

# Ashvin Roharia

## Software Engineer II

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### PROFESSIONAL EXPERIENCE

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#### Silicon Labs Austin, TX

##### Software Engineer II IoT RF Software Team

Mar 2021 – Present

###### Radio Abstraction Interface Layer Library

- Developed low-level APIs and fixed bugs for wireless IoT chips in C
- Worked on Z-Wave, channel hopping, timing, clock gating, packet reconfigurations, memory management, TX/RX, adding test coverage, improving Jenkins flow

###### Boot Code

- Sole developer of the boot ROM and bootloader for next-gen 8-bit MCUs in C/ASM
- Sole tester of boot code for bringups in our 3 next-gen MCUs
- Boot ROM is entered on MCU reset and debug interrupt vector to handle startup
- Bootloader is entered if there's no user code or on a boot pin to load applications

##### Software Engineer IoT RF Software Team

Mar 2020 – Mar 2021

###### Radio Abstraction Interface Layer Library

- Developed app to analyze library's RAM/stack and flash usage after each commit
- Worked on fixing bugs in RAIL library

##### Firmware Engineer IoT MCU Firmware Team

Jan 2018 – Mar 2020

###### Bluetooth Xpress – Serial to Bluetooth Bridge

- Developed low-power embedded software demos 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 MCU Firmware Team

May 2017 – Aug 2017

###### 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

##### Firmware Engineer Intern IoT SoC Power Management Team

Mar 2016 – Aug 2016

- Worked on the power management controller on a pre-silicon IoT SoC
- Fixed multiple firmware bugs on Linux in C
- Ran emulation test which involved cloning, changing parameters, and running scripts

#### AMD Austin, TX

##### Validation Engineer Intern Server Validation Team

Aug 2015 – Jan 2016

- Loaded ASM microcode patches and helped debug Alpha customer 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, A Finastra Company** Austin, TX

**Team Lead Software Engineer Intern** Mobile App R&D Team May 2015 – Aug 2015

- 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** Software Development Team May 2014 – Aug 2014

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

## **EDUCATION**

### **Georgia Institute of Technology** Atlanta, GA

**Master of Science, Computer Science** (4.0/4.0)

Aug 2020 – Present

I. Computing Systems

II. Embedded Machine Learning

### **The University of Texas at Austin** Austin, TX

**Bachelor of Science, Electrical & Computer Engineering** (3.30/4.0) Aug 2013 – Dec 2017

I. Software Engineering and Design

II. Embedded Systems

C	8051/ARM Assembly	Python	JAVA	C++	HTML	Batch	VHDL	English	Hindi
Bluetooth	Z-Wave	Zigbee	UART	USB	SPI	I2C	ADC/DAC	GPIO	
Oscilloscopes	Logic Analyzers	USB Protocol Analyzer				FPGA Debug	IDEs	Git	

## **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

### **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 canceling algorithm
- Filmed a YouTube video demonstrating and explaining the embedded system

