

MAHMOUD ABDALLAH ATTIA

PROFESSOR - FACULTY OF ENGINEERING, AIN-SHAMS UNIVERSITY, EG

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SUMMARY:

Experienced university professor with a PhD in Electrical Engineering and over **20** years of academic experience. Proven track record in research, curriculum development, and industry collaboration within the energy sector. Fluent in English and Arabic.

EDUCATION:

- **PhD Electrical Engineering (2011-2015), Ain-Shams University, Cairo, EG**
Research topic: Application of FACTS to Enhance the Performance of Power System with Growing Wind Power Penetration.
- **MSc Electrical Engineering (2007-2010), Ain-Shams University, Cairo, EG**
Research topic: Allocation of FACTS Devices Using New Optimization Techniques.
- **BSc Electrical Engineering (2000-2005), Ain-Shams University, Cairo, EG**
Graduation Project: Design of interior wiring and distribution networks for a large housing complex.

AWARDS AND HONORS:

- State Incentive Award (Academy of Scientific Research) in Engineering Sciences, Egypt 2022.
- Ain Shams University Incentive Award in Engineering Sciences, 2022.
- Appreciation for contribution in the supervision of the ASU wind project with different mechanical departments, which won the prize for the turbine with the highest yearly energy production 2022, in the International small wind turbine contest organized by the NHL University of Applied Sciences in Netherlands. Also won the Entrepreneurship Competition Award at the Higher Education and Scientific Research Forum 2021.

RESEARCH INTERESTS:

- Research areas include the applications of artificial intelligence, evolutionary and heuristic optimization techniques to power system operation, planning, and control. Moreover, renewable energy integrations and solutions.

TEACHING EXPERIENCE:

- Project management, **Additional activity:** students apply the PM study by using Microsoft project in teamwork.
- Legislation and contracts, **Additional activity:** Students engage in a practical application of legislation and contract studies by simulating an actual tendering process through teamwork.

- Environmental impact of project, **Additional activity:** students study the World bank guidelines for projects, also the carbon credit and carbon offset.
- Economics of generation, **Additional activity:** Students apply their studies in software as power world.
- Utilization of Electrical Energy, **Additional activity:** Students apply their studies in software such as DIALUX for lighting design.
- Electrical measurement, **Additional activity:** Students apply their studies on a practical project in teamwork.
- High Voltage Engineering, **Additional activity:** students study some practical phenomena through self-study presentation.

LANGUAGE PROFICIENCY:

- Arabic: Native language.
- English: Proficient.

ACADEMIC EXPERIENCE:

- **Faculty of Engineering – Ain Shams University – Full Time, EG (July 2007 – Present)**
Responsibilities:
 - Responsible for teaching courses in electrical power engineering.
 - Conducting research in the field of electrical power engineering.
 - Reviewing scientific publications in the field of electrical engineering.
 - Supervision of M.Sc and Ph.D. theses and graduation projects in electrical power engineering .
 - Supervision of M.Sc and Ph.D theses with cooperation with Department of Physics and Mathematics Engineering.
 - Evaluating and discussing M.Sc theses.
 - Developing laboratory tests for high voltage engineering.
 - Offering academic mentorship to undergraduate and graduate students.
 - Contributing to the development of quality standards.
 - Engaging in activities led by the ASU consultancy office.
- **Future University in Egypt– Part Time, EG (2023 – Present)**
Responsibilities:
 - Responsible for teaching courses in electrical power engineering, including power quality, environmental impact, electric energy utilization, generation, power system operation, and project management.
- **National Institute of Standards – Full Time, EG (July 2006 – July 2007)**
Responsibilities:
 - Conducting research in the field of electrical metrology.
 - Maintaining the traceability of the national electrical standards to the international standards.
 - Offering calibration services for electrical measuring instruments to industrial clients.
 - Providing customer training in electrical metrology.

NON-ACADEMIC EXPERIENCE

- **Hassan Allam Sons, EG (October 2005 – July 2006)**
(engineering, construction, and infrastructure company)

Responsibilities:

- Conducting technical assessments of projects.
- Analyzing cost estimates.
- Developing technical and commercial proposals.

