EMMA XIE
MECHATRONICS ENGINEERING

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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
- Various manufaturing and mechanical design experiences on vehicle chassis and suspension components
- Special interest in interdisciplinary electromechanical systems and emerging technologies
- Knowledgable in sensor data acquisition and analysis as applied through the Formula SAE design team

EXPERIENCE

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 and Fritzing
- Built and debugged the dyno harness for engine tuning with CAN and Ethernet protocols
- Designed multiple electrical housing units, custom electronic components and suspension components in Solidworks
- Analysed sensor readings with data logger to optimize engine performance during tuning, and driver performance during testing
- Assisted in prototyping the electro-pneumatic shifter board

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
- Conceptualized and executed various hardware and software solutions, as proof of concepts
- Utliized and developed technologies including embedded systems (Arduino, PCB), full-stack web apps, 3D printing, iOS, and various Canon products
- Demoed prototypes biweekly, frequently to Canon North America executives

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	Fusion 360
Soldering	CNC Machining	Oscilloscope
Fritzing	Virtual Reality	Arduino
Python	C#	Unity3D

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