CURRICULUM VITAE

Personal Information

Surname / First name: Shahraeini Mohammad
Email: m.shahr@gu.ac.ir
Nationality: Iran
Date of birth: 25 March 1977
Current Affiliation: Assistant Professor, Dept of Electrical Engineering;
Head of Infrastructure Group, Cloud of Thing Research Center;
Golestan University, Gorgan, Iran

Follow me:

Education

- Sep 2006– Oct 2011: PhD in Electrical Engineering (With Honors*)

Concentration in Smart Grids.
Faculty of Engineering, Ferdowsi University of Mashhad, Mashhad, Iran.
Dissertation: "Comprehensive Optimization of Wide Area Measurement Systems".
Supervisor: Hossein Javidi.

- Sep 2000– Sep 2003: M.Sc in Electrical Engineering

Concentration in Telecommunication and Computer Network.
Faculty of Engineering, University of Tehran, Tehran, Iran.
Faculty of Engineering, Ferdowsi University of Mashhad, Mashhad, Iran.
Thesis: "Web Servers Availability Analyzer Tool".
Supervisor: Ali Peiravi.

- Sep 1995 – Sep 2000: B.Sc. in Electrical Engineering (With Honors**)

Concentration in Electric and Electronic Circuits.
Faculty of Engineering, Ferdowsi University of Mashhad, Mashhad, Iran.
Thesis: "Measurement Test with Phantom Loading Method".
Supervisor: Hossein Taba.

Awards and Honors

*PhD Students Excellence in Research Awards	Ferdowsi University of Mashhad	2011
**First Ranking Student in BSc	Ferdowsi University of Mashhad	2000

Field of Interest

Complex Power Networks
Wide Area Measurement Systems
Critical Infrastructure Protection
Cyber Physical Systems
Controlled Networks

Academic Work Experience

Oct 2011- Present	Assistant Professor, Dep. of Elec. Engineering, Golestan University, Gorgan, Iran
Sep 2011-Sep 2012	Lectureship, Islamic Azad University, Branch of Mashhad, Mashhad, Iran
Jan 2004 - Sep 2007	Lectureship, Islamic Azad University, Science and Research Branch of Khorasan Razavi, Neyshabour, Iran

Sabbatical and Scholar Visits

Scholar Visitor	Department of Informatics, University of Piraeus, Piraeus Greece **Research Topic**: Interdependencies of Wide Area Measurement Systems (WAMS)*	July-Sep 2017
Scholar Visitor	Department of Informatics, University of Piraeus, Piraeus Greece **Research Topic**: Designing Resilient WAMS by Dependency Analysis Method*	July-Sep 2018
Scholar Visitor	Department of Informatics, University of Piraeus, Piraeus Greece **Research Topic**: Resiliency of Modified Power Grids with Renewable Sources*	July-Aug 2019
*Host: Dr. Panayiotis Kotzanikolaou		

Academic Administrative Experiences

Apr 2016- Present	Executive Manager for "Infrastructure Group" in "Cloud of Thing Research Center", Golestan University
May 2012-May 2017	Executive Manager for Information and Communication (ICT) Center, Golestan University
Oct 2011 - May 2012	Associate Dean in Academic Affairs, Faculty of Engineering, Golestan University
Feb 2000 - Feb 2004	Computer Network Administrator, Faculty of Engineering, Ferdowsi University of Mashhad

Best Paper Awards

M. Shahraeini, "Diagonal Density: Optimization Technique for Consecutive Numbering in Synthetic Power Grids," In ***2024 14th Smart Grid Conference (SGC)***, pp. 1-5. IEEE, 2024.
M. Shahraeini and P. Kotzanikolaou, "Analyzing Electrical Centrality Metrics for Optimal Placement of Microgrids and Renewable Sources", in ***11th Iranian Conference on Renewable Energies and Distribution Generation***, pp. 1-8, IEEE, 2024.
M. Shahraeini, "An algorithm for generating synthetic distribution grids based on edrös-rényi random graph model," in ***2023 13th Smart Grid Conference (SGC)***, pp.1–8, IEEE, 2023.
M. Shahraeini and R. Soltanifar, "Performance comparison between simple and adam—eve-like genetic algorithms in optimal pmu placement problem," in ***2022 8th Iranian Conference on Signal Processing and Intelligent Systems (ICSPIS)***, pp.1–6, IEEE, 2022.
M. Shahraeini and P. Kotzanikolaou, "Towards an unified dependency analysis methodology for wide area measurement systems in smart grids," in ***2020 10th Smart Grid Conference (SGC)***, pp.01–06, IEEE, 2020.