SERVICE ACTIVITIES:

- Guest Editor of Special Issue "Sustainable Microgrid Systems: Technologies, Applications and Trends" , Processes journal, MDPI publisher.
- Editor-in-Chief of i-manager's Journal on Instrumentation and Control Engineering (JIC).
- Reviewer in Electric Power Components and Systems Journal
- Reviewer in Ain Shams Engineering Journal
- Reviewer in Energies journal.
- Reviewer in Alexandria Engineering Journal
- Reviewer in International Transactions on Electrical Energy Systems
- Editorial member of i-manager's Journal on Circuits and Systems (JCIR)

MOST RECENT PROFESSIONAL DEVELOPMENT ACTIVITIES:

- Contribution in preparation of accreditation documents of the electrical power and machines department faculty of engineering Ain shams university, Cairo, Egypt, 2023.
- Contribution in Self-Evaluation of faculty of engineering Ain shams university, Cairo, Egypt, 2015.

PUBLISHED BOOKS:

- "Optimal Allocation of FACTS Devices in Electrical Power Systems: A Genetic Algorithm Based Approach", Author: **Mahmoud A. Attia**, Publisher: LAP LAMBERT Academic Publishing, Publication Date: April 2013
- "Enhancing Power System Performance with Growing Wind Power Penetration: Optimal Allocation of FACTS", Author: **Mahmoud A. Attia**, Publisher: LAP LAMBERT Academic Publishing, Publication Date: July 2015
- "Mechatronics", Authors: Mohamed EL-Shimy, **Mahmoud A. Attia**, M.H. Soliman, Publisher: Egyptian Ministry of Health & Population (MOHP), Health Communication Capacity Collaborative (HC3) Project in Egypt, and United States Agency for International Development (USAID), Publication Date: August 2018.
- "Control and Electric Circuits", Authors: Mohamed EL-Shimy, **Mahmoud A. Attia**, Publisher: Egyptian Ministry of Health & Population (MOHP), Health Communication Capacity Collaborative (HC3) Project in Egypt, and United States Agency for International Development (USAID), Publication Date: August 2018

MOST RECENT PUBLISHED RESEARCH PAPPERS:

