Curriculum Vita
Professor. Jasim. A. Ghaeb

Personal details:

Full name: Jasim A Ghaeb	Date of birth: 1957	Nationality: Iraq Residency: Jordan
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Qualifications:

Ph.D. Degree in Electrical Power systems, Control and Power Electronics, Department of Electrical and Electronic Engineering, Faculty of Engineering, University of Bradford, England, 1989.

Highlights:

- Very good interest and experience with research work in the areas of power control in electrical power systems, pulse-width modulated power inverters, variable speed motor control, optimization, artificial neural network control, and real-time control.
- More than 30 years of academic experience in the teaching of different subjects in electrical, electronic, and Computer Engineering.
- Very good interest and experience with the interface and embedded system and establishing an electrical engineering design laboratory.
- Excellent management experience associated with electrical and electronic, and mechatronics departments in different faculties.
- Very good experience working with the educational plans and the details of the course description for different specialties (Electrical, Electronics, Mechatronics, and Computer Engineering).

Work Experience:

1. 2017-2019:   Charmian, Department of Mechatronics Engineering, Faculty of Engineering and Technology, Philadelphia University, Jordan.
2. 2022-2023:   Charmian, Department of Mechatronics Engineering, Faculty of Engineering and Technology, Philadelphia University, Jordan.
3. 2003-2004:   Charmian, Department of Electrical Engineering, Faculty of Engineering, Hashemite University, Jordan.
4. 2015- Now: Professor, Department of Alternative Energy Technology, and Department of Mechatronics Engineering, Faculty of Engineering and Technology, Philadelphia University, Jordan.
5. 2001- 2015: Associate Professor, Department of Electrical and Computer Engineering, Faculty of Engineering, Hashemite University, Jordan.
6. 1990- 1994: Department of Electrical and Electronic Eng, University of Technology, Baghdad, Iraq.

Teaching Philosophy:

I believe it is my responsibility as an electrical engineering teacher to push and encourage my students to learn the fundamental concepts of electrical engineering, have an interest in engineering, and understand how engineering develops. I hope that by the time my students have completed my course, they will be able to use their foundational engineering skills and knowledge to address more challenging engineering issues. I also expect that they will be able to communicate fundamental electrical engineering ideas in simple terms.

Research Objectives:

My aim in research is to achieve optimum performance of electrical power systems, power converters, motor drives, and hardware of computer systems by getting:

- A high and rapid response of control for asymmetric load changes in the power system.
- Control of motor speed at variable load.
- An optimum inverter performance is based on inverter output voltage closer to the sinusoidal form.
- The three-phase inverter of fewer harmonics in the output voltage.
- Improve the hardware performance of a computer, such as a cache.

To achieve this aim:

- It is necessary to develop an optimum algorithm for the switched controller of reactive power.
- Apply advanced techniques such as heuristics algorithms and artificial intelligence.

- Developing high-performance speed drives such as variable-frequency drives.
- Employing techniques may improve controller response, such as Space Vector Modulation (SVM).
- Developing a mapping technique that may help in improving the cache hit ratio, results in high performance for cache compared to well-known techniques such as Associative Mapping Technique (AMT) and Set-Associative Mapping Technique (SMT).

Also, there is an endeavor to study the voltage unbalance and the problems companion it including:

- Losses, harmonics, and the possibility of instability in the power system.
- Losses on the equipment, such as induction motors.
- Adverse effects on the operation of the power inverters.

Master Thesis Supervision:

- Advanced Control for Variable Load – Constant Speed of 3- Phase Induction Motor, 2021-2022, Faculty of Engineering and Technology, Philadelphia University, Jordan.
- Augmented Grey Wolf Optimizer for Optimal Operation of STATCOMs to Solve Voltage Deviation of the Smart Distributed Network, 2019-2020, Department of Electrical Engineering and Mechatronics, Faculty of Engineering, Tafila Technical University, Jordan
- Hybrid PSO–ANN algorithm to control TCR for voltage balancing, 2018-2019, Faculty of Engineering and Technology, Philadelphia University, Jordan.
- Enhancing the Response of Thyristor-Controlled- Reactor Using Neural Network, 2017-2018, Faculty of Engineering and Technology, Philadelphia University, Jordan.

Courses Taught:

Electrical Circuits-1.
Electrical Circuits-2.
Engineering Analysis (1).
Electric Circuit Lab.
Electronics-1.
Electronics-2.
Semiconductor Materials.
Digital Electronics.

Digital Logic.
Microprocessors.
Microcomputer systems.
Microprocessor-Based Systems.
Computer Architecture.
Assembly Language.
Microprocessors and Assembly Lab.
Special Topics in Mechatronics.
Fault Diagnosis.