Teaching and Mentoring Activities

Co-supervisoor of 2 PhD students
Supervisor of more than 20 MSc students

Teaching

Course Name	Institution	Date
Graduate		
Selecta Capita in Power Systems: Smart grids	Golestan University	2023-Present
Distribution System Analysis	Golestan University	2023-Present
Power System Operation and Control	Golestan University	2023-Present
Advanced Engineering Mathematics	Golestan University	2016-Present
Modeling of Cyber Physical Systems	Golestan University	2018-Present
Research Methodology	Golestan University	2015-2016
Selecta Capita in Power Systems: Smart grids	Tehran University, Ferdowsi University of Mashhad	2011-2012
Selecta Capita in Power Systems: Wide Area Measurement Systems	Tehran University, Ferdowsi University of Mashhad	2011-2012
Population Based Optimization Algorithms	Islamic Azad University, Science and Research Branch of Khorasan Razavi	2011-2012
Selecta Capita in Computer Engineering: Research Methodology	Islamic Azad University, Science and Research Branch of Khorasan Razavi	2011-2012
Under Graduate		
Technical English for Electrical Engr	Golestan University	2020-Present
Signals and Systems	Golestan University	2012-2018
Engineering Mathematics	Golestan University	2011-2014
Electric Machinery I	Golestan University	2021-Present
Electric Machinery II	Golestan University	2011-Present
Computer Networks	Golestan University	2015-2016
Data Transfer in Computer Networks	Islamic Azad Uni., Mashhad Branch	2005-2007
Electric Circuits	Islamic Azad Uni., Mashhad Branch	2005-2006
Electrical Circuits	Islamic Azad Uni., Mashhad Branch	2005-2006

Projects

Project Name	Institution	Year
Academic		
Vulnerability Analysis of Wide Area Measurement Systems based on Complex Network Theory	Golestan University	2020-2021
A New Method for Evaluation of "Instantaneous Interdependency" in Metropolitan Infrastructures	Golestan University	2016-2017
Solving Nonlinear Equations using Grid Computing	Golestan University	2012-2013
Comparison of Different Control Methods for "Heating, Ventilation, and Air Conditioning" Systems	Golestan University	2012-2013
Value of Lost Load Calculation.	Ferdowsi University of Mashhad	2008-2009
Industrial		
Wide Area and Industrial Data Network Design, Khangiran Gas Refinery	Motamen Khorasan Company, Shahid Hashemi Nezhad (Khangiran) Khangiran Gas Refinery	2002-2003
Distribution Automation System Design and Development	Mashhad Electric Energy Distribution Co.	2000-2001
Implementation of QoS in WAN of Distribution Management System (DMS)	Mashhad Electric Energy Distribution Co.	2002-2003
ICT Applications Survey for Distribution Systems	Mashhad Electric Energy Distribution Co.	2001-2002
Mashhad Electrical Energy Distribution Company Metropolitan Area Network Packet Analyzing	Mashhad Electric Energy Distribution Co.	2003-2004
Car Security System Design and Implementation	Sadjad Research Center	1998

Accompanying Conferences, Congresses and Workshops:

Rule	Event Title	Venue and Date
Conferences:		
Executive Committee Chair	National Conference on Technology in Electrical and Computer Engineering (Tec2021),	Golestan University, Gorgan, Iran, July 2021.
Keynote Speaker	The First National Conference on Electronics, Mechatronics and Intelligent Systems	AKIAU, Aliabad, Golestan, Feb 18, 2016, Aliabad, Iran
IT Manager	11th Annual (International) Conference on Mechanical Engineering, Mashhad	Ferdowsi University of Mashhad, Iran, May 2003
IT Manager	5th Conference on Intelligent Systems	Ferdowsi University of Mashhad, Iran, Oct 14, 2003.
IT Manager	12th Iranian Conference on Electrical Engineering (ICEE)	Mashhad, Iran, 2004.

