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## **DEGREES**

- **B.Sc.:** Excellent, Honor, Ranked (First), June 2011.
- **M.Sc.:** "Islanding Detection in Distributed System with Distributed Generation" November 2015.
- **Ph.D.:** "Operation and Control of Islanded Smart Microgrids" March 2019.

## **HONORS AND AWARDS:**

- Best PhD thesis award - Mansoura University 2019.

## **ACADEMIC AND INDUSTRIAL POSITIONS**

- Assistant Professor at the Electrical Engineering dept., Faculty of Engineering, Mansoura University, Egypt, in the period from March 2019 until now.
- Assistant lecturer at the Electrical Engineering dept., Faculty of Engineering, Mansoura University, Egypt, in the period from December 2015 to March 2019.
- Demonstrator at the Electrical Engineering dept., Faculty of Engineering, Mansoura University, Egypt, in the period from December 2012 to December 2015.

## **CONSULTANT**

- Nov. 2022 till now, Manager of the Information Technology Unit at Faculty of Engineering, Mansoura University.
- Jan 2022 till now, Manager of the Strategic Future Unit at Faculty of Engineering, Mansoura University.
- Jan. 2023 till now , Manager of the Excellence Team in the Faculty of Engineering to obtain ISO 9001-14001-45001 .
- Sept. 2022 till now, Manager of the Digitization of Administrative Work team in the Faculty of Engineering
- Aug. 2022 till now, Member of the Education and Student Affairs Committee in the Faculty of Engineering
- Jul. 2022 till now, Coordinator of the Faculty of Engineering at the University Development Center, Mansoura University.
- Aug. 2020 till now, Academic Facilitator of the Mansoura University for the USAID and AUC Project from
- 01/7/2019 till Jan. 2022, Vice manager of Quality Assurance Unit at Faculty of Engineering, Mansoura University
- 16 May 2016 to September 2019, Member of the Board of Directors - Quality Assurance Unit at Faculty of Engineering, Mansoura University

## Teaching Experience

### Undergraduate

- Electrical Circuits (1) and (2)
- Electrical Measurements
- Electrical Material
- Energy Conversion
- Electrical Machine (1)
- Electrical Power (1), (3), and (4)
- Power System Analysis
- Electrical Power Control
- Power System Protection (1) and (2)

### Postgraduate

- Artificial Intelligence in Power System Protection
- Digital Protection System
- Distribution System Protection
- Numerical Analysis in Electrical Engineering
- Power System Quality
- Renewable System Protection
- Renewable Energy Sources
- Selected Topics in Power System
- Advanced Control of Power System
- Energy Storage System
- Power System Planning

## RESEARCH PROJECTS

- Energy Management of Hybrid Energy Systems
- Microgrid Operation, Control, and Protection
- Internet of Things and Cybersecurity
- Islanding Detection and System Restoration
- Smart Manufacturing and Supply Chain
- Protection and Control of Shipboard Microgrids
- HVDC protection and control
- Electric Vehicles and Smart Charging Station
- Economic Consideration of Hydrogen Generation

## PUBLICATIONS

- **Total publications:** 26 papers, **Citations:** 300, **h-index:** 11., (**Scopus;** Mar. 2023)
  - **Total publications:** 33 papers, **Citations:** 378, **h-index:** 12., (**Google Scholar;** Mar. 2023)
- 1) A. Al-Orabi, M. Osman, B. Sedhom, "Analysis of the Economic and Technological Viability of Producing Green Hydrogen with Renewable Energy Sources in a Variety of Climates to Reduce CO2 Emissions: A Case Study in Egypt", Applied Energy, Vol. 338, 2023.
  - 2) M. Alghassab, A. Nour, A. Hatata, B. Sedhom, "Two-Layer Hybrid Control Scheme for Distribution Network Integrated with Photovoltaic Sources Based Self-Tuning H-Infinity and Fuzzy logic Controller", IET Renewable Power Generation, 2023.

