

# JOCELYN LIM

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## SKILLS

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- **Tools:** SOLIDWORKS, Simulink, AutoCAD, Xilinx, Microstation, Ignition, PLC, Adobe Creative Cloud, GD&T, Git, LaTeX, Vim
- **Programming:** C++, C, Python, C#, Java, Matlab, HTML5/CSS, Microsoft Visual Basic
- **Languages:** English (Native), French (B2)

## EXPERIENCE

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### Red Bull Powertrains - ERS Control Systems Engineer

📍 Milton Keynes, England 📅 Jul 2023 - Jun 2024

- Worked in a fast paced **Formula 1** environment to develop the energy recovery system for the 2026 Red Bull power unit
- Used **SIMULINK HDL Coder** to convert a full **FPGA** motor model to fixed point, reducing resource allocation by 60%
- Used **SIMULINK** to introduce new features increase simulation accuracy in a PMSM motor model running on a HiL machine
- Implemented XCP protocols over UDP to create a **C++ DLL** to send calibrations to an ECU through a **C# Excel AddIn**

### Virtek Vision - Hardware Engineering

📍 Waterloo, ON 📅 Sept 2022-Dec 2022

- Designed and modelled parts to be machined and 3D printed for high precision laser machinery using **SOLIDWORKS**
- Rapidly designed and prototyped different solutions to product issues that arose in testing to meet strict deadlines
- Created technical drawings using GD&T standards for parts to be machined and 3D printed used for IRIS technology

### Hatch Ltd - Electrical/Control Automation Engineer

📍 Sudbury, ON 📅 Jan 2022 - Apr 2022

- Performed various electrical calculations for equipment sizing and created excel calculators based upon the OESC
- Used AutoCAD and Microstation to create SLDs, PIDs, layout diagrams and wiring diagrams of a large electrical network
- Coded automated and manual procedures for mining machinery through the use of ladder logic and **PLC programming**
- Created user facing interactive HMI windows to control and monitor a network of mining process systems using **Ignition**

### WATERLOOP - Braking and Thermal Management Engineer

📍 Waterloo, ON 📅 May 2021 - Present

- Developed designs for a lightweight and low heat braking system integrated with the guidance system on a Hyperloop pod
- Researched and developed different liquid cooling methods for thermal management of a Linear Induction Motor
- Created 3 iterations of different concept render designs of a carbon fibre shell using **SOLIDWORKS Visualize** and **Blender**

### WATonomous - Sensor Mounting Engineer

📍 Waterloo, ON 📅 Jan 2021 - Jun 2021

- Designed a water resistant 3D printed enclosure to be mounted on vehicle using **SOLIDWORKS** with a press fitted lid
- Enabled a sensor network to capture data with minimal noise from air resistance, vibrations and external elements
- Worked on a design team to create a **level four fully autonomous vehicle** to compete in a four year SAE competition

### Veriday - QA Analyst

📍 Mississauga, ON 📅 May 2021 - Aug 2021

- Designed and created 7 interactive and user friendly websites for financial advisors in under 3 months using **HTML/CSS**
- Provided front end support to users of a marketing platform by quickly responding to requests through Jira and Zendesk

## PROJECTS

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### Friendship Lamp

📍 Waterloo, ON 📅 Nov 2020

- Built and programmed internet-connected co-ordinated lamps with live colour updating dependant on a sister lamp
- Designed and 3D printed a light diffusing lamp shell to hold a Raspberry Pi and accommodate wires using **SOLIDWORKS**
- Designed an electrical circuit involving a variety of components to solder together and control using a Raspberry Pi

### Luke Skywalker Lightsaber

📍 Sudbury, ON 📅 Jan 2022

- Prototyped and built a 3D printed Luke Skywalker lightsaber replicate using **SOLIDWORKS** powered by an Arduino
- Researched and prototyped different light sources, and different methods of lightsaber blade assembly and light diffusion

## EDUCATION

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### University of Waterloo - Mechatronics Engineering

📍 Waterloo, ON 📅 2020 - 2026

- Varsity Women's Rugby
- EngHack Marketing Director, EngSoc Novelties Director

# Jocelyn Lim



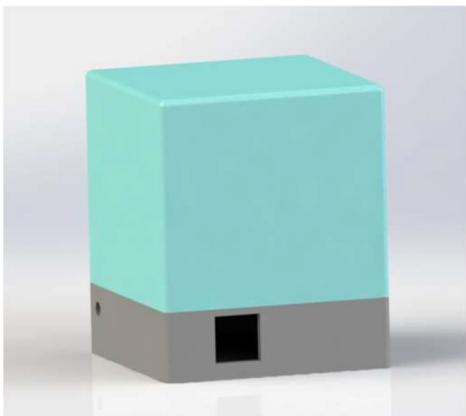
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## Friendship Lamp:

A project involving lamps connected to each other through the internet. The two lamps live update according to the colour of its sister lamp.

### Hardware/Mechanical Features:

- A lamp shade was designed to be 3D printed using SOLIDWORKS. The lamp shade was modelled to house a Raspberry Pi, and allows ethernet and cables along with buttons to extrude from the shell.
- Power cables, MOFSETS, LEDs and stepdown boards were soldered together and controlled by a Raspberry Pi

### Software Features:

- A Raspberry pi was programmed to change colours depending on a value in a google sheet
- The Google Sheets API was used to connect the lamps to each other

## Luke Skywalker Lightsaber

A project a 3D printed lightsaber modelled after Luke Skywalker's weapon from Star Wars

### Research and design:

- The handle was modelled after a combination of two lightsabers. Hand sketches were created during the design process
- Different forms of light colouring and diffusion were researched and experimented with to see what would produce the best blade

### Implementation

- The lightsaber handle was designed in SOLIDWORKS to be 3D printed
- LED lights are to be controlled by a push button and an Arduino to create a colour changing blade

