

1. Name: Ahmed Ibrahim Omar, Assistant Professor, Department of Electrical Power and Machines Engineering, Higher Institute of Engineering, Elshorouk Academy.

2. Degrees:

- B.S. (Electrical Power and Machines Engineering) Higher Institute of Engineering, Elshorouk Academy, Elshorouk City, Cairo, Egypt. 2011
- M.S. (Electrical Power and Machines Engineering) Cairo University, Cairo, Egypt. 2014
- Ph.D. (Electrical Power and Machines Engineering) Cairo University, Cairo, Egypt. 2019

3. Years of Service on Faculty: 16

- 09/2019 - present Assistant Professor.

4. Other Experience:

- 09/2024 – Present, Consultant of Quality Assurance and Accreditation of Education for Institute of Optics Technology, Sheraton, Egypt
- 09/2022 – Present, Consultant of Quality Assurance and Accreditation of Education for Institute of Aviation Engineering and Technology, Egyptian Aviation Academy, Egypt
- 09/2022 – Present, Consultant of Quality Assurance and Accreditation of Education for faculty of engineering, Suez Canal university, Egypt
- 09/2022 – 04/2024, Consultant of Quality Assurance and Accreditation of Education for The Higher Institute of Engineering and Technology, 5 settlement City, Egypt.

5. Consulting Activities (selected)

- Design and Supervising of main electrical room for city language school in October City , Egypt (2023-present).
- Replacement and renewal of Internal panel boards for city language school in October City , Egypt (2023-present).
- Design and Supervising of electrical system for electronic factory in 5 settlement industrial City , Egypt (2023-2024)
- Design and Supervising of electrical system for Tourist walkway in October City , Egypt (2021-2023)
- Design and Supervising of electrical system for Rivera Mall in October City , Egypt (2020-2022)

6. States in which registered:

- Cairo, Egypt.

7. Principal publications of last 5 years (selected):

1. M. H. Saad, S. Hashima, **A. I. Omar**, M. M. Fouda, and A. Said, “Deep learning approach for cable partial discharge pattern identification,” *Electr. Eng.*, 2024, doi: 10.1007/s00202-024-02571-w.
2. A. M. Ibrahim and **A. I. Omar**, “Honey Badger Algorithm Based DVR Controllers for Improved,” *International Journal of Robotics and Control Systems*. vol. 4, no. 3 July, 2024, doi: 10.31763/ijrcs.v4i3.1494.
3. **A. I. Omar** et al., “Optimal controller design for reactor core power stabilization in a pressurized water reactor: Applications of gold rush algorithm,” *PLoS One*, vol. 19, no. 1 January, p. e0296987, Jan. 2024, doi: 10.1371/journal.pone.0296987.
4. A. M. Hassan, A. E. W. Hassan, Z. M. S. Elbarbary, S. F. Al-Gahtani, **A. I. Omar**, and M. E. Metwally, “MPPT control of a solar pumping system based five-phase impedance source inverter fed induction motor,” *PLoS One*, vol. 19, no. 1 January, p. e0295365, Jan. 2024, doi: 10.1371/journal.pone.0295365.

5. **A. I. Omar** et al., “A review of water electrolysis for green hydrogen generation considering PV / wind / hybrid / hydropower / geothermal / tidal and wave / biogas energy systems , economic analysis , and its application,” *Alexandria Eng. J.*, vol. 87, no. December 2023, pp. 213–239, 2024, doi: 10.1016/j.aej.2023.12.032.
6. **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.
7. 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.
8. 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.
9. **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.
10. **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.
11. **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.
12. 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.
13. **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.
14. **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.
15. 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.
16. 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.
17. 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.aej.2022.101880>.
18. 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.
19. 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.aej.2022.102047.

20. **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.
21. 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.
22. **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.
23. 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.
24. 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.
25. 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.
26. 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.
27. **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.
28. 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.
29. **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.
30. **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.
31. 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.
32. **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.
33. **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.
34. **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.

35. **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.
36. **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.

8. Scientific and professional societies of which a member

- Egyptian Engineers Syndicate, and Egyptian Society of Engineers.

9. Honors and awards:

- Certificate of appreciation for Green Worship House Competition, Farouk Elbaz Centre for Sustainability and Future Studies, British University in Egypt (BUE), 2019

10. Institutional & professional service in last 5 years:

- Internal Evaluator, Electrical Power and Machines Engineering Department, Higher Institute of Engineering, Elshorouk Academy (2021 - present).
- Member in Scientific Research Committee, Higher Institute of Engineering, Elshorouk Academy (2022 - present).
- Member in Internal Evaluation Committee, Higher Institute of Engineering, Elshorouk Academy (2015 - present).

11. Professional Development Activities in the last 5 years:

- Attending many trainings in the field of education quality (Specification of programs and courses and evaluation of learning outcomes for colleges and institutes of higher education - Self-evaluation of colleges and institutes of higher education - Preparing Course Specifications) at the National Authority for Quality Assurance and Accreditation of Education (NAQAA), Cairo, Egypt (2022 – 2023) and the administrative field (Leadership skills, and Credit Hours System) at Developing the Capabilities of Faculty Members and Leaders Center, Cairo University, Giza, Egypt (2021 – 2022).