- 3) S. Osman, B. Sedhom, S. Kaddah, "Impact of Implementing Emergency Demand Response Program and Tie-Line on Cyber-Physical Distribution Network Resiliency", *Scientific Reports*, Vol. 13, No. 1, 2023.
- 4) A.Eladl, M. El-Afifi, M. El-Saadawi, B. Sedhom, "A Review on Energy Hubs: Models, Methods, Classification, Applications, and Future Trends", *Alexandria Engineering Journal*, Vol. 68, pp. 315-342, 2023.
- 5) M. Saeed, A. Eladl, B. Alhasnawi, S. Motahhir, A. Nayyar, M. Shah, B. Sedhom, "Energy Management System in Smart Buildings Based Coalition Game Theory with Fog Platform and Smart Meter", *Scientific Reports*, Vol. 13, 2023.
- 6) A.Hatata, E. Hassan, M. Alghassab, B. Sedhom, "Centralized Control Method for Voltage Coordination Challenges with OLTC and D-STATCOM in Smart Distribution Networks Based IoT Communication Protocol", *IEEE Access*, Vol. 11, pp. 11903-11922, 2023.
- 7) Eladl, M. Saeed, B. Sedhom, "Energy Management System for Smart Microgrids Considering Energy Theft", 23<sup>rd</sup> International Middle East Power Systems Conference (MEPCON), Cairo, Egypt, 13-15 December 2022.
- 8) Alhasnawi, B. Jasim, A. Alhasnawi, B. Sedhom, A. Jasim, A. Khalili, V. Bures, A. Burgio, P. Siano, "A Novel Approach to Achieve MPPT for Photovoltaic System Based SCADA", *Energies*, Vol. 15, No. 22, 2022.
- 9) Hatata, M. Essa, B. Sedhom, "Implementation and Design of FREEDM System Differential Protection Method Based on Internet of Things", *Energies*, Vol. 15, No. 15, 2022.
- 10) Hatata, M. Essa, B. Sedhom, "Adaptive Protection Scheme for FREEDM Microgrid Based on Convolution Neural Network and Gorilla Troops Optimization Technique", *IEEE Access*, Vol. 10, pp. 55583-55601, 2022.
- 11) Hatata, M. Essa, B. Sedhom, "Differential Protection Scheme forFREEDM System based IoT Communication Protocol", 10<sup>th</sup> European Conference on Renewable Energy Systems, Istanbul-Turkey, 7-9 May 2022.
- 12) Aboeazz, B. Sedhom, M. El-Saadawi, "Intelligent Distance Relay Based on IEC61850 for DC Zonal Shipboard Microgrid Protection", 2<sup>nd</sup> International Conference on Power, Control and Computing Technologies (ICPC2T), Raipur, India, 1-3 March, 2022.
- 13) Aboeazz, B. Sedhom, M. El-Saadawi, "pilot Distance Protection Scheme for DC Zonal Shipboard Microgrid", 4<sup>th</sup> International Symposium on Advanced Electrical and Communication Technologies (ISAECT), Alkhobar, Saudi Arabia, 6-8 December 2021.
- 14) Alhasnawi, B. Jasim, B. Sedhom, "Distributed Secondary Consensus Fault Tolerant Control Method for Voltage and Frequency Restoration and Power Sharing Control in Multi-Agent Microgrid", *International Journal of Electrical Power & Energy Systems*, Vol. 133, 2021.
- 15) Alhasnawi, B. Jasim, B. Sedhom, J. Guerrero, "Consensus Algorithm-Based Coalition Game Theory for Demand Management Scheme in Smart Microgrid", *Sustainable Cities and Society*, Vol. 74, 2021.
- 16) Eladl, M. Saeed, B. Sedhom, J. Guerrero, "IoT Technology-Based Protection Scheme for MT-HVDC Transmission Grids with Restoration Algorithm Using Support Vector Machine", *IEEE Access*, Vol. 9, pp. 86268-86284, 2021.
- 17) M. Talaat, B. Sedhom, A.Hatata, "A New Approach for Integrating Wave Energy to the Grid by an Efficient Control System for Maximum Power Based on Different Optimization Techniques", *International Journal of Electrical Power & Energy Systems*, Vol. 128, 2021.
- 18) Alhasnawi, B. Jasim, B. Sedhom, E. Hossain, J. Guerrero, "A New Decentralized Control Strategy of Microgrids in the Internet of Energy Paradigm", Vol. 14, No. 8, 2021.
- 19) Hamza, B. Sedhom, E. Badran, "Impact and Assessment of the Overvoltage Mitigation Methods in Low-Voltage Distribution Networks with Excessive Penetration of PV Systems: A Review", *International Transactions on Electrical Energy Systems*, Vol. 31, No. 12, 2021.

