

# Anson Lau

4A NANOTECHNOLOGY ENGINEERING · UNIVERSITY OF WATERLOO

☎ (+1) 647-927-1132 | ✉ anson.lau@edu.uwaterloo.ca | 📱 ansonlau1

## Summary

---

- Experienced in microfluidics for point-of-care and protocell applications from past experiences and courses
- Fourth Year Design Project (FYDP): Microfluidic Platform for Detection of Pathogens
- Familiar with optical design and simulation from previous experiences and courses
- Wet lab experience from work experience, polymerization, organic, and biochemistry labs
- Characterization experience: Impact/Tensile testing, TGA, DSC, AFM, UV-Vis, FTIR, Raman spectroscopy, SEM, XRD, Ellipsometry, Glove box, TEM, Zetasizer, DLS, GPC
- Microfabrication and clean room experience: PECVD, PVD, photolithography, soft lithography, RIE, profilometer, IC prober
- Electronics experience: Oscilloscope, Multimeter, Function Generator, Arduino, Four-point Probe, Soldering, Machine Shop
- Knowledge of COMSOL (Laminar Flow, FSI, Heat Transfer, EM, Particle Tracing), MATLAB, Python, AutoCAD, Microsoft Office
- Working knowledge in Zemax OpticStudio, Tanner Suite L-Edit, MicroTec, LabVIEW

## Publications

---

- Deshpande, S.; Brandenburg\*, F.; **Lau\*, A.**; Last, M. G. F.; Spoelstra, W. K.; Reese, L.; Wunnava, S.; Dogterom, M.; Dekker, C. Spatiotemporal Control of Coacervate Formation within Liposomes. *Nat. Commun.* 2019, No. 2019, 1–11. <https://doi.org/10.1038/s41467-019-09855-x>.
- Fanalista\*, F.; Deshpande\*, S.; **Lau, A.**; Pawlik, G.; Dekker, C. FtsZ-Induced Shape Transformation of Coacervates. *Adv. Biosyst.* 2018, 1800136.
- Haebler, K.; **Lau, A.**; Qiu, J.; Bajcsy, M. High Resolution Multi-Grating Spectrometer *Canadian Journal of Undergraduate Research* 2017, 41-46
- \*:contributed equally

## Experience

---

### Advanced Theranostics Inc.

Hamilton, Canada

ENGINEERING SCIENTIST

Jan. 2019 - Exp. Apr 2019

- Working on the development of a preclinical point-of-care molecular diagnostics platform for infectious diseases
- Design and development of a novel heating system for use in next generation device
- Design of a fluorescence imaging setup to simplify assay development

### Cees Dekker Lab, Delft University of Technology

Delft, Netherlands

VISITING UNDERGRADUATE RESEARCHER

Sep. 2017 - Apr. 2018 | Part-time May. 2018 - Aug. 2018

- Under supervision of Dr. Cees Dekker
- Initiated and advanced the use of coacervates as a protocell model for synthetic cell division in the lab
- Developed a microfluidic system to obtain spatiotemporal formation control of coacervates within liposomes
- Collaborated with other members to combine coacervates and FtsZ ring formation as a concurrent project
- Published in *Nature Communications*  
S. Deshpande, **F. Brandenburg, A. Lau**, W. Spoelstra, L. Reese, S. Wunnava, M. Dogterom, C. Dekker "Spatiotemporal control of coacervate formation within liposomes"
- Published in *Advanced Biosystems*  
**F. Fanalista, S. Deshpande**, A. Lau, G. Pawlik, C. Dekker "FtsZ-Induced Shape Transformation of Coacervates"

### Nanophotonics and Quantum Optics Lab, Institute for Quantum Computing

Waterloo, Canada

UNDERGRADUATE RESEARCH ASSISTANT

May. 2017 - Aug. 2017

- Under supervision of Dr. Michal Bajcsy
- Designed on-chip structures for fiber-enhanced spectroscopy in L-Edit

