

Ahmed Ibrahim Omar was born in Cairo, Egypt, on September 2, 1989. He received the B.Sc. degree in Electrical Power and Machines Engineering with honors in 2011 from The Higher Institute of Engineering at El-Shorouk City. Subsequently, he earned his M.Sc. and Ph.D. degrees in Electrical Power and Machines from the Faculty of Engineering, Cairo University, Egypt, in 2014 and 2019, respectively. Currently, he works as an Assistant Professor at The Higher Institute of Engineering at El-Shorouk City, El-Shorouk Academy, Egypt. His research interests include renewable energy, FACTS in power systems, power quality, smart grid, energy efficiency, optimization and machine learning, green energy, and economics. He has authored or co-authored numerous refereed journals and conference papers. Additionally, he is a reviewer for several journals, such as Ain Shams Engineering Journal, Journal of Cleaner Production, and more.



Personal Data

Institutional Email	a.omar@sha.edu.eg
Personal Email	drahmedomar89@gmail.com
Mobile	+2 01008644065
Address	10 th of Ramadan City, Neighborhood 47, Square 3, Building 28
Date of Birth	02-Sept-1989
Gender	Male
Nationality	Egyptian
Social Status	Married
Military Status	Final Exempted
Current Position	Assistant professor in The Higher Institute of Engineering, Shorouk Academy, Cairo, Egypt
Major Field	Electrical Power and Machines Engineering
Minor Field	Power System

Qualifications

Ph.D.	Date	Sept. 2014 - July 2019
	Thesis Title	Optimized Distributed FACTS Schemes for Efficient Operation of Distribution Networks Using Recent Optimization Techniques
	Location	Electrical Power and Machines Engineering Department Faculty of Engineering, Cairo University, Egypt
M.Sc.	Date	Sept. 2011 - July 2014
	Thesis Title	An Approach for Achieving Energy Credits in an Egyptian Green Building Rating System
	Location	Electrical Power and Machines Engineering Department Faculty of Engineering, Cairo University, Egypt
B.Sc.	Date	Sept 2006 - July 2011
	Appreciation	Excellent with Honors
	Location	Electrical Power and Machines Engineering Department Higher Institute of Engineering at El-Shorouk City, Egypt
	Project	Electrical Distribution System

Positions Held

Assistant Professor	Sept. 2019 - Present Higher Institute of Engineering at El-Shorouk City, Egypt Electrical Power & Machines Engineering Department. Present lectures in High voltage engineering, Electric protection and switchgear, Power system analysis, and Electrical specifications and standards
----------------------------	---

Teaching Assistant	Sept. 2014 - Sept. 2019 Higher Institute of Engineering at El-Shorouk City, Egypt Electrical Power & Machines Engineering Department. Green Building, Renewable Energy, Protection, Measurements. Present lab instruction and grade assignments for 25-30 students in the undergraduate course. Specialized in Protection, Power Systems, Simulations, and Control Labs.
Demonstrator	Sept. 2011 – Sept. 2014 Higher Institute of Engineering, EL-Shorouk City, Egypt Electrical Power & Machines Engineering Department. Protection, High-Voltage, Control, Measure, Electric Circuits, Renewable Energy, Power System, and Planning.

Areas of Teaching Expertise

Courses	Power System Analysis II, Fourth year Electrical Eng. undergraduate. Power Quality, Fourth year Electrical Eng. undergraduate. Electrical Standards and Specifications, Fourth year Electrical Eng. undergraduate. High voltage Engineering, Third year Electrical Eng. undergraduate. Protection Equipment and Systems, Third year Electrical Eng. undergraduate. Basics of Thermodynamics, Second year Electrical Eng. undergraduate. Selective Humanities, First year Electrical Eng. undergraduate. First year Electrical Eng. undergraduate. Electrical measurements, Second year Electrical Eng. undergraduate. Electrical circuit II, Second year Electrical Eng. undergraduate.
----------------	--

Areas of Research Interest

Research Field	Power System and Economics Power Quality Issues Renewable Energy Sources Issues Artificial Intelligence and Optimization Electric Vehicles Lightning Protection Energy Storage Systems Green Energy
-----------------------	--

Training Courses in Quality Assurance

Training Courses	Date
External Evaluation	25/09/2022 – 26/09/2022
Credit Hours System	21/09/2022 – 22/09/2022
Leadership Skills	18/09/2022 – 19/09/2022
Digital Transformation	10/01/2022
Exams and Students Evaluation System	22/02/2021 – 23/02/2021 03/02/2020 – 04/02/2020 20/03/2018 – 21/03/2018
Institutional Self-Evaluation for Higher Education	11/11/2019 – 13/11/2019
Teaching Strategies and Effective Learning	21/01/2018 – 22/01/2018
International Publishing of Scientific Research	22/05/2016 – 23/05/2016
E-Learning	18/11/2015 – 19/11/2015

