Dr. Hamid Reza Mohammadi
Faculty of Electrical and Computer Engineering
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EDUCATION

Ph.D. in Electrical Power Engineering, Tarbiat Modares University, Tehran, Iran, 2008
Thesis title: "Design of Flexible Power Quality Enhancement System"
Supervisor: Dr. Ali Yazdian
Advisor: Prof. Hossein Mokhtari.

M.Sc. in Electrical Power Engineering, University of Tabriz, Tabriz, Iran, 1995
Thesis title: "Performance Improvement of PWM AC to DC Converters under Input Unbalance Condition",
Supervisor: Prof. Seyed Hossein Hosseini.

B.Sc. in Electrical Engineering (Control), Sharif University of Technology, Tehran, Iran, 1993
B.SC. Project: "Digital Controller Design Software Package"
Supervisor: Prof. Nasser Sadati.

ACADEMIC EXPERIENCE

2008 to 2019: Assistant Professor at the University of Kashan, Kashan, Iran.
2019 to present: Associate Professor at the University of Kashan, Kashan, Iran.

WORK EXPERIENCE

2009 to 2011: Head of Electrical Engineering Department, University of Kashan, Kashan, Iran.

2011 to 2013: Vice Chancellor in Planning and Development Affairs, University of Kashan, Kashan, Iran.

2014 to 2018: Head of Electrical Power Engineering Department, University of Kashan, Kashan, Iran.

2020 to 2023: Research Vice Chancellor of the Faculty

2023 to present: Vice Chancellor in Planning, Digital Evolution, and Strategic Supervision, University of Kashan, Kashan, Iran.

RESEARCH INTERESTS

- Power Electronics
- Application of Power Electronics in Power System
- Electrical Power Quality
- Design and Control of Active Power Filters
- AC and DC Microgrids: Modeling and Control
- Renewable Energies

PUBLICATIONS

Selected Journal Papers

1. M. Mohsen Rahimian, H. R. Mohammadi, Josep M. Guerrero, " Constant Power Load Issue in DC/DC Multi-Converter Systems: Past Studies and Recent Trends", Electric Power System Research, 235 (2024), https://doi.org/10.1016/j.epsr.2024.110851

2. F. Keramati, H. R. Mohammadi, "Optimal Placement of Plug-in Electric Vehicles Fast-Charging Stations Using Geographic Information System and Considering Power Distribution Network Indexes: A Case Study in Kabul", International Journal of Industrial Electronics, Control and Optimization (IECO), 2024, https://doi.org/10.22111/ieco.2024.48621.1560.

3. F. Keramati, H. R. Mohammadi, G. R. Shiran, "Determining Optimal Location and Size of PEV Fast-Charging Stations in Coupled Transportation and Power Distribution Networks Considering Power Loss and Traffic Congestion", Sustainable Energy, Grids and Networks 38 (2024), https://doi.org/10.1016/j.segan.2023.101268

