MEET HARISH THAKKAR

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Summary: Passionate and versatile generalist engineer. 7 years of experience in various roles in Autonomous Vehicle cos, start ups and large corps. MS in Comp Eng. Experienced in systems engineering, Java, embedded, android, Bluetooth and ROS. My core strength is knowledge of system design and architecture.

EDUCATION

Master of Science, Computer Engineering (GPA **3.9**)	**NC State University**	*Aug'15 - May'17*
Bachelor of Engineering, Information Tech. (Grade **61.58%**)	**Mumbai University**	*Aug'09 - May'12*
Diploma (Associate), Computer Technology (Grade **77.27%**)	**V.E.S.P.**	*Aug'06 - May'09*

PREVIOUS ROLE EXPERIENCES

Full Stack	6 mos at Zoox, 2 years at JP Morgan developing front-end, web-services and Infrastructure.
Back-End	1 Year at JP Morgan: web-services, DB and ETL. 3 months intern at VMWare Airwatch.
Android App	1 Year at Orion Labs Android core (11 month), UI (1 month).
Android OS	1.5 years at Orion labs, building Android 7 LTE device, BSP, linux drivers, porting, framework and system app customizations.
Firmware/Embedded	1 Year at Orion Labs Inc, working on BLE wearable debugging UART, SPI and BLE GATT parameter tuning.
Misc	Academic Experience in **Control Systems, Machine Learning, IOT protocols and Unmanned Ariel Vehicles and Robotics/Autonomous Systems**

TECHNICAL STRENGTHS

Languages	Java (4 Years), C/C++ (2 years), Python (1.5 Year), R (academic 1 year), MATLAB (6 months)
Platforms & Skills	AWS S3, EC2, DNS management, Wearable Devices, IoT, Android App Development, AOSP, Arduino, ARM, RTOS, Linux kernel development, Web development, Robotics, UAVs, Ardupilot, Machine Learning.

EXPERIENCE

Zoox Labs Inc.
Autonomous Vehicle Software Engineer / Android OS

Oct'19 - Apr'20
Foster City, CA

- **Robot Vehicle Apps/Infrastructure**
- Enhanced autonomous vehicle logger application which collected data upto 60 MB/second and wrote it to external disk.
- Maintained data upload script (Python) which uploaded upto 100TB of data everyday to Amazon S3.
- Developed support for swapping disks without requiring to reboot the vehicle OS which brought down disk change time from 45 minutes to 5 minutes.
- Implemented ROS node to monitor temperature, connectivity and available disk space to ensure data is not lost due to disk issues.
- Developed a grafana dashboard for resource monitoring to ensure all upload nodes are active and SLAs are met for upload time.
- Developed a webapp which provided interface for data upload, data processing, upload data metrics written in python, microcosm and Vue as frontend.
- **Android OS**
- Customized Android OS OTA update workflow to work as OTA over FTP to fit with robot software deployment system.
- Customized Ethernet network drivers and configuration for Android OS.

Orion Labs Inc. Jul'17 - Oct'19
Android App / System / Firmware Engineer / Generalist *San Francicso*

· **Android Device Development - System Engineering**
· Development of LTE Android based wearable push-to-talk device (walkie-talkie). Involved in DVT/EVT/PVT/MP phases of device development.
· Board bring-up, kernel and driver development, Android Framework customization, Android App development.
· Led collaboration with design and manufacturing partners in china along with supply chain and project management teams.
· Led and Owned Device development in full-stack fashion. From Resistor values to HTTP protocol parameters (keep-alive).
· Represented system engineering team in Schematic review of initial board developed based on ARM 7 processor.
· Improved battery life of Android Device from 5 hours to 9 hours.
· Established Jenkins based CI infrastructure using AWS S3 and EC2 for Android OS.
· **Firmware Engineering**
· Developed of Wearable Push to talk communication device in an agile team.
· Optimized audio streaming in Opus codec over low bandwidth Bluetooth Low Energy GATT protocol.
· **Android App Development**
· Extended and maintained Orion Lab's real-time communication App. Added new features and enhanced the reliability.
· Customized existing android app to work with rugged phones with Push to talk feature.
· Re-architecture of Android app to separate UI, core business objects and Network Data Transfer Classes.
· Developed System OTA App for Android device and Designed OTA server.
· Championed java SDK development for third-party integration with Orion.

