**Shachak Zaarur**

60 Gibbs Street #2, Brookline, Massachusetts, 02446 | 857-389-7001 | [shzaaarur@gmail.com](mailto:shzaaarur@gmail.com)

**Experience**

**Embedded Software Engineer II July 2014 – Current**

**Tyco Int. - Johnson Controls International PLC**

* Designed and developed a core embedded Kernel that is deployed in a variety of modules with power saving features
* Developed a low level boot loader to upgrade module firmware using a distributed file system and file system management framework
* Implemented a node-less upgrade solution to run in the background while the system continues to operate normally
* Implemented an algorithm for maximum retention of a circular event logger using minimal memory
* Created a system logic algorithm and configuration file to ensure optimization memory usage and computational time
* Designed and developed a master-less RS485 communication protocol
* Developed a fire signature detection algorithm using multiple IR sensors
* Developed a .NET windows application and drivers used to upgrade and configure the system
* Analyzed system to improve system recovery
* Engineered tools to analyze system operation, and developed an automatic tester
* Migrated and optimized third party code to a different CPU
* Worked with hardware and manufacturing teams to create test tools
* Supported UL and FM tests
* Worked with technical writers to write manuals and describe system architecture

**Software Developer July 2012 – September 2013**

**OeeZee**

* Designed and improved linux firmware/software based on OpenWRT; Includes developing GPIO Interrupt, increasing File system size, developing I2C, and debugging modules
* PHP web development and product integration using lighttpd framework and apache
* Developed communication between client/server using Restful API, and slim framework interfacing with a sqlite3 database.
* Developed GUI programs using python, and bash to meet customer needs and increase software flexibility
* designed app for both iOS, and Android

**Software Engineer Intern June 2012 – August 2012**

**ViryaNet**

* Researched and advised on efficient ways to develop native apps for both Android and iOS
* Prototyped app (Android and iOS), which included interfacing with the phone’s hardware and the phone’s built in notifications

**Software Engineer Intern May 2010 to September 2011**

**Gen9 Bio**

* Developed a precise liquid handling system to mix and add solutions to an array of gene sequences
* Designed and programed a humidity and temperature control unit
* Developed a control algorithm for a cell imaging system

**Patents/Awards**

**Patents:**

1. “Distributed file system in special hazards”, 2017 (pending)
2. “System firmware upgrades via slaves”, 2017 (pending)
3. “Efficient auto addressing algorithm”, 2016 (pending)

**Awards:**

Team Leadership award - Tyco Int., Johnson Controls International PLC

**Projects**

**Arcade NFC Payment system 2016**

* Developed a raspberry pie NFC interface to communicate with a remote database
* Created a database and database queries to check and deduct a certain amount of credits from a user, depending on NFC interface
* Developed an interface to manage accounts

**Smart Street Lights 2014**

* Developed an embedded system that uses sensors to optimize street lighting depending on time of day, traffic motion, and traffic patterns
* Used Batman mesh network, Restful API, and slime framework to share information between nodes
* Created an SQL database to track traffic motion and patterns
* Used JSON string parsing for UI and server database manipulation
* Designed PCB for microwave sensor integration

**Multi-Cycle CPU development and simulation 2013**

* Designed and tested a Multi-Cycle CPU using behavioral Verilog. Created the data path and control system which involved designing a working data path, and a state diagram

**Smart Green House using TI MSP430 2011**

* Designed and developed a Smart Green House that uses lighting, temperature, humidity, and moisture sensors to optimize the efficiently of a green house

**Education**

**Bachelor of Science, Electrical Engineering Class of 2014**

Boston University, College of Engineering

Multiple Deans List

**Technical Skills**

C, C++, C#, Python, USB, SPI, I2C, UART, ADC, Driver Compilation, Linux, Scripting, Java, JavaScript, JSON, PHP, SQL, HTML, Matlab, Verilog.