Publications

1. **A. I. Omar** et al., "Operation of Grid-Connected PV System with ANN-based MPPT and an Optimized LCL Filter Using GRG Algorithm for Enhanced Power Quality," *IEEE Access*, vol. PP, p. 1, 2023, doi: 10.1109/ACCESS.2023.3317980.
2. M. Awad, M. M. Mahmoud, Z. M. S. Elbarbary, L. Mohamed Ali, S. N. Fahmy, and **A. I. Omar**, "Design and analysis of photovoltaic/wind operations at MPPT for hydrogen production using a PEM electrolyzer: Towards innovations in green technology," *PLoS One*, vol. 18, no. 7, p. e0287772, Jul. 2023, doi: 10.1371/journal.pone.0287772.
3. M. L. Aganović, T. Konjić, M. Milovanović, M. Čalasan, **A. I. Omar**, and S. H. E. Abdel Aleem, "Power Quality in Modern Power Systems: A Case Study in Bosnia and Herzegovina," in *Modernization of Electric Power Systems*, A. F. Zobaa and S. H. E. Abdel Aleem, Eds. Cham: Springer International Publishing, 2023, pp. 181–204. doi: 10.1007/978-3-031-18996-8_7.
4. **A. I. Omar** et al., "Stochastic Approach for Economic-Technical-Environmental Operation of Microgrids with Battery Storage Considering Parameters Uncertainty," in *Modernization of Electric Power Systems*, A. F. Zobaa and S. H. E. Abdel Aleem, Eds. Cham: Springer International Publishing, 2023, pp. 443–462. doi: 10.1007/978-3-031-18996-8_14.
5. **A. I. Omar** et al., "Application of Whale Optimization Algorithm Based FOPI Controllers for STATCOM and UPQC to Mitigate Harmonics and Voltage Instability in Modern Distribution Power Grids," *Axioms*, vol. 12, no. 5. 2023. doi: 10.3390/axioms12050420.
6. **A. I. Omar** et al., "Modeling, Simulation, and Experimental Validation of a Novel MPPT for Hybrid Renewable Sources Integrated with UPQC: An Application of Jellyfish Search Optimizer," *Sustainability*, vol. 15, no. 6. p. 5209, 2023. doi: 10.3390/su15065209.
7. S. E. Abdel Mohsen, A. M. Ibrahim, Z. M. S. Elbarbary, and **A. I. Omar**, "Unified Power Quality Conditioner Using Recent Optimization Technique: A Case Study in Cairo Airport, Egypt," *Sustainability*, vol. 15, no. 4, p. 3710, Feb. 2023, doi: 10.3390/su15043710.
8. **A. I. Omar** et al., "Identification of Cross-Country Fault with High Impedance Syndrome in Transmission Line Using Tunable Q Wavelet Transform," *Mathematics*, vol. 11, no. 3. 2023. doi: 10.3390/math11030586.
9. **A. I. Omar** et al., "Application of a Novel Synergetic Control for Optimal Power Extraction of a Small-Scale Wind Generation System with Variable Loads and Wind Speeds," *Symmetry*, vol. 15, no. 2. 2023. doi: 10.3390/sym15020369.
10. A. Said, M. H. Saad, S. M. Eladl, Z. M. S. Elbarbary, **A. I. Omar**, and M. A. Saad, "Support Vector Machine Parameters Optimization for 500 kV Long OHTL Fault Diagnosis," *IEEE Access*, vol. 11, pp. 3955–3969, 2023, doi: 10.1109/ACCESS.2023.3235592.
11. N. A. N. Aldin, W. S. E. Abdellatif, Z. M. S. Elbarbary, **A. I. Omar**, and M. M. Mahmoud, "Robust Speed Controller for PMSG Wind System Based on Harris Hawks Optimization via Wind Speed Estimation: A Real Case Study," *IEEE Access*, p. 1, 2023, doi: 10.1109/ACCESS.2023.3234996.
12. A. Said, M. A. Abd-Allah, M. Mohsen, and **A. I. Omar**, "Alleviation of the transients induced in large photovoltaic power plants by direct lightning stroke," *Ain Shams Eng. J.*, vol. 14, no. 3, p. 101880, 2023, doi: <https://doi.org/10.1016/j.asej.2022.101880>.
13. S. E. A. Mohsen, A. M. Ibrahim, and **A. I. Omar**, "Robust Control of Unified Power Quality Conditioner for LED Lighting Using Enhanced Bald Eagle Search Optimization," in *2022 23rd International Middle East Power Systems Conference (MEPCON)*, 2022, pp. 1–6. doi: 10.1109/MEPCON55441.2022.10021737.
14. H. F. Sindi, S. Alghamdi, M. Rawa, **A. I. Omar**, and A. Hussain Elmetwaly, "Robust control of adaptive power quality compensator in Multi-Microgrids for power quality enhancement using puzzle optimization algorithm," *Ain Shams Eng. J.*, p. 102047, Nov. 2022, doi: 10.1016/j.asej.2022.102047.
15. **A. I. Omar**, M. Mohsen, M. A. Abd-Allah, Z. M. Salem Elbarbary, and A. Said, "Induced Overvoltage Caused by Indirect Lightning Strikes in Large Photovoltaic Power Plants and Effective Attenuation Techniques," *IEEE Access*, vol. 10, pp. 112934–112947, 2022, doi: 10.1109/ACCESS.2022.3216866.
16. A. H. Elmetwaly, A. A. ElDesouky, **A. I. Omar**, and M. Attya Saad, "Operation control, energy management, and power quality enhancement for a cluster of isolated microgrids," *Ain Shams Eng. J.*, vol. 13, no. 5, p. 101737, Sep. 2022, doi: 10.1016/j.asej.2022.101737.
17. **A. I. Omar** et al., "Assessment of charging technologies, infrastructure and charging station recommendation schemes of electric vehicles: A review," *Ain Shams Eng. J.*, p. 101938, Aug. 2022, doi:

