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The Department of Electrical Engineering
Jordan University of Science and Technology
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PERSONAL DATA

Date of Birth : January 08, 1982
Place of Birth : Amman, Jordan
Nationality : Jordanian
Sex : Male
Marital Status : Married with three children

EDUCATION

Ph.D., Electrical Engineering, 2013.
Mississippi State University, Starkville, Mississippi, USA.
Dissertation Title: Hybrid 2D-3D space vector modulation of three-phase voltage source inverter

M.Sc., Electrical Power and Control Engineering, 2009
Jordan University of Science and Technology, Irbid, Jordan
Thesis Title: Fuzzy Logic Control of Doubly Fed Induction Generator

B.Sc., Electrical Power Engineering, 2005.
Yarmouk University, Irbid, Jordan

FIELDS OF INTEREST

Optimization of electrical systems, renewable energy integration, three-phase voltage source inverter, motor drives, control, and passive filters.

EXPERIENCES

- **Jordan University of Science and Technology**, Deanship of Research, Sep. 2020-Present, *Vice Dean*.
- **Jordan University of Science and Technology**, Faculty of Engineering, Department of Electrical Engineering, (Irbid, Jordan), Sep. 2018-Present, *Associate Professor*.
- **Jordan University of Science and Technology**, Faculty of Engineering, Department of Electrical Engineering, (Irbid, Jordan), Sep. 2013-Sep. 2018, *Assistant Professor*.
- **Tafila Technical University**, Engineering faculty, Electrical engineering department (Tafila, Jordan), **Jan. 2009- July 2010. Full-time lecturer**
- **Jordan Electric Power Company**, (Amman, Jordan). **Sep. 2005- Feb. 2008**. Electrical Power Operator and SCADA Engineer.
 - Electrical Power / SCADA Engineer.
 - Monitoring and control duties for substations and transmission lines from the Control Center via Remote Terminal Unit (RTU) utilizing SCADA.
 - Collaborating with field engineers to resolve emergent issues related to loss of power and faults.
 - Performing load and fault calculations and studies.

- Various engineering studies and reports intended to improve distribution system performance and increase equipment reliability.

UNIVERSITY ACTIVITIES

- Technical Assessment Committee Member for “Design and Build of 30 MVA 33/11 kV Power Station” project at Jordan University of Science and Technology.
- Technical Assessment Committee Member for “Standby Generation System” project at Jordan University of Science and Technology.
- Technical Assessment Committee Member for “5 MW Photovoltaic Power Station” project at Jordan University of Science and Technology and many other electrical projects and tenders
- Consultant for Electrical works related to “2016 FIFA U-17 Women's World Cup” Jordan
- ABET Committee with the Electrical Engineering department at Jordan University of Science and Technology.
- The Industry Sector with the Electrical Engineering department at Jordan University of Science and Technology.
- Graduate Studies Committee Member with the Electrical Engineering department at Jordan University of Science and Technology.
- Information and Website Committee with the Faculty of Engineering, Jordan University of Science and Technology
- Energy Committee with the Faculty of Engineering, Jordan University of Science and Technology.

ACADEMIC AWARDS AND HONORS

- The best **distinguished instructor** in the engineering faculty (2019)
- The **distinguished instructor** at Jordan University of Science and Technology (rank 2) (2019)
- Master scholarship from Tafila Technical University, 2008-2009.
- PhD scholarship from Jordan University of Science and Technology, 2010-2013.
- Ranked first in class for B.Sc (GPA = 87.6%) and M.Sc (GPA = 83.8%) degrees and GPA at Ph.D. = 4.0/4.0.

