

# Tianyu Guo (Ti)

University of Waterloo Mechatronics Engineering 2A

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## Hardware Skills

- PCB Schematic Design, PCB layout design, Soldering, 3D Printing
- Arduino, Raspberry Pi, PLC, FPGAs, ARM based microprocessors
- Machining, Wood shop tools, Laser Cutting
- UART, I2C, SPI, NFC protocols

## Software Skills

- Proficient: C, C++, AHK, HTML, CSS, Bootstrap, JavaScript, Mac/Linux Terminal, Python
- Familiar: Java, MatLab, Node.JS, Heroku, NoSQL, Google Cloud
- Eagle CAD, SolidWorks, AutoCAD, Sketchup, 3ds MAX, Photoshop, Illustrator, LabView, CleWin

## Additional Skills

- Rapid Prototyping
- Crowed Testing
- Market researching
- Investigation with Manufacturers
- OKR Project Planning
- Scrum Model, Lean Model

## Employment History

**System Design Intern** – *Medella Health (4 year old Thiel Fellowship Startup), Waterloo, ON* 2017-present

- Developed a system that automates glucose sensor deposition and speeded up sensor deposition process by **5 times** for company's Glucose Measuring Smart Contact Lenses
- Saved company more than \$5000 from improving sensor deposition methods
- Created methods to help company reached out to multiple **partnerships** and industrial **experts**
- Developed a process that helped company to save components sourcing time by average of **30%**

**Co-Founder** – *Busboy, Waterloo, ON* 2016-present

- Developing a marketing service bringing retargeting advertisement to physical vendors
- **Managing business and project development** using lean method
- Led company to registered as part of Velocity Residence and Founder Institute incubator
- Working with 2 restaurants to implement company's prototype

**Innovation Intern** – *Khazanah Americas Incorporated. San Fransisco, CA* 2016

- Developed a KAIssearch website that allows employees to easily customize their search in multiple company's business databases that have used by 30% of staff in the office
- Lead developed a Kinect-based 3D human body scanner that can capture over 90% of users' upper body details
- Developed camera control interface and automation software for company's Drawing robot project
- **Analyzed tech startups** using **Bloomberg** and **PitchBook**
- **Participated** in various startups pitches and **investment interviews**, discuss deals with startups
- Skills improved with PCB design, machining, **Laser cutting**, 3D modeling, **3D printing**, **Raspberry Pi**, Arduino, **Python**, C, **SSH**, AHK, JavaScript, CSS, HTML, Linux

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

- Co-developed company's main product, Vibrant, a wearable therapeutic system, as the 3<sup>rd</sup> member of the company
- **Data analysis** with accelerometer, circuit building, **Bluetooth Low Energy**, and tested bio-sensors and actuators
- 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

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

- Worked with the Emotiv Brainwave **EEG** Headset, Google Cardboard, **Python**, and AHK
- Led developed company's mind controlled virtual reality gaming system
- Organized **customer discovery** process for the project. **Crowd tested** at KWartzlab hackerspace

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

## Projects

### Smartphone-controlled smart pillow for sleep tracking and modifying 2015-2016

- Built compact electrical system embedded in a pillow which utilized Arduino, **Git**, C, **Java**, accelerometers, Bluetooth, **I2C**, **SPI**, **UART**, **EEG** sensor circuit, LCD screen, vibration motors, sd card R/W, etc.
- **Source customized components** directly from manufacturers
- 18 months of research and developments and 4 versions of prototypes. The device is proven to be able to generate sleep activity graph as accurately as top 5 sleep tracking apps on the market

### Bluetooth earpiece wireless charging shell (3d design and printing, circuit design and PCB manufacturing) 2016 - present

- Developed the portable wireless charging shell for Bluetooth earpiece
- Conducted **market research** and **customer discovery** process for the Startup project

### Concentration Improvement System (Arduino, Bluetooth, Java for android, EEG sensor) 2014-2015

- Used machining skill to develop a wristband that notifies users when they are not concentrating

### Real Life Angry Birds Gaming Machine (3D design, Machining, Arduino, and Circuit Design) 2014-2015

- Led a group of 5 Engineering students designed and build an electrical controlled mechanical Angry Bird Machine

### Myo EMG controlled RSI treatment system – Hack the North hackathon (Bluetooth, Arduino, C, UART) 2016

- Co-developed vibration system to correct posture, using data from EMG sensor. **Tested on patients**, proven effective

## Activities

### Founder of Natruwake Student team – University of Waterloo Natruwake Bio-Mechatronics Team 2015-present

- Used **Scrum Model** 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 **machine learning** library, PCD **layout** and **Schematic** design, **MQTT** protocol, **H-Bridge**, and product **crowd testing**, Google cloud, **SolidWorks**.

### Co-president in Mechanical and Electrical Lead of Robotics Team - Waterloo Collegiate Institute 2013-2015

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

### Hardware Executive at First Robotics Team 2702 - Eastwood Collegiate Institute 2014-2015

- Used lathes, drilling machines, table saw, milling machines, **SolidWorks** for designing, prototyping and building robots

## Awards & Achievements

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

- Awarded for founding UW-Hardware Workshop (1 of 6 recipients of the term, one of the youngest recipients in history)

### 2<sup>nd</sup> Place Overall - International Autonomous Robot Racing Competition 2015

- Led Waterloo Collegiate Institute Robotics Team won the 2<sup>nd</sup> place in the world.

## Education

### Candidate for Bachelor of Applied Science

-Honours Mechatronics Engineering at University of Waterloo 2015 – 2020

- Extracurricular involvement: Founder of UW Hardware Workshop (Helped over **300 students** get start with Arduino), Co-Founder and Lead **Project Designer** of Kitchener Public Library Robotics Summer Camp and Waterloo YMCA Robotics Summer Camp, Federation of Student Entrepreneurial Committee, Co-organizer of Meditation Club, Co-organizer of Chinese Canadian heart to heart Club, Toast Master Club, Brain Computer Interface Club, Outer club.

## Interests

- Reading, Rock Climbing, Biking, Chess, Chinese Calligraphy
- Following tech trends, reading articles/ news about entrepreneurship