Luqman S. Maraaba

Gender :Male

Marital Status :Married

Date of Birth :12th of Jul, 1987

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Assistant Professor in Electrical Engineering

EDUCATION:

- Electrical Engineering PHD. Graduate Student with current **3.972/4.00 GPA** – KFUPM, King Fahd University of Petroleum and Minerals, graduation date, May 2018.

- Electrical Engineering M.Sc. with **4.00/4.00 GPA** – KFUPM, King Fahd University of Petroleum and Minerals, graduation date, December 2013.

- Electrical Engineering B.Sc. **First Class Honored Graduate** with **90.1% GPA**– Al-Najah National University, graduation date, May 2010.

- General Secondary Education Certificate in Palestine with a total average of **95.5%** in Scientific Section, Academic Year 2004-2005.

GRADUATE COURSE PROJECTS & RESEARCH:

- **PhD Dissertation focus: "Mathematical Modelling and Detection of Stator Abnormalities in Line Start Permanent Magnet Synchronous Motors" Funded Project under the Umbrella of NSTIP.** *Advisor: Prof. Zakariya Al-Hamouz.*
- **MS Thesis focus**: "*Image Processing Based Contamination Level Monitoring of High Voltage Insulators" Funded Project under the Umbrella of NSTIP. Advisor: Prof. Zakariya Al-Hamouz.*

PUBLICATION:

Published Journal Papers

J1. **Maraaba, L**., Al-Soufi, K., Ssennoga, T., Memon, A. M., Worku, M. Y., & Alhems, L. M. (2022). Contamination Level Monitoring Techniques for High-Voltage Insulators: A Review. Energies, 15(20), 7656.

J2. **Maraaba, L. S.,** Memon, A. M., Abido, M. A., & AlHems, L. M. (2021). An efficient acoustic-based diagnosis of inter-turn fault in interior mount LSPMSM. Applied Acoustics, 173, 107661.

J3. **L. S. Maraaba,** K. Y. A. Soufi, L. M. Alhems and M. A. Hassan, "Performance Evaluation of 230 kV Polymer Insulators in the Coastal Area of Saudi Arabia," in IEEE Access, vol. 8, pp. 164292-164303, 2020, doi: 10.1109/ACCESS.2020.3022521.

J4. **Maraaba, L.S.**; Twaha, S.; Memon, A.; Al-Hamouz, Z. Recognition of Stator Winding Inter-Turn Fault in Interior-Mount LSPMSM Using Acoustic Signals. Symmetry 2020, 12, 1370. https://doi.org/10.3390/sym12081370

J5. <u>L. S. Maraaba,</u> A. S. Milhem, I. A. Nemer, H. Al-Duwaish and M. A. Abido, "Convolutional Neural Network-Based Inter-Turn Fault Diagnosis in LSPMSMs," in IEEE Access, vol. 8, pp. 81960-81970, 2020, doi: 10.1109/ACCESS.2020.2991137.

J6. <u>L. S. Maraaba,</u> Z. M. Al-Hamouz, A. S. Milhem and M. A. Abido, "Neural Network-based Diagnostic Tool for Detecting Stator Inter-Turn Faults in Line Start Permanent Magnet Synchronous Motors," in IEEE Access. doi: 10.1109/ACCESS.2019.2923746.

J7. <u>L. S. Maraaba,</u> Z. M. Al-Hamouz and M. A. Abido, "An Accurate Tool for Detecting Stator Inter-Turn Fault in LSPMSM," in IEEE Access. doi: 10.1109/ACCESS.2019.2923812.

J8. <u>**Maraaba LS,**</u> Al-Hamouz ZM, Milhem AS, Twaha S. Comprehensive Parameters Identification and Dynamic Model Validation of Interior-Mount Line-Start Permanent Magnet Synchronous Motors. *Machines*. 2019; 7(1):4.

J9. <u>**L. S. Maraaba**</u>, Z. M. AlHamouz and M. A. Abido, "Mathematical Modeling, Simulation and Experimental Testing of Interior-mount LSPMSM under Stator Inter-Turn Fault," in *IEEE Transactions on Energy Conversion*. doi: 10.1109/TEC.**2018**.2886137

J10. <u>**L. Maraaba,**</u> Z. Al-Hamouz, and M. Abido, "An Efficient Stator Inter-Turn Fault Diagnosis Tool for Induction Motors," *Energies,* vol. 11, p. 653, 2018.

J11. <u>**Maraaba, L.,**</u> Al-Hamouz, Z., Milhem, A., & Abido, M. "Modeling of Interior-Mount LSPMSM under Asymmetrical Stator Winding". IET Electric Power Applications. 2018.

J12. Twaha, S., Zhu, J., <u>**Maraaba, L**</u>., Huang, K., Li, B., & Yan, Y. " Maximum Power Point Tracking Control of a Thermoelectric Generation System Using the Extremum Seeking Control Method", Energies, 10(12), **2017**

J13. <u>**Maraaba, Luqman**</u>, Zakariya Al-Hamouz, and Hussain Al-Duwaish. "A neural network-based estimation of the level of contamination on high-voltage porcelain and glass insulators." Electrical Engineering (**2017**): 1-10.

J14. <u>**Maraaba, L**</u>., Z. Al-Hamouz, and Hussain Alduwaish. (**2015**). "Prediction of the Levels of Contamination of HV Insulators Using Image Linear Algebraic Features and Neural Networks." Arabian Journal for Science and Engineering: 1-9.