PUBLICATIONS

Journal Papers

1. **S. Albatran**, A. S. Allabadi, A. R. A. Khalaileh and Y. Fu, "*Improving the Performance of a Two-Level Voltage Source Inverter in the Overmodulation Region Using Adaptive Optimal Third Harmonic Injection Pulsewidth Modulation Schemes*," in IEEE Transactions on Power Electronics, vol. 36, no. 1, pp. 1092-1103, Jan. 2021, doi: 10.1109/TPEL.2020.3001494.
2. A. Koran, **S. Albatran** and J. Lai, "*Analytical Factorized Model for Stability Analysis and Optimization of Shunt RC Damped LCL Filter for Grid-Connected Voltage Source Inverters*," in IEEE Transactions on Power Electronics, vol. 35, no. 7, pp. 6830-6841, July 2020.
3. **S. Albatran**, A. R. A. Khalaileh and A. S. Allabadi, "*Minimizing Total Harmonic Distortion of a Two-Level Voltage Source Inverter Using Optimal Third Harmonic Injection*," in IEEE Transactions on Power Electronics, vol. 35, no. 3, pp. 3287-3297, March 2020.
4. **S. Albatran**, S. harsis, M. Alomoush and M. Awaodeh, "*Realistic Optimal Power Flow of Wind-Connected Power System with Accurate Modeling of Wind Speed Uncertainties*." IEEE access, 2020 (Under review)
5. **S. Albatran**, I. Smadi and H. Bataineh, "*Generalized Optimal and Explicit PI/PID Tuning Formulas for Underdamped Second-Order System*." International Journal of Control, Automation and Systems, vol. 18, pp1023–1032, April 2020.

6. I. Smadi, **S. Albatran** and M. Alsyouf, "Power Quality Improvement of a Class of Reduced Device Count Inverter." *Simulation Modelling Practice and Theory*. vol. 96, p. 101939, 2019. DOI: 10.1016/j.simpat.2019.101939
7. **S. Albatran** and O. Asaad, "Online Adaptive Master Maximum Power Point Tracking Algorithm and Sensorless Weather Estimation." *Energy Systems*, 2018. doi.org/10.1007/s12667-018-0313-9
8. **S. Albatran**, A. Koran, I. Smadi and H. Ahmad, "Optimal Design of Passive RC Damped LCL Filter for Grid Connected Voltage Source Inverters." *Electrical Engineering*. Springer, vol. 100, no. 4, pp 2499–2508, 2018
9. I. Smadi, **S. Albatran** and M. Alsyouf, "Optimal Control of a Compact Converter in an AC Microgrid." *Electronics*, vol. 7, no. 7, p. 102, 2018.
10. I. Smadi, **S. Albatran** and H. Ahmad, "On the Performance Optimization of Two-Level Three-Phase Grid-Feeding Voltage-Source Inverters." *Energies*, vol. 11, no. 2, p. 400, 2018.
11. **S. Albatran**, I. Smadi, H. Ahmad and A. Koran, "Online Optimal Switching Frequency Selection for Grid-Connected Voltage Source Inverters." *Electronics*, vol. 6, no. 4, p. 110, 2017.
12. **S. Albatran**, I. Smadi and M. Alsyouf, "Experimental Validation of Shared Inverter Topology to Drive Multi AC-Loads." *International Journal of Electrical and Computer Engineering (IJECE)*. Vol 8, No 2: April 2018
13. **S. Albatran**, M. Alomoush and A. Koran, "Gravitational-Search Algorithm for Optimal Controllers Design of Doubly-fed Induction Generator." *International Journal of Electrical and Computer Engineering (IJECE)*. Vol 8, No 2: April 2018
14. I. Smadi, **S. Albatran**, M. Athamneh and M. Alomoush. "Security-constrained Economic Dispatch with Linear/Nonlinear Energy Sources during Short-Term Emergency Period." *International Journal of Renewable Energy Research (IJRER)*, Vol 8, No 1, 2018
15. F. Zghoul, S. Ay, I. Cevik, A. Ababnah, **S. Albatran** and A. Alma'aitah, "A Novel Stochastic ADC Topology with Wide Input Range." *Indian Journal of Science and Technology*, vol. 9, no. 1, 2016.
16. **S. Albatran**, Y. Fu and A. Albanna, "Comprehensive Mathematical Description and Harmonic Analysis of Hybrid 2D-3D Space Vector Modulation." *IEEE Transactions on Industrial Electronics*, Vol. 61, No. 7, pp. 3327-3336, July 2014
17. **S. Albatran**, Y. Fu, A. Albanna, R. Schrader and M. Mazzola, "Hybrid 2D-3D Space Vector Modulation Voltage Control Algorithm for Three Phase Inverters." *IEEE Transactions on Sustainable Energy*, Vol. 4, No. 3, pp. 734-744, July 2013
18. M. Alomoush, **S. Albatran**, "Simulink-based implementation of TCSC-operated single-phase induction motor as an educational tool." *Computer Applications in Engineering Education* Vol. 19, No. 3, pp 514–524, September 2011
19. M. Alomoush, **S. Albatran**, "Modeling and Simulation of TCSC-Operated Single-Phase Induction Motor." *Journal of Electrical Systems*, Vol. 6, No. 1, pp.1-15, 2010.

