Charles Holtforster

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choltfo.github.io

Candidate for B.ASc, **Mechatronics Engineering**, University of Waterloo

Summary of qualifications:

Software: Experienced with C, C++, Java, C#, Python, and Perl in professional environments.
CAD design: Trained in AutoCAD, SolidWorks, and SketchUP. Capable in Inventor and EAGLE.
Rapid prototyping: Practical knowledge of fabrication through laser cutting and 3D printing.
Sensing: Real-world understanding of ultrasonic ranging, LiDAR, SLAM and point-cloud manipulation.
Leadership: Led and managed final project team in 1A.
Communication: Excellent verbal communications.
Electronics: Practical and theoretical knowledge of circuit design, digital protocols, and high-power electronics.
Microcontrollers: Capable with MSP430, Atmel.
Certifications: Ontario G driver's license, emergency first aid, CPR-B, WHMIS-2015, and Bronze Medallion.
Regular prototyping: Adept with metal & woodworking.
Testing & QA: Experience in load testing, verification.
Computer literacy: Experienced with Windows, Linux, Office, Git/GitHub, and Subversion.
Self motivated: Seeks interesting challenges and projects.

Relevant work experience:

Ross Video

Taught robots not to kill people

Software Developer co-op

Ottawa, ON
January – April 2017

- Designed and implemented obstacle detection system for studio camera robots.
- Gained practical experience with oscilloscopes, electronics tooling, soldering, & microcontroller.
- Independent problem solving.
- Built custom packet protocol for collision sensors.
- Created software, electrical, and mechanical prototypes.
- Assisted with mechanical product verification.
- Scratch-built SLAM algorithm for robot tracking with 16-segment solid-state LiDAR.

Halogen Software

Eliminated 2 hours of daily work for nightly load tests

Quality assurance and load testing

Ottawa, ON
Summer 2015, 2016

- Developed automated testing methods for web applications.
- Improved efficiency of finding outliers in server log files.
- Created system for future expansion and testing subsystems.
- Acquired proficiency in Perl and PowerShell.

Projects:

Custom brushless motor: Non-Halbach external rotor, 22,000 RPM, designed in Inventor.
Electromagnetic accelerator: 1700 watt pulsed linear accelerator, from scratch.
USB volume wheel: Hard disk motor, analog op-amp trigger, ARM microcontroller.
Ballistic chronograph: Photogate timer, Arduino based; 99% accuracy for 50% price
Static site generator: Formats & builds choltfo.github.io from templates.
LEGO plotter: C G-code parser and PID XY table from LEGO for 1A final project.

Activities:

Sports: curling, biking, and skating.
Video game development: Unity 3D, SFML, C++, C#
Charity work: Homes of Hope Tijuana.
Digital artwork: Krita, Inkscape, PhotoShop.

Awards:

ECOO Programming contest: Ontario finalist, 2016, Placed 14th
University of Ottawa General Science Competition, 2016: Placed 3rd in Ottawa