

# Koosha Marashi

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

☎ (573) 202-8465 | ✉ km89f@mst.edu | 🏠 koosham.github.io | 🔗 www.linkedin.com/in/koosham | 📱 koosham

A results-driven software/firmware engineer with 5+ years of experience in back-end, web, and embedded systems development. 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, Jekyll, Amazon AWS/EC2
<b>Computer Software</b>	MATLAB & Simulink, LabVIEW (CLAD certificate, issued 5/13), OrCAD, $\text{\LaTeX}$ , 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, Raspbian), Android
<b>Miscellaneous</b>	Git, TensorFlow, Digital and analog circuit design, PCB design, Android application 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/HARDWARE DEVELOPMENT INTERN

May 2016 – Aug. 2016

- Reduced power consumption of a navigation system for UAVs to one thirtieth of its original value and increasing its performance by 40% by migrating the system 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.
- Was responsible for development of server back-end, Android app, database, and web interface.

### Kalscott Eng.

Lawrence, KS

#### SOFTWARE/HARDWARE 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

Isfahan, Iran

#### RESEARCH ASSISTANT

Feb. 2006 – Nov. 2011

- Made a multi-functional stand-alone data logger.
- Developed navigation system and sensor fusion algorithm for LynCean mobile robot.
- 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)

PH.D. IN COMPUTER ENGINEERING

Rolla, MO

Aug. 2012 – July 2017

### Isfahan University of Technology (IUT)

B.S. IN ELECTRICAL ENGINEERING

Isfahan, Iran

Sep. 2006 – Feb. 2011

## Leadership Activities

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### Eta Kappa Nu Honor Society - Gamma Theta Chapter

ACTIVE MEMBER

Rolla, MO

Mar. 2014 – Present

- Attended regular meetings and helped in voluntary services.

### Super-mileage Car Student Design Team

HARDWARE DEVELOPMENT LEADER

Isfahan, Iran

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

TEAM LEADER

Isfahan, Iran

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