Steven Brown

Engineering Physics Co-op Student
steven.brown1620@gmail.com || 778-887-7895 || Personal Website

Skills

Programing:	Java, C/C++, Python, MATLAB, Qt GUI Design, Bash Scripts
Electrical:	Altium, Oscilloscope, Analog & Digital Circuits, Soldering
Mechanical:	SolidWorks, Servomotor, Ultrasonic Sensor, Prototyping, Hand Tools
Lab Skills:	Graphing, Excel Spreadsheets, Data/Error Analysis

Technical Project Experience

Image Tracker – UBC, Vancouver **Sept – Oct 2021**

- Implemented a homography based image tracker with GUI using SIFT (Scale-invariant feature transform) and PyQt.
- Given a template image of an object, the application highlights the object in a live web camera stream.
- Tested multiple image object pairs with rotation and translation of the object and resulted with 98% accuracy.

Advanced Logger – NZ Technologies Co-op, Vancouver **Jan – Feb 2021**

- Implemented a data logging system in C++ using Qt and a raspberry pi for NZ Techs touchless elevator devices.
- The logger kept track of when actions occurred, in addition to errors and sensor data, and stored data in a daily report which was automatically sent out by email through the pi every day.
- The emailed daily report also included a version of the data in excel format where it could be graphed.
- The system also tracked the intension of the user and how the device reacted. It looked at weather the reaction was correct or whether the user intended a different response.
- The logger was implemented so that it could be applied for multiple devices.

Image Manipulation – UBC, Vancouver **Sept – Oct 2020**

- Designed and developed algorithms with test cases in java to manipulate images such as, mirroring, section painting, denoising, green screening, rotating, and text aligning.
- The section painting algorithm was able to paint a specified block of pixels the average colour values of the pixels within that block.
- Given a specific colour, the green screening algorithm was able to identify the largest connected region of the image that matches exactly that colour. It then determined a rectangle that bounds this "green screen" region and replaced all the pixels matching the specified colour with a provided background image.

Robotic Claw – UBC, Vancouver **Jan – Apr 2020**

- Designed and developed, as part of a team, an autonomously closing claw able to pick up a range of objects from golf balls to cans of soup and hold for a minimum of 10 seconds.
- Placed 2nd in the variety objects round and 1st in the bulk object round out of 16 teams.
- Lead programmer using C to detect objects and trigger activation using an ultrasonic sensor connected to a servo motor through a breadboard.
- Decided to use a tri-pronged claw in order to minimize material used and maximize the number of objects that could fit in the claw.
- Constructed conceptual prototypes using drawings (c sketch), a physical prototype using cardboard, and then the final functioning product using hand tools to cut sheet aluminum.

Technical Work Experience

Embedded Software Engineer Co-op – NZ Technologies, Vancouver **Jan – Apr 2021**

- Developed embedded applications for deployment on Windows and embedded Linux.
- Developed interactive GUIs using Qt.
- Designed communication routines for embedded microcontrollers and microprocessors.
- Managing all software testing, stable build releases, and version control.

Education

The University of British Columbia **Sept 2019 – May 2024 (expected)**

- Engineering Physics, BASc
- Deans Honour List **Sept 2019 – Sept 2021**

Non-Technical Work Experience

Produce Service Clerk – Thrifty Foods, North Vancouver **Sept 2018 – Aug 2019**

- Ensured the grocery store was maintained in a clean, safe and appealing state to its customers by organizing shelves and assisting customers in their daily shopping needs.

Awards

- UBC Trek Excellence Scholarship Recipient
- “Big Ticket” Basketball Tournament Academic Scholarship
- BC Achievement Scholarship
- Highest Grade Award in year 12 Math, Physics, and Law

Interests

- Avid weightlifter & runner with combined training up to 6 times per week.
- Played senior basketball and continue to play in a men’s league once per week.
- Experienced skier at locations such as Whistler, Silver Star, Grouse, etc.