

# RYAN LI

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A self-motivated 2B Nanotechnology Engineer at the University of Waterloo, The Knowledge Society Alumni, and SHAD Fellow who is passionate about nanotechnology, entrepreneurship, and bringing impact to the world through technology.



## SUMMARY OF QUALIFICATIONS

- Project-Oriented experience in using literature to create and procedures of experiments in a laboratory setting.
- Experience in JavaScript, Python for data analysis, HTML, CSS, Excel, and Solidworks, Materials science in EduPack, MATLAB, and COMSOL.
- Skillful at conducting presentations with experience presenting for Velocity \$5K competition and research poster at the MINE Summit 2019 in Shanghai
- Experience in SEM, AFM, XPS, TEM, STM, PVD, CVD, DSC, TGA, materials characterization and wet labs



## EXPERIENCE

### Research Assistant | University of Waterloo, Waterloo Microfluidics Lab, Professor Carolyn Ren

September 2019 – PRESENT

- Developed and validated a novel **microfluidics platform** for **single embryoid growth on a chip** with **double emulsion methodology** utilizing UV polymerized hydrogel, GelMA, and FC40 oil
- Successfully improved **encapsulation rate of embryonic bodies by 30%** utilizing novel mechanical vibration generation device

### Research Assistant | Southeast University, Key Laboratory of MEMS of Ministry of Education China

May 2019 – September 2019

- Created an **Electrical Impedance Spectroscopy (EIS) simulation** of a *S. Pombe* cell cycle using **COMSOL and MATLAB** to extract **equivalent circuit model (ECM)** values of cell components
- Validated simulations with live experimental data in clean room showing 90% accuracy in models
- Presented **research in poster format** at the **Microsystems and Nanoengineering Summit (MINE) 2019** in Shanghai, China

### Technical Team member and Micro-fabrication Lead | University of Waterloo NanoRobotics Group

SEPTEMBER 2018 – JANUARY 2019

- Worked on the Solenoid Actuated Microrobot (SAM) through **PCB manufacturing, solenoid actuation** through **Arduino control systems, optical microscope, electric circuit design, and C++**, improved actuation on platform by 150% through introduction of silicon oil as **tensoionic fluid**
- Worked with various **photolithography techniques, CVD, PVD**, for development of silicon wafers to run microrobot actuation
- Developed solutions for **flux pinning tests** utilizing **cantilever design, torsion balance**, and optimized materials utilized for **superconductor and micro-magnet fabrication**

### Volunteer Research Assistant | Professor Ting Tsui at University of Waterloo

JANUARY 2019 – PRESENT

- **Trained in Scanning Electro Microscopy (SEM)** to image in-vivo cell cultures stained onto integrated circuit chips for cell analysis

### Co-Founder | Omicron

OCTOBER 2017 - PRESENT

- Created a novel platform for increase in sponsor ROI with **Angular JS, and Firebase**, with validated customers from industry and strategic partnerships developed with **Google, TechTO, Red Bull, and .tech**
- Helped lead and organize hackathons for various corporate groups and schools including **Elevate Tech Jam, Red Bull AdrenalAN, JAM Hacks, THacks 2, Hack the Hammer and Pentahacks**, and improved event engagement overall by 60%



## PROJECTS

### Technology Articles | Medium Posts and Personal Website

OCTOBER 2017 – PRESENT

- **Created articles** focusing on concepts, including **lithography techniques, cancer research, and applications of nanotechnology**
- [Three-part review](#) of the **MINE Summit 2019** in Shanghai, China focusing on **M/NEMS, Microfluidics Devices, and Biosensors**

### Hardware Developer | Nanotechnology Engineering Design Days

March 2019

- Fabricated a **Scanning Tunneling Microscope (STM)** from scratch utilizing **wet etch techniques** and developed a unique noise-cancelling system. Produced clear images for metallurgy analysis in surface profiling



## INTERESTS

Hackathons (Participated and organized over 15), Auditing Coursera Courses (Audited 2 Nanotechnology and Sensors Courses), Music, Working Out, Reading Research Papers, Sprinting, and Learning. Fluent in English, Mandarin, Cantonese and French