



Dr. Mahmood S. Saadeh

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- Education**
- **PhD in Electrical Engineering**, University of Arkansas, May 2011-Aug 2015. Dissertation Title “*Model Development and Validation for Wind Generation Transmission Systems*”
 - **MSEE in Electrical Engineering**, University Of Arkansas, August 2009-December 2011. Thesis Title “*A Unified Silicon/Silicon Carbide IGBT model*”
 - **Bsc in Electrical Engineering**, Jordan University of Science and Technology, September 2005-June 2009.
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- Citizenship**
- Dual Citizenship. American citizen and a Jordanian citizen.
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- Languages**
- Fluent speaker of both English & Arabic.
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- Professional Memberships**
- IEEE Power Electronics Society Member (PELS)
 - IEEE Power & Energy Society Member (PES)
 - Jordan Engineers Association (JEA)
 - Institute of Electrical & Electronics Engineers (IEEE)
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- Professional Experience**
- August 2015 – Present, Assistant Professor, Hashemite University of Jordan.
 - August 2013 - August 2015, Instructor, University of Arkansas.
 - January - August, 2012, Grid Innovation Leaders Fellowship Program, Oak Ridge National Laboratory (ORNL).
 - August 2009 - January 2013, Graduate Research Assistant at the University of Arkansas, part of NCREPT and GRAPES centers.
 - June-August, 2008, DOE Research Experience for Undergraduates Program (REU).
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- Professional Development**
- Teaching for the Professoriate (UofA)
 - Higher education training for Faculty (HU)
 - Workshop on instrumentation and sensors (KADDB)
 - On Site 5 MWp photovoltaic plant training (WAREX)
 - LED lighting systems for institutions (Philips)
 - Integration of Renewable Energy Resources in the Transmission and Distribution Networks in the Arab Region (ESCWA)
 - Renewable Energy and Energy Efficiency (RSS)
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- Professional Training**
- The following training courses were developed and performed:
- Dubai Electricity & Water Authority (DEWA), Dubai, UAE: Fault Analysis in Electrical Systems, March 2016.
 - Sharjah Electricity & Water Authority (SEWA), Sharjah, UAE: Electrical Installations and Maintenance, May 2016.
 - Sharjah Electricity & Water Authority (SEWA), Sharjah, UAE: Electrical fault diagnosis techniques & preventing cascading blackouts, September 2016.
 - Dubai Electricity & Water Authority (DEWA), Dubai, UAE: Data Analysis Techniques for Engineers and Technicians, February 2017.
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Conference Organization & Refereeing	<ul style="list-style-type: none"> ▪ Jordanian International and Electronics Engineering Conference (JIEEEEC) ▪ Electrical & Electronics Engineering Exhibition (SPARK) ▪ A Reviewer for the Jordanian Scientific Research Fund
Projects Executed	<ul style="list-style-type: none"> ▪ Modeling of power SiC MOSFETS. ▪ Modeling of power SiC/Si IGBTs. ▪ Coordination of Solid State Fault Current Limiter (SSFCL) with conventional protective devices. ▪ Impact of SSFCLs on distributed generation power quality, reliability and protection. ▪ Design & Construction of 7.2 kV Solid State Fault Current Limiter. ▪ Anti-Series Normally on SiC JFETs Operating as Bidirectional Switches. ▪ Stability Enhancement of Renewable Energy and Distributed Energy Resources. ▪ Increasing Penetration of Wind Energy. ▪ Risk Based Power System Planning. ▪ Power System Model Estimation using Synchrophasors. ▪ The Creation of a Wind Energy System Benchmark Model. ▪ Model Development and Validation Using Synchrophasors.
Technical Skills & Knowledge	<ul style="list-style-type: none"> ▪ Energy conversion and motor drives. ▪ Device Characterization and testing. ▪ Power Electronics Modeling and Analysis. ▪ Power Systems Modeling and Analysis. ▪ Power Electronics devices and circuit design. ▪ Renewable Energy and Distributed Generation. ▪ Power System Protection.
Software Skills	<ul style="list-style-type: none"> ▪ Microsoft Office, Matlab, Pspice, Saber, PCB Artist, AutoCad, proteus, C++, MAST HDL programming, Modyling [™], PSSE, PowerWorld, Power BI, PSIM
Publications	<ul style="list-style-type: none"> ▪ [1] A. Escobar, M. Saadeh, J. C. Balda, J. Bourne, Y. Feng, and H. A. Mantooth, "A methodology to coordinate solid-state fault current limiters with conventional protective devices," in <i>Power Systems Conference and Exposition (PSCE), 2011 IEEE/PES</i>, 2011, pp. 1–6. ▪ [2] Y. Feng, M. Saadeh, A. Escobar, J. C. Balda, S. Ang, and H. A. Mantooth, "A solid state fault current limiter control algorithm," in <i>IPEC, 2010 Conference Proceedings</i>, 2010, pp. 328–333. ▪ [3] M. Mudholkar, M. Saadeh, and H. A. Mantooth, "A datasheet driven power MOSFET model and parameter extraction procedure for 1200V, 20A SiC MOSFETs," in <i>Proceedings of the 2011-14th European Conference on Power Electronics and Applications (EPE 2011)</i>, 2011, pp. 1–10. ▪ [4] M. Saadeh, H. A. Mantooth, J. C. Balda, E. Santi, J. L. Hudgins, S.-H. Ryu, and A. Agarwal, "A unified silicon/silicon carbide IGBT model," in <i>2012 Twenty-Seventh Annual IEEE Applied Power Electronics Conference and Exposition (APEC)</i>, 2012, pp. 1728–1733.

