Michael C Leung

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EDUCATION

STANFORD UNIVERSITY
MS, Mechanical Engineering
Sept '14 - June '16 | Stanford, CA
Specialization: Biomechanical Engineering
PhD, Electrical Engineering
Expected June '19 | Stanford, CA
Specialization: Optics/Medical Imaging

UNIVERSITY OF WATERLOO
BASc, Nanotechnology Engineering
Sept '09 - May '14 | Waterloo, Canada
Economics minor, Co-operative program

COURSEWORK

GRADUATE
Biodesign Innovation
Bio-chips, Imaging and Nanomedicine
Medical Robotics
Patent Law & Strategy for Entrepreneurs
Sensors

UNDERGRADUATE
Photonic Materials and Devices
Neural Networks
MicroElectroMechanical Systems (MEMS)
Microfabrication and Thin Film Tech
Electronic Devices

ONLINE - UDACITY
Artificial Intelligence for Robotics
Introduction to Artificial Intelligence

LINKS

LinkedIn: **mcleu** Github: **mcleung**

SKILLS

LANGUAGES
Native fluency: English • French

HARDWARE
Arduino • Microcontrollers • FPGA

SOFTWARE
LabVIEW (VI, DAQ) • COMSOL
Powerpoint • Excel (Macros, VBA)
SolidWorks • Solid Edge

CODING
Over 5000 lines: Python • Matlab • LaTeX
Over 1000 lines: C++ • Java

PROFESSIONAL EXPERIENCE

STANFORD UNIVERSITY | Biomedical Optics Group
Sept '14 – Pres | Dr. Audrey (Ellerbee) Bowden | Stanford, CA
Fellow, Bio-X, Stanford Interdiciplinary Graduate Fellow (SIGF)
Recipient, PGS-D, Natural Sciences and Engineering Research Council of Canada

- Investigate effects of vitrification (freezing) on embryo development using 3D full field optical coherence tomography (FF-OCT).
- Develop a bench-top incubation system to sustain embryo development, while maintaining the resolution and contrast required for time lapse imaging.

STANFORD UNIVERSITY | Teaching & Lab Assistant
Apr '16 - June '16 | EE134 Intro to Photonics | Stanford, CA
Sept '15 – Dec '15 | EE230 Biophotonics:Light in Biology | Stanford, CA
Apr '15 - June '15 | EE134 Intro to Photonics | Stanford, CA

- Redesigned and instructed 12 laboratory sessions to familiarize 32 graduate and undergraduate students with the basics of of optics and microscopy.
- Assisted and mentored students on their projects

MEDELLA HEALTH | Consultant, Product Development Engineer
Sept '13 – Feb '14 | Waterloo, Canada

- Remodeled prototypes for glucose sensing contact lens. Reviewed designs and fabrication protocols, and provided recommendations for future iterations.
- Directed and implemented a framework to connect and retain qualified personnel. Expanded the core team from 4 members to 20 within a year.

DALHOUSIE UNIVERSITY | Sensory Encoding and Neuro-Sensory Engineering (SENSE) Lab
Jan. '13 – Aug. '13 | Dr. Jeremy Brown | Halifax, Canada
Aug. '11- Apr. '12 | Dr. Rob Adamson | Halifax, Canada

- Designed, built, and assembled electronic back end (Circuit design, PCB Layout) for 64 channel beam former for high frequency ultrasound phased arrays.
- Engineered and developed a smaller, more sensitive hydrophone for Ultra Electronics by using a Michelson interferometer. Showcased a performance increase of 12 dB/$\sqrt{Hz}$.
- Involved with operations and research of Daxsonics Ultrasound, company founded by the research group