4. E. Samavati, H. R. Mohammadi, "Active Harmonic Compensation and Stability Improvement in High Power Grid-Connected Inverters Using Unified Power Quality Conditioner", International Journal of Industrial Electronics, Control and Optimization (IECO), Vol. 6, No. 3, pp. 193-204, 2023.
5. Y. Nabati, A. Halvaei Niasar, H. R. Mohammadi, "A New L-C-D Cell Based Non-Isolated Single Switch High Step-Up DC-DC Converter for Photovoltaic Applications", Journal of Solar Energy Research, Vol. 7, No. 2, pp. 1027-1036, 2022.
6. H. Sadeghi, H. R. Mohammadi, "An Improved Fuzzy Controlled Back-to-Back Electric Spring Using Hybrid Structure of ES-1 and Shunt-APF to Improve Power Quality in Microgrids", International Journal of Industrial Electronics, Control and Optimization (IECO), Vol. 5, No. 1, pp. 89-98, 2022.
7. R. Mirzadarani, H. R. Mohammadi, A. Ketabi, S. R. Motahari, A. Ghorbani, "Analytical estimation of parasitic capacitances in high-voltage switching transformers", IET Power Electronics, Vol. 13, No. 16, pp. 3830-3839, 2020.
8. E. Samavati, H. R. Mohammadi, "An improved method for harmonic mitigation and stability improvement of the grid-connected inverters under local load variation and weak grid condition", International Journal of Electrical Power & Energy Systems, Vol. 123, Dec. 2020.
9. A. Akhavan, H. R. Mohammadi, and Josep M. Guerrero, "Coupling Effect Analysis and Control for Grid-Connected Multi-Microgrid Clusters", IET Power Electronics, Vol. 13, No. 5, pp. 1059-1070, Apr. 2020.
10. E. Samavati, H. R. Mohammadi, "Simultaneous Voltage and Current Harmonics Compensation in Islanded/Grid-Connected Microgrids Using Virtual Impedance Concept", Sustainable Energy, Grids and Networks, Vol. 20, 2019.
11. A. Akhavan, H. R. Mohammadi, Juan C. Vasquez, Josep M. Guerrero, "Passivity-Based Design of Plug-and-Play Current-Controlled Grid-Connected Inverters", IEEE Transactions on Power Electronics, Vol. 35, No. 2, Feb. 2020.
12. H. Rahimi Esfahani, A. Ketabi, H. R. Mohammadi, M. Rahimi Kelishadi, "Using VBR Model in Fixed Speed Wind Turbines and Suggesting a New Method for Improving LVRT Capability", Computational Intelligence in Electrical Engineering, 10th year, No. 1, pp 51-61, 2019.

13. A. Akhavan, H. R. Mohammadi, Josep M. Guerrero, "A comprehensive control system for multi-parallel grid-connected inverters with LCL filter in weak grid condition", Electric Power Systems Research, Vol. 163, 2018.

14. M. H. Mahlooji, H. R. Mohammadi, M. Rahimi, "A review on modeling and control of grid-connected photovoltaic inverters with LCL filter", Renewable & Sustainable Energy Reviews, Vol. 81, 2018.

15. A. Akhavan, H. R. Mohammadi, Josep M. Guerrero, "Modeling and design of a multivariable control system for multi-paralleled grid-connected inverters with LCL filter", International Journal of Electrical Power & Energy Systems, Vol. 94, 2018.

16. A. Akhavan, H. R. Mohammadi, "A New Control Method for Grid-Connected Quasi-Z-Source Multilevel Inverter Based Photovoltaic System", Scientia Iranica, Transactions D: on Computer Science & Engineering and Electrical Engineering, Vol. 22, No. 6, pp. 2505-2515, 2015.

17. A. Akhavan, H. R. Mohammadi, " A New Control Method for Grid-Connected PV System Based on Quasi-Z-Source Cascaded Multilevel Inverter Using Evolutionary Algorithm ", International Journal of Power Electronics and Drive Systems (IJPEDS), Vol. 6, No. 1, Mar. 2015.

18. A. Akhavan, H. R. Mohammadi, "Parameter Estimation of Three-Phase Induction Motor Using Hybrid of Genetic Algorithm and Particle Swarm Optimization", Hindawi Publishing Corporation, Journal of Engineering, Vol. 2014, 2014.

19. A. Akhavan, H. R. Mohammadi, "Adaptive Selective Harmonic Elimination Method for Quasi Z-Source Cascaded Multilevel Inverters in Varying DC Voltage Condition", STM journal of Trends in electrical engineering, Vol. 4, No. 3, 2014.

20. H. R. Mohammadi, A. Yazdian, H. Mokhtari, "A Novel Flexible Control Strategy for Unified Power Quality Conditioner", Iranian Journal of Electrical and Computer Engineering, Vol. 12, NOs. 1&2, 2013.

21. H. R. Mohammadi, A. Yazdian, H. Mokhtari, "Multiconverter Unified Power Quality Conditioning System: MC-UPQC", IEEE Transaction on Power Delivery, Vol. 24, No. 3, Jul. 2009.

