# . RICHARD HU

88 Harbour Street Unit 2207 Toronto, ON • richie.hu@mail.utoronto.ca • (647) 775-9055

## Objective: Graduating mechanical engineer seeking employment opportunities in the robotics field where my effective performance will be met with recognition and growth.

# EDUCATION

## University of Toronto – Mechanical EngineeringExpected graduation April 2018

## *Bachelor of Applied Science*

Mechatronics & Bioengineering Stream, Robotics and Mechatronics Minor. GPA (3.81/4.00)

# AWARDS & SCHOLARSHIPS

* Shell Canada Limited Engineering Scholarship (2015)
* University of Toronto Excellence Award (2015)
* Dean’s Honour List (2014 – Present)
* U of T Engineering Competition Junior Design “Best Innovation Award” and “Best Prototype Award” (2015)

# WORK EXPERIENCE

## Conavi Medical, Toronto May 2016 – August 2017

## *Mechanical Design Intern (16 months)*

* Prepared and lead 3 major technical design reviews of a development phase intravascular catheter project with senior leadership, led to **accelerated project progress** and successful exist of development phase.
* Single handedly established an adaptable inventory system with full traceability for over 140 medical components for the intravascular catheter project. This significantly **improved plannability of major milestone**, verification and validation activities and guaranteed reliability of FDA submission document.
* Successfully conducted engineering design testing in clean room environment, and designed components critical to patient safety using **jig design**, **statistical analysis**, **tolerance analysis**, **MATLAB** and **SolidWorks**.
* Coordinated with senior engineers and technicians to **develop manufacturing processes** to mitigate patient risk.

# RELEVANT PROJECTS

## Autonomous Maze Navigation Rover Design September 2017 – December 2017

## *Software & Systems Developer*

* **Developed a deliberate/reactive hybrid control architecture** that governed an autonomous rover to maneuvering through a maze, performing obstacle avoidance, localization, pathfinding, pick up and deliver a payload to designated location.
* Implemented 2D histogram localization, ultrasound obstacle detection and avoidance, A\* path planning algorithm using **MATLAB** and **Arduino** programming.

## Open Architecture Quadcopter Capstone Design September 2017 – Present

## *Project Manager & Mechanical Designer*

* Took charge of overall project direction, planning, client coordination. This involved using **Gantt Chart** to plan project schedule and critical path, proactively engage with team members to assess design progress, coordinate with client and supervisor to ensure client interest is well represented in the design.
* Design mechanical features of a quadcopter using **SolidWorks**, prototyped the designed parts with **3D printer** to conduct verification testing. Analyzed structural integrity of component under impact using **ANSYS Explicit dynamics** tool.
* Set altruistic team goal and ensure member’s autonomy to inspired and empowered team members. **Created a synergistic team environment**, with continuously increasing member dedication and motivation.

# CURRENT PROJECTS

## Pico-Scale Hydro Turbine Design Thesis January 2018 – Present

## *Researcher*

* Using **SolidWorks** and **ANSYS** CFX simulation result to design a variable guide vane mechanism for a self-powered turbine for a startup company that is in collaboration with University of Toronto Water and Energy Research Lab.

## Autonomous Turtle Bot Toronto, January 2018 – Present

## *Software Developer*

* Using **Robot Operating System (ROS)** to implement an intelligent control architecture on a TurtleBot2 to explore and map an unknown environment.

# EXTRACURRICULARS

### **Mechanical & Industrial Engineering Mentorship Program** September 2017 – Present

## *Mentor*

* Advised junior engineering students on how to establish study goals, obtain research opportunities, how to participate in skill building extracurriculars.

**New Start**Toronto, August 2014 – September 2015

## *Tutor*

* Instructed a group of students ranging from high school, to 2nd year U of T students on English, Physics, Chemistry and Calculus.
* Counseled students in defining study goals and formulate personal study methods.

# SKILLS & INTEREST

**Software:** SolidWorks (Associate Level Certified), Arduino, MATLAB & Simulink, Robot Operating System (ROS), Machining, Microsoft Excel, C programming, C++ Programming, ANSYS Explicit Dynamics.

**Soft Skills:** Teamwork, Project management, Big picture thinking, Strong work ethics, Multitasking.

**Language:** Fluent in English and Mandarin.

**Interest:** Skiing, Skating, Board Games, Films, Anime, Travelling, Food, Cooking.