### Biomedical Institute for Global Health Research & Technology (BIGHEART), National University of Singapore

Singapore

VISITING UNDERGRADUATE RESEARCHER

Jan. 2017 - Apr. 2017

- Under supervision of Dr. Luke P. Lee
- Designed and simulated microfluidic device for single-cell optofluidic sorting and trapping of whole blood
- Simulated the basis of plasmon resonance energy transfer (PRET) in COMSOL

## Nanophotonics and Quantum Optics Lab, Institute for Quantum Computing

Waterloo, Canada

UNDERGRADUATE RESEARCH ASSISTANT

May, 2016 - Dec. 2016

- Under supervision of Dr. Michal Bajcsy
- Designed and built high resolution spectrometers with autoCAD and Zemax OpticStudio
- Designed GUI in MATLAB to control and analyze data from spectrometers
- Integrated C++ and .NET libraries into MATLAB for control of cameras
- Accepted for Presentation at the **2017 Canadian Association of Physicists (CAP) Congress**  
K. Haebler, A. Lau, J. Qiu, M. Bajcsy "Arduino-controlled triple-grating high-resolution spectrometer"
- Published in the **Canadian Journal of Undergraduate Research**  
K. Haebler, A. Lau, J. Qiu, M. Bajcsy "High Resolution Multi-Grating Spectrometer"

## Ultrafast Electron Imaging Lab, University of Waterloo

Waterloo, Canada

UNDERGRADUATE RESEARCHER

Jan. 2016 - Apr. 2016

- Under supervision of Dr. Germán Sciaini
- Designed and built an auto-correlator with a MATLAB GUI

## Education

---

### University of Waterloo

Waterloo, Canada

BACHELOR OF APPLIED SCIENCE CANDIDATE, Honours Nanotechnology Engineering

Sep. 2015 - PRESENT

- Accelerated MASc program

### Glenforest Secondary School

Mississauga, Canada

INTERNATIONAL BACCALAUREATE (IB) DIPLOMA

Sep 2011 - May. 2015

## Activities

---

### Engineering Ambassadors

Waterloo, Canada

RECRUITMENT AND EVENTS DIRECTOR (FALL 2016) | SHADOW DAY MANAGER & SOCIAL MEDIA COORDINATOR (WINTER 2016)

Sep. 2015 - PRESENT

- Aided prospective students through outreach, shadow days, and tours
- Planned, organized, and oversaw *March Break Open House 2016*, *Women in Engineering Shadow Day*, and *Fall Open House 2016* as part of my role on the leadership team in collaboration with the Faculty of Engineering Marketing & Undergraduate Recruitment

### Waterloo Engineering Society (EngSoc)

Waterloo, Canada

DIRECTOR & CONFERENCE CO-CHAIR

Apr. 2016 - Sep. 2016

- Planned, organized, and co-chaired the *2016 First Year Engineering Leadership Conference (FYELC)*

### University of Waterloo

Waterloo, Canada

ORIENTATION LEADER

Jan. 2016 - Sep 2016

- Led and organized orientation week activities for incoming first-year students

## Awards

---

2019 **Undergraduate Student Research Award (USRA)**, Natural Sciences and Engineering Research Council of Canada (NSERC)

2017-2018 **International Experience Award**, University of Waterloo

2017 **Undergraduate Research Award**, Faculty of Engineering, University of Waterloo

2017 **International Experience Award**, University of Waterloo

2016 **Undergraduate Student Research Award (USRA)**, Natural Sciences and Engineering Research Council of Canada (NSERC)

2016 **Undergraduate Research Intership Award**, University of Waterloo

2015 **President's Scholarship**, University of Waterloo

2015 **Volunteer Appreciation Award, Silver 200+**, ErinoakKids Centre for Treatment and Development

2011-2015 **Certificate of Academic Excellence**, Glenforest Secondary School