a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Engineering Co-op Program
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Aftab Narsimhan

Electrical Engineering

TECHNICAL SKILLS

Programming: C# • C • Java • Android • HTML / CSS / JS • Assembly (8051)

Software Tools: MS Visual Studio • Atmel Studio • Android Studio • Git / Perforce • Linux

Embedded Systems: Atmel, Arduino • Raspberry Pi • Altera • Smart Servo Motors

ACADEMIC & CO-OP STATUS

Academic Program	• Biomedical Electrical Engineering; 6 of 8 academic terms completed • Anticipated date of graduation: May, 2017
Co-op Status	• Completed 3/4 work terms; available for 4 months beginning May, 2016

CO-OP WORK EXPERIENCE

Kardium Inc. **September, 2014 – September, 2015**
Automation Engineer Co-op

- Created hardware and software solutions to automate the manufacturing processes involved with building the components of a medical catheter device
- Wrote the drivers for the board using Atmel or Arduino microcontrollers in C
- Used C# to create GUI applications that interfaced with the device and many APIs or supporting libraries
- Implemented databases using Microsoft SQL Management Studio and Entity Framework with C# to log data and keep track of calibrations/settings between multiple devices
- Developed several solutions using PID controllers, threading, timers / interrupts, SPI, thermocouples, watchdogs, filters, ADCs, USART communication
- Designed/updated PCBs using Altium, populated the boards through surface-mount soldering, and tested with standard electrical tools

TECHNICAL PROJECTS

EC Turbo-Fan Helicopter **January, 2016 – Present**
Team Lead, Control System Lead

- Designing a 2-Degree-of-Freedom (DoF) helicopter with all but the lift and yaw DoF mechanically constrained
- Developing a closed loop feedback system by implementing a PID controller within a microcontroller that interfaces with sensors to control the position of the helicopter
- Writing the firmware for the microcontroller in C++ and creating a GUI test interface in C# to allow for quicker and more efficient calibration, PID tuning and debugging
- Adding Bluetooth capabilities to the device to allow for wireless PID tuning and flashing of new firmware
- Creating an android app with a simulated joystick to allow for easy, wireless control of the helicopter

Raspberry Pi Internet Monitor **January, 2016 – Present**
Personal Project

- Developing a small embedded solution on a Raspberry Pi 2 in order to monitor the status of my home internet and alert me of connectivity issues, as well as to gain experience using Python
- Implemented a GUI to allow for easy customization of monitoring parameters, and hardware indicators (LEDs) for easy visual cues of internet status

Smart Fall Detector **March, 2015**
nwHacks Hackathon

- Prototyped a smart fall detector for safety of elderly patients in a care-home
- Developed an Android app which relays alerts sent from the fall detector (i.e. Myo armband) by Bluetooth
- Implemented a cloud-based backend storage (Firebase) which updates a central web portal monitored in real-time by hospital personnel based on data received by the Android app

Electromagnetic Tether Robots **March, 2014 – April, 2014**
Firmware Lead
- Worked with a group of 6 peers to design, build, program and test an autonomous robot (receiver) that follows another keypad controlled robot (electromagnetic beacon)
- Designed and programmed a state machine for the robots and implemented several commands such as parallel park with SPI using Assembly and C

VOLUNTEER WORK EXPERIENCE

Vancouver General Hospital, Vancouver, BC **January, 2016 – Present**
Electronic Patient Data Transfer Solution
- Prototyping a way to modernize a paper-based data transfer process between a doctor and patient after intubation procedures
- Implementing the data transfer through the use of a QR code generated from a web portal, which can then be scanned by an Android app on the patient's phone in order to generate an electronic copy

Toronto General Hospital, Toronto, ON **July, 2013 – August, 2013**
Research Assistant / Engineering Consultant
- Worked meticulously and independently to learn the complex aspects of a portable ex vivo liver perfusion device being developed, within two weeks, to further my understanding of the device and how to simplify its components
- Demonstrated initiative beyond expectation by producing the outline of a new prototype, with modifications that makes the device more portable, earning me a recommendation letter from my supervisor

Agilent Technologies, Santa Clara, CA **July, 2010 – August, 2010**
QA Intern
- Worked with the R&D Team in the automation and robotics department, classifying and validating up to 20 software defects a day to improve robustness and stability of the Bravo Liquid Handling System
- Learned VWorks automation and the Bravo instrument software independently within a few days and used them for debugging purposes
- Documented and organized findings using an excel spreadsheet and submitted to the supervisor for further functional improvement of the Bravo instrument

EDUCATION

University of British Columbia **September, 2012 – Present**
Bachelor of Applied Science – Electrical Engineering
- Dean's Honour List (2014 – 2015)
- Credits: 86 Cumulative Grade: 86.2%

CLUBS AND SOCIETIES

UBC Open Robotics **May, 2014 – Present**
APEGBC Member Advantage Program for Students (MAPs) **September, 2013 – Present**
UBC Biomedical Engineering Student Team **March, 2014 – March, 2015**

ACTIVITIES AND INTERESTS

- Coding, gaming, reading
- Rock climbing, badminton, Ultimate Frisbee, exercising, travelling
- Technology that has a huge impact / influence on society
- Learning languages