Electric Drives (MSC Course).
Electrical Power Systems.
Power Generation.
DC Machines.
AC machines.
Energy Conversion.
Power Electronics & Drives.

Advanced Control Systems (MSC Course).
Continuous Control Systems.
Digital Control Systems.
Discrete Control Systems.
Control Systems & their Components.

Relevant Research Experience:

- Switching Control.
  - Thyristor-controlled and reactive power applications.
  - Pulse-width modulation switching techniques.
  - Motor speed control.

- Computer System and Hardware Applications:
  - Computer memory system.
  - Cache memory.
  - Cache mapping technique.
  - Data integrity assurance.
  - Information security.

Publications:

Journals:

1. Advanced Control for Three-Phase Induction Motor Featuring Variable Load Torque and Constant Speed. 2022, under review.
2. Samer Z. Salah, Jasim A. Ghaeb, Mohammed Baniyounis "A Nonparametric Approach Trained by Metaheuristic Algorithm for Voltage Regulation in the Electrical Distribution Network Equipped by PV Farm" Journal of Electrical Engineering & Technology, Springer,doi.org/10.1007/s42835-022-01158-4, 2022.
3. Mohammed Baniyounis, Samer Z. Salah, Jasim A. Ghaeb "Machine Learning for Prediction Models to Mitigate the Voltage Deviation in Photovoltaic-Rich Distributed Network" International Journal of Electrical and Computer Engineering, accepted, 2022.
4. Jasim A. Ghaeb, Malek Alkayyali & Tarek A. Tutunji "Wide Range Reactive Power Compensation for Voltage Unbalance Mitigation in Electrical Power Systems" Electric Power Components and Systems, Taylor & Francis, Vol.49, Issue.6-7, 16 December-2021.
5. Dana M Ragab, Jasim A. Ghaeb "Implementation of Reactive Compensator for Voltage Balancing Using AI-Based Models and Novel Performance Index" International Journal of Power Electronics and Drive Systems, Vol.13, No.1, May 2022.
6. Ibrahim I. Al-Naimi, Jasim A. Ghaeb, Mohammed J. Baniyounis, Mustafa Al-Khawaldeh "Fast Detection Technique for Voltage Unbalance in Three-Phase Power System" International Journal of Power Electronics and Drive Systems, Vol.12, No.4, Dec 2021.
7. Malek Alkayyali, Jasim Ghaeb "Hybrid PSO–ANN algorithm to control TCR for voltage balancing", IET Generation, Transmission & Distribution, Vol.14, Issue.5, March 2020, p:863-872.
8. Dana M Ragab, Jasim A Ghaeb, Ibrahim Al-Naimi, "Enhancing the Response of Thyristor-Controlled- Reactor Using Neural Network" International Transactions on Electrical Energy Systems, Wiley, Vol. 29, Issue. 12. July 2019.

9. Jalel Chebila, Jasim Ghaeb, Mohamed Anwer Fekiha and Mohamed Hadi Habaebic "Assessment of Road Traffic Noise: A Case Study in Monastir City", Jordan Journal of Mechanical and Industrial Engineering, Volume 13, Number 3, October. 2019, Pages 149 – 154.

10. Dana M. Ragab, Jasim A Ghaeb" Linear Relation for Voltage Unbalance Factor Evaluation in Three-Phase Electrical Power System Using Space Vector" World Academy of Science, Engineering and Technology International Journal of Energy and Power Engineering, Vol:13, No:2, 2019.

11. Jasim A. Ghaeb, Mustafa A. Al-Khawaldeh and Saleh Al-Jazzar "Influence of Sampling Period on Harmonics of Three-Phase Space Vector Modulated Inverter", British Journal of Applied Science & Technology 17(5), 2016.

12. Jasim A. Ghaeb, "Individual Character Comparison Technique for Improving the Internal Memory Performance", British Journal of Mathematics & Computer Science 12(3): 1-13, 2016.

13. Jasim A. Ghaeb, M.A. Smadi, and M. Ababneh, "Progressive decrement PWM algorithm for minimum mean square error inverter output voltage", Energy Conversion and Management, Elsevier, Volume 52, Issue 11, October 2011, Pages 3309-3318.

14. Jasim A. Ghaeb, M. A. Smadi, J. Chebil, "A High Performance Data Integrity Assurance Based on Determinant Technique,", Future Generation Computer Systems, Volume 27, Issue 5, May 2011, Pages 614-619

15. Jasim A. Ghaeb, J. Chebil, "An Oblique-Matrix Technique for Data Integrity Assurance". Elsevier, Computer and security, Vol.28, No.1-2, 2009.