EXTRACURRICULAR

May '15 – Pres	**Financial Officer,** Institute of Electrical and Electronics Engineers (IEEE) Student Chapter
May '15 – Pres	**Social Chair,** Stanford Optical Society, OSA & SPIE Student Chapter
Jan '15 - Pres	**Graduate Representative & Finance Minister,** Stanford Canadian Club
Sept '09 - May '14	**Technical Team Lead,** University of Waterloo Nano-Robotics Group (UWNRG)
Sept '10 - May '13	**Funding Council Member,** Waterloo Engineering Endowment Fund (WEEF)

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PUBLICATIONS

1. L. Zarnescu, **M.C. Leung** , M. Abeyta, H. Sudkamp, T. Baer, B. Behr, A.K. Ellerbee, "Label-free characterization of vitrification-induced morphology changes in single-cell embryos with full-field optical coherence tomography," Journal of Biomedical Optics, vol. 20(9). pp.096004, Aug. 2015. doi:10.1117/1.JBO.20.9.096004

2. C. Vannahme, **M.C. Leung** , F. Richter, C.L.C. Smith, P.G. Hermannsson, and A. Kristensen, "Nanoimprinted distributed feedback lasers comprising TiO 2 thin films: Design guidelines for high performance sensing," Laser Photon. Rev., vol. 7, no. 6, pp. 1036–1042, Nov. 2013. doi:10.1002/lpor.201300083

3. S. Jin, M.J. Burek, R.D. Evans, Z. Jahed, **M. C. Leung** , N.D. Evans, and T.Y. Tsui, "Fabrication, microstructure, and mechanical properties of high strength cobalt sub-micron structures," Mater. Sci. Eng. A, vol. 552, pp. 104–111, Aug. 2012. doi:10.1016/j.msea.2012.05.015

4. M.J. Burek, S. Jin, **M.C. Leung** , Z. Jahed, J. Wu, A.S. Budiman, N. Tamura, M. Kunz, and T.Y. Tsui, "Grain boundary effects on the mechanical properties of bismuth nanostructures," Acta Mater., vol. 59, no. 11, pp. 4709–4718, Jun. 2011. doi:10.1016/j.actamat.2011.04.017

CONFERENCE PROCEEDINGS

1. J. A. Brown, J. Leadbetter, **M. Leung** , A. Bezanson, and R. Adamson, "A low cost open source high frame-rate high-frequency imaging system." In 2013 IEEE International Ultrasonics Symposium (IUS), 2013, pp. 549–552.

2. C. Vannahme, C.L.C. Smith, **M. Leung** , F. Richter, M.B. Christiansen, P.G. Hermannsson, and A. Kristensen, "Multilayer Slab Waveguide Distributed Feedback Dye Laser Sensors." 2013, vol. 101, p. 151123.

3. C. Vannahme, C.L.C. Smith, **M. Leung** , F. Richter, M. B. Christiansen, and A. Kristensen, "Multilayer distributed feedback dye lasers: Enhanced emission wavelength and sensing." In 2013 Conference on Lasers & Electro-Optics Europe & International Quantum Electronics Conference CLEO EUROPEIQEC, 2013, vol. 023307, no. 2011, pp. 1–1.

POSTER PRESENTATIONS

1. **Michael C. Leung** , L. Zarnescu, M. Abeyta, T. Baer, B. Behr, and A.K. Ellerbee, "Using Full-Field Optical Coherence Tomography to Observe Effects of Vitrification on Pre-implantation Embryos." Presented at the Stanford Photonics Research Center (SPRC) Symposium, Stanford CA, September 14-16, 2015.

2. **Michael C. Leung** , L. Zarnescu, M. Abeyta, T. Baer, B. Behr, and A.K. Ellerbee, "A Label-Free Method of Observing Embryo Morphology Changes Induced by Vitrification Using Full-Field Optical Coherence Tomography." Presented at the 7th Annual Center for Biomedical Imaging at Stanford (CBIS) Symposium, Stanford CA, April 29, 2015.

PATENTS

1. Devices and Methods for Analysis of Tissues, PCT Application **US 2016/021880** , filed March 2016. Patent Pending.