

# Koosha Marashi

SOFTWARE/FIRMWARE ENGINEER · BACK-END/WEB/EMBEDDED SYSTEMS DEVELOPER

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A results-driven software/firmware engineer with 5+ years of experience in back-end, web, and embedded systems development. Fast learner, highly organized, and capable of accomplishing tasks on time while being innovative. Proven leadership and project management skills and strong written and verbal communications. Seeking opportunities where my extensive hands-on and academic experience, acquired through summer internships and working with several research teams, will be well utilized.

## Technical Skills

<b>Programming Languages</b>	Python (expert), C/C++ (proficient), SQL (proficient), Java (prior experience), Verilog (prior experience)
<b>Web Technologies</b>	HTML, JavaScript, CSS, Bottle, RESTful API, Jekyll, Amazon AWS/EC2
<b>Computer Software</b>	MATLAB & Simulink, LabVIEW (CLAD certificate, issued 5/13), OrCAD, LaTeX
<b>Data Analysis</b>	Machine learning, Neural networks, Statistical modeling, Regression, ANOVA, TensorFlow, SAS, JMP
<b>Programmable Devices</b>	AVR and ARM-based Microcontrollers, FPGA
<b>Communication Protocols</b>	TCP/IP, 802.03, 802.11, UART, SPI, I <sup>2</sup> C, ZigBee, Bluetooth
<b>Operating Systems</b>	Windows, Linux (Ubuntu, Red Hat, Raspbian), Android
<b>Miscellaneous</b>	Agile development, Git, Jira, Continuous integration, Digital and analog circuit design, PCB design, Android app development

## Work Experience

### Missouri S&T, Department of Electrical and Computer Engineering

Rolla, MO

#### GRADUATE RESEARCH ASSISTANT

Aug. 2012 – Present

- 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

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### 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

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### 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

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

## Patents

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