Published Conference Papers

20. I Smadi, **S. Albatran**, M. Alsyouf, "A Novel Compact AC/AC Converter for Hybrid Microgrids". *International Conference on Renewable Energy Research and Applications (ICRERA) 2017*. San Diego, CA. pp. 137-141, Nov. 2017
21. **S. Albatran**, I. Smadi, M. Alsyouf, "Selective Harmonics Reduction for 3(n+1) Switch Inverter using Optimal Leveling and Sorting PWM Technique". *The 43th Annual Conference of the IEEE Industrial Electronics Society (IECON 2017)*. Beijing, China. pp.1519-1524, Oct. 29- Nov.1, 2017,
22. **S. Albatran**, A. Allabadi, N. Al-Ababneh, "Studying the Impact of Photovoltaic Penetration Factor on the Jordanian Power System", *The 2017 International Conference on Coordinating Engineering for Sustainability and Resilience (CESARE 2017)*. Dead Sea, Jordan, pp. 379-385, 3-8 May 2017
23. H. Jamal, **S. Albatran**, I. Smadi, "Variable Switching Frequency Algorithm for Optimal Tradeoff between Switching Losses and Total Demand Distortion in Grid-Tied Three-Phase Voltage-Source Inverters". *IEEE Energy Conversion Congress and Exposition (ECCE 2016)*, Milwaukee, WI, pp. 1-7, Sept. 2016,

24. H. Jamal, S. Albatran, I. Smadi, "Optimal Design of Output LC Filter and Cooling for Three-Phase Voltage-Source Inverters Using Teaching-Learning-Based Optimization". *IEEE Energy Conversion Congress and Exposition (ECCE 2016)*, Milwaukee, WI, pp. 1-7, Sept. 2016,
25. IA Smadi, S. Albatran. "Nonlinear controller-observer design for an inverted pendulum on a cart based on full fuzzy modeling". *Industrial Electronics Society, IECON 2015-41st Annual Conference of the IEEE*. Yokohama, Japan. Pp. 3035 – 30399, 12 Nov. 2015
26. S. Albatran, A. Albanna, and Y. Fu "Switching Function Notation for Hybrid 2D-3D Space Vector Modulation," *The 4th International Symposium on Power Electronics for Distributed Generation Systems 2013*, Rogers, July 2013
27. S. Albatran, A. Albanna, and Y. Fu "Comparative Harmonic Analysis of Hybrid 2D-3D SVM and Conventional 2D SVM," *The 14th IEEE Workshop on Control and Modeling for Power Electronics 2013*, Salt Lake City, June 2013
28. S. Albatran, Y. Fu and A. Albanna, "A Hybrid 2D-3D Space Vector Modulation Control Algorithm for Three Phase Voltage Source Inverters," *2012 IEEE Symposium on Power Electronics and Machines in Wind Applications (PEMWA 2012)*, Denver, July 2012
29. S. Radaideh, S. Alwash, and S. Albatran, Fuzzy Logic Control of Self Excited Doubly-Fed Induction Generator, *29th Proceeding of Modelling, Identification, and Control*, pp183-189, 2010

TEACHING ACTIVITIES

Courses

Undergraduate courses:

- **Fundamental Courses:** Electric Circuit Analysis (Non EE), Electric Circuit Analysis I, Electric Circuit Analysis II.
- **Machines and Drives:** Electrical Machines, Power Electronics, Electric Drives I, Electric Drives II
- **Control Theory:** Control Systems I, Control Systems II
- **Electric Power Systems:** Power Systems, Power System Analysis, Control of Power System, Power System Protection. Renewable Energy.

