Tianyu Guo (Ti)

University of Waterloo Mechatronics Engineering 2A

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Skill List

Hardware

- PCB Schematic Design, PCB layout design, Micro-Controllers, troubleshooting
- 3D Printing, Soldering, Laser Cutting
- Eagle CAD, SolidWorks, AutoCAD
- Arduino, Raspberry Pi
- Lathes, Milling Machines, wood shop tools

Software

- C, C++, AHK, Java, MatLab (introductory), Python (introductory)
- HTML, CSS, Bootstrap, JavaScript, NodeJS (introductory)
- Photoshop, Illustrator
- Visual Studio, GIT

Additional

- Rapid Prototyping demonstrated by projects & Hackathons
- Data analysis with Sensors
- NFC technology (introductory)

Employment History

Innovation Intern – *Khazanah Americas Incorporated. (101 California St) San Fransisco* *2016*

- Developed a Google based customizable database searching tool and was used by 40% of employees in the company. Used JavaScript, HTML, CSS, Node.JS, Bootstrap, Heroku.
- Designed and developed a Kinect based human body scanner, used C, Arduino, laser cutting, machine shop, 3D printing.
- Conducted research about tech trends related to Internet of Things.

Hardware Developer - *Neurovative Technologies Inc., (Accelerator Centre) Waterloo, ON* *2014-2016*

- Co-developed wearable hardware and a programmable therapeutic system
- Worked with sensors, **data analysis**, **circuit** design, circuit building, **Arduino**, and **Bluetooth**
- Assisted with the company's Android companion app, using **Java**
- **Represented the company** in Shenzhen, China during summer 2015 by discussing and investigating cooperation opportunities in vibration motors and PCB manufacturing with vendors.
- Read **data sheets** and tested sensors and motors

Junior Software Developer - *Symanta Inc., (Communitech) Waterloo, ON* *2014*

- Worked with the Emotiv Brainwave Headset, Google Cardboard, **Python**, and AHK
- Developed a mind controlled virtual reality gaming system
- Crowd tested the project at KWartzlab

Lab assistant - *University of Waterloo, Waterloo, ON* *2013*

- Improved the Lab Manual for ECE 351 (Compilers)
- Ensured clear structure and drew flow charts for the programming assignments, using **C++**

Projects

Smartphone-controlled smart pillow for sleep tracking and modifying *2015-present*

- Applied skills in **Arduino**, **Git**, **C**, **Java**, and data analysing with sensors
- Built compact electrical system embedded in a pillow which utilized PCD printing and Schematic design, Arduino, accelerometers, Bluetooth, **I2C**, **EEG** sensor circuit, LCD screen, pressure sensors, vibration motors, sd card R/W, etc.
- Ongoing project with 18 months of research and developments and 4 versions of prototypes. The device is proven to be able to generate sleep activity data more accurately than most of sleep trackers on the market.
- **Sourcing components** from vendors

Real Life Angry Birds Gaming Machine *2014*

- Used **3D modelling** for Design, **Machining**, Arduino, and Circuit Design
- Led a group of 5 Engineering students to develop the project to design and build the system

Bluetooth earpiece wireless charging shall *2016 - present*

- Applied PCB manufacturing, full bridge rectifier circuit design, 3d modeling and printing.

Concentration Improvement System *2014-2015*

- Rapid prototyping using Arduino **embedded system**, Bluetooth, hacked into Neorsky MindFlex Duel brainwave sensor, C, building circuits
- Modified open-source **Android** Bluetooth app to graph user's concentration data
- Used machining skill to develop a wristband that notifies users when they are not concentratin

Myo EMG controlled robot arm - *EngHack Hackathon at University of Waterloo* *2015*

- Applied skill of **Rapid Prototyping**, Arduino, C, C++. Worked with online open-source projects

Android anonymous caller display app - *TechRetreat Hackathon at University of Waterloo* *2015*

- Applied skill in rapid prototyping, Photoshop for **UI** design, and Java for android **front end** developing
- http://devpost.com/software/callerid

Job Miner Website – *ConUHacks Hackthon at Concordia University* *2016*

- Used **Html**, **JavaScript**, **CSS**, **jQuery**, **Bootstrap** and **GitHub** to co-develop a website that evaluates jobs for users

Activities

Founder and Organizer– *University of Waterloo Natruwake Bio-Mechatronics Team* *2015-present*

- Led 15 students in developing an **open-source** smart pillow pad (based on pillow project)
- Used GitHub **Version control** and collaboration, 3D modeling & printing, Arduino, Circuit design, Mechanical design, and crowd **testing**

Mechanical and Electrical Lead of Robotics Team - *Waterloo Collegiate Institute* *2013-2015*

- Led building a robot car, **rapid prototyping** with sensors, motors, Raspberry Pi to control Arduino, machining for making the body, circuit design

Hardware Executive at First Robotics Team 2702 *2014-2015*

- Used lathes, drilling machines, table saw, milling machines, **Solidworks** for designing, prototyping and building a robot

Founder and co-organizer of Arduino Workshop - *University of Waterloo* *2015*

- Organized, Designed, and gave hands-on lectures in **Arduino**

Program Designer and Instructor – *Stack Family YMCA **Robotics** Summer Camp* *2015*

- Led designed and built 16 projects involving Lego Mindstorms and Arduino for young students

Computer Technician – *Kitchener Working Centre* *2013*

- Volunteered fixed computers, installed computer systems and software

Education

Candidate for Bachelor of Applied Science

-Honours Mechatronics Engineering at University of Waterloo *Sep/2015 – 2020*

- Extracurricular evolvement: Biology Mechatronics Club Brain Computer Interface Team, Biology Mechatronics Club Atlas Team, Leading Biology Mechatronics Club Pillow Project Team, Federation of Student Entrepreneurial Committee, Outer Club, Meditation Club, Hosted Chinese Canadian heart to heart Club

Awards & Achievements

President's Award - *University of Waterloo* *2015*

- Awarded for Achieving above and beyond in Engineering community (1 of 6 recipients of the term)

2nd Place Overall - *International Autonomous Robot Racing Competition* *2015*

- From leading Waterloo Collegiate Institute Robotics Team

Gold Medal - *Waterloo Wellington Science and Engineering Fair* *2015*

Certifications

CompTIA A+ Certification for computer hardware *June 2013*

Interest

- Rock Climbing, Biking, Chess, Chinese Calligraphy
- Follow tech trend, reading articles/ news about entrepreneurship and tech trend