22. H. R. Mohammadi, S. H. Hosseini, "Neural network implementation of a three-phase regulated PWM AC to DC converter with input unbalance correction", International Journal of Engineering, Vol. 9, No. 3, Aug. 1996.

Selected Conference Papers

1. R. Mirzadarani, A. Ketabi, H. R. Mohammadi, and S. R. Motahari, "Phase-Shift fixed-Frequency LCLC Resonant Converter: Analysis of Operational Modes and Mitigation of Parallel Capacitance of Output Diodes", 11th Smart Grid Conference (SGC), Tabriz, Iran, 2021.
2. Akhavan, H. R. Mohammadi, Juan C. Vasquez, Josep M. Guerrero, "Stability Improvement of Converter-side Current Controlled Grid-Connected Inverters", The 45th annual conference of the IEEE Industrial Electronics Society, IECON 2019, Lisbon, Portugal, 2019.
3. M. Ghomi, H.R. Mohammadi, H. R. Karami, C. L. Bak, F. F. da Silva, H. Khazraj, "Full-Wave Modeling of Grounding System: Evaluation The Effects of Multi-Layer Soil and Length of Electrode on Ground Potential Rise", International Conference on Power Systems Transients, IPST2019, Perpignan, France, 2019.
4. A. Fakhrian, B. Ganji, H. R. Mohammadi, H. Samet, "De-rating of Transformers under Non-sinusoidal Loads: Modeling and Analysis", IEEE Conference on Environment and Electrical Engineering (EEEIC2019), Genoa, Italy, 2019.
5. R. Mirzadarani, A. Ketabi, H. R. Mohammadi, S. R. Motahari, "Analytical Design and Simulation for Switching Transformer in High-Voltage Applications", PEDSTC2018, Tehran, Iran, 2018.
6. M. H. Mahlooji, H. R. Mohammad, M. Rahimi, "Comparison of single loop based control strategies for a grid-connected inverter in a photovoltaic system", PEDSTC2016, Tehran, Iran, 2016.
7. H. R. Mohammadi, A. Akhavan, "A New Adaptive Selective Harmonic Elimination Method for Cascaded Multilevel Inverters Using Evolutionary Methods", IEEE International Symposium on Industrial Electronics (ISIE2014), Istanbul, Turkey, 2014.
8. S. Falahati, H. R. Mohammadi, A. Ketabi S. M. Motiee rad, "A new method for load sharing among distributed generation resources", 4th IEEE Power Electronics, Drive Systems & Technologies Conference (PEDSTC2013), Tehran, Iran, 2013.
9. H. R. Mohammadi, S. Falahati, M. Zeraati, "A new method for Selective Harmonic Elimination in Voltage Source Inverter using Imperialist Competitive Algorithm", 3rd IEEE Power Electronics, Drive Systems & Technologies Conference (PEDSTC2012), Tehran, Iran, 2012.

10. H. R Mohammadi, A. Yazdian Varjani, M. Nayeripour, "Fast and Accurate Frequency and Harmonic Estimation Method for On-Line Application in Power System", POWERENG 2007, Setubal, Portugal, 2007.

INVITED REVIEWER FOR JOURNALS

- IEEE Transactions on Power Electronics
- IEEE Transactions on Industrial Electronics
- IEEE Transactions on Power Delivery
- IEEE Transactions on Industrial Informatics
- IEEE Transactions on Smart Grid
- IEEE Journal of Emerging and Selected Topics on Power Electronics
- IEEE Access
- IET Power Electronics
- IET Renewable Power Generation
- International Transactions on Electrical Energy Systems
- Renewable and Sustainable Energy Reviews-Elsevier
- Sustainable Energy Technologies and Assessments-Elsevier
- IETE Journal of Research-Taylor & Francis

GRADUATE AND UNDERGRADUATE COURSES

Under Graduate:

- Electric Circuits I and II
- Electronics I and II
- Industrial Electronics
- Fundamentals of Electrical Engineering
- Linear Control Systems

Graduate:

- Power Electronics
- Power Quality