

EMMA XIE

2B MECHATRONICS ENGINEERING

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SKILLS & TOOLS

Hardware

Soldering, PCB Layout, Arduino, Raspberry Pi, Fritzing, EagleCAD

Software

Python, C#, C++, Unity3D, JavaScript, Node.js, Tensorflow, WebRTC, Git, Docker, Flask, Django, Qt4

Mechanical

Solidworks, Fusion360, AutoCAD, 3D Printing, Laser Cutting, EGAD, CNC machining

PROJECTS

VR Camera Simulator

CANON INNOVATION LAB. NOV - DEC 2016

- Developed main features to support the Oculus Rift Touch Controllers in place of gamepad using Unity 3D (**C#**)
- Simulated realistic interaction physics (collision and grip) of the Touch Controllers
- Calibrated camera exposure and optic physics
- 3D modelled multiple replicas of Canon lenses as game objects in **Fusion 360**

Dryerase Stocks. Bostonhacks

BOSTON UNIVERSITY. OCT 2016

- Used an **Arduino Uno**, a **Raspberry Pi 2**, and two stepper motors to plot stock market or bank account data on a dry erase board
- Designed and built mechanical assembly, calculated coordinate math
- Set up Raspberry Pi-to-Arduino data transfer
- Project was presented with the Capital One API award at BostonHacks

INTERESTS

Student conferences, photography, cybernetics, interactive art, graphic design, architecture, films, escape rooms

EXPERIENCE

Embedded Design Engineer. Evertz Microsystems

BURLINGTON. JUN 2017-AUG 2017

- Pioneered the development of a real-time media broadcasting over IP solution for live captioning using WebRTC (**JavaScript**) and Janus Gateway
- Developed firmware for audio encoding cards and controller panels, utilizing low-level serial (RS-422), **IP network communications** and real time system concepts

Rapid Prototype Developer. Canon Innovation Lab

KITCHENER. SEP 2016-DEC 2016

- Conceptualized and executed various integrated electromechanical and software solutions as proof of concepts
- Developed on platforms including embedded systems (**Arduino**, **Raspberry Pi**), the web, **VR**, **iOS**, and various Canon products
- Modelled and 3D printed multiple solutions during prototyping process
- Demoed new projects biweekly to team and Canon America executives

Innovation Specialist. Scotiabank Digital Factory

TORONTO. JAN 2016-APR 2016

- Researched and applied deep learning methodologies of reinforcement and unsupervised learning to financial applications in **Python** using Tensorflow
- Scanned and reported on the FinTech ecosystem to executives

ACTIVITIES

Dyno Harness Lead - Electrical System.

UW Formula Motorsports (FSAE)

WATERLOO. SEP 2016-FEB 2017

- Redesigned the power distribution of the fusebox and signal transmission of the engine control unit
- Analysed sensor readings with custom data logger to optimize engine performance during tuning, driver performance during testing, and for design validation
- Assisted in building and debugging the pneumatic shifter board and vehical harnesses
- Designed multiple electrical housing units and suspension components in Solidworks

Media & Marketing Commissioner.

Canadian Federation of Engineering Students (CFES)

NOV 2016-PRESENT

- Integral member of a 17 student national team, which indirectly represents and supports the 81,000 undergraduate engineering students in Canada
- Championed the redesign and development of the website: www.cfes.ca
- Represent the University of Waterloo at national student conferences where topics of diversity, leadership, academic advocacy are discussed
- Represented CFES as Canadian representative at a technology education student conference (BEST Event on Education 2017) in Porto, Portugal