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

Programming Languages	Python (expert), C/C++ (proficient), SQL (proficient), Java (prior experience), Verilog (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, FPGA
Communication Protocols	TCP/IP, 802.03, 802.11, UART, SPI, I^2C, ZigBee, Bluetooth
Operating Systems	Windows, Linux (Ubuntu, Raspbian), Android
Miscellaneous	Agile development, Git, Jira, 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.
- Was 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 *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

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**, 38th 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