Congresses:		
IT Manager	8th National Iranian Chemical Engineering Congress	Mashhad, Iran, Oct, 2003.
Executive Committee	First Iranian E-Commerce Congress	Mashhad, Iran, Mar, 2009.
Workshops:		
Keynote Speaker	Information and Communication Technologies (ICT) Applications in Electrical Distribution Grids	Mashhad Electrical Energy Distribution Company, Mashhad, Iran, Nov, 2009
Keynote Speaker	Internet Applications in Power System	Institute of Electric and Electronic Engineers- Khorasan Branch, Mashhad, Iran, Feb 2004
Keynote Speaker	Network Processors	Motamen Khorasan Co, Mashhad, Iran, Dec 2002
Keynote Speaker	Layer 2 to 7 Ethernet Switches	Ferdowsi University of Mashhad, Mashhad, Iran, 2002

Industrial Work Experience

Mar 2023 - Present	Head of the "Enterprise Knowledge Committee"	Golestan Power Plant, Sana Investment Co. Golestan, Iran
Sep 2023 - Present	Energy Advisor	Marjan Kar Co. Gorgan, Iran
Mar 2002 – Oct 2011	ISP Manager	Mashhad Electrical Energy Distribution Co. Mashhad, Iran
Sep 2008 – Sep 2010	CEO	Toos Ashena Internet Service and Distribute Provider, Mashhad, Iran
Sep 2006 – Sep 2008	Technical Manager	Toos Ashena Internet Service and Distribute Provider, Mashhad, Iran
Sep 2004 – Sep 2006	Technical Manager	East Dot Com Co. Mashhad, Iran
Mar 2001– Sep 2004	Technical Manager	Motamen Khorasan Co. Mashhad, Iran

Invited Author:

Books:

M. Shahraeini and P. Kotzanikolaou, "Resilience in Wide Area Monitoring Systems for Smart Grids," in *Power Systems, Springer International Publishing*, 2020, pp. 555–569.

M. Shahraeini and M. H. Javidi, Invited author of book chapter "Wide Area Measurement Systems" in "Advanced Topics in Measurement" (Chapter 15, Intech Press; ISBN 979-953-307-479-4), pp. 303-322

Selected Publications

Peer Reviewed Journals:

[1] M. Shahraeini and M. Besharatloo, "From DC to Holistic Centrality: AI-Driven Estimation for Enhanced Power Network Analysis," *AUT Journal of Electrical Engineering*, online Aug 19, 2025.

[2] M. Shahraeini, "A Comprehensive Approach to Synthetic Distribution Grid Generation: Erdős–Rényi to Barabási-Albert," *AUT Journal of Electrical Engineering*, vol 57, no. 1, 2025.

[3] M. Zavar, M. Shahraeini, A. Safa, and N. Manouchehri, "A novel method for optimal sensor and actuator placements: The "infinite value algorithm," *Journal of Applied Dynamic Systems and Control*, vol.7, no.1, pp.13–25, 2024.

[4] M. Shahraeini and R. Soltanifar, "A complex network-based approach for designing of wide area measurement systems in smart grids using adam-eve like genetic algorithm," *International Journal of Engineering*, vol.37, no.2, pp.298–311, 2024.

[5] M. Shahraeini, "Modified erdős–rényi random graph model for generating synthetic power grids," *IEEE Systems Journal*, vol.18, no.1, pp.96–107, 2024.

[6] M. Shahraeini, P. Kotzanikolaou, and M. Nasrolahi, "Communication resilience for smart grids based on dependence graphs and eigenspectral analysis," *IEEE Systems Journal*, vol.16, no.4, pp.6558–6568, 2022.

[7] M. Shahraeini and P. Kotzanikolaou, "A methodology for unified assessment of physical and geographical dependencies of wide area measurement systems in smart grids," *Energy Engineering & Management*, vol.11, no.4, pp.30–39, 2022.

[8] M. Nasrolahi and M. Shahraeini, "Cyber-risk assessment of wide area measurement systems in smart grids using electrical centrality metrics," *Computational Intelligence in Electrical Engineering*, vol.12, no.3, pp.87–100, 2021.

[9] M. Shahraeini and P. Kotzanikolaou, "A dependency analysis model for resilient wide area measurement systems in smart grid," *IEEE Journal on Selected Areas in Communications*, vol.38, no.1, pp.156–168, 2019.

