

# CURRICULUM VITAE

## MOHAMMAD SAMADI GHARAJEH

Master of Science (Computer Engineering)



***Date of Birth:*** June 19, 1984

***Place of Birth:*** Tabriz, East Azerbaijan, Iran

***Citizenship:*** Iranian nationality

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## EDUCATION

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- 01/2010 – 02/2013      **Master of Science (Computer Engineering)**, Islamic Azad University
- *Study emphasis:* Computer Systems Architecture
  - *Thesis title:* “Navigation control of agent automobiles using wireless sensor network”, designed as a smart fire system – Supervisor: Prof. Dr. Sohrab Khanmohammadi – Advisor: Asst. Dr. Majid Haghparast
  - *Thesis abstract:* In this thesis, a smart fire system is proposed to predict, control, and alert fire occurrences by using multiple fuzzy-based methods. This system aids less energy to be consumed for transmitting various messages between wireless nodes, network traffic to be reduced over the network, and network lifetime to be prolonged consequently. The proposed routing protocols are, generally, grouped into two categories: static and dynamic. The static protocols are used to transmit data packets between the stationary nodes placed on different locations. The dynamic protocols direct, control, and transmit messages between vehicles and rescue team members. Besides, several fuzzy systems are offered to detect the explosion possibility, recognize the fire probability, measure the intensity and volume of fire, estimate the fire progress, detect the burning possibility, and recognize the suffocation probability. In addition, the system determines the active and passive nodes as well as detects faulty nodes throughout the network. Rescue teams are dispatched to events on the best path, between fire department and event place, which is selected by another fuzzy system. This procedure leads the rescue and support teams to be dispatched to events in a short time. Simulation and evaluation results show that the proposed fire system has a high performance compared to the most existing fire systems.
  - *Number of the published book chapters extracted from the thesis:* 1
  - *Number of the published papers extracted from the thesis:* 4
  - *Number of the under-review papers extracted from the thesis:* 1
  - *GPA:* 18.09
- 02/2007 – 02/2009      **Bachelor of Science (Engineering of Computer Software Technology)**, University of Applied Sciences and Technology
- *Bachelor’s final project:* “Implementation of a management software for university”, developed for Tabriz Branch, Islamic Azad University
  - *GPA:* 17.17
- 02/2003 – 02/2005      **Associate of Science (Computer Software)**, University of Applied Sciences and Technology
- *Associate’s final project:* Implementation of a word processing software
  - *GPA:* 18.04
- 09/2001 – 06/2002      **Pre-university Studies (Mathematical Sciences)**, Osveh Pre-university Center
- *GPA:* 17.73
- 09/1998 – 06/2001      **Secondary Studies (Mathematics & Physics)**, Osveh High School
- *GPA:* 18.24

## PUBLICATIONS

### Book Publications

M. S. Gharajeh, *The Significant Concepts of Cloud Computing: Technology, Architecture, Applications, and Security*. Seattle: CreateSpace Independent Publishing Platform, 2015.

### Book Chapter Publications

- M. S. Gharajeh, “Biological Big Data Analytics,” in *A Deep Dive into NoSQL Databases: The Use Cases and Applications, Volume 109*, P. Raj and G. C. Deka, Eds. Cambridge: Elsevier, 2018, pp. 321-355.
- M. S. Gharajeh, “Big Data Analytics for Connected Intelligence with the Internet of Things,” in *Big Data Analytics: Tools and Technology for Effective Planning*, A. K. Somani and G. C. Deka, Eds. Boca Raton: Chapman & Hall/CRC, 2017, pp. 335-354.
- M. S. Gharajeh, “Applications of Virtualization Technology in Grid Systems and Cloud Servers,” in *Design and Use of Virtualization Technology in Cloud Computing*, P. K. Das and G. C. Deka, Eds. Hershey, PA: IGI Global, 2017, pp. 1-28.
- M. S. Gharajeh, “Security Issues and Privacy Challenges of NoSQL Databases,” in *NoSQL: Database for Storage and Retrieval of Data in Cloud*, G. C. Deka, Ed. Boca Raton: Chapman and Hall/CRC, 2017, pp. 271-290.
- M. S. Gharajeh, “A Learning Analytics Approach for Job Scheduling on Cloud Servers,” in *Learning Analytics: Fundamentals, Applications, and Trends*, A. Peña-Ayala, Ed. Berlin: Springer, 2017, pp. 269-302.
- M. S. Gharajeh, “SFRRP: 3D Fuzzy Routing for Wireless Sensor Networks,” in *Advances in Control and Mechatronic Systems, Volume: I*. Anaheim: United Scholars Publications, 2016, pp. 87–108.

