Email: rsingla92@gmail.com **Phone**: 1.778.926.9475

Rohit Singla

TECHNICAL SKILLS

Languages	Development Tools	Other Technical	Non-Technical
C/C++	Visual Studio 2008 – 2015	Surgical navigation & robotics	Project management
MATLAB	OpenCV & OpenGL	Augmented reality & computer vision	Market analysis & business development
Python	Git & Subversion	Camera/projector calibration	Excellent organizational & analytical skills
Java	Windows & Linux	Medical image processing	Excellent communication
PostgreSQL/PostGIS	Android, Raspberry Pi		

EDUCATION

MASc in Biomedical Engineering (University of British Columbia) Sep 2015 – Jul 2017
Thesis: Intra-operative Ultrasound-based Augmented Reality for Laparoscopic Surgical Guidance
Supervision by Prof. Robert Rohling. Enrolled in Engineers in Scrubs, a medical innovation program.

BASc in Computer Engineering, Software Option (University of British Columbia) Sep 2010 – May 2015
Graduated with Distinction & Completion of the Co-operative Education program. Ranked top 5 in the Dept.

WORK EXPERIENCE

Graduate Research Assistant. (UBC Robotics and Control Lab) Sep 2015 – Aug 2017
Developed a novel augmented reality system to provide operative information in planning and execution of kidney cancer surgeries, achieving a ~50% reduction in mock kidney tissue excised and two best paper awards.
Developed a novel projector-based augmented reality system for use within the abdominal cavity itself, creating new visualization methods for subsurface structures such as tumours.
Led collaborations with industry, academic and clinical partners (Northern Digital Inc., UBC Urological Sciences, and Imperial College London) to recognize clinical needs and engineering requirements

Graduate Teaching Assistant. (Dept. of Electrical and Computer Engineering) Sep 2016 – Dec 2016
Courses: Computer-integrated Surgery & Introduction to Robotics
Assisted two course instructors in marking, lecturing, and projects for senior undergraduate and graduate courses.
Mentored students in several technical topics including: medical imaging, point-based and intensity-based registration, error estimation, surgical robotics, and forward/inverse kinematics.

Software Development Intern. (Safe Software Inc.) May – Aug 2013, May – Aug 2015
Designed and implemented C++ modules to extend the functionality of the flagship product called FME.
Implemented a re-design of database formats modules to drastically improve user experience. Formats include PostgreSQL, PostGIS, Amazon Redshift, Oracle Object-Relational, and Oracle Spatial.
Developed front-end and back-end work according to a design specification and increased test coverage by 15%.
Engaged product owners and developers to elicit and iterate on feedback to achieve high stakeholder satisfaction.

Undergraduate Research Assistant. (UBC Robotics and Control Lab) Jan 2014 – May 2015
Worked on a smartphone-based 3D ultrasound guidance system to provide a low-cost solution for needle insertion done by anesthesiologists in the practice of obstetrics.
Researched a variety of computer vision and image processing methods for clinical applications which include stereo correspondence, image de-noising filters, feature detection and tracking and camera calibration.

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TECHNICAL PROJECTS

Portable Video Goggles. Jan 2016 – Dec 2016

Design and development of low-cost video device for patients to remotely record diagnostically useful information during spontaneous vertigo attacks.
Performed problem identification and requirements elicitation with clinicians from St. Paul's Hospital
Implemented a single-button state machine to initiate, record, save, and turn off the device for operational ease.

Artemis – marking surgical flaps using surgical navigation Sep 2014 – Apr 2015

Led, designed and developed a prototype tracking with the Kinect v2 v2 using C/C++ and OpenCV to improve patient outcomes in plastic reconstructive surgery and burn treatment. In collaboration with *Novadaq Inc.*
Created system-level tests to verify and validate system design and functionality and address stakeholder needs.

COMMUNITY AND VOLUNTEER WORK

Co-Director, Committee Member (Hatching Health) Feb 2016 – May 2017

Leading the logistics, planning, and sponsorship requirement of Vancouver's leading inter-disciplinary medical innovation event featuring 100 participants, 35 mentors, a team of 6 organizers and a budget of $23,000.

Organizer (Biomedical Engineering Student Executive Association) Jun 2016 – May 2017

Created and organizing the association which features student leaders from several of UBC's biomedical student life ventures to coordinate and unify efforts and activities to provide a world-class student community.
Preparing annual reports, budget overviews and bi-monthly meeting minutes for the BME Director.

Founder, Organizer and Mentor (UBC Biomedical Engineering Connections) Sep 2016 – May 2017

Started a student life initiative connecting undergraduate, new graduates and current graduate students together to promote a sense of community, and support incoming students' queries. Organizer until Nov 2016.

Advisor (UBC Biomedical Engineering Student Team) Aug 2015 – Aug 2017

Advising project teams on a technical and administrative basis; and recruiting of top-quality engineering students.

Founder and President. (UBC Technology in Medicine Club) Aug 2014 – Dec 2015

Led the club in creating hands-on workshops and facilitating seminars lectures to educate medical and engineering students. Topics included: evolution of technology in laparoscopic surgery, medical device collaboration, and the modern use of e-Health technologies.

Treasurer, Radio Host, Contributor. (UBC Sharing Science Radio) Feb 2015 – Jan 2017

Planning and contributing to a weekly science-themed radio program with science news and discussion. Select topics include deep sea exploration, bees, and mental biases.

Assistant Coach. (South Delta Varsity Football Club) May 2010 – Aug 2015

Led and taught over 80 teenagers on the techniques and game of American football on a weekly basis, leading to a winning record over 5 seasons, and over 18 students receiving university scholarships.

SELECTED ACHIEVEMENTS

2017: Faces of Today Award Recipient – outstanding leadership and efforts to improve the community
2016: Winner of the Rick Hansen Access Innovation Challenge (Rick Hansen Foundation).
2015: Finalist in Medical Device Development Centre's Awards for Excellence in BME Design and Innovation
2015: Engineers in Scrubs Research Fellowship.
2015: NSERC Alexander Graham Bell Canada Graduate Scholarship – Master's level.
2011 – 2015: Dean's Honour List – sessional averages of 86.3%, 89.9%, 89.2%, and 91.8%.
2014: Trek Excellence Scholarship for Continuing Students – top 5% of students for the year.
2014: NSERC Undergraduate Student Research Award.