

# EMMA XIE

## MECHATRONICS ENGINEERING

email: emma.xie@uwaterloo.ca

mobile: 416.818.8610

web: eexie.github.io

## PROFILE SUMMARY

- Extensive experience designing and prototyping intergrated electromechanical and software systems
- Applied experience in using CAD software for mechanical design and schematic capture with the Formula SAE design team
- Special interest in interdisciplinary electromechanical systems and emerging technologies
- Experienced in building and testing across platforms including web, mobile, virtual reality and interactive devices

## EXPERIENCE

### *Rapid Prototype Developer. Canon Innovation Lab* KITCHENER. SEPT 2016-DEC 2016

- Advanced a VR camera simulator game using Unity (C#), supporting major functionalities on the Oculus Touch Controllers in place of gamepad
- Project page: [eexie.github.io/work/hardware/vr-camera-sim](https://eexie.github.io/work/hardware/vr-camera-sim)
- 3D modelled multiple prototypes in Solidworks and Fusion 360
- Conceptualized and executed various hardware and software solutions, as proof of concepts (NDA protected)
- Utilized technologies including 3D printing, embedded systems (Arduino, PCB), full-stack web apps, iOS, and various Canon products
- Demoed prototypes biweekly, frequently to Canon North America executives

### *Dyno Harness Lead - Electrical System.* UW Formula Motorsports (FSAE)

WATERLOO. SEP 2016-PRESENT

- Redesigned the power distribution of the fusebox and signal transmission of the engine control unit in EagleCAD
- Optimized engine and driver performance through gathering and analysing sensor readings with custom data logger
- Designed multiple electrical housing units and suspension components in Solidworks
- Assisted in building and debugging the electro-pneumatic shifter board PCB and vehical harnesses

### *Innovation Specialist. Scotiabank Digital Factory*

TORONTO. JAN 2016-APR 2016

- Explored and applied neural networks and deep learning philosophies to financial applications in Python using Tensorflow
- Initiated and maintained an internal blog series educating Scotiabank employee network on machine learning

## RELEVANT SKILLS

SolidWorks	EagleCAD	Python
Fusion 360	CNC Machining	Oscilloscope
Fritzing	Virtual Reality	Arduino
Soldering	C++	Javascript

## PROJECTS

### *Touch Guitar*

SOLO PROJECT. NOV 2016-PRESENT

- Building an Arduino-driven guitar with a laser-cut acrylic body, and capacitive touch sensors
- An audio file plays while strings are touched, transforming any user into an amazing guitar “player”

### *Dryerase Stocks. Bostonhacks*

BOSTON UNIVERSITY. OCT 2015

- Plotted stock market and personal accounting data on a dry erase board using an Arduino Uno, a Raspberry Pi 2, and stepper motors
- Designed and built mechanical assembly, calculated coordinate math, set up Raspberry Pi-to-Arduino data transfer
- Won Capital One API award for best project utilizing Capital One data

## EDUCATION

### *Mechatronics Engineering*

UNIVERSITY OF WATERLOO. SEP 2015-PRESENT

- Relevant courses: Microprocessors & Digital Logic, Material Sciences, Mechanics of Deformable Solids, Statics, Dynamics,
- Represented university at international design team competitions (Formula Motorsports) and national engineering conferences (ESSCO, CFES)
- Expected graduation in April 2020

## INTERESTS

Conferences	Photography	Graphic Design
Augmented Reality	Rapid Prototyping	Movie Soundtracks
Baseball	Foreign Films	Escape Rooms