- 10.1016/j.asej.2022.101938.
18. M. Awad, A. M. Ibrahim, Z. M. Alaas, A. El-Shahat, and **A. I. Omar**, "Design and analysis of an efficient photovoltaic energy-powered electric vehicle charging station using perturb and observe MPPT algorithm," *Front. Energy Res.*, vol. 10, Aug. 2022, doi: 10.3389/fenrg.2022.969482.
 19. A. Said, M. A. Abd-Allah, M. Mohsen, and **A. I. Omar**, "Alleviation of the transients induced in large photovoltaic power plants by direct lightning stroke," *Ain Shams Eng. J.*, p. 101880, Jul. 2022, doi: 10.1016/j.asej.2022.101880.
 20. M. Al-Gabalawy, A. H. Elmetwaly, R. A. Younis, and **A. I. Omar**, "Temperature prediction for electric vehicles of permanent magnet synchronous motor using robust machine learning tools," *J. Ambient Intell. Humaniz. Comput.*, May 2022, doi: 10.1007/s12652-022-03888-9.
 21. Z. M. Ali, S. H. E. A. Aleem, **A. I. Omar**, and B. S. Mahmoud, "Economical-Environmental-Technical Operation of Power Networks with High Penetration of Renewable Energy Systems Using Multi-Objective Coronavirus Herd Immunity Algorithm," *Mathematics*, vol. 10, no. 7, p. 1201, Apr. 2022, doi: 10.3390/math10071201.
 22. **A. I. Omar**, N. M. Khattab, and S. H. E. Abdel Aleem, "Optimal strategy for transition into net-zero energy in educational buildings: A case study in El-Shorouk City, Egypt," *Sustain. Energy Technol. Assessments*, vol. 49, p. 101701, Feb. 2022, doi: 10.1016/j.seta.2021.101701.
 23. S. S. Mohammed, T. P. I. Ahamed, S. H. E. A. Aleem, and **A. I. Omar**, "Interruptible charge scheduling of plug-in electric vehicle to minimize charging cost using heuristic algorithm," *Electr. Eng.*, vol. 104, no. 3, pp. 1425–1440, Oct. 2022, doi: 10.1007/s00202-021-01398-z.
 24. **A. I. Omar** et al., "A comprehensive analysis of demand response pricing strategies in a smart grid environment using particle swarm optimization and the strawberry optimization algorithm," *Mathematics*, vol. 9, no. 18, p. 2338, Sep. 2021, doi: 10.3390/math9182338.
 25. **A. I. Omar** et al., "Economical-technical-environmental operation of power networks with wind-solar-hydropower generation using analytic hierarchy process and improved grey wolf algorithm," *Ain Shams Eng. J.*, vol. 12, no. 3, pp. 2717–2734, Sep. 2021, doi: 10.1016/j.asej.2021.02.004.
 26. M. Al-Gabalawy, N. S. Hosny, J. A. Dawson, and **A. I. Omar**, "State of charge estimation of a Li-ion battery based on extended Kalman filtering and sensor bias," *Int. J. Energy Res.*, vol. 45, no. 5, pp. 6708–6726, Dec. 2021, doi: 10.1002/er.6265.
 27. **A. I. Omar**, Z. M. Ali, M. Al-Gabalawy, S. H. E. Abdel Aleem, and M. Al-Dhaifallah, "Multi-objective environmental economic dispatch of an electricity system considering integrated natural gas units and variable renewable energy sources," *Mathematics*, vol. 8, no. 7, p. 1100, Jul. 2020, doi: 10.3390/math8071100.
 28. **A. I. Omar**, S. H. E. Abdel Aleem, E. E. A. El-Zahab, M. Algablawy, and Z. M. Ali, "An improved approach for robust control of dynamic voltage restorer and power quality enhancement using grasshopper optimization algorithm," *ISA Trans.*, vol. 95, pp. 110–129, Dec. 2019, doi: 10.1016/j.isatra.2019.05.001.
 29. **A. I. Omar**, A. M. Sharaf, A. Shady, A. A. Mohamed, and E. Z. Essam, "Optimal Switched Compensator for Vehicle-To-Grid Battery Chargers Using Salp Optimization," in *2019 21st International Middle East Power Systems Conference, MEPCON 2019 - Proceedings*, 2019, pp. 139–144. doi: 10.1109/MEPCON47431.2019.9008229.
 30. **A. I. Omar**, Z. M. Ali, S. H. E. Abdel Aleem, E. E. A. El-Zahab, and A. M. Sharaf, "A dynamic switched compensation scheme for grid-connected wind energy systems using cuckoo search algorithm," *Int. J. Energy Convers.*, vol. 7, no. 2, pp. 64–74, 2019, doi: 10.15866/irecon.v7i2.16895.
 31. **A. I. Omar**, S. H. E. Abdel Aleem, E. E. A. El-Zahab, and Fahmy M. Bendary, "A Robust D-Facts Based Metaheuristic Control System for Battery Charging Scheme," *25th International Conference on Electricity Distribution (CIRED)*, 2019.
 32. **A. I. Omar**, Hala M. Abdel Mageed, Shady H. E. Abdel Aleem, "Energy Saving of a Green Building in Egypt", *Proceedings of International Conference on Composite Materials and Renewable Energy Applications (ICCMREA)*, February 2017.
 33. E. M. Aboul-Zahab, A. M. Ibrahim, A. F. M. Abdel-Rehim, and **A. I. Omar**, "Developing of energy credits in an Egyptian Green Building Rating System," 2015. doi: 10.1109/ICEngTechnol.2014.7016768.
 34. E. M. Aboul-Zahab, A. M. Ibrahim, A. F. M. Abdel-Rehim, and **A. I. Omar**, "Proposed for achieving mandatory energy credit 2: Minimum Energy Performance in an Egyptian Green Building Rating System," 2015. doi: 10.1109/ICEngTechnol.2014.7016769.