### Paper Publications

#### ❖ *Journal Articles:*

- M. S. Gharajeh, “Behavior-Based Decision Making: A Tutorial,” *International Journal of Dynamics and Control*, 2018 (in press).
- M. S. Gharajeh, “A Neural-MCDM Based Routing Protocol for Packet Transmission in Mobile Ad Hoc Networks,” *International Journal of Communication Networks and Distributed Systems* (ISI Listed), 2018 (in press).
- M. S. Gharajeh, “Implementation of an Autonomous Intelligent Mobile Robot for Climate Purposes,” *International Journal of Ad Hoc and Ubiquitous Computing* (Impact Factor: 0.705), 2017 (in press).
- M. S. Gharajeh, “T\*: A Weighted Double-heuristic Search Algorithm to Find the Shortest Path,” *International Journal of Computing Science and Mathematics* (ISI Listed), 2017 (in press).
- S. Khanmohammadi and **M. S. Gharajeh**, “An Intelligent and Knowledge-based Overlapping Clustering Protocol for Wireless Sensor Networks,” *International Journal of Communication Systems* (Impact Factor: 1.717), vol. 31, no. 10, pp. e3577, Jul. 2018.

- M. S. Gharajeh, “To Measure the Perimeter of an Ellipse Using Image Processing and Mathematical Reasoning,” *International Journal of Research Studies in Computer Science and Engineering*, vol. 4, no. 4, pp. 15–21, Oct. 2017.
- S. Khanmohammadi and **M. S. Gharajeh**, “A Routing Protocol for Data Transferring in Wireless Sensor Networks Using Predictive Fuzzy Inference System and Neural Node,” *Ad Hoc & Sensor Wireless Networks* (Impact Factor: 1.034), vol. 38, no. 1-4, pp. 103–124, Sept. 2017.
- **M. S. Gharajeh**, M. A. Zivayeki, and S. Askari, “SMIER: An SVM and MCDA Based, Intelligent Approach for Enhanced Reliability in Wireless Sensor Networks,” *i-manager's Journal on Communication Engineering and Systems*, vol. 6, no. 3, pp. 1–8, Sept. 2017.
- M. S. Gharajeh, “Sensory Life in Sensory World,” *i-manager's Journal on Wireless Communication Networks*, vol. 5, no. 4, pp. 32–44, Jul. 2017.
- **M. S. Gharajeh** and R. Hassanzadeh, “Improving the Fault Tolerance of Wireless Sensor Networks by a Weighted Criteria Matrix,” *The Mediterranean Journal of Electronics and Communications*, vol. 13, no. 1, pp. 1–6, Jan. 2017.
- **M. S. Gharajeh** and S. Khanmohammadi, “DFRTP: Dynamic 3D Fuzzy Routing Based on Traffic Probability in Wireless Sensor Networks,” *IET Wireless Sensor Systems* (ISI Listed), vol. 6, no. 6, pp. 211–219, Dec. 2016.
- **M. S. Gharajeh** and M. Alizadeh, “OPCA: Optimized Prioritized Congestion Avoidance and Control for Wireless Body Sensor Networks,” *International Journal of Sensors, Wireless Communications and Control*, vol. 6, no. 2, pp. 118–128, Aug. 2016.
- M. S. Gharajeh, “Avoidance of the energy hole in wireless sensor networks using a layered-based routing tree,” *International Journal of Systems, Control and Communications*, vol. 7, no. 2, pp. 116–131, May 2016.
- **M. S. Gharajeh** and S. Khanmohammadi, “Dispatching Rescue and Support Teams to Events Using Ad Hoc Networks and Fuzzy Decision Making in Rescue Applications,” *Journal of Control and Systems Engineering*, vol. 3, no. 1, pp. 35–50, Mar. 2015.
- M. S. Gharajeh, “Determining the State of the Sensor Nodes Based on Fuzzy Theory in WSNs,” *International Journal of Computers Communications & Control* (Impact Factor: 0.694), vol. 9, no. 4, pp. 419–429, Aug. 2014.
- **M. S. Gharajeh** and S. Khanmohammadi, “Static Three-Dimensional Fuzzy Routing Based on the Receiving Probability in Wireless Sensor Networks,” *Computers*, vol. 2, no. 4, pp. 152–175, Nov. 2013.
- M. N. Cheraghloou, S. Babaie, and **M. Samadi**, “LRC: Novel Fault Tolerant Local Re-Clustering Protocol For Wireless Sensor Network,” *JOURNAL OF COMPUTING*, vol. 4, no. 8, pp. 99–104, Aug. 2012.
- **M. S. Gharajeh** and M. Haghparast, “On Design of a Fault Tolerant Reversible 4-Bit Binary Counter with Parallel Load,” *Australian Journal of Basic and Applied Sciences* (ISI Listed), vol. 6, no. 7, pp. 430–446, Jul. 2012.
- M. Haghparast and **M. S. Gharajeh**, “Design of a Nanometric Reversible 4-Bit Binary Counter with Parallel Load,” *Australian Journal of Basic and Applied Sciences* (ISI Listed), vol. 5, no. 7, pp. 63–71, Jul. 2011.

