# Eric Dao

University of Waterloo
Candidate for B.A.Sc

+1 416-666-0239
eric@erickhangdao.com
www.erickhangdao.com

## Career Skills & Objectives

Seeking an opportunity to develop fundamental hardware/embedded engineering skills. Current areas of interest are in PCB design, hardware integration with sensors, and embedded systems programming in C. I am a self-motivated learner, who is highly adaptable to different situations. I have a strong ability to understand problems involving multiple technical parts. I enjoy working with others and finding new solutions to novel ideas.

## Technical Qualifications

**Programming Languages:** C/C++, RISC-V Assembly, Python, HTML, CSS, JavaScript

**Applications:** SolidWorks, AutoCAD, OnShape, MATLAB, KiCAD, Git

**Hardware:** Schematic Capture, Oscilloscope, Logic Analyzer, Multimeter, Soldering

**Protocols:** UART, I2C, CAN, SPI, ISR, TCP, UDP, IP

## Professional Experience

**M.I.S Electronics Inc** — Richmond Hill, Canada
*Embedded Firmware Engineering Intern* — *Feb 2021 - Apr 2021*

- Programmed a RISC MCU with IR/ALS sensors and solenoid drivers communicating via I2C in C for use in automated faucets
- Created a JavaScript web application to optically program faucet parameters for the MCU
- Implemented a TEG energy harvester using a Peltier module supplying external power to the MCU in an end user environment
- Designed and created a multi-channel temperature logger with a display using an Arduino Uno communicating via SPI and I2C

**Sanntek Labs Inc** — Waterloo, Canada
*Hardware Engineering Intern* — *May 2020 - Aug 2020*

- Using OnShape, designed and fabricated prototype microfluidic blood plasma filtering cartridges for the development of a COVID 19 antigen test using laser cutting and SLA 3D-Printing techniques
- Developed microfluidic cartridges for a proof-of-concept luteinizing hormone test device

**KPM Power Inc** — Etobicoke, Canada
*Backend Software Engineering* — *Sep 2019 - Dec 2019*

- Backend developer for Li-Ion BMS monitoring/parameter debugging software using LAMP stack
- Deciphered a parameter protocol by sniffing data on the CAN Bus using an RS485 CAN sniffer
- Contributed towards an early launch of the company's first product, the M800/S24 BMS modules

## Volunteer Experience

**FIRST® Robotics Competition** Etobicoke, Canada
*Mentor, Team 6397* *Sep 2018 - March 2020*

- Mentored high school robotics team in engineering design & manufacture, assisted in 2019/2020 season qualification
- Taught safe operation of power tools, and safe protocols while working with DC power
- Held object-oriented programming lessons in Java in preparation for the team's 'build' season

## Personal Projects

**Automatic Blind Actuator**
*Personal Project* *Apr 2021 - Present*

- Currently developing a device to automatically open and close blinds during sunrise and sunset
- Sunrise and sunset times will be locally calculated on an ESP32 in C, using the ESP-IDF framework, then actuated by a NEMA-17 stepper motor driven by a L298N H-Bridge
- Enclosure and grappling feature will be designed in SolidWorks and 3D-Printed

**Metal Foundry & Forge Burner**
*Personal Project* *May 2020 - Aug 2020*

- Using SolidWorks, designed then fabricated a metal foundry, capable of melting brass and copper
- Constructed and tuned a 20 PSI propane forge burner, capable of reaching internal crcible temperatures of 1200°C

**Gravity Assisted MERLIN Trebuchet**
*High School Physics Project* *May 2018 - June 2018*

- Designed and manufactured a trebuchet using an 80lbs counterweight capable of launching a 25g projectile 50m horizontally

## Education

**University of Waterloo** Waterloo, ON
*Candidate for B.A.Sc, Mechatronics Engineering* *Sep 2018 - Apr 2023*

- Relevant courses: Algorithms and Data Structures, Introduction to Microprocessors and Digital Logic, Sensors and Instrumentation, Introduction to Computer Structures and Real-Time Systems

## Interests

**Sports:** Playing badminton, MMA

**Technology:** Hobby Electronics, 3D-Printing

**Musical:** Playing piano, guitar

**Other:** Making things in general