

## LANGUAGES AND TECHNOLOGIES

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- C++; C; Python; MATLAB; Java
- OpenCV; OpenGL; Unity; Git; Subversion; Windows; Linux; Android; iOS

## EMPLOYMENT

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| <b>Research Engineer</b>   | <b>University of British Columbia</b> | <b>Jan 2018 - Present</b>  |
| <ul style="list-style-type: none"><li>• Used neural networks in Python to detect kidney stones, achieving a mean precision of <math>0.70 \pm 0.10</math></li><li>• Developed two HoloLens applications (3D spine modelling and a simulated operating room) in Unity</li><li>• Managed and coordinated 12 different projects with 3 hospital departments (Urology, Anesthesia, and Maternal/Fetal Medicine) from initial conception through to patient studies and evaluation</li><li>• Led writing of 5 grants, receiving \$135K over the next two years</li></ul> |                                       |                            |
| <b>Co-Founder</b>  | <b>92 Medical</b>                     | <b>Sep 2017 – May 2018</b> |
| <ul style="list-style-type: none"><li>• Developed and evaluated a needle guide, achieving a 95% success rate and accuracy to within 3.6 mm</li><li>• Led a team of 3 in customer discovery, and market research of the anesthesia and pain medicine markets</li><li>• Accepted into entrepreneurship@UBC's startup accelerator (LifeSci 2017-2018 cohort)</li></ul>  |                                       |                            |
| <b>Graduate Research Assistant</b>   | <b>University of British Columbia</b> | <b>Sep 2015 – Dec 2017</b> |
| <ul style="list-style-type: none"><li>• Led development on 2 augmented reality systems for kidney cancer surgery, using C++, OpenCV and OpenGL, achieving a 50% improvement in healthy tissue removed in mock surgeries</li><li>• Collaborated with industry and international academic groups (Northern Digital Inc., Imperial College London)</li></ul>  |                                       |                            |
| <b>Software Development Intern</b>   | <b>Safe Software</b>                  | <b>Summers 2013, 2015</b>  |
| <ul style="list-style-type: none"><li>• Implemented a re-design of C++ database modules (PostgreSQL and Oracle) to improve user experience</li><li>• Developed front-end software in adherence to a design specification, and increased test coverage by 15%</li><li>• Extended the functionality of the flagship product to add support for a proprietary spatial format</li></ul>  |                                       |                            |
| <b>Undergraduate Research Assistant</b>  | <b>University of British Columbia</b> | <b>Jan 2014 – May 2015</b> |
| <ul style="list-style-type: none"><li>• Created MATLAB scripts and C++ utility programs to perform stereo correspondence, remove image noise, calibrate cameras, and perform feature tracking</li><li>• Created C++ utility programs to integrate two programming SDKs into an existing code base</li></ul>  |                                       |                            |

## TECHNICAL PROJECTS

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- **Patient Shivering Analysis iOS App (BC Women's Hospital, 2018).** Accelerometer recording app with start/stop, tare and e-mail export functionality. Released on the app store as "BCW Shivering App" [Swift]
- **Portable Nystagmus Recording Device (St. Paul's Hospital, 2016).** Portable headset for <\$100 for users to record their eyes during a vertigo attacks outside of a clinic [Python, Raspberry Pi, Linux]
- **Kinect-based Surgical Navigation System (senior project, Novadaq, 2014-2015).** Prototype guidance system to track a surgical pen with the Kinect v2 and augment its path onto another video feed [C++, OpenCV, MFC.]

## EDUCATION

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|---|---------------------------------------|------------------------------|
| <b>MASc in Biomedical Eng.</b>  | <b>University of British Columbia</b> | <b>Sept 2015 – Sept 2017</b> |
| <ul style="list-style-type: none"><li>• Thesis: Intra-operative Ultrasound-based Augmented Reality for Laparoscopic Surgical Guidance</li></ul> |                                       |                              |
| <b>BASc in Computer Eng.</b>  | <b>University of British Columbia</b> | <b>Sept 2010 – May 2015</b>  |
| <ul style="list-style-type: none"><li>• Ranked top 5 in department; graduated with Distinction. Average: 88%</li></ul>                          |                                       |                              |