- Khaled, Bassem, Almoataz Y. Abdelaziz, **Mahmoud A. Attia**, and Amr K. Khamees. "Assessing the impact of climate change on wind energy penetration: Optimization of scheduling and carbon emission analysis." *Electric Power Systems Research* 248 (2025): 111929.
- Bahgat, Mohamed, Mohamed Ezzat, **Mahmoud A. Attia**, S. F. Mekhamer, and Nourhan M. Elbehairy. "Comparative analysis of PI and fuzzy logic controller for grid connected wind turbine under normal and fault conditions." *Scientific Reports* 15, no. 1 (2025): 1954.
- Amin, Ahmed, Almoataz Y. Abdelaziz, **Mahmoud A. Attia**, and Mohamed Zakaria Kamh. "Enhancing rotor angle stability of reconfigured transmission networks." *Ain Shams Engineering Journal* 16, no. 4 (2025): 103329.
- Wereda, Galal Borham, Ibrahim Mohamed Diaaeldin, Othman AM Omar, **Mahmoud A. Attia**, and Ahmed O. Badr. "A Novel Optimization Approach Using Chaos Game Optimization Algorithm for Parameters Estimation of Photovoltaic Cells." *Sustainability (2071-1050)* 17, no. 4 (2025).
- Hesham, Omar M., S. Mansour, **Mahmoud A. Attia**, and Mostafa F. Shaaban. "Wild Horse Based Controllers to Enhance the Load Frequency Control System with Wind Penetration." In *2025 7th International Youth Conference on Radio Electronics, Electrical and Power Engineering (REEPE)*, pp. 1-7. IEEE, 2025.
- Kamel, Bassem Khaled, Almoataz Y. Abdelaziz, **Mahmoud A. Attia**, and Amr Khaled Khamees. "A novel approach to wind energy modeling in the context of climate change at Zaafrana region in Egypt." *Scientific Reports* 15, no. 1 (2025): 7548.
- Shawqran, Ahmed M., **Mahmoud A. Attia**, Said F. Mekhamer, Hossam Kotb, Moustafa Ahmed Ibrahim, and Ahmed Mordi. "Enhancing Load Frequency Control in Power Systems Using Hybrid PIDA Controllers Optimized with TLBO-TS and TLBO-EDO Techniques." *Processes* 13, no. 5 (2025): 1532.
- EL-Ebiary, Ahmed H., Mostafa I. Marei, **Mahmoud A. Attia**, and Mohamed Mokhtar. "A sensorless cyberattacks mitigation technique based on braided lyapunov state observer." *Electric Power Systems Research* 235 (2024): 110881.
- Hesham, Omar M., **Mahmoud A. Attia**, and S. F. Mekhamer. "Enhancement of AVR system performance by using hybrid harmony search and dwarf mongoose optimization algorithms." *Scientific Reports* 14, no. 1 (2024): 27177.
- Maher, Ranya, Adel El-Faraskoury, **Mahmoud A. Attia**, and Adel Emarah. "Investigation of cable current carrying capacity improvement and its effects on transmit power between Egypt and Saudi Arabia project." *e-Prime-Advances in Electrical Engineering, Electronics and Energy* 8 (2024): 100579.
- Abdelkhalek, Ahmed M., Ammar Mohammed, **Mahmoud Attia**, and Niveen Badra. "An Enhanced Genetic Algorithm Using Directional-Based Crossover and Normal Mutation for Global Optimization Problems." *Statistics, Optimization & Information Computing* 12, no. 2 (2024): 446-462.
- El-Ebiary, Ahmed H., **Mahmoud A. Attia**, Fathy H. Awad, Mostafa I. Marei, and Mohamed Mokhtar. "Kalman filters based distributed cyber-attack mitigation layers for DC microgrids." *IEEE Transactions on Circuits and Systems I: Regular Papers* 71, no. 3 (2024): 1358-1370.
- Ellithy, Hazem Hassan, Hany M. Hasaniien, Mohammed Alharbi, Mohamed A. Sobhy, Adel M. Taha, and **Mahmoud A. Attia**. "Marine predator algorithm-based optimal pi controllers for LVRT capability enhancement of grid-connected PV systems." *Biomimetics* 9, no. 2 (2024): 66.
- Ramadan, Aya Hamdy, **Mahmoud A. Attia**, and Ahmed O. Badr. "Enhancing The Wind Turbine Blade Angle Control Using Pelican Optimization Algorithm." In *2024 25th International Middle East Power System Conference (MEPCON)*, pp. 1-6. IEEE, 2024.

