Shafkat Haque

4B Computer Engineering | University of Waterloo

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I love to design. I love to create. I am always thinking about the next big idea and how I can bring it to life today. My primary interests are mostly in Embedded Systems and Software. My other interests include UX/UI design, Entrepreneurship and Sushi. My professional goal in life is to create at least one thing that changes the world in some awesome way.

Skills and Expertise

	Well Versed In	Familiar With
Languages	Python, Ruby, Javascript, C#/Java, C, Swift, HTML, CSS	Objective-C, C++, PostgreSQL, PHP, Matlab, VHDL, Verilog
Software Frameworks	ARM Assembly, Real Time OS, QNX BSP, SDKs, APIs, Ruby on Rails, Sinatra, Rack, jQuery, .NET	Firmware, Drivers, Chromium Embedded Framework
Design	Product Design, Prototyping, Software Architectures, APIs	Tools, SDKs, Software Services
Hardware	Arduino, BeagleBone, TI Launchpad, Nios II	XBee, Sensors, Kinect, Eye Trackers, Raspberry Pi
Communication	Technical Presentations, Demos, Training	

Recent Projects and Activities

Advanced Driver Assistance System | Real Time Embedded Systems Lab | University of Waterloo

While working with Professor Fischmeister, I architected a RC car platform as part of the ADAS platform; RC car ran QNX on beagle bone HW coupled with Arduino mega for wired communication with the car. I also optimized the previous system by miniaturizing the RC car subsystem; That included redesigning the architecture where all communication hardware was offloaded from RC car and instead car commands were sent wirelessly. All hardware was transferred to host machine running all relevant software. Most recently, I designed, fabricated and assembled custom hardware as part of the communicating subsystem; The host machine to wireless remote controller module USB-I2C bridge was built which removed any need for any extra hardware.

Hardware schematics, PCB layouts and more details: shaque.me/research

Capstone Design Project (2016 - Present)

My team and I are currently working on a biomedical hardware project which is geared towards helping people breathe cleaner air and improve their health. This project uses a combination of custom hardware and software which is currently under development as part of our final year engineering project.

Jarvis (2013)

Tired of waiting for SIRI to come to OSX, I decided to take matters into my own hands by building Jarvis. Jarvis is written in python and runs from the terminal on my Mac. This virtual assistant does natural language processing and semantic analysis on what you say, fetches appropriate results from the web and reads it out. Demo: shaque.me/jarvis

Music (2007 – Present)

I made a guitar distortion pedal and like to record great rock music. Check out my music: shaque.me/music

Experiences

Software Engineer | Apple | iPhone Hardware — Cupertino, CA | Aug. ’16 – Present

Right now working on future iPhone technologies and robotic platforms for testing and validating hardware.

Software Engineer | Apple | iPhone & iPad Hardware — Cupertino, CA | Aug. ’15 – Dec. ’15

I primarily focused on creating software for prototype technologies for iPhone and iPad. We created various proof of concept hardware and software for future products to understand the reliability and potential of these new technologies. I had exposure on all phases of building these prototypes, starting from the hardware design and FPGA programming to writing software that will interact with the new hardware. I also worked on various engineering tools used by many teams throughout the company.

Software Engineer | Apple | MacQuality AIT, Product Integrity — Cupertino, CA | Aug. ’14 – Apr. ‘15

My team was focused on building tools to help analyze and visualize the huge data sets produced by the engineering teams for analysis. I built several developer APIs to allow other test teams to interact with the collected data. I also built an API portal where developers across the organization can request API keys and get access to APIs and reporting services.

R&D Software Engineer | SAP Labs | Special Projects — Palo Alto, CA | Jan. ’14 – Apr. ‘14

This was one of the best internships I have had so far. In this team I worked with graphics designers, mechanical and computer engineers and software engineers. I was responsible for prototyping several concepts that related to areas of Facial Recognition, AI, Voice Recognition, Natural Language Processing, and Real Time Peer-to-Peer Communications Systems. Some interesting technologies I used were WebRTC, Chromium Embedded Framework, WebSockets and WebSpeech. Using these technologies, we prototyped a real time facial recognition system that had high accuracy and minimal latency. We also created a fully functioning prototype of real time P2P collaboration software. This job was very special to me because I was named as an inventor on a patent that was filed for the work we did. I got to demo our prototypes to our designers and senior executives including the CTO of SAP. I also trained and led a small team of engineers I worked with.

R&D Software Developer | BlackBerry | Software Prototype — Waterloo, ON | Sept. ’12 - Dec. ’12

This team’s goal was to come up with prototypes for potential products and then demo in front of the core design org. This is where I really learned about product design and design in general. I ended up prototyping BlackBerry Blend - a powerful cross-platform productivity tool for BlackBerry devices. I demoed and presented this prototype to the core design group and some senior executives which eventually was productized.

Developer Analyst | Telus | Emerging Technologies and Innovations — Vancouver, BC | May ’13 - Aug. ’13

I worked at Telus on building a developer community website and also managed this project. The most interesting project I worked on however was researching on facial recognition technologies in home automation systems.

Education

I am studying in 4th year Computer Engineering at University of Waterloo in Canada. Some of the courses I have enjoyed taking are Digital Computers, Embedded Microprocessor Systems and Operating Systems Programming. I also studied Compilers, Digital HW Systems, Control Systems, Analog and Digital Communications, Networks and Embedded Software among other courses.