John Matthew Chen

PH#3-221 Queen Street South
Kitchener, ON N2G 1W5

jmc_tt@live.com
(204) 807-4524
https://johntt.github.io/

WORK EXPERIENCE

Embedded Software Developer — August 2018 - Present
Aeryon Labs Inc., Waterloo, Ontario

Technician — July 2018
Mobile Klinik, Kildonan Place, Winnipeg, Manitoba

- Performed screen replacements for customers with broken iPhone 6 and 7 models within advertised repair estimates of about an hour.

Research Assistant (Advisor: Dr. Carl Ho) — May - August, 2017
RIGA Lab - University of Manitoba

- Designed and simulated a programmable DC-AC grid-tied, active load using the Plexim PLECS power electronics software.
- Programmed the TI LAUNCHXL-F28377S using the C programming language and the Code Composer Studio IDE to implement PI (Proportional-Integral) and hysteresis controllers.

Research Assistant (Advisor: Dr. Douglas Buchanan) — May - August, 2016
Nano Systems Research Lab - University of Manitoba

- Performed research into micro-machined (MEMS) ultrasound transducers with the characteristics needed for Synthetic Aperture (SA) imaging.
- Designed a graphical user interface in LabVIEW which allows the user to control an Optics Focus Motorized XYZ Stage connected over RS232, and save measurements recorded by an oscilloscope connected over GPIB.

EDUCATION

Bachelor of Science in Electrical Engineering — May 2018
University of Manitoba, Winnipeg, MB, Canada
Grade Point Average: 4.09/4.50

ENGINEERING PROJECTS

University of Manitoba ecoMotion (Shell Eco-Marathon) Team — 2016 - 2018
Secretary (2016-2018) and Propulsion Controls Lead (2017-2018)

- Executive member of student design team, UM ecoMotion, founded in January 2016, which competes annually in the Shell Eco-Marathon competition.
- Placed 14th (80.62 km/kWh) in 2017, and 10th (101.8 km/kWh) in 2018, in the Americas Battery Electric Prototype vehicle category.
- Created a SPI software driver to draw shapes, numbers and letters onto the Pervasive Displays 4.41 E-Paper Display.
- Programmed STM32 Nucleo boards in C using SW4STM32 (Eclipse-based IDE) to parse SAE J1939 CAN messages from the AllCell Battery Management System and to send CAN messages to the motor controller.
- Utilized an open-source Git repository for the VESC STM32 F4 based BLDC motor controller running ChibiOS for the propulsion system.

- Ported a C++ Arduino library to STM32 for an Adafruit I2C Seven-Segment display which was used as the speedometer.
- Maintained version control of three different projects for the throttle, master and display Nucleo boards using GitLab.
- Proficient in using test equipment, such as multi-meters, oscilloscopes, and logic analyzers to debug issues with protocols (CAN, I2C, SPI, etc.).
- Experience using hand tools (wrenches, hacksaws, screwdrivers) and power tools (drills, jigsaws, foam cutters) to manufacture parts for the vehicle.
- Designed schematics and layout files for a 48V/20A Joulemeter using Altium Designer based off the Teensy 3.2.
- Led the registration process for the team resulting in over 60 members and over $2500 in membership fees for the 2016-2018 period.
- Created and designed the team website, http://umecomotion.ca/, using the Drupal content-management framework.
- Obtained $8000 (2016) and $6000 (2017) in sponsorship from the Engineering Endowment Fund.

International Olympiad in Informatics 2010, 2012, 2013

Capstone Design Project - 3rd Place Award April 2018
IEEE Canada, Winnipeg Section

- Designed a Bluetooth LE glove based on the Adafruit nRF52 Feather and the BNO055 IMU that converts user hand movements and gestures into mouse commands.
- Modified an existing UWP Microsoft application for demonstration purposes using Visual Studio, C# and XAML.

Relevant Coursework

- Completed the courses: Power Electronics, High Voltage Engineering, Control Systems, Design of RF/Wireless Systems, Microwave Engineering, Antennas, Digital Communications, Signal Processing 1&2
- Experience using both Python and MATLAB for file I/O, calculations, and graphing.

COMPUTER SKILLS

Programming Languages: C, C++, C#, Python 2/3, Java, Javascript, Pascal, HTML, XML, XAML, CSS, Verilog HDL, 68HC12 Assembly, LaTeX, SQL

Software: Eclipse, MPLAB X, TI CCS, SW4STM32, Visual Studio, .NET Framework, Universal Windows Platform (UWP), Arduino, Code::Blocks, Git, mbed, Altium Designer, Drupal, cPanel, MATLAB, NI LabVIEW, AutoCAD, NI Multisim, PSCAD, Plexim PLECS, COMSOL Multiphysics, Advanced Design System (ADS), FEKO, OriginLab Origin, Tanner L-Edit, Android Studio, Microsoft Office (Word, Excel, Powerpoint, Access, Project, Visio)

ACADEMIC AWARDS

Engineering Academic Excellence Award - First Place Electrical September 2016
Undergraduate Research Award April 2016, April 2017
Price Industries Limited Entrance Scholarships for Engineering March 2015