- Ahmed, EL-Bassiouny, **Mahmoud A. Attia**, and Rizk Hamouda. "Load Frequency Control of Single Area Using New Adaptive Controller." In 2024 25th International Middle East Power System Conference (MEPCON), pp. 1-6. IEEE, 2024.
- Mansour, S., **Mahmoud A. Attia**, Ahmed O. Badr, and Mostafa F. Shaaban. "Enhancement of LFC-AVR Combined System by Using Fuzzy PID Controller." In 2024 6th International Youth Conference on Radio Electronics, Electrical and Power Engineering (REEPE), pp. 1-5. IEEE, 2024.
- Kamel, Bassem K., **Mahmoud A. Attia**, Mostafa F. Shaaban, and Walid A. Omran. "Index based techno-economic assessment of FACTS devices installed with wind farms." IEEE Access 12 (2024): 19724-19738.
- Amin, Ahmed, Almoataz Y. Abdelaziz, **Mahmoud A. Attia**, and Mohamed Zakaria Kamh. "A Novel Approach for Rotor Angle Instability Mitigation." In 2024 25th International Middle East Power System Conference (MEPCON), pp. 1-8. IEEE, 2024.
- Sultan, Adel S., Almoataz Y. Abdelaziz, **Mahmoud A. Attia**, and Papia Ray. "Investigation of DG units influence on 66 kV sub-transmission system network considering region load growth: a case study." International Journal of Emerging Electric Power Systems 0 (2024).
- Sultan, Adel Salem, Almoataz Y. Abdelaziz, and **Mahmoud A. Attia**. "Study and Investigate of DGs Units Effect on BINWALED 66 kV Sub-Transmission Network Considering Load Growth."
- Amin, Mohamed S., **Mahmoud A. Attia**, Amr K. Khamees, S. F. Mekhamer, Hossam Kotb, Kareem M. AboRas, and Amr Yousef. "Development of AVR controller performance using exponential distribution and transit search optimization techniques." Frontiers in Energy Research 12 (2024): 1356978.
- Diaaeldin, Ibrahim Mohamed, **Mahmoud A. Attia**, Amr K. Khamees, Othman AM Omar, and Ahmed O. Badr. "A Novel Multiobjective Formulation for Optimal Wind Speed Modeling via a Mixture Probability Density Function." Mathematics 11, no. 6 (2023): 1463.
- Omar, Othman AM, Mostafa I. Marei, and **Mahmoud A. Attia**. "Comparative Study of AVR Control Systems Considering a Novel Optimized PID-Based Model Reference Fractional Adaptive Controller." Energies 16, no. 2 (2023): 830.
- Khamees, Amr Khaled, Almoataz Y. Abdelaziz, Makram R. Eskaros, **Mahmoud A. Attia**, and Mariam A. Sameh. "Optimal Power Flow with Stochastic Renewable Energy Using Three Mixture Component Distribution Functions." Sustainability 15, no. 1 (2023): 334.
- EL-Ebiary, Ahmed H., Mohamed Mokhtar, Atef M. Mansour, Fathy H. Awad, Mostafa I. Marei, and **Mahmoud A. Attia**. "Distributed Mitigation Layers for Voltages and Currents Cyber-Attacks on DC Microgrids Interfacing Converters." Energies 15, no. 24 (2022): 9426.
- Fanos, Beshoy Nabil Fahmy, Mohammad H. Soliman, Hossam EA Talaat, and **Mahmoud A. Attia**. "Modern Active Voltage Control in Distribution Networks, including Distributed Generation, Using the Hardware-in-the-Loop Technique." Symmetry 15, no. 1 (2022): 90.
- Badr, Ahmed O., Abdulsalam A. Aloukili, Metwally A. El-Sharkawy, Mariam A. Sameh, and **Mahmoud A. Attia**. "Compensation of Distributed Generations Outage Using Controlled Switched Capacitors." Sustainability 14, no. 23 (2022): 16094.
- Badr, Ahmed O., Soha Mansour, Mariam A. Sameh, and **Mahmoud A. Attia**. "Seamless Transition and Fault-Ride-Through by Using a Fuzzy EO PID Controller in AVR System." Energies 15, no. 22 (2022): 8475.
- Khamees, Amr Khaled, Almoataz Y. Abdelaziz, Makram R. Eskaros, **Mahmoud A. Attia** and Ahmed O. Badr, "The Mixture of Probability Distribution Functions for Wind and Photovoltaic Power Systems Using a Metaheuristic Method", Processes 10, no. 11(2022).

- Ellithy, Hazem Hassan, Adel M. Taha, Hany M. Hasanien, **Mahmoud A. Attia**, Adel El-Shahat, and Shady HE Abdel Aleem. "Estimation of Parameters of Triple Diode Photovoltaic Models Using Hybrid Particle Swarm and Grey Wolf Optimization." *Sustainability* 14, no. 15 (2022): 9046.
- Mansour, Soha, Ahmed O. Badr, **Mahmoud A. Attia**, Mariam A. Sameh, Hossam Kotb, Elmazeg Elgamli, and Mokhtar Shouran. "Fuzzy logic controller equilibrium base to enhance AGC system performance with renewable energy disturbances." *Energies* 15, no. 18 (2022): 6709.
- EL-Ebiary, Ahmed H., **Mahmoud A. Attia**, Mostafa I. Marei, and Mariam A. Sameh. "An Integrated Seamless Control Strategy for Distributed Generators Based on a Deep Learning Artificial Neural Network." *Sustainability* 14, no. 20 (2022): 13506.
- Shawqran, Ahmed M., Abdallah El-Marhomy, **Mahmoud A. Attia**, and Mohamed Z. Kamh. "Novel blade angle controllers techniques based on heuristics algorithms." *Ain Shams Engineering Journal* 13, no. 6 (2022): 101782.
- Kotb, Hossam, Ahmed H. Yakout, **Mahmoud A. Attia**, Rania A. Turky, and Kareem M. AboRas. "Speed control and torque ripple minimization of SRM using local unimodal sampling and spotted hyena algorithms based cascaded PID controller." *Ain Shams Engineering Journal* 13, no. 4 (2022): 101719.

