**CURRICULUM VITAE**

**Ricky G. Hu**

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**Research Interests**

Elastography techniques for analysis of tissue abnormality, structural recognition in medical imaging, spatial reconstruction for image-guided surgery, surgical robotic systems, mathematical modelling of human physiology, applications of machine learning and computer vision in diagnostic radiology, , and photonic applications in medicine.

**Education**

**The University of British Columbia** (Expected) May 2019

* MASc. Biomedical Engineering - GPA: 91%

**The University of British Columbia** May 2016

* BASc. Engineering Physics (Electrical Specialization) - Final 2 Years GPA: 85%
* Minor in Honours Mathematics

**Technical Skills**

**Programming and Software:**

C, C++, Java, MATLAB, Python, Jupyter, Bash, Linux, Git, Mercurial, SolidWorks, SolidWorks, LumericalTarget Process.

**Electrical and Mechanical:**

Digital logic, control, signal processing, electrical filtering, Fourier analysis, spectral analysis, circuit simulation, information theory, CNC and manual machining, rapid prototyping (3D printing, laser cutting, waterjet cutting).

**Mathematics & Physics:**

Statistical modelling, differential error analysis, applied linear programming, numerical computation, partial differential analysis, statistical mechanics, optics, electrodynamics.

**Publications**

**Journal Papers**

1. H. Jayatilleka, K. Murray, M. A. Guillen-Torres, M. Caverley, R. Hu, N. A. F. Jaeger, L. Chrostowski, and S. Shekhar, “Wavelength tuning and stabilization of microring-based filters using silicon in-resonator photoconductive heaters”, Opt. Express (19), 25084-25097, 2015.

**Conferences**

1. M. Ma, K. Murray, M. Ye, S. Lin, Y. Wang, Z. Lu, H. Yun, R. Hu, N. A. F. Jaeger, and L. Chrostowski, “Silicon Photonic Polarization Receiver with Automated Stabilization for Arbitrary Input Polarizations'', CLEO: Science and Innovations: Optical Society of America, pp. 4-8, 2016.

**Selected Poster Presentations**

* R. Hu, P. Mathur, P. Danaei, J. Wyss, and H. El-Hariri, “A Low-Cost Variable Frequency Vibration Device to Assist Speech Generation for Laryngectomy Patients”, UBC Biomedical Engineering Symposium, 2018.
  + *Winner of Best Poster Award*
* R. Hu and R. Saha, “A Multi-Channel Resonance Stabilization Controller for Photonic Devices”, UBC Engineering Physics Fair, 2016.

**Technical Reports**

1. Hu, R. and Saha, S. “Multi-Channel Resonance Stabilization Controller for Photonic Devices”. (2016).

**Professional Experience**

**Robotics and Control Laboratory, UBC** Vancouver, BC

Graduate Research Assistant Aug 2017 – Present

* Designed and led 2 clinical studies on humans to develop algorithms to computer tissue properties for automatic detection of disease. Investigated non-invasive elastography methods to detect stiffness of tissue correlated with placental diseases in a third clinical study.

**MDA Systems Ltd.** Richmond, BC

Software Engineer Aug 2016 – April 2017

* Developed algorithms and system integration software for image processing, geodetic mapping, and earth ellipsoid modelling from satellite ephemeris and optical imagery data applications such as military surveillance.

**Pacific Institute of Mathematical Sciences** Vancouver, BC

Data Science Intern May 2016 – Aug 2016

* Developed numerous prototypes of data analytics software using a fully remote python kernel on a web browser, such as an image recognition interface for a user-input image or displaying custom points of interest on OpenStreetMap.

**Photonics Research Group, UBC**  Vancouver, BC

Research Assistant May 2015 – Sep 2015

* Designed and implemented a microcontroller photocurrent stabilization system to maximize signal power output of a photonic chip, co-authored in two publications for my contributions.
* Designed and simulated new geometries of photonic filters, programming finite difference simulations to optimize design parameters for maximum energy storage,

**Spot Solutions Ltd.** Vancouver, BC

Software Development Intern May 2014 – Dec 2014

* Programmed C# applications in an Agile environment to monitor real time sensors by processing data to a database through SQL procedures and a .NET framework.

**NORAM Engineering and Constructors** Vancouver, BC

Research Engineering Intern Jan 2013 – Apr 2013

* Planned, executed, and analyzed chemical yield experiments, utilizing MATLAB signal processing algorithms to filter chemical reactor thermoconductivity data.

**Academic Honours and Awards**

* UBC Faculty of Applied Science Graduate Student Award Award ($2000) 2018
* UBC School of Biomedical Engineeirng Graduate Student Initiative Award ($2000) 2018
* UBC Dean’s Honour List 2011-2012, 2014-2016
* Sun Rise Rotary Club Scholarship ($1000) 2012
* UBC President’s Entrance Scholarship ($2500) 2011

**Non-Academic Honours and Awards**

* Scouts Canada Certificate of Commendation 2017, 2018
* Duke of Edinburgh’s Award – Gold Level 2017
* Scouts Canada Bar to the Medal of Good Service 2017
* Scouts Canada Medal of the Maple 2013
* Queen’s Venturer Award 2010