- [5] O. S. Saadeh, E. D. Johnson, M. S. Saadeh, A. Escobar Mejia, C. Schirmer, B. Rowden, A. Mantooth, J. Balda, and S. Ang, “**A 4 kV Silicon Carbide solid-state fault current limiter,**” in *2012 IEEE Energy Conversion Congress and Exposition (ECCE)*, 2012, pp. 4445–4449.
- [6] M. Saadeh, M. S. Chinthavali, B. Ozpineci, and H. A. Mantooth, “**Anti-series normally-On SiC JFETs operating as bidirectional switches,**” in *2013 IEEE Energy Conversion Congress and Exposition (ECCE)*, 2013, pp. 2892–2897.
- [7] M. Saadeh and R. McCann, “**Improved stability design of interconnected distributed generation resources,**” in *2013 North American Power Symposium (NAPS)*, 2013, pp. 1–6.
- [8] M. Saadeh and R. McCann, “**Enhanced Stability of Renewable Energy Resources Through the Implementation of a Droop Control Scheme Using Synchrophasors Via LQI Control,**” 47th Annual Frontiers of Power Conference, Oct 27-28, 2014, Stillwater OK.
- [9] M. Saadeh, A.M. Dodson and R. McCann, “**Increasing penetration of wind energy through power system stability improvements using series static synchronous compensators,**” 47th Annual Frontiers of Power Conference, Oct 27-28, 2014, Stillwater OK.
- [10] M. Alsarray, M. Saadeh, and R. McCann, “**A Risk-Based Planning Method for N-1-1 Contingency Analysis of Transmission Systems,**” in *North American Power Symposium (NAPS 2015), Charlotte, NC, pp. 1 – 6, Oct 4-6 2015.*
- [11] M. Saadeh, M. Alsarray, R. McCann, and C. Batten, “**A Proposed Benchmark Model for Wind Energy Transmission Systems,**” in *North American Power Symposium (NAPS 2015), Charlotte, NC, pp. 1 – 6, Oct 4-6 2015.*
- [12] M. Alsarray, M. Saadeh, and R. McCann, “**Analyzing Variable Time between N-1-1 Contingencies in Assessing NERC TPL-001-4 Multiple Events Reliability,**” in *2016 IEEE PES T&D Conference and Exposition, Dallas, TX, May 2-5 2016.*
- [13] M. Saadeh, M. Alsarray, and R. McCann, “**Estimation of the Bus Admittance Matrix for Transmission Systems from Synchrophasor Data,**” in *2016 IEEE PES T&D Conference and Exposition, Dallas, TX, May 2-5 2016.*
- [14] M. Alsarray, H. Gazi, M. Saadeh, and R. McCann, “**A Probabilistic Approach for Transient Stability Analysis of Power Systems with Solar Photovoltaic Energy Sources,**” in *2016 IEEE Green Technologies Conference, Kansas City, MO, April 7-8 2016.*
- [15] M. Saadeh, R. McCann, M. Alsarray, and O. Saadeh, “**A new approach for evaluation of the bus admittance matrix from synchrophasors: (A statistical Ybus estimation approach),**” *Int. J. Electr. Power Energy Syst.*, vol. 93, pp. 395–405, Dec. 2017.