Published/Accepted Conference Papers

C1. <u>**L. S. Maraaba**</u>, Z. M. Al-Hamouz and M. A. Abido, "Modeling and simulation of line start permanent magnet synchronous motors with asymmetrical stator windings," *IECON 2016 - 42nd Annual Conference of the IEEE Industrial Electronics Society*, Florence, **2016**, pp. 1698-1703.doi: 10.1109/IECON.2016.7793412**(ISI)**

C2. <u>**Maraaba, L**</u>., Z. Al-Hamouz, and Hussain Alduwaish. (2014). Estimation of high voltage insulator contamination using a combined image processing and artificial neural networks. Power Engineering and Optimization Conference (PEOCO), **2014** IEEE 8th International, IEEE.

C3. **Maraaba, L**., Hussain Alduwaish and Z. Al-Hamouz. "On an Accurate Estimation of HV Insulators Contamination: Combined Image Statistical Features and Neural Networks Approach." Proceedings of the **2014** International Conference on Power Systems, Energy, Environment, Interlaken, Switzerland**.**

Patents
P1. **MARAABA, Luqman Sulyman Faez,** et al. System and method for diagnosing stator inter-turn faults in synchronous motors. U.S. Patent No 11,506,717, 2022.
P2. Al-Hamouz, Zakariya, and **Maraaba Luqman**. "CONTAMINATION LEVEL ESTIMATION METHOD FOR HIGH VOLTAGE INSULATORS." U.S. Patent No. 20,160,117,845. 28 Apr. **2016**.

CONFERENCES AND SYMPOSIUMS

1. Symposium on High Voltage Insulator Coating organized by GCCIA. Dammam on 26-28th of February 2019, Saudi Arabia.
2. MARSS 2019 - International Conference on Manipulation Automation and Robotics at Small Scales. 1-5 Jul 2019. Helsinki, Finland.
3. Power Engineering and Optimization Conference (PEOCO), 2014 IEEE 8th International, IEEE. In Langkawi, Malaysia.

RESEARCH PROJECTS:

- **Leakage Current Based Contamination Level Monitoring of High Voltage Insulators, SB201016. April 2021-October 2022**
- **"A Universal Tool for Fault Detection in Line Start Permanent Magnet Synchronous Motors" Startup Project. SR182-CER-141 September 2019-Augest 2020**
- **"CONTINUOUS INTERACTIVE POWER FACTOR MANAGEMENT BETWEEN THE CONSUMER AND THE SERVICE PROVIDER" Project# CER02450.Dec 2018-June 2020. Done for Water and Electricity Authority in Saudi Arabia.**
- **"Heuristic incipient fault monitoring and diagnostic platform for line start permanent magnet synchronous motors," The 1st Five Year National Plan for Science and Technology, NSTIP Project # 13-ENE403-04, March 2015 - November 2017.**
- ***"Image Processing Based Contamination Level Monitoring of High Voltage Insulators"* Project No. 11-ENE1626-04 as part of the National Science, Technology and Innovation Plan. Jan 2012 – Jan 2014.**

Research Interest

- **Electric Machines**
- **Electric Machine Faults Modeling**
- **Electric Machine Faults Diagnostics**
- **Intelligent control**
- **High voltage Insulators**

WORK EXPERIENCE:

- Assistant Professor, Electrical Engineering Department, Arab American University, March 2021-till now.
- Assistant Professor in the Center of Engineering Research, Research Institute, King Fahd University of Petroleum and Minerals Sep 2018 – Feb 2021 (Performing extensive research in the area of high voltage, power system, electric machines and renewable energy. Performing and managing technical research projects. Supervises student's related research and projects in power and high voltage areas. Teaching classes (electric circuit and electric machines) and Labs. Writing proposals, technical memorandums and reports. High-quality testing and commissioning services of high voltage insulators, cables and MCCB and other electric equipments.
- Lecturer B in Electrical Engineering Department in King Fahd University of Petroleum and Minerals. In charge of Power Electronic LAB, Circuit Lab, PLC Lab. January 2014-June 2018
- Research Assistant in the Research Institute, Center of Engineering Research, King Fahd University of Petroleum and Minerals,2011- 2014. In charge of High Voltage Lab.
- Research Assistant in Electrical Engineering Department in Al-Najah National University, 2010- 2011.In charge of Control System lab for Electrical and Computer Engineering, Measurements lab for Industrial Engineering, Electrical Engineering Workshop, and Measurements and Control Labs for Mechatronics Engineering.
- Summer Training in Nablus Municipality for Electricity Distribution Network Jun-2009 -Jul-2009.

CERTIFICATES:

- **Award** for Excellent performance in teaching electrical engineering laboratories and providing a wonderful experience to the students. Electrical Engineering Department at KFUPM 2017.
- **Award** for exceptional performance in teaching electrical engineering laboratories and providing a wonderful experience to the students. Electrical Engineering Department at KFUPM 2016.
- **Certificate of a Short Course on MATLAB,** at KFUPM, October 2012
- **Certificate of 72-hour-training course in "CCNA",** at the Korean Palestinian IT Center of Excellence, January 2010.
- **Certificate of 40-hour-training course in "PIC-C",** at the Korean Palestinian IT Center of Excellence, June 2009.
- **Certificate of presenting a paper at** Power Engineering and Optimization Conference (PEOCO), 2014 IEEE 8th International, IEEE. In Langkawi, Malaysia.

COMPUTER PROGRAMS:

- Multisim Simulation software.
- Pspice software
- POWERWORLD simulation software.
- ETAP simulation software.
- MATLAB software.
- PLC.
- LabVIEW
- COM3LAB for Power Electronics

LANGUAGES& TESTS:

- English.
- Arabic (mother tongue).

Professional Association Memberships:

- Member in: The Jordanian Engineers Association (JEA).