

ERIC-KHANG DAO

University of Waterloo | Mechatronics Engineering | Candidate for BAsC
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TECHNICAL QUALIFICATIONS

CAD: SolidWorks, OnShape, AutoCAD, KiCAD

Manufacturing: GD&T, FDM/SLA Additive Manufacturing, Laser Cutting

Machining: Drill Press, Angle Grinder, Mill, Welding

Hardware: STM32, Raspberry Pi, Arduino, Soldering, Oscilloscope

Firmware: UART, I2C, CAN, SPI, Interrupts

Programming: C, Assembly, C++, Python, MATLAB

Web Development: HTML, CSS, JavaScript, LAMP

Databases: SQL, MongoDB

Operating Systems: Windows, GNU/Linux

Version Control: Git, SVN

PROFESSIONAL EXPERIENCE

Embedded Firmware Engineering Intern

February 2021 – April 2021

M.I.S Electronics Inc, Richmond Hill, Canada

- Programmed a RISC MCU with IR/ALS sensors and solenoid drivers communicating via I²C in C for use in automated faucets
- Created a pure JavaScript web application to optically program automatic 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

R&D Hardware Engineering Intern

May 2020 – August 2020

SannTek Labs Inc, Waterloo, Canada

- 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

Firmware Engineering Intern

September 2019 – December 2019

KPM Power Inc, Etobicoke, Canada

- 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 control module

Mechanical Dimensioning Verifier

February 2019 – April 2019

Allseating Corp, Mississauga, Canada

- Verifier of task chair dimensions, each family of ergonomic chairs customizable up to 375 unique combinations
- Generated detailed reports that provided mechanical dimensioning data to be updated the company's product pages
- Assisted in designing a 3-ring drop test system, simulating operation of large individuals, capable of supporting up to 250kg

VOLUNTEER EXPERIENCE

FIRST® Robotics Competition Mentor

September 2018 – Present

Team 6397, Toronto, Canada

- Mentoring high school robotics team in engineering design & manufacture, assisted in 2019/2020 season qualification
- Taught and supervised 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

Metal Foundry & Forge Burner

May 2020 – August 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 crucible temperatures of up to 1200°C

Gravity Assisted Trebuchet

May 2018 – June 2018

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

EDUCATION

Candidate for Bachelor of Applied Science, Honours Mechatronics Engineering

Spring 2023

University of Waterloo, Waterloo, Canada