

Ben Holmes

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Focused and highly motivated worker. Able to carefully think through complex problems and generate unique, practical solutions. Excellent communicator who thrives when working on large projects in a team environment.

Skills

Computer

- C/C++, Java, Python
- Object-oriented and concurrent design
- Front and back end web development
- MATLAB
- Agile software development

Electrical

- Analog and digital circuitry assembly and analysis
- Circuitry debugging with oscilloscope and multimeter
- Usage of op-amps, transistors, diodes, inductors and capacitors

Mechanical

- SolidWorks, AutoCAD, and Ansys
- Small hand tools
- Waterjet, laser cutter, and 3D printing
- Prototype development

Other

- Excellent communication skills
- Works well in a team
- Highly organized
- Safety focused
- Creative problem solver

Technical Work Experience

Blue Willow Systems

January - May 2018

Co-op Software Developer

- Researched emerging localization technologies and constructed a proof of concept that integrated the new technology with the existing system.
- Implemented front and back-end changes to add several new features to our mobile and desktop customer dashboard
- Wrote monthly release documents describing what changes were made, and explaining to our non-technical customers how to effectively use any new features.
- Wrote a custom Android application to be used for live sales demos where our full, cloud-based system could not be set up.

Other Work Experience

Various

November 2014 - August 2017

- Worked as an IT Assistant for Medicine Hat School District no.76 for 2 months in the summer of 2017. Cleared computers and network hardware from schools scheduled for renovation. Installed network hardware in newly constructed schools
- Worked as a retail Sales Associate for Futureshop, SportChek and Valhalla Pure between 2014 and 2017. Greeted and assisted customers, cleaned and maintained the department, scheduled customer appointments for car audio installation at Futureshop and equipment tuning at SportChek.
- Worked as a Ski/Snowboard Instructor at Rabbit Hill between 2014 and 2016. Improved students' skiing by identifying areas of weaknesses and developing targeted drills. Worked with a diverse clientele including children and people with various disabilities.

Education

University of British Columbia

September 2016 - Present

B.ASc. Engineering Physics (2nd Year)

Technical Projects

Autonomous Rescue Robot

May - August 2018

- Built a fully autonomous rescue robot, able to navigate a complex course, while identifying, retrieving, and carry stuffed animals along the way.
- Used a camera and Python implementation of computer vision running on a Raspberry Pi to locate stuffed animals, allowing for a universal approach that could navigate any similar style of course.
- Used 3D printers, laser cutters, waterjet cutters, and small hand tools to rapidly prototype and build a final version within 2 months.
- Designed circuits to process inputs from IR and sonar distance sensors, frequency sensors, and pressure sensors.
- Created technical presentations justifying all design decisions with quantitative calculations and results of small scale tests.
- Wrote extremely robust C code for an Arduino micro-controller to process inputs, make decisions about the robots surroundings, and control a variety of motors and servos on the robot.

UBC Solar Student Design Team

October 2016 - September 2017

Mechanical Design Team Member

- Fabricated components of the suspension and the steering rack using a waterjet cutter.
- Performed finite element analysis on the rear suspension using Ansys to ensure driver safety, and documented findings and test results in a mechanical design report.
- Created technical welding and machining drawings for several components on the car.
- Worked in a multi-disciplinary team to design the car's battery safety box and ventilation system.

Other

September 2016 - Present

- A study app for Android phones that asks users how well they understand the material, and then schedules their next study session depending on the answer. More difficult topics will be reviewed more often, and less challenging topics will be reviewed less often to increase long term retention of material.
- Modified door locks in a 2002 Honda Civic that can be unlocked using bluetooth with a smartphone app.
- An Arduino-based hardware password manager that stores passwords on an Arduino and automatically enters the users login info for specific webpages.

Activities and Interests

I take pride in staying fit and being active. I run regularly, bike to school, and whenever I can, I try to get to the mountains to go backpacking or rock climbing. In addition to my active hobbies, I also enjoy photography and cooking with my friends.