Koosha Marashi

Contact Information

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Education

8/2012–Present **Ph.D. in Computer Engineering** (anticipated graduation date: 5/2017)
Missouri S&T, Rolla, MO
Thesis: *Modeling and Analysis of Cyber-Physical Systems:*
Dependability of Critical Infrastructures
Advisor: Dr. Sahra Sedigh Sarvestani
GPA: 3.83/4.0

9/2006–2/2011 **B.S. in Electrical Engineering**
Isfahan University of Technology, Isfahan, Iran
GPA: 15.61/20

Work Experience

9/2012–Present ***Graduate Research/Teaching Assistant***
Missouri S&T, Department of Electrical and Computer Engineering, Rolla, MO

Developed reliability and survivability models for critical infrastructures.
Developed a model for quantification of interdependencies in cyber-physical systems.
Developed a VLF signal detector for underwater communications.

5/2016–8/2016 ***Software/Hardware Development Intern***
Kalscott Eng., Lawrence, KS

Improved the previously designed automated air-band radio for UAVs. Main improvements include migrating to a small single-board computer with Linux and adding speech recognition feature.

5/2015–8/2015 ***Web/Application Development Intern***
Intellispeak LLC, Lawrence, KS

Developed an information network for e-health services based on Gimbal Bluetooth beacons.
Responsible for development of web server, Android application, database, and web interface.

5/2014–8/2014	***Software/Hardware Development Intern*** *Kalscott Eng., Lawrence, KS*

Designed and developed an automated air-band radio for UAVs.

8/2010–6/2012	***Research Assistant*** *Industrial Automation Research Center, Isfahan University of Technology, Isfahan, Iran*

Designed and developed a 10-channel stand-alone data logger.
Designed and developed a PC-based data acquisition system for ion-mobility spectrometry.

9/2011–2/2012	***Electrical Engineer*** *Beh-Azmoon Co., Isfahan, Iran*

Designed and developed a wireless crack monitoring system used for structural health monitoring (funded by Iran's Cultural Heritage Organization).

11/2006–10/2010	***Research Assistant*** *Robotics Research Center, Isfahan University of Technology, Isfahan, Iran*

Designed and implemented navigation system, sensor fusion algorithm, and fuzzy logic motor controller for LynCean mobile robot.
Implemented a motion planning algorithm for Persia soccer robots.

2/2010–9/2010	***Design Engineer*** *Farman Khodro Co., Isfahan, Iran*

Designed an electric power steering system for Iran-Khodro Samand automobile.

10/2009–8/2010	***Research Assistant*** *Automotive Research Group, Isfahan University of Technology, Isfahan, Iran*

Designed and developed a prototype Engine Control Unit (ECU) for Honda GX35 engine.
Developed an electrical dynamometer for low-power engines.

6/2008–1/2009	***Research Assistant*** *Artificial Intelligence Laboratory, Isfahan University of Technology, Isfahan, Iran*

Implemented walking algorithm and developed a motor controller for Parsa humanoid robot.
Designed a test bed for measuring backlash of position servo mechanism motors.

PATENTS

Wireless Temperature Monitoring System for Centrifugal Casting, Pat. No. 81750, Iran, 2014

2D Wireless Structural Crack Monitoring System, Pat. No. 62181, Iran, 2010

Handheld Data Logger for Agricultural Applications, Pat. No. 61142, Iran, 2010

Life Detector Robot with Adjustable Functionality, Pat. No. 60845, Iran, 2009

Extendable DC Motor Controller System, Pat. No. 60839, Iran, 2009

An Innovative Co-Axial Rotation Mechanism, Pat. No. 60847, Iran, 2009

Robust Track Mechanism for Locomotion of Mobile Robots, Pat. No. 60849, Iran, 2009

Lightweight Robust Platform for Mobile Robots, Pat. No. 60848, Iran, 2009

REFEREED CONFERENCE PUBLICATIONS

K. Marashi, S. Sedigh, and A. Hurson, "Quantification and Analysis of Interdependency in Cyber-Physical Systems," *In Proceedings of the 3rd International Workshop on Reliability and Security Aspects for Critical Infrastructure Protection (ReSA4CI '16)*, Toulouse, France, Jun. 2016.

