

Alicia Pan



alicia.pan@uwaterloo.ca



[panalicia](#)



[aliciajpan](#)

Projects

555 Timer LED Flasher PCB | DipTrace, LT Spice, SnapEDA

2021

- Created block diagram and circuit schematic to capture IC behaviour
- Simulated circuit in **LT Spice** to determine suitable range of passive component values for desired LED flash frequency
- Analyzed datasheets to select compatible and cost-effective components
- Iterated through several layout and routing options during design reviews

[Robotics Team Lead](#) | [Machined Robot with VEX Parts](#)

2016 - 2019

- Prototyped and machined parts for **precise manipulation of irregularly shaped objects**
- Assembled pneumatic and electrical systems of industrial-sized robots (solenoids, double-acting cylinders, encoders, motor controllers)
- **Coordinated 20+** people in the acquisition and analysis of data on other robots to develop successful match strategies
- Led a drive team of 5 people during high-pressure playoff matches to **win 1st place at 2017 and 2019 district competitions**

[Autonomous Line-Following Car](#) | [Arduino Microcontroller & Soldered DC Motors](#)

2019

- Programmed an **Arduino**-controlled car to read from **infrared sensors** and autonomously complete a designated course
- Developed performance tests for vehicle mobility and maximum drivable incline
- Resolved edge cases for sensor accuracy by calibrating angle adjustment on challenging turns

[Assembly Line Robot](#) | [LEGO Mindstorms EV3 Brick & RobotC Programming](#)

2019

- Collaborated in a team of 4 to design, build, and demo an autonomous robot that assembles user-specified parts with logic to handle concurrent time-sensitive requests
- Interpreted readings from **colour, touch, gyro, and encoder sensors**
- Documented design iterations and tested product performance

Experience

[Linear Circuits & Electromagnetism TA](#) | [University of Waterloo](#)

Jan - Apr 2021

- Planned help sessions tailored to student needs attended by **50+ individuals**
- Reliably met deadlines to grade **100+ student submissions** every week
- Stress-tested labs involving **op-amps, capacitors, and AC signals** with simulations
- Debugged student circuits and corrected key misconceptions to ensure student success
- Communicated effectively with instructors, first-year students, and admin staff to coordinate scheduling

[Research & Design Intern](#) | [PASS Inc.](#) | [Waterloo, ON](#)

May - Aug 2020

- **Led product development** of [screen time management advice cards](#) and other mental health resources created with Adobe InDesign
- Conducted **20+ detailed user-base interviews** and investigated research papers on the impact of screen time
- Generated **2 international bulk-buy sales** via marketing materials such as monthly newsletters and a [blog post](#) article

[Girls In STEM Council Member](#) | [FIRST Robotics Canada](#) | [Toronto, ON](#)

Aug 2018 - 2019

- Planned a national overnight conference with **100+ attendees** to promote equality and diversity awareness in STEM
- Interviewed industry professionals and wrote an [article published](#) by FIRST Canada
- Taught **80+ students ages 5-12** basic robot mechanics and programming as a youth robotics mentor at the Ontario Science Centre

Education

[University of Waterloo](#)

Mechatronics Engineering

Class of 2024

Class Representative

Engineering Ambassador

Design

- SolidWorks
- AutoCAD
- DipTrace
- LT Spice
- GD & T

Hardware

- Arduino
- Breadboard Prototyping
- Soldering
- Machining

Programming

- C/C++
- VHDL
- PLC Ladder
- Assembly
- Python
- MATLAB
- Java

Awards

[Norman Esch Award](#) | 2020

Student Entrepreneurship
Scholarship

[Robotics Team Award](#) | 2019

Outstanding Individual
Contribution

[Gareth David Harvard](#)

[Memorial Scholarship](#) | 2019

Engineering Impact
Scholarship

Interests

[Midnight Sun Design Team](#)

Incoming member on solar car
hardware subteam

[Concert Violinist](#)

Mississauga Symphony
Youth Orchestra

[Volleyball](#)

Competitively trained athlete