Labs:

- Electrical Engineering (Non EE), Automatic Control, Electromechanical Systems, Power Electronics, Power Systems, Power System Protection, Power System Integration.
- Founder of new lab (Power Integration Lab) and working on another "Power System Protection Lab" with a collaboration with Schweitzer Engineering Laboratories (SEL).

Graduate courses:

- Advance Power System Analysis, Power System Dynamic and Control, Special Topics in Power, Special Topics in Control.

LANGUAGES

Arabic (Native), English (Excellent)

TECHNICAL REVIEW ACTIVITIES

IEEE Transactions on Power Electronics
 IEEE Transactions on Power Systems
 IEEE Transactions on Energy Conversion
 IEEE Transactions on Smart Grid
 IEEE Transactions on Industrial Electronics
 IEEE Transaction on Sustainable Energy
 IET Power Electronics
 Electric Power Components and Systems

IEEE Energy Conversion Congress and Expositions (ECCE).
Member of the Technical Program Committee (TPC-Track Chair) of JEEIT 2019, Jordan.
Member of the Technical Program Committee (TPC-Member) of GC-ElecEng 2019, Spain.
Member of the Technical Program Committee (TPC-Member) of EngiTek 2020, Jordan.

PROFESSIONAL MEMBERSHIPS

- Member of the IEEE.
- Member of the IEEE PES Society

SUPERVISION OF GRADUATE WORK (M.Sc. Theses)

1. **H. Jamal**, *Optimal Tradeoff between Switching Losses and Total Harmonic Distortion in Three-Phase Voltage-Source Inverter* (**Dec. 2015**).
2. **M. Athamneh**, *Impact of Nonlinear Energy Storage Systems on Security Constrained Economic Dispatch* (**Dec. 2015**).
3. **A. Masaadeh**, *Improving the Transient Response of the Power System Using Series Compensation with Optimal Controller under SubSynchronous Resonance Phenomenon* (**Aug. 2016**).
4. **M. Alsyouf**, *Design and Control of a New Fifteen-Switch Three-Phase Inverter Topology* (**Nov. 2016**).
5. **M. Awaodeh**, *Optimal Power Flow in Electrical Power Systems Incorporating Wind Energy Plants* (**Jan. 2017**).
6. **O. Asaad**, *Photovoltaic Parameters Identification using Stochastic Optimization* (**Aug. 2017**).
7. **H. Bataineh**, *Generalized Formulation for Optimal Tuning of Proportional, Integral and Derivative Controllers for Second Order System* (**Nov. 2018**).
8. **A. Ottom**, *Analysis of third order systems*, (**Aug. 2018**).
9. **A. Khalayleh**, *Optimal Third Harmonic Injection for Minimizing Total Harmonic Distortion*. (**Sep. 2018**).
10. **A. Labadi**, *Improving the Overmodulation Region Using Optimal Third Harmonic Injection*. (**Dec. 2018**).
11. **O. Salameh**, *Impact of Renewable Energy Penetration on The Transient Stability*. (**Aug. 2019**).
12. **M. Al Rabah**, *Optimal Zero Sequence Harmonic Injection Pulsewidth Modulation Scheme*. (**Jan. 2020**).
13. **A. Alsayis**, *Enhancing the Overmodulation Region using Optimal Zero Sequence Harmonic Injection Pulsewidth Modulation*. (**Jan. 2020**).
14. **H. Alshorman**, *Reactive power correction using virtual synchronous generator technique for droop controlled parallel inverter*, (**Aug. 2020**).
15. **M. Olaimat**, *Impact of the zero on the transient response of the underdamped third-order systems*, (**Jun. 2021**).

References

Prof. Yong Fu, Mississippi State University, USA. fu@ece.msstate.edu
Prof. Muwaffaq Alomoush, Yarmouk University, Jordan. ma@yu.edu.jo
Prof. Mohammad Ibbini, Jordan University of Science and Technology, Jordan, (mohib@just.edu.jo)
Prof. Khaled Mayyas, Jordan University of Science and Technology, Jordan, (mayyas@just.edu.jo)
Prof. Nedal Al-Ababneh, Jordan University of Science and Technology, Jordan (nedalk@just.edu.jo)