Skills

❖ *Language*

- Arabic: Native Language.
- English: Professional

❖ *Computer Experience*

- MATLAB Platform.
- Machine Learning Toolbox
- Electrical Transient Analyzer Program (E-TAP).
- PSCAD
- Power System Simulator
- HOMER
- AutoCAD and Revit MEP Electrical.
- Dialux EVO
- Ecodial.
- ICDL

Personal Qualities

- ❖ Work in a team and quite well to be a team leader.
- ❖ Strong Communication skills.
- ❖ Strong Presentation skills.
- ❖ Self-learner and creative.
- ❖ Hard worker and can work under pressure.

Social



<https://scholar.google.co.in/citations?hl=en&user=EimrkjIAAAA>



https://www.researchgate.net/profile/Ahmed_I_Omar



<https://orcid.org/0000-0002-0549-3591>



<https://publons.com/researcher/3749184/ahmed-ibrahim-omar/>



<https://www.linkedin.com/in/ahmed-omar-34514a97/>

References

Mousa Abdallah, Professor Electrical Engineering Department
Faculty of Engineering, Benha University
108 Shoubra St., Cairo, Egypt, P. O. Box: 11240.
Phone: +2 01141170290, +2 0120590111
Email: mousa.abdullah@feng.bu.edu.eg, mousa_abdulah@yahoo.com

Shady Abdel Aleem Professor Electrical Engineering Department
Aviation Engineering and Technology at
Ministry of Civil Aviation, Egyptian
Aviation Academy
Cairo, Egypt,
Phone: +2 01227567489
Email: engyshady@ieee.org