

Natalie Smith | Engineer

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Education

University of Victoria

B.Eng, Biomedical Engineering

Specialization in Mechatronics

Victoria BC

2011–2016

Key Competencies

- Hands on experience with leading edge software development and database technologies including C/C++, Java, Ruby on Rails, Javascript, Angular2, HTML5, CSS3, MySQL, and MatLab
- Experience writing test plans, creating test cases and writing functional unit tests
- Experience with the project development life cycle and navigating through various stages of development in a team setting
- Self-starting, independent worker with the willingness and work ethic to learn new technologies and skills
- Extensive experience with customer service and practical problem-solving as well as exceptional written and verbal communication skills

Experience

University of Victoria

Undergraduate Researcher

Victoria BC

May–Aug 2015

Worked in the Crystal Growth Laboratory designing a new control system for a 30 zone crystal growth furnace.

- Ran experiments on the crystal growth furnace including material preparation, furnace loading, and sample testing using a Scanning Electron Microscope
- Designed and implemented a fuzzy PID control system in LabView with adaptive control for the crystal growth furnace

University of Victoria

Undergraduate Researcher

Victoria BC

Sept–Dec 2013

Worked in the Biomedical Design and Systems Laboratory developing a medical phantom for use in testing and calibrating an ultrasound-controlled hand prosthesis.

- Designed and developed a medical phantom representing the ultrasonic properties of the tendon-hand system
- Tested prototypes and determined ultrasonic properties of materials
- Used an Ultrasonix ultrasound machine and MatLab to capture video and images of phantom prototypes

Island Health

Clinical Engineering Co-op

Victoria BC

Jan–Apr 2013

Worked in the Biomedical Engineering department of Island Health to assist in tasks such as device procurement and installation, cost analysis, preventative maintenance, and consulting with medical professionals.

- Assisted in medical device procurement and installation in hospital settings
- Performed cost analysis for major contract renewals
- Performed preventative maintenance on medical devices such as infusion pumps, defibrillators, and AEDs
- Consulted with medical professionals within multiple health networks across Canada in preparation for a networked fetal monitoring system

Saanich Commonwealth Place

Team Leader, Facility Attendant

Victoria BC

2011–Present

Work in supervisory roles as a Team Leader and Facility Attendant to oversee multiple staff and ensure that programs are running safely and effectively.

- Team Leader: Directly supervise a team of lifeguards to ensure safe pool coverage, oversee first aid situations, mediate public relations situations and provide excellent internal and external customer service
- Facility Attendant: Responsible for overseeing all facility programs, coordinating and providing back-up for all staff and conducting emergency procedures in case of emergencies

Technical Projects

Web Development: Experience with full stack development using Ruby On Rails, MySQL, Javascript, Angular 2, unit testing, HTML5 and CSS3 to create responsive web applications

Mechatronics: Designed the firmware to accomplish a conveyor belt sorting task

- Integrated multiple sensors, actuators and motors with a microcontroller
- Programmed microcontroller in C to accomplish desired tasks

Neural Networks: Designed a neural network to classify data instances in an online breast cancer database as malignant or benign

- Used MatLab to implement a three-layer feedforward neural network
- Put neural network through training, validation, and test stages to automatically classify instances of breast cancer malignancy

Biomedical Image Processing: Solved task of retinal vessel segmentation in retinal images by using MatLab to implement adaptive local thresholding by multithreshold probing

Technical Skills

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| ◦ C/C++ | ◦ Javascript/jQuery |
| ◦ Java | ◦ Angular 2 |
| ◦ MatLab | ◦ Unit Testing |
| ◦ Ruby on Rails | ◦ JSON/XML |
| ◦ MySQL | ◦ Responsive Design |
| ◦ HTML5/CSS3 | ◦ Version Control |

References

Dr. Nikolai Dechev	Dr. Kelly Stegman-Brooks	Michael Sheehan
Associate Professor University of Victoria Biomedical Design and Systems Laboratory 250-721-8933	University of Victoria Biomedical Design and Systems Laboratory kstegman@uvic.ca	Program Technician Saanich Commonwealth Place 250-475-7607