Contribution in Thesis Supervision

- **" Optimal Design of Controller for AVR Performance Enhancement"**, Ahmed Magdy Mosaad , Msc., Ain Shams University, Cairo, 2017.
- **" Fault Location Estimation in Smart Grid"**, Ahmed Sanad Ahmed, Msc., Ain Shams University, Cairo, 2017.
- **" Use of Optimization Techniques to Enhance Power System Performance"**, Ibrahim Mohamed Diaa El-Din Ibrahim Elsayed , Msc., Ain Shams University, Cairo, 2017.
- **" Impact of defective DG on distribution system performance "**, Abdulsalam Aref Ali ALOKILI, Msc., Ain Shams University, Cairo, 2018.
- **"Application of Different Optimization Techniques to Load Frequency Control in a Multi-Area System"**, Mohamed Mostafa Elsaied Mohamed, Msc., Ain Shams University, Cairo, 2018.
- **"Enhancement of Renewable Energy Operation by Optimization Techniques"**, Othman Ahmed Mohamed Omar, Msc., Ain Shams University, Cairo, 2018.
- **"Stability and Control of an Inverted Pendulum Motion "**, Mohamed Magdy Mohamed Abdo, Msc., Ain Shams University, Cairo, 2019. (Best Thesis Award of Department of Physics and Mathematics Engineering, Faculty of Engineering Ain Shams University)
- **"Optimum Control of PV System Under Partial Shading Conditions"**, Mariam Ahmad Sameh Mohamad Ahmad Abbadi, Ph.D, Ain Shams University, Cairo, 2020. (Best Thesis Award of electrical power department, Faculty of Engineering Ain Shams University)
- **"Effect of Blade Pitch Angle Control on Wind Turbine Power Generation"**, Ahmed Mohamed Hamed El desoukie Shawqran, Ph.D, Ain Shams University, Cairo, 2022.
- **"Optimized Controller For Converter Based Distributed Generator (DG)"** Ahmed Hitham , Cairo, 2020
- **"Impact of Wind Farm Disturbance on Power System Performance"**, Mahmoud Maged , Cairo, 2019
- **"Demand Side Management with Renewable Energy Sources"**, Ahmed mokhtar, Cairo, 2019
- **"Optimizing the Effect of the Distributed Energy Generation on the Tariff of Electrical "** Mohamed Fayez, Cairo, 2021. (Best Thesis Award of electrical power department, Faculty of Engineering Ain Shams University)
- **"Optimum solutions to power quality problems caused by connecting renewable energy resources to power system "** Mohamed Hamdy, Cairo, 2021
- **"Mechanical parameters optimization to enhance the wave energy conversion system performance"**, Omar Mohamed Saber, Cairo, 2022
- **"Enhancing PV System Performance Using Optimization Techniques"** Eman Adel, M.Sc., Ain Shams University, Cairo, 2022
- **"Mechanisms and Auto-classification of Partial Discharges and Associated Faults in Oil Immersed Transformers. "** Walied Sameh Salah, Cairo, 2022
- **"Stochastics Modelling of Renewable Energy"**, Amr Khaled, Ph.D, Ain Shams University, Cairo, 2022
- **"A Distributed Control Strategy for DC Microgrids"**, Ahmed Hitham, Ph.D, Ain Shams University, Cairo, 2023.

- **“Performance Enhancement of Interfacing System for Grid Connected Renewable Energy Plants”**, Mohamed Hussein Mostafa Bahgat Ali, M.Sc., Ain Shams University, Cairo, 2023.
- **“A study of Improve the Current Carrying Capacity of Under ground Power Cable system under operating Conditions In Different Environments”**, Ranya Maher abd alrazek, M.Sc., Ain Shams University, Cairo, 2024.
- **“Enhancement of oil and gas Electrical energy system field operation by using clean energy solutions”**, Mahmoud Mahmmmed Kashef Mahmmmed, Ph.D, Ain Shams University, Cairo, 2024.

Online Contacts

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- <https://scholar.google.com/citations?user=8glqjdAAAAJ&hl=en&oi=ao>
 - H-index : 21 with Citations 1448
- <https://www.scopus.com/authid/detail.uri?authorId=36681947000>
 - H-index : 21 with around 99 papers and Citations 1105