Eric Dao

University of Waterloo
Candidate for B.A.Sc

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Career Skills & Objectives

Seeking an opportunity to develop fundamental hardware/embedded engineering skills. Current areas of interest are in PCB design, FPGA, and embedded systems programming in C and Verilog. Exceptional drive to learn and expand knowledge and skills. Strong ability to understand problems involving multiple technical parts. Excellent collaboration skills and work ethic.

Technical Qualifications

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

Operating Systems: Windows 10, GNU/Linux

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

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

Protocols: UART, I2C, CAN, SPI, ISR

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, then sent to a L928N H-Bridge driving a Nema-17 stepper motor
- 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: Enjoy learning about emerging technology, repairing electronics, 3D-Printing

Musical: Playing piano

Other: FOSS advocate