NC State University Jan'17 - May'17
Teaching Assistant (Medical Instrumentation)

· Mentored 8 project teams of grad students. Each team implemented a wearable bio-sensor project. Helped professor with grading exams and project reports.

University of North Carolina at Chapel Hill - Department of Psychiatry Oct'16 - Jan'17
Research Assistant (Frohlichs Lab - www.frohlichlab.org)

· Developed Android App which is used for double blind clinical trials for Non invasive brain stimulation device.
· Interfaced brain stimulation device with android app using Bluetooth classic serial SPP profile.
· Developed crossover study trial assignment tool for internal use.

VMWare (Airwatch) May'16 - Aug'16
Cloud Platform Intern / Full Stack Engineer

· Worked on Cloud based Enterprise Mobility management platform (VMWare Airwatch), involved in design and development of enhancement of Secure Email Gateway developed in .NET and C#.

J.P. Morgan Chase Jul'12 - Jun'15
Technology Analyst / Full-Stack Software Engineer

· Delivered end to end real-time financial calculation engine with Java, GWT, Hibernate, REST Services, Web UI, Spring Batch, ETL, Maven and Reporting technologies.
· Played the role of a generalist in a fast-paced agile team for 2 years, involved in development, testing, certification, test automation.
· Worked in Chief Development Office as Analyst. I ensured quality, vulnerability and complexity of code using statistical measurement using text and byte-code analysis across all the projects in organization.

Thakkar Consultants - thakkarconsultants.com May'09 - Jul'12
Founder, Web/Application Developer

- Led a Web-software Development Company focused to serve the industries and start-ups with websites in PHP, Drupal, and WordPress.
- Contributed to open-source software (drupal).

ACADEMIC PROJECTS

Crash-proof drone
Autonomous Aerial Vehicles

2017
NC State University

- Implemented new flight mode in Ardupilot.
- Implement safe mode for search and rescue operation using open source Ardupilot quadcopter.
- https://youtu.be/E8THknKeYAk

Wearable and Mobile Application for Wheeze detection
Medical Instrumentation

2016
NC State University

- Managed collaboration of 4 grad students.
- Wearable and Mobile Application for Wheeze detection and location using FFT spectro-temporal analysis of lung sounds.
- Led design and implementation of hardware using Mbientlab BLE wearable platform and Android application for signal processing and user interface with Bluetooth LE GATT interface.

Forest Fire Prevention, prediction and Firefighter Safety Application using Internet-of-Things
Internet of Things

2015
NC State University

- Designed application for prediction of fire using machine learning and sensor network & firefighter health monitoring using wearables.
- Used CoAP, UDP, HTTP, IPV6, Long range wireless communication, wearable sensors and IoT weather sensor clusters.

Guitar/Musical Instrument Effects Pedal
Senior Project

2012
Mumbai University

- Led team of 4 classmates. Managed task division and deliverables.
- "Guitar/Musical Instrument Effects Pedal" is a real time audio effect processor.
- Programmed real-time deterministic signal processing algorithms in C and C++ for PC with processing within 30ms delay.
- Integrated low latency ASIO drivers to bypass Windows XP OS default audio pipeline.

RELEVANT COURSES

Graduate Courses	**Undergraduate Courses**
Embedded systems	Microprocessors and Microcontrollers
Internet-of-Things	Information and Network Security
IOT-Analytics(ML)	Database Technologies
Medical Instrumentation	Artificial Intelligence
Introduction to Autonomous Systems	Probability and Statistics
Wearable Biosensors	Calculus & Linear Algebra
Computer vision	Data Warehousing, Mining and Business Intelligence
Digital Control Systems	Mechatronics
Coursera: Control of Mobile Robots - Georgia Tech	