Publications in Progress	<ul style="list-style-type: none"> ▪ Power System Steady State Model Validation Using Synchrophasors
Ongoing Research Projects	<ul style="list-style-type: none"> ▪ The design and implementation of a Class-E converter ▪ Time-Averaged Port-Controlled Hamiltonian Modeling of Wind Energy Generation Systems ▪ Electrical security assessment for smart power distribution systems

Current Research Interests	Power Systems, Synchrophasors, Energy Conversion and Motor Drives, Grid Connected Power Electronics, Smart Grid, Renewable Energy & Distributed Generation.
Courses Taught	Circuits 1, Circuits 2, Systems and Signals, Electronics 1, Circuits and Machines, Circuits and Electronics, Power Systems, Power System Analysis, Smart Grid, Power Electronics, Electrical Drives.
Courses Studied	<p>Electronics: Electronics 1, Electronics 2 , Digital Electronics, Advanced Electronics, Power Electronics, Semiconductor Devices, Switch Mode Power Converters, Power Semiconductor Devices.</p> <p>Electric Machines and drives: Electrical Machines, Advanced Electrical Machines, Electric Drive Systems, Power Electronics & Motor Drives.</p> <p>Power Systems: Introduction to Power systems, Modern Power System Analysis, Transmission and Distribution Systems, Modern Power Distribution Systems, Power System Quality, Power System Protection, Control systems, Advanced Control Systems, Power System Control, Nonlinear Control.</p> <p>Computer: C++ programming, Digital Design, Numerical Methods, Microprocessor, Microcontroller & Embedded systems, Mixed-Signal Modeling and Simulation.</p>
Administrative experience	<ul style="list-style-type: none"> ▪ ABET accreditation committee <ul style="list-style-type: none"> ▪ Organize and guide quality assurance practices and accreditation efforts related to ABET at the department of electrical engineering in particular and the college of engineering in general. ▪ Curriculum committee <ul style="list-style-type: none"> ▪ Continuously monitor the content and quality of courses being taught in the electrical engineering department and make recommendations for changes or improvements to the program when needed. ▪ Employment, promotion and scientific research committee <ul style="list-style-type: none"> ▪ Receive and evaluate employment applications then Recommend the acceptance/rejection of candidates. ▪ Receive and evaluate academic promotion packets, then recommend appropriate course of action. ▪ Receive and evaluate research proposals then recommend appropriate course of action. ▪ Senior Design coordinator <ul style="list-style-type: none"> ▪ Supervise and manage distribution of funds to senior design students. ▪ Manage senior design projects in cooperation with project supervisors. ▪ Define standards and metrics to be followed. ▪ Make sure projects comply with the highest standards. ▪ Project evaluation in coordination with advisers. ▪ Bachelor of Energy Engineering program committee <ul style="list-style-type: none"> ▪ Assessment and feasibility study of creating a Renewable Energy Engineering bachelor program at the Hashemite University. ▪ Renewable Energy committee <ul style="list-style-type: none"> ▪ Assess the feasibility of upgrading the university infrastructure with unconventional renewable energy resources. ▪ Department of electrical engineering representative <ul style="list-style-type: none"> ▪ Represent the department of electrical engineering in the college of engineering council.