❖ **Conference Papers:**

- F. B. Aghdam, A. Ghaffari, and **M. S. Gharajeh**, “Investigate the Attacks on the Network-Transport Layer and Application Attacks on RFID and Solutions for Dealing with Them,” in

*Proceedings of the National Conference on Electrical and Computer Engineering, Islamic Azad University of Neyriz, Neyriz, Fars, Iran, May 28–29, 2011, pp. 1–8.*

- F. B. Aghdam, S. Babaie, and **M. S. Gharajeh**, “Investigate the Attacks on the Physical Layer and Multi-layer Attacks on RFID and Offer Solutions for Dealing with Them,” in *Proceedings of the National Conference on Electrical and Computer Engineering, Islamic Azad University of Neyriz, Neyriz, Fars, Iran, May 28–29, 2011, pp. 1–9.*

*Note: number of under-review papers is 10.*

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## REFEREE

### Editorial Board Member

- Journal of Approximation Theory and Applied Mathematics
- Research & Reviews: Journal of Statistics and Mathematical Sciences
- American Journal of Sensor Technology
- International Journal of Sensors and Sensor Networks
- American Journal of Networks and Communications
- International Journal of Wireless Communications and Mobile Computing
- International Journal of Advances in Electronics and Computer Science
- International Journal of Advanced studies in Computers Science and Engineering
- International Journal of Research Studies in Computer Science and Engineering
- International Journal of Sensor Networks and Data Communications

### Reviewer of Journals

- Applied Soft Computing
- Journal of Circuits, Systems and Computers
- International Journal of Computers Communications & Control
- Advances in Networks
- American Journal of Software Engineering and Applications
- Automation, Control and Intelligent Systems
- International Journal of Electrical, Electronics and Data Communication
- International Journal of Computer Technology and Applications
- World Scientific and Engineering Academy and Society
- International Journal of Cyber-Security and Digital Forensics
- International Journal of Digital Information and Wireless Communications
- International Journal of New Computer Architectures and Their Applications
- South African Computer Journal
- Journal of Computer Engineering & Information Technology
- Journal of Wireless Networking and Communications
- Computer Science and Engineering (Scientific & Academic Publishing)

- International Journal of Networks and Communications

### Technical Program Committee of Conferences

- 2nd International Conference on Micro-Electronics and Telecommunication Engineering (ICMETE) 2018
- The 2018 International Conference on Control, Automation and Electrical Systems [ICCAES2018]
- IEEE International Conference on Micro-Electronics and Telecommunication Engineering (ICMETE) 2016
- International Conference on Artificial Intelligence and Computer Engineering (AICE) 2016
- 6th World Congress on Electrical Engineering, Computer Science and Information Technology (WCECIT) 2016
- International Conference on Computers and Management (ICCM) 2015

