

Koosha Marashi

FIRMWARE/SOFTWARE ENGINEER

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Technical Skills

Programming Languages	C (expert), Python (expert), SQL (proficient), Java (prior experience)
Web Technologies	HTML, JavaScript, CSS, Bottle, RESTful API, Jekyll, Amazon AWS/EC2
Computer Software	MATLAB & Simulink, LabVIEW (CLAD certificate, issued 5/13), OrCAD, LaTeX
Data Analysis	Machine learning, Neural networks, Statistical modeling, Regression, ANOVA, TensorFlow, SAS, JMP
Programmable Devices	AVR and ARM-based Microcontrollers
Communication Protocols	CAN, UART, SPI, I ² C, TCP/IP, ZigBee, Bluetooth
Operating Systems	Windows, Linux (Ubuntu, Red Hat, Raspbian), Android
Miscellaneous	Git, JIRA, Confluence, Continuous integration, Circuit design, PCB design, Android app development

Work Experience

Romeo Power Technology

Los Angeles, CA

FIRMWARE ENGINEER

Oct. 2017 – Present

- Designed and implemented a modern distributed battery management system to improve fault tolerance and extendability.
- Helped in code review process of embedded system software development for safety critical applications.
- Designed and communicated procedures for unit testing, integration testing, and regression testing of battery management systems used in automotive and stationary energy storage applications.

Missouri S&T, Department of Electrical and Computer Engineering

Rolla, MO

GRADUATE RESEARCH ASSISTANT

Aug. 2012 – Sep. 2017

- Developed reliability and interdependency models for smart grids. These analytical models help in identifying vulnerabilities and reducing service interruptions in modern electrical grid.
- Made an ultra-low-power VLF signal detector for underwater communications extending battery life of transceivers by a factor of 40.

Kalscott Eng.

Lawrence, KS

SOFTWARE/FIRMWARE DEVELOPMENT INTERN

May 2016 – Aug. 2016

- Reduced power consumption of a UAV navigation system to one thirtieth of its original value and improved its performance by 40% by migrating to a Linux-powered single-board computer and utilizing optimized algorithms.

Intellispeak LLC

Lawrence, KS

FULL-STACK DEVELOPMENT INTERN AND CO-OP

May 2015 – May 2016

- Utilized Bluetooth beacons and constructed an information network to help patients with autism.
- Designed several test cases to identify and debug issues
- Responsible for development of server back-end (Python), Android app (Java), database (MySQL), and web interface (HTML, JavaScript, and CSS).

Kalscott Eng.

Lawrence, KS

SOFTWARE/FIRMWARE DEVELOPMENT INTERN

May 2014 – Aug. 2014

- Developed an automated air-band radio for UAVs. This system is able to predict intent of UAVs with 98% accuracy and inform nearby traffic.

Beh-Azmoon

Isfahan, Iran

FIRMWARE ENGINEER

Dec. 2011 – Jun. 2012

- Created a wireless digital crack monitoring system for structural health monitoring. This system is to replace the traditional crack gauges eliminating the need for constant surveillance.

IUT, Department of Electrical and Computer Engineering

RESEARCH ASSISTANT

Isfahan, Iran

Feb. 2006 – Nov. 2011

- Made a multi-functional stand-alone data logger.
- Developed a navigation and mapping system for LynCean mobile robot by applying sensor fusion algorithms on data from a laser scanner, a GPS receiver, sonar sensors, and IR detectors.
- Made a controller board for Parsa humanoid robot.
- Prototyped an AUTOSAR-compliant engine control unit for Honda GX35 engine.

Education

Missouri University of Science and Technology (Missouri S&T)

Rolla, MO

PH.D. IN COMPUTER ENGINEERING

Aug. 2012 – July 2017

Isfahan University of Technology (IUT)

Isfahan, Iran

B.S. IN ELECTRICAL ENGINEERING

Sep. 2006 – Feb. 2011

Leadership Activities

Eta Kappa Nu Honor Society - Gamma Theta Chapter

Rolla, MO

ACTIVE MEMBER

Mar. 2014 – Present

- Attended regular meetings and helped in voluntary services.

Super-mileage Car Student Design Team

Isfahan, Iran

HARDWARE DEVELOPMENT LEADER

Oct. 2009 – Aug. 2010

- Communicated status and issues to cross-functional teams and senior manager.
- Coordinated resources using Microsoft Project.

Rescue Robot Student Design Team

Isfahan, Iran

TEAM LEADER

Sep. 2008 – Apr. 2009

- Mentored students, helping them to solve problems and make decisions.

Honors and Awards

2013	National University Transportation Center Fellowship , US Department of Transportation	Rolla, MO
2013	Travel Scholarship , Trustworthy Cyber Infrastructure for the Power Grid	Urbana, IL
2012	Vice-Provost for Graduate Studies Fellowship , Missouri S&T	Rolla, MO
2010	Gold Medal , 38 th Geneva Invention Exhibition	Geneva, Switzerland
2010	Best Invention Award , Russian Incubator of Inventions	Geneva, Switzerland
2009	Outstanding Undergraduate Researcher Award , IUT	Isfahan, Iran

Patents

2014	Wireless Temperature Monitoring System for Centrifugal Casting , Pat. No. IR-81750
2010	2D Wireless Structural Crack Monitoring System , Pat. No. IR-62181
2010	Handheld Data Logger for Agricultural Applications , Pat. No. IR-61142
2009	Life Detector Robot with Adjustable Functionality , Pat. No. IR-60845
2009	Extendable DC Motor Controller System , Pat. No. IR-60839
2009	An Innovative Co-Axial Rotation Mechanism , Pat. No. IR-60847
2009	Robust Track Mechanism for Locomotion of Mobile Robots , Pat. No. IR-60849
2009	Lightweight Robust Platform for Mobile Robots , Pat. No. IR-60848