[10] H. Kamyab, A. Salman Mahiny, and M. Shahraini, “Laga: A iranian software for landscape allocation using genetic algorithm,” *Journal of Environmental Science and Technology*, Articles in Press, 2018.
[11] M. SaeedSabaee, R. SalmanMahiny, S. M. Shahraeini, S. H. Mirkarimi, and N. Dabiri, “Application of cplex solver to land use optimization in gorgan township,” *Journal of Environmental Studies*, vol.44, no.3, pp.445–459, 2018.

[12] M. Saeed Sabaee, A. Salmanmahiny, S. M. Shahraeini, S. H. Mirkarimi, and N. Dabiri, “Compactness for regionalization and its application in land-use planning,” *Environmental Resources Research*, vol.5, no.2, pp.184–196, 2017.

[13] H. Kamyab, A. Salman Mahiny, and M. Shahraini, “Laga: A software for landscape allocation using genetic algorithm,” *Environmental Resources Research*, vol.4, no.2, pp.153–166, 2016.

[14] M. Saeed Sabaee, R. Salman Mahiny, S. M. Shahraeini, S. H. Mirkarimi, and N. Dabiri, “Use of landscape metrics in land use allocation,” *Town and Country Planning*, vol.8, no.1, pp.155–175, 2016.

[15] H. Kamyab, A. Salman Mahiny, and M. Shahraini, “A genetic algorithm enhancement of mola approach using landscape metrics,” *Town and Country Planning*, vol.7, no.1, pp.29–48, 2015.

[16] F. Khodabakhshi, M. Shahraeini, “Designing an expert system for diagnosis of TB,” *Journal of Research & Health*, Vol. 1, No. 3, 2013

[17] M. Shahraeini, M. H. Javidi, and M. S. Ghazizadeh, “Communication Infrastructure Comparison Between Centralized and Decentralized Wide Area Measurement Systems,” *IEEE Trans. on Smart Grid*, vol. 2, no. 1, pp. 206-211, Mar. 2011.

[18] M. Shahraeini, M. H. Javidi, and M. S. Ghazizadeh, “Dependent Communication Systems: A New Approach for Designing Communication Infrastructures of Smartgrid,” *Journal of Information and communication technologies*, vol. 1, no. 2, Jul. 2011, pp. 17-24.

[19] M. Shahraeini, M. H. Javidi, and M. S. Ghazizadeh, “Communication Infrastructure Planning for Wide Area Measurement Systems in Power Systems,” *International Journal of Communication Networks and Distributed Systems (IJCNDS)*, 2014.

[20] M. Shahraeini, M. H. Javidi, and M. S. Ghazizadeh, “Co-Optimal Placement of Measurement Devices and Their Related Communication Infrastructure in Wide Area Measurement Systems,” *IEEE Trans. Smart Grid*, June 2012.

[21] A. Peiravi, M. Shahraeini, “Development of a Web Availability Analyzer Software Tool,” *Journal of American Science*, vol. 6, no. 6, pp. 89-95, Jun. 2010.

Conferences:

[22] M. Shahraeini, M. Besharatloo, and P. Kotzanikolaou. “Holistic Centrality: A New Approach to Evaluate Dynamics of Complex Power Networks,” In *2025 12th Iranian Conference on Renewable Energies and Distributed Generation (ICREDG)*, pp. 1-6. IEEE, 2025.

[23] M. Shahraeini and P. Kotzanikolaou, “Towards a Centrality Control Center: Innovations in Complex Power Network Operation and Control,” In *2024 14th Smart Grid Conference (SGC)*, pp. 1-7. IEEE, 2024.

[24] M. Shahraeini and P. Kotzanikolaou, “Assessing the Structural Vulnerability of PMU Placement Based on Complex Network Theory,” In *2024 14th Smart Grid Conference (SGC)*, pp. 1-8. IEEE, 2024.

[25] M. Shahraeini, “Diagonal Density: Optimization Technique for Consecutive Numbering in Synthetic Power Grids,” In *2024 14th Smart Grid Conference (SGC)*, pp. 1-5. IEEE, 2024.

