from design review feedback

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

Autonomous Line-Following Car | Arduino & DC Motors | *2019*
- Programmed an **Arduino**-controlled car to poll **infrared sensors** and autonomously complete a designated course
- Developed performance tests for vehicle mobility and maximum drivable incline
- Resolved sensor accuracy edge cases by calibrating angle adjustment on difficult turns

Education

University of Waterloo – Mechatronics Engineering, Class of 2024
Class Representative *(2019 – 2022)* & Engineering Ambassador *(40+ speed mentoring sessions with high school students)*
Courses: Microprocessors & Digital Logic, Sensors & Instrumentation, Real-Time Systems, Automatic Control Systems

Awards

1st Place Designathon | 2021
UW Medical & Biological Engineering Student Society
Norman Esch Student Entrepreneurship Award | 2020

Interests

Volleyball Competitively trained but not vertically gifted
Violin Played for the Mississauga Symphony Youth Orchestra
Rubik's Cube 52 seconds is my current solving time record