### Reviewer of Conferences

- 3rd International Conference on New Trends in Information & Communications Technology Applications (NTICT'2018)
- IEEE International Symposium on Circuits and Systems (ISCAS) 2018
- 3rd International Conference on Computers and Management (ICCM) 2017
- IEEE Biomedical Circuits and Systems Conference (BIOCAS) 2017
- 2nd International Conference on Computers and Management (ICCM) 2016
- International Conference on Cyber Security (ICCS) 2016

### Editorial Advisory Board of Books

- Design and Use of Virtualization Technology in Cloud Computing, IGI Global, 2017. ISBN: 9781522527855

*Note: number of the refereed and reviewed papers is nearly 435.*

## HONORS

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|---------|--|
| 05/2011 | The conference paper entitled “Investigate the Attacks on the Physical Layer and Multi-layer Attacks on RFID and Offer Solutions for Dealing with Them” is selected as one of the best papers presented in <i>Proceedings of the National Conference on Electrical and Computer Engineering, Islamic Azad University of Neyriz, Neyriz, Fars, Iran</i> |
| 02/2007 | Admission to Bachelor of Science at <i>University of Applied Sciences and Technology</i> due to be elected as an elite student   |

- 02/2005 Elected as one of the three top students in Associate of Science at *University of Applied Sciences and Technology*
- 09/1998 Admission to Secondary Studies at *Osveh High School* due to be elected as one of the elite students

## RESEARCH INTERESTS

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- Computer engineering
- Programming languages
- Algorithms
- Human-computer interaction
- Artificial intelligence
- Information technology
- Simulation

## SKILLS

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### Academic Skills

- *Main skills:* Teaching, Scientific writing, Students' supervisory, Students' advisory
- *Programming languages:* C/C++, Java, VHDL, TinyOS, Lua
- *Programming environments:* MATLAB, Active-HDL, ModelSim, Quartus, Viptos, NS-2
- *Electronics environments:* CodeVision AVR, BASCOM-AVR, Proteus, Xilinx ISE Design Suite
- *Robotic programming environments:* Robot Operating System (ROS), V-REP, Gazebo

### Technical Skills

- *Main skills:* Software developer, Analyzer, Programmer, Database administrator, Software & hardware testing
- *Software programming fields:* Accounting programs, Official & financial & educational automations, Content management system (CMS), Customer relationship management (CRM), System programming
- *Programming languages:* QBasic, Pascal, Assembly, C, C++, Visual Basic, Java, SQL, C#, PHP, HTML, XML, JavaScript, VBScript, ASP, ASP.NET, ASP.NET MVC, VB.NET, C#.NET, CSS
- *Development environments:* Microsoft Visual Studio, Visual InterDev, Delphi, Eclipse, NetBeans, Adobe Dreamweaver, PHP Designer, Zend Studio, C-Free, Dev-C++, Web Page Maker, Web Creator, WYSIWYG HTML, Artisteer, Trendy Flash Site Builder, Incomedia WebSite, Sothink DHTML Menu, Xara Web Designer, Notepad++, Apache Web Server, WampServer, XAMPP, phpMyAdmin
- *Content management systems:* Joomla, WordPress, DataLife Engine, DotNetNuke, PrestaShop, TinyCMS

- *Database environments:* DB2, Paradox, Foxpro, Microsoft Access, Microsoft SQL Server, MySQL, Oracle
- *Analysis models:* ERD, DFD, UML, RUP
- *Analysis environments:* Rational Rose, CASE Studio
- *Mobile programming environments:* Android SDK Bundle, Google Android Studio
- *3D architecture software:* Chief Architect, Total 3D Home Design Deluxe
- *Graphic environments:* Microsoft Visio, Adobe Photoshop, Corel Draw, Adobe Macromedia Flash, Adobe Macromedia Fireworks, Adobe Director, Edraw Max, Adobe Illustrator, Multimedia Creator, Xara3D
- *Installer development:* InstallShield, Advanced Installer
- *Operating systems:* MS-DOS, Microsoft Windows, Linux Fedora/Ubuntu, Android, iOS, Novell NetWare
- *Microsoft Office platforms:* Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft Outlook, Microsoft SharePoint, Microsoft Publisher, Microsoft Silverlight, Microsoft Project
- *Other skills:* Team management, Computer networking, Telnet, FTP, Email, End user support, Remote desktop, PartitionMagic, HyperTerminal, VMware Workstation, E-commerce, Networking marketing