- 20) Sedhom, M. El-Saadawi, M. El-Moursi, M. Hassan, A. Eladl, "IoT-Based Optimal Demand Side Management and Control Scheme for Smart Microgrid", *International Journal of Electrical Power & Energy Systems*, Vol. 127, 2021.
- 21) Bishoy E. Sedhom, Magdi M. El-Saadawi, Mostafa A. Elhosseini, Mohammed A. Saeed, Elhosainin E. Abd-Raboh, "A Harmony Search-based H-infinity Control Method for Islanded Microgrid", *ISA Transactions*, Vol. 99, pp. 252-269, 2020.
- 22) Bishoy E. Sedhom, Magdi M. El-Saadawi, Ahmed Y. Hatata, Abdulaziz S. Alsayyari, "Hierarchical Control Technique-Based Harmony Search Optimization Algorithm Versus Model Predictive Control for Autonomous Smart Microgrids", *International Journal of Electrical Power & Energy Systems*, Vol. 115, 2020.
- 23) Bishoy E. Sedhom, Magdi M. El-Saadawi, Ahmed Y. Hatata, Elhosainin E. Abd-Raboh, "A Multistage H-Infinity-Based Controller for Adjusting Voltage and Frequency and Improving Power Quality in Islanded Microgrids", *International Transactions on Electrical Energy Systems*, Vol. 30, Iss. 1, 2020.
- 24) Bishoy E. Sedhom, Magdi M. El-Saadawi, Ahmed Y. Hatata, El-Hosaini E. Abd-Raboh, "H-Infinity Versus Model Predictive Control Methods for Seamless Transition Between Islanded and Grid-Connected Modes of Microgrid", *IET Renewable Power Generation*, Vol. 14, Iss. 5, pp. 856-870, 2020.
- 25) E. Sedhom, M. M. El-Saadawi, A. Y. Hatata, E. E. Abd-Raboh, "Review on Control Schemes for Grid Connected and Islanded Microgrid", *Journal of Electrical Engineering*, Vol. 19, Iss. 3, pp. 557-572, 2019.
- 26) Bishoy E. Sedhom, Magdi M. El-Saadawi, Ahmed Y. Hatata, Mostafa A. Elhosseini, Elhossaini E. Abd-Raboh, "Robust Control Technique in an Autonomous Microgrid: A Multi-stage  $H_{\infty}$  Controller Based on Harmony Search Algorithm", *Iranian Journal of Science and Technology - Transactions of Electrical Engineering*, Vol. 44, pp. 377-402, 2020.
- 27) Bishoy E. Sedhom, Ahmed Y. Hatata, Magdi M. El-Saadawi, El-Hosaini E. Abd-Raboh, "Robust Adaptive H-Infinity based Controller for Islanded Microgrid Supplying Non-Linear and Unbalanced Loads", *IET Smart Grid*, Vol. 2, Iss. 3, pp. 420-435, 2019.
- 28) Sedhom, M. El-Saadawi, and E. Abd-Raboh, "Advanced Control Technique for Islanded Microgrid based on H-Infinity Controller", *Journal of Electrical Engineering*, Vol. 19, Iss. 1, pp. 335-347, 2019.
- 29) A. Hatata, B. Sedhom, and M. El-Saadawi, "A Modified Droop Control Method for Microgrids in Islanded Mode", *Nineteenth International Middle East Power Systems Conference (MEPCON 19)*, Menoufia University, Egypt, Dec. 19-21, 2017.
- 30) Hatata, E. Abd-Raboh, and B. Sedhom, "Intelligent Active Anti-Islanding Protection for DFIG wind Turbines based on Artificial Immune System", *Journal of Electrical Engineering*, Vol. 17, Iss. 2, pp. 413-421, 2017.
- 31) Hatata, E. Abd-Raboh, and B. Sedhom, "Proposed Sandia Frequency Shift for Anti-Islanding Detection Method based on Artificial Immune System", *Alexandria Energy Engineering*, Vol. 57, pp. 235-245, 2018.
- 32) Hatata, E. Abd-Raboh, and B. Sedhom, "A Review of Anti-Islanding Protection Methods for Renewable Distributed Generation Systems", *Journal of Electrical Engineering*, Vol. 15, Iss. 1, pp. 228-234, 2016.
- 33) Hatata, E. Abd-Raboh, and B. Sedhom, "Intelligent Anti-Islanding Detection Technique for Distribution System Integrated with Microgrid", *Seventeenth International Middle East Power Systems Conference (MEPCON 17)*, Mansoura University, Egypt, Dec. 15-17, 2015.
- 34) Hatata, E. Abd-Raboh, and B. Sedhom, "SANDIA Frequency Shift Based Artificial Immune System for Anti-Islanding Detection", *International Journal of Technical Research and Applications*, Vol. 3, Iss. 4, pp. 355-362, 2015.

## **AWARDS**

- Reviewing more than 60 paper for ranked journals and conferences.
- Certificate of Appreciation awarded to Dr. Bishoy E. Sedhom in recognition of his contribution as a reviewer in (MEPCON 2022)
- Certificate of Appreciation awarded to Dr. Bishoy E. Sedhom in recognition of his contribution as a reviewer in (MEPCON 2021)
- Certificate of Appreciation awarded to Dr. Bishoy E. Sedhom in recognition of his contribution as a reviewer in (MEPCON 2019)
- Certificate of reviewing in (Computers and Electrical Engineering (Elsevier, 2017)
- Certificate of reviewing in (Electric Power Systems Research (Elsevier), 2015)