

ASHVIN ROHARIA

Firmware Engineer

📍 Austin, TX 📞 512-239-8021 ✉ aroharia@gmail.com 📖 aroharia.github.io/mysite

PROFESSIONAL EXPERIENCE

Silicon Labs, Austin, TX

May 2017 – Present

Firmware Engineer - IoT Xpress Products Software Development Team

Debug Service Routine - Debug/Reset ISR

- Developed new DSRs in ROM for next-gen 5V MCU and PoE PSE Controller MCU
- DSR is entered on MCU reset and debug interrupt vector
- DSR sets up flash sizing and bootloader capability
- DSR points code to reset vector or boot vector if MCU reset
- DSR enables/disables features for each part
- DSR runs host commands like read, write, page erase, get version, etc.

Bluetooth Xpress - Serial to Bluetooth Bridge

- Developed low-power embedded software demos (see video above) for new BLE products for embedded systems conferences and a customer facing SDK
- Create streaming tests to allow long term reliability testing and throughput measurements
- Validated new customer facing board revisions

USB Xpress - USB to UART Bridge

- Released updated library after fixing multiple bugs and customer requests
- Added new features; user suspend configuration, zero-length-packet termination, etc.
- Set up library builds in Jenkins

Firmware Engineer Intern - IoT Xpress Products Software Development

Touch Xpress - Capacitive Button Controller

- Created python module to control a capsense testing robot
- Added touch detection analysis to allow platform to characterize a touch as pass or fail
- Setup an automated capsense test platform using grounded pads to simulate touches

Intel, Austin, TX

March 2016 – August 2016

Firmware Engineer Intern - IoT SoC Power Management Team

- Worked on the power management controller on a pre-silicon IoT SoC
- Fixed multiple firmware bugs on Linux involving cloning, building, testing, and team communication
- Analyzed waveforms on Verdi to debug an issue
- Ran emulation test which involved cloning, changing parameters, and running scripts

AMD, Austin, TX

August 2015 – January 2016

Validation Engineer Intern - Server Validation Team

- Involved in a customer issue as the sole tester for microcode patches in the team
- Loaded microcode patches, set conditional breakpoints in HDT, and helped brainstorm fixes for the issue
- Tested SATA ports on ARM server chip revisions through python scripts for 2 bringups
- Built a GUI using XAML, C#, and python in Visual Studio to replace an outdated GUI used to test chips

Malauzai Software, Austin, TX

May 2014 – August 2015

Team Lead Software Engineer Intern - Mobile App R&D Team

- Led a team of three interns to research competitor's mobile app designs and features
- Used Ruby to automate the process of looking up banks in the iTunes store

Software Engineer Intern - Mobile App Development Team

- Found and reported bugs in our mobile banking app on iPhones, iPad, and Android
- Worked with mentor to fix bugs in objective-C and JAVA

EDUCATION

The University of Texas at Austin

August 2013 – December 2017

Bachelor of Science, Electrical & Computer Engineering

I. Software Engineering and Design

II. Embedded Systems

C	C++	Assembly	Python	JAVA	HTML	CSS	VHDL	English	Hindi
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PROJECTS

Acoustic Event Detection Algorithm & GUI

- Developed a Python script to train a kNN (machine learning) and classify real-time audio
- Developed a real-time Python GUI to display the mic audio signal, frequency spectrum, and classification

Facebook API Data Gathering & Analysis

- Worked on a Python script to convert a Facebook page into a CSV file
- Used JavaScript to create interactive graphs based on the scraped data
- Designed an HTML website for users to visualize the Facebook data analytics

Automated Website Testing

- Created a browser-based regression automation test suite for a web application
- Test suite involved automating button presses, populating text fields, and validating
- Used Java and Selenium to generate the 256 tests needed for full coverage

GroupMe API Data Gathering & Analysis

- Worked on a Python script to convert a group chat transcript into a JSON file
- Created a Python script to display multiple stats analyzed from the JSON file
- Designed a GUI for both scripts to allow for public usage

Active Noise Cancellation Embedded System

- Designed a PCB to interface between our code and the LCD screen, mic, headphones, DAC, ADC, etc.
- Used C to develop the active noise cancelling algorithm
- Filmed a YouTube video demonstrating and explaining the embedded system

Autonomous Robot Car

- Created an AI robot with photoresistors and infrared sensors to follow black tape and dodge obstacles
 - Used LabVIEW (visual programming) and a data acquisition device to control the system
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