## EXPERIENCE

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### Academic Experiences

- |                   |   |
|-------------------|---|
| 03/2014 – Present | <p><b>Supervision of Students, University</b></p> <ul style="list-style-type: none"> <li>➤ <i>Research areas:</i> Routing, network coding, congestion control, attack control, malicious detection, control avoidance, data aggregation, reliability, and energy efficiency in wireless sensor networks, Routing strategies in VANETs, Routing in body area sensor networks, Reliability in grid computing, Virtual machine and resource discovery in cloud computing, MCDM, Fuzzy logic, Support vector machines, Neural networks, Internet of Things (IoT), Machine learning, Message diffusion in VANET</li> <li>➤ <i>Number of the supervised students:</i> 25</li> </ul> |
| 05/2013 – Present | <p><b>Students Advisory, University</b></p> <ul style="list-style-type: none"> <li>➤ <i>Research areas:</i> Routing, fault tolerance, congestion control, and black hole in wireless sensor networks, Data replication in grid computing, Service discovery in cloud computing, Evolutionary algorithms in graph theory</li> <li>➤ <i>Number of the advised students:</i> 12</li> </ul>   |
| 02/2011 – Present | <p><b>Simulation and implementation, Theses, papers, and projects</b></p> <ul style="list-style-type: none"> <li>➤ <i>Simulation environments:</i> MATLAB, C++, Active-HDL, CodeVision AVR, ProgISP, HSpice, Cadence IC Design, ModelSim, Proteus, Electronics Workbench</li> <li>➤ <i>Fields:</i> Wireless sensor networks, Delay-tolerant networking, Body area sensor networks, VANETs, Grid computing, Cloud computing, MCDM, Fuzzy logic, Support vector machines, Neural networks, Data mining, Computer architecture, Robotics, Analytic hierarchy process, Network-on-Chip</li> <li>➤ <i>Number of the simulated theses and projects:</i> 53</li> </ul>               |
| 01/2010 – Present | <p><b>Research Assistant, Islamic Azad University</b></p> <ul style="list-style-type: none"> <li>➤ Network routing, rescue applications, and decision making systems for Prof. Dr.</li> </ul>   |



Sohrab Khanmohammadi (*Research results*: three published papers, one accepted paper, one under-review book chapter, and one under-review paper)

- Reversible circuit design for Asst. Dr. Majid Haghparast (*Research results*: two published papers and two under-review papers)

01/2010 – Present

**Scientific researcher and developer**, Islamic Azad University

- *Networks*: Wireless sensor networks, Ad hoc networks, MANETs, RFID
- *Technology-based systems*: Cloud computing, Internet of Things (IoT), Grid computing
- *Learning and decision-making methods*: Genetic algorithm, Control and decision systems, Fuzzy systems, MCDM, Machine learning, Neural networks
- *Smart systems*: Autonomous systems, Embedded systems, Robotics
- *Other fields*: Reversible circuit design, Quantum computing, Computer architecture

09/2009 – Present

**Teaching**, University and educational institutes

- *Lecturer of University*, Computer and IT courses
  - ❖ Seraj University (09/2014 – Present)
  - ❖ Aras Higher Education Institute (09/2014 – 01/2015)
  - ❖ University of Applied Sciences and Technology (09/2014 – 06/2015)
- *Lecturer*: Educational institutes (02/2011 – 09/2013)
- *Teacher*: High school (09/2009 – 06/2010)
- *Teaching courses*: Programming languages, System programming, Software analysis, Databases, Data structure, Operating system, Computer networks, Algorithm design, Logical circuits, Computer architecture, Software engineering, Internet engineering, Simulation methods, Artificial intelligence, Fuzzy logic, Neural networks, Network installation, Object-oriented programming, Advanced Programming, Website design, Computer hardware, Graphical programming, Information storage and retrieval, Electronic foundations, Design of digital systems

### Technical Experiences

02/2015 – Present

**Independent developer**

- *Activities*: Analyzer and programmer, Developer of accounting software, Website design, Developer of automation systems, Programming the smart mobile applications for Android and iOS
- *Products*: Personal Accountant (L1), Educational system scheduling for educational institutes, Metre software for civil companies