[26] M. Shahraeini and P. Kotzanikolaou, “Analyzing Electrical Centrality Metrics for Optimal Placement of Microgrids and Renewable Sources”, in *11th Iranian Conference on Renewable Energies and Distribution Generation*, pp. 1-8, IEEE, 2024.

[27] M. Shahraeini, “An algorithm for generating synthetic distribution grids based on edrös-rényi random graph model,” in *2023 13th Smart Grid Conference (SGC)*, pp.1–8, IEEE, 2023.

[28] M. Shahraeini, G. Kohsari, and M. H. Javidi, “Comparison of meta-heuristic algorithms for solving dominating set problems in wams design,” in *2022 8th Iranian Conference on Signal Processing and Intelligent Systems (ICSPIS)*, pp.1–7, IEEE, 2022.

[29] M. Shahraeini and R. Soltanifar, “Performance comparison between simple and adam—eve-like genetic algorithms in optimal pmu placement problem,” in *2022 8th Iranian Conference on Signal Processing and Intelligent Systems (ICSPIS)*, pp.1–6, IEEE, 2022.

[30] F. Moslemipour, M. Shahraeini, M. Ziaratban and A. Safa, “Optimal Routing between Sensors-Actuators in Smart Grids Using Linear Matrix Inequalities,” in *2022 8th Iranian Conference on Signal Processing and Intelligent Systems (ICSPIS)*, pp.1–6, IEEE, 2022.

[31] M. Shahraeini, S. Khormali, and A. Alvandi, “Optimal pmu placement considering reliability of measurement system in smart grids,” in *2022 12th International Conference on Computer and Knowledge Engineering (ICCKE)*, pp.205–210, IEEE, 2022.

[32] M. Shahraeini and P. Kotzanikolaou, “Towards an unified dependency analysis methodology for wide area measurement systems in smart grids,” in *2020 10th Smart Grid Conference (SGC)*, pp.01–06, IEEE, 2020.

[33] M. Shahraeini, A. Alvandi, and S. Khormali, "Behavior Analysis of Random Power Graphs for Optimal PMU Placement in Smart Grids," in *2020 10th International Conference on Computer and Knowledge Engineering (ICCKE)*, pp. 107-112, Oct. 2020.

[34] M. Shahraeini and Z. Farmani, "Designing of Communication Systems in Advanced Metering Infrastructure (AMI) using Wi-Fi Offloading Technology", *Proceedings of 9th International Conference on Computer and Knowledge Engineering (ICCKE 2019)*, pp. 60-66, 2019.

[35] M. Shahraeini and M. H. Javidi, "A New Approach for Comparing Communication Infrastructures of Power Systems," in *IEEE Power Engineering and Automation Conference (PEAM 2011)*, Wuhan, China, Sep. 8-9, 2011.

[36] M. Shahraeini and M. H. Javidi, "A Survey on Power System Topological Observability," in *IEEE Power Engineering and Automation Conference (PEAM 2011)*, Wuhan, China, Sep. 8-9, 2011.

[37] M. Shahraeini and S. Alishahi, "A survey on information and communication technology (ICT) applications in distribution systems," in *21st International Conference and Exhibition on Electricity Distribution*, Germany, Jun. 2011.

[38] M. Shahraeini and M. H. Javidi, "A New Method for Comparing Control Networks of Power Systems," in *19th Iranian Conference on Electrical Engineering (ICEE)*, Tehran, Iran, 17-19 May. 2011.

[39] M. Shahraeini and M. H. Javidi, "A new approach for finding minimum delay control centers of control networks," in *2010 Fifth International Symposium on Telecommunications (IST2010)*, Dec. 4-6, 2010, Tehran, Iran, pp 938-943.

[40] M. Shahraeini, M. H. Javidi, and M. S. Ghazizadeh, "A New Approach for Classification of Data Transmission Media in Power Systems," in *2010 International Conference on Power System Technology (POWERCON2010)*, China, Oct. 24-28, 2010, pp 1-7.

Datasets and Codes:

Mohammad Shahraeini, "ER_SPG: Synthetic Power Graph generation by Erdos-Renyi Model," *IEEE Dataport*, December 13, 2023, doi:10.21227/ta4k-yj98.

Mohammad Shahraeini, "KPG: Kirk representation of Power Graphs," *IEEE Dataport*, December 16, 2023, doi:10.21227/7g3s-de09.