ubc science co-op
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Dylan Green

Engineering Physics - Year 3

SKILLS

Software	C++, Java, Python, Matlab, Git, VHDL*, 8051 Assembly*
Electrical	Design, construction and analysis of analog and digital circuits, soldering and PCB population, microcontrollers (Arduino, Handy), troubleshooting and debugging, MultiSim*
Mechanical	CAD design of mechanical parts (SolidWorks, OnShape), sourcing and selection of materials
Fabrication	Water jet & laser cutting, 3D printing, basic machining
Miscellaneous	Strong written and verbal communication skills, preparation of technical documents, ability to quickly and effectively learn new skills

*: To be obtained by April 2018

TECHNICAL EXPERIENCE

Software Developer (Coop) January - May, 2017
Urthecast *Vancouver, BC*

- Contributed to the design and implementation of algorithms for automated object detection in synthetic aperture radar images, most notably implementing a windowed CFAR algorithm using the K-distribution in Python.
- Devised a new algorithm for the clustering of pixels flagged as detections, reducing execution time by more than 50% for a worst-case test image .
- Extended the python-can library, creating new message classes to adhere to a vendor's proprietary CAN bus protocol.

Summer Student May - August, 2016
Stewart Blusson Quantum Matter Institute *Vancouver, BC*

- Used Solidworks to design an initial prototype for an ultrasonic binary gas purity and flow meter. Special design considerations made for machinability of parts and precision alignment of piezo transducers.
- Began fabrication and assembly of prototype using waterjet cutter, 3D printer, basic machine tools.
- Prepared documents detailing prospective installation sites for completed sensors, as well as the operation and specifications of the QMI helium recovery system.
- Design images and project documents can be viewed here: `http://goo.gl/prnJsK`

Undergradutate Research Assistant September 2015 - April 2016
UBC Laboratory for Atomic Imaging Research (LAIR) *Vancouver, BC*

- Wrote and implemented software in Python to interface with various measurement devices via RS-232.
- Designed and built custom cables using non-standard pinouts to facilitate stable serial communication over long distances.
- Wrote a detailed guide about serial communication, cables and interfacing software in order to save group members time in future projects.
- Interface script and interfacing guide can be viewed here: `http://goo.gl/oltfOS`

OTHER EXPERIENCE

Executive Administrative Assistant (Internship) May - August, 2015
Stage 3 Systems Inc. *Vancouver, BC*

- Managed company books including AP, AR and expense reports.
- Researched and implemented use of a cloud-based OCR software service to automate data entry for expense processing, cutting labour costs by half and improving data retention/organization.
- Acted as company liaison with customers, accountants, lawyers and vendors.
- Maintained the calendar of multiple board members - scheduled meetings, travel plans, teleconferences.
- Worked with controller to prepare complex financial analysis reports and board presentations using MS Excel/Powerpoint.

PROJECTS

Minimum Viable Product (MVP) Summer 2017
2017 Engineering Physics Robotics Competition

- Worked in a team of 4 to design and prototype a fully autonomous robot capable of line following, detecting IR signals, and retrieving objects of various shapes and sizes over a period of 5 weeks.
- Responsible for the design and construction of all electronics including sensor systems, power distribution, H-Bridges and microcontroller interface.
- Designed, built and debugged an IR detection and filtration circuit featuring amplifiers, 1 and 10 kHz bandpass filters and peak detection.
- Contributed heavily to high level strategy and mechanical design decisions.
- Designed a fastenerless mount for the claw mechanism allowing for reduced chassis size and increased maneuverability.

Autonomous Claw Robot Spring Term, 2016
APSC 100

- Worked with a team to design and prototype an autonomous claw robot capable of picking up various items without human intervention.
- Design triggered by both mechanical switch and ultrasonic sensor so that objects of various shapes and sizes may be grasped.
- Wrote and debugged Arduino program for control of grabbing mechanism.
- Prototype fabricated entirely from sheet metal and rudimentary fasteners.

EDUCATION

University of British Columbia September 2015 - Present
Faculty of Applied Science, Engineering Physics Cumulative Average: 87.8%

Langara College May 2014 - April 2015
Credits completed: 27 Cumulative GPA: 4.15

HOBBIES & INTERESTS

DIY analog synthesis, music technology, film, skiing, hiking, climbing, vinyl collecting.