02/2010 – 11/2014

**Shaya Mehr Pardaz**

- *Responsibilities*: Manager, shareholder, and board of directors, Software analyzer, Database administrator, Accounting programming, Web-based programming, Developer of automation software systems, Programmer of management systems
- *Products*: Accounting software, Shopping website, IVR software for taxi services, Inventory program, Cost estimation software, Planning framework for civil companies, Invoice program for fast food restaurants, Income management software, Industrial accounting software, Mental arithmetic software, School automation, Educational management website, 3D villa environment,

Corporation website, Website of an educational institute

01/2004 – 09/2009

**Andishmandan Farzaneh**

- *Responsibilities:* Shareholder and board of directors, Software analyzer, Programmer of accounting applications, Developer of desktop applications, Website designer, Implementing the electronic projects, Hardware installation
- *Products:* Financial software, Accounting program, Accounting and management software for civil corporations, Management software for flower market stores, Story notebook software, Hospital information support system

07/2002 – 10/2003

**Famer Rayaneh**

- *Responsibilities:* Network manager, Network administrator, Hardware installation, Seller of computer systems
- *Results:* Implementing the Intranet of organizations, Configuring the LAN networks of coffee nets

04/2001 – 05/2002

**Elco Software Group**

- *Responsibilities:* Developer of desktop applications, Programmer of accounting software, Software installation
- *Products:* Official automation, Inventory software, Advertisement website

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## IMPLEMENTATION

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### **ClimateRobo: an autonomous intelligent mobile robot for climate purposes**

ClimateRobo is an autonomous intelligent mobile robot for climate purposes, which notifies the weather condition based on environmental data. An ATmega32 microcontroller is used to measure temperature, gas, light intensity, and distance to obstacles using the LM35DZ, MQ-2, photocell, and infrared (IR) sensors. A utility function is proposed to calculate the weather condition according to the temperature and gas data. Afterwards, the weather condition will be monitored on a liquid crystal display (LCD), an appropriate light-emitting diode (LED) will be illuminated, and an audio alarm would be enabled when weather condition is emergency as well as ambient brightness is high. The ambient brightness is calculated by a proposed supervised machine learning using sensed data of the photocell sensor. A fuzzy decision system is proposed to adjust the speed of DC motors based on weather condition and light intensity. The robot can detect and pass stationary obstacles with the six reflective sensors installed in the left, front, and right sides under six detection scenarios. The robot, initially, is simulated in the Proteus simulator and, then, is implemented by electronic circuits and mechanical devices. It would be used by bureau organizations, rescue teams, etc. Picture gallery of this robot is available via [Link](#) and video of the robot is available via [Link](#).

### **AutoFanSys: an automatic knowledge-based fan system**

The fan system uses Analytic Hierarchy Process (AHP) and fuzzy theory to control the speed of fan systems properly. It uses sensing data of three important sensors via the intelligent decision-making procedures. An ATmega16A microcontroller adjusts the speed of a DC motor based on the calculated speed via pulse-width

modulation (PWM). Furthermore, speed percentage will be shown on a LCD. Simulation results show that the proposed system reduces total current consumption and total energy consumption compared to another fan system. Firstly, AutoFanSys is designed in Proteus simulator and program file of the microcontroller is generated in CodeVision AVR. Secondly, it is implemented by electromechanical devices to would be applied in real applications (e.g., living room, plant factory, and computer case). The picture gallery and video of this fan system are available via [Link](#).

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## MEMBERSHIP

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01/2016 – Present	<i>Institute of Electrical and Electronics Engineers (IEEE)</i> , Member Number: 92465759
08/2015 – Present	<i>International Association of Engineers (IAENG)</i> , Member Number: 157858
09/2014 – Present	<i>Lecturer at University of Applied Sciences and Technology</i> , Lecturer Code: 9310000115767
10/2011 – Present	<i>Young Researchers and Elite Club, Islamic Azad University</i> , Member Code: 9015102039

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## LANGUAGES

- 
- Azerbaijani (native language)
  - Persian (national language)
  - English (TOEFL *Total*: 62; *Reading*: 14, *Listening*: 12, *Speaking*: 17, *Writing*: 19)
  - Turkish (limited proficiency)

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## REFERENCES

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References are available upon request

July 20, 2018

*Mohammad Samadi Gharajeh*