Clayton Bagnall

437 Magnolia Cres., London, Canada | bagnalcj@mcmaster.ca | (519) 854-7137

Education

B.Eng Mechatronics Co-op
McMaster University

◇ Dean's Honor Roll (3.5 GPA)
◇ Graduation Date: May 2018

Technical Skills

◇ C / C++	(8/10)
◇ Embedded Systems	(7/10)
◇ Computer Vision	(6/10)
◇ Autonomous Systems	(6/10)
◇ Python Scripting	(8/10)
◇ Java / Android Dev	(5/10)
◇ Matlab / Simulink	(5/10)
◇ A/D circuit design	(6/10)
◇ Labview / GUI design	(7/10)
◇ Machine Learning	(5/10)
◇ Version control (GIT)	(8/10)
◇ HTML5 / CSS	(4/10)

Relevant Course Work

◇ Numerical Computing / Algorithms
◇ Data Structures / Interfaces
◇ Microprocessors / Microcontrollers
◇ FPGA programming
◇ Control Systems
◇ Embedded real-time systems
◇ Parallel / Distributed systems
◇ Computer networking / security

References

◇ Available upon request

Professional Experience

Embedded Software Engineer **May 2016 - Sept 2017**
Magna Electronics International

◇ Ported image classifier algorithms to Xilinx ARM-based platforms. Optimized memory usage and processing for in-house embedded systems running real-time OS.

◇ Developed modular C/C++ code in Eclipse and Visual Studio and performed unit testing/automation with Python

◇ Worked with algorithm and FPGA teams to identify code bottlenecks which could be ported to FPGA.

◇ Successfully updated the office's version control to Git. Helped transfer the entire codebase to GitLab server and implemented CI with Jenkins.

◇ Designed and maintained C++ server application for transfer of video/debug data from Linux system to embedded Broadcom device.

Engineering Summer Intern **June 2012 – Sept 2015**
Robarts Research Institute

◇ Designed an electro-mechanical system to counteract motion artifacts in real time inside an MRI machine.

◇ Developed a biomedical device to allow technicians to match tissue samples to scanned image coordinates.

◇ Designed a prototype for an optically-based force-sensing catheter for research into current cardiac procedures.

◇ Optimized the hardware and wrote software for novel biomedical device. Device is currently in validation trials.

Projects

Mechatronics Capstone **Sept 2017 - Present**
◇ Wearable that uses machine learning to help physio patients recover faster. Utilizes a mix of sensor and image data to collect/provide feedback.

Sumobot Competition **Dec 14 – Feb 2015**
◇ Designed chassis and circuitry for Arduino-based fighting robot. Programmed IR/ultrasonic-based autonomous attack algorithms.

Object Recognition **Aug 2017 – Present**
◇ Currently experimenting with OpenCV libraries and Tensorflow for image classification. Working on embedded Linux platform (BeagleBone Black).