

# Aftab Narsimhan

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<http://www.aftabnarsimhan.com> | <http://www.github.com/aftabn>

## TECHNICAL SKILLS

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**Programming:** C# • C • Android • Java • C++ • VHDL • HTML / CSS / JS

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

**Embedded Systems:** Atmel AVR • Raspberry Pi • Altera • Smart Servo Motors

## EDUCATION

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**University of British Columbia**

September, 2012 – Present

**Bachelor of Applied Science – Electrical Engineering**

- Expected Graduation: 2017
- Dean's Honour List (2014 – 2015)
- GPA: 3.80 / 4.33

## WORK EXPERIENCE

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**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
- Designed/updated PCBs using Altium, populated the boards through surface-mount soldering, and tested with standard electrical tools
- 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

## TECHNICAL PROJECTS

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**Turbo-Fan Helicopter**

January, 2016 – March, 2016

**Team Lead**

- Designed a Bluetooth controlled, 2 DoF helicopter with all but the lift and yaw DoFs mechanically constrained
- Developed a closed loop feedback system by implementing a PID controller on an ATmega328P microcontroller
- Wrote the firmware for the microcontroller in C, and created a GUI application in C# using WPF, with real-time graphing to allow for quick and easy PID tuning
- Implemented a database for storage of past PID tuning session data using C# with Microsoft Entity Frameworks
- Designed and developed the PCB electronics for integrating the sensors, motors, and microcontroller using Altium
- Created an Android app (using Bluetooth and threading) with a simulated joystick and real-time graphing to allow for easy, handheld control of the helicopter

**Raspberry Pi Internet Monitor**

April, 2016 – Present

**WiFi Status Indicator**

- Acquiring some experience and proficiency with Python by 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
- Implementing a GUI to allow for easy customization of monitoring parameters, and hardware indicators (LEDs) for easy visual cues of internet status

**Personal Portfolio Website****August, 2015 – Present****<http://www.aftabnarsimhan.com>**

- Developed a personal website from the ground up using HTML, CSS, JS and PHP with the Bootstrap framework in order to have a more prominent online presence and learn the basics of web development
- Learned how to use Adobe Photoshop and Illustrator CS6 in order to create my own graphics

**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

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**VOLUNTEER WORK EXPERIENCE****Vancouver General Hospital, Vancouver, BC****January, 2016 – Present*****Electronic Patient Data Transfer - Advisor***

- Developing 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

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

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**ACTIVITIES AND INTERESTS**

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