Aftab Narsimhan

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

TECHNICAL SKILLS

Programming: C# • C • MySQL • 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

University of British Columbia **September, 2012 – Present**

Bachelor of Applied Science – Electrical Engineering

- Expected Graduation: 2017
- Dean's Honour List (2014 – 2016)

WORK EXPERIENCE

Tesla Motors Inc., Palo Alto, CA **May, 2016 – Present**

Software Engineering Intern

- Aided the development of a new generic test platform for the Model III ECUs by creating a C# GUI application for: creating test plans to be consumed by a sequencer during testing for each controller, easily displaying test results that were stored in a MySQL database, and graphing results and showing trends across several parameters
- Upgraded a legacy application by increasing the efficiency of SQL queries and properly indexing which resulted in a performance boost of > 100000 times
- Brought up parts of the Model III ECUs which entailed SMT soldering, analyzing circuits and characterizing behavior using standard electrical equipment, and performing calculations for design adjustments accordingly

Kardium Inc., Burnaby, BC **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

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

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

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

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**

ACTIVITIES AND INTERESTS

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