K. Marashi and S. Sedigh,"Towards Comprehensive Modeling of Reliability for Smart Grids: Requirements and Challenges," *In Proceedings of the 15th IEEE International Symposium on High-Assurance Systems Engineering (HASE)*, pp. 105-112, Miami, FL, Jan. 2014. Selected for appearing in 2nd issue of 2015 Science of Security Newsletter.

K. Marashi, M. Woodard, S. Sedigh, and A. Hurson,"Quantitative Reliability Analysis for Intelligent Water Distribution Networks," *In Proceedings of the Embedded Topical Meeting on Risk Management for Complex Socio-Technical Systems (RM4CSS)*, Annual Meeting of the American Nuclear Society, Washington, D.C., Nov. 2013.

HONORS AND AWARDS

National University Transportation Center Fellowship, US Department of Transportation, 2013

Scholarship to attend summer school on Trustworthy Cyber Infrastructure for the Power Grid, IL, 2013

Fellowship from Missouri S&T Vice-Provost for Graduate Studies, 2012

Gold Medal, 38th Geneva Invention Exhibition, Switzerland, 2010

Best Invention Award (from Russian Incubator), 38th Geneva Invention Exhibition, Switzerland, 2010

Outstanding Undergraduate Researcher Award, Isfahan University of Technology, Iran, 2009

PROFESSIONAL ACTIVITIES

Reviewer, Journal of Mathematics and Computer Science, 2016

Reviewer, IEEE International Computers, Software & Applications Conference (COMPSAC), 2016

Reviewer, IEEE International Computers, Software & Applications Conference (COMPSAC), 2015

Reviewer, IEEE International Green Computing Conference (IGCC), 2014

Reviewer, IEEE International Symposium on High Assurance Systems Engineering (HASE), 2014

Reviewer, IEEE International Conference on Software Security and Reliability (SERE), 2014

Reviewer, IEEE International Conference on Software Security and Reliability (SERE), 2013

PROFESSIONAL DEVELOPMENT

Graduate Teaching Assistant Workshop, Missouri S&T, Rolla, MO, 2014

Research & Technology Development Conference, Missouri S&T, Rolla, MO, 2014

Transportation Infrastructure Conference, Missouri S&T, Rolla, MO, 2014

IEEE/Ameren Lean Fundamentals Workshop, Ameren, St. Louis, MO, 2014

Presenting Data and Information by Edward Tufte, Fairmont Chicago, Chicago, IL, 2014

IEEE Seminar on Modeling Cyber Attack-Defense Interactions, Missouri S&T, Rolla, MO, 2013

Engineering Management & Systems Engineering Graduate Seminar - A Survey of Applications and Future Directions of Computational Intelligence, Missouri S&T, Rolla, MO, 2013

Transportation Infrastructure Conference, Capitol Plaza Hotel, Jefferson City, MO, 2013

Trustworthy Cyber Infrastructure for the Power Grid (TCIPG) Summer School, Q Center, St. Charles, IL, 2013

PROFESSIONAL SOCIETY MEMBERSHIP

IEEE Student Member, Since 2013

IEEE - Eta Kappa Nu Member, Since 2014 ACM Student Member, Since 2015

ACM - SIGMETRICS Member, Since 2015

National Society of Professional Engineers Student Member, Since 2015

TECHNICAL SKILLS

Programming Languages:	Python, C/C++, Java, SQL, Verilog, Assembly
Web Technologies:	HTML, JavaScript, jQuery, CSS, Amazon AWS/EC2
Development Tools:	Eclipse, PyCharm, Android Studio, Git, Keil
Computer Software:	LabVIEW (CLAD certificate, issued 5/13), MATLAB & Simulink, OrCAD, LaTeX, SAS, JMP, Active HDL, Xilinx ISE
Programmable Devices:	AVR and ARM-based Microcontrollers, FPGA, CPLD
Communication Protocols:	TCP/IP, 802.03, 802.11, UART, SPI, I^{2}C, ZigBee, Bluetooth
Operating Systems:	Windows, Linux (Ubuntu, Raspbian), Android
Miscellaneous:	Digital and analog circuit design, PCB design, Android application development