16. Jasim A. Ghaeb, Osama. M. Aloquili, "New PWM Switching Technique for an Optimum Inverter Operation ". WSEAS, Transactions on Systems and Control, Issue.5, Vol.3, 2008.

17. Jasim A. Ghaeb, Osama. M. Aloquili," High Performance Reactive Control for Unbalanced Three Phase Load", European Transactions on Electrical Power, Volume 20, Issue 6, Sept.2010.

18. Jasim A. Ghaeb, "Optimal Real-Time Digital Control for a DC-Motor Proposed for Minimum Generation of Harmonics". WSEAS, Transactions on Power Systems, Issue.5, Vol.1, 2006.

19. M. Ababneh, I Etier, M. Smadi, Jasim A. Ghaeb "Synchronization of Chaos Systems Using Fuzzy Logic". Journal of Computer Science, Vol:7(2), 197-205, 2011.

20. O. Aloquili, Jasim A. Ghaeb and I.D. AL-Khawaldeh "Modulation Technique Using Boundary -Pulse-Width for a Single-Phase Power Inverter" Research Journal of Applied Sciences, Engineering and Technology, Issue.2, Vol.6, 2010.

21. S. Al-Jazzar, Jasim A. Ghaeb, "A Modified Unscented filter for Delay tracking in asynchronous CDMA System". Elsevier, International Journal of Electronics and communications. DIO:10.1016/j.aeue.2010.010, 2010.

22. M. Smadi, S. Al-Jazzar, Jasim A. Ghaeb, " Simplified Bit Error Evolution of Nagakami-m PSK systems with Phase Error Recovery". Wiley, Wireless Communication and Mobile Computing. 2012; 12:248–256 (Published online 23 March 2010 DOI: 10.1002/wcm.955).

23. Mahmoud A. Smadi, Jasim A. Ghaeb, Saleh O. Al-Jazzar, Omar A. Saraereh "Confidence Intervals Verification for Simulated Error Rate Performance of

Wireless Communication System". Springer, Wireless Personal Communications, an International Journal, 2013, 71:2463–2474.

24. Jasim Ghaeb, Jalal Chebil" Prediction of Voltage Unbalance Employing Space Vector Property". International Journal of Engineering Research and Development, 2016, *Volume 12, Issue 12, PP.65-70*.

Conferences:

1. Jasim Ghaeb, Malek Alkayyali, "An Optimization Technique for Voltage Regulation in Electrical Power Systems" IEEE 18th International Multi-Conference on Systems, Signals & Devices, March 22-25, 2021, Monastir, Tunisia.

2. Jasim A Ghaeb, Dana M Ragab, Ibrahim Al-Naimi "Fast correction of voltage unbalance factor in three-phase power system using neural network", 2018 11th International Symposium on Mechatronics and its Applications (ISMA), 4-6 March 2018, Sharjah, United Arab Emirates.

3. Dana M Ragab, Jasim A Ghaeb" A Neural Network Control for Voltage Balancing in Three-Phase Electric Power System" ICEPSPNC 2019: 21st International Conference on Electric Power Systems, Physical Networks and Components, Madrid, Spain, March, 26-27, 2019.

4. Dana M Ragab, Jasim A Ghaeb" A Linear Relation for VUF Evaluation in Three-Phase Electrical Power System using SV" ICEPSPNC 2019: 21st International Conference on Electric Power Systems, Physical Networks and Components, Madrid, Spain, March, 26-27, 2019.

5. Jasim A. Ghaeb, "Sampled Data and Space Vector Technique for Static VAR Compensation" IEEE 13th International Multi-Conference on Systems, Signals & Devices, 21 Mar - 24 Mar 2016, Leipzig, Germany.

6. Jasim A. Ghaeb, "Enhancing Cache Performance Based on Improved Average Access Time", International Conference on Computer, Communication and Jasim Information Sciences, and Engineering, Paris, France, April 25-26, 2012.

7. A. Ghaeb, M. A. Smadi, "An optimum PWM technique to maximize the continuity of inverter output "2nd INEEE Conference: Energy, Environment, Devices, Systems, Communications, Computers, Venice, Italy, March 8-9-10, 2011.

8. Jasim A. Ghaeb" Integrity Assurance Technique using Determinant Approach ". The 3rd international symposium on service, security, and data management technologies in Ubi-comp. IEEE Computer Society Proceedings, Geneva, 4-8 2009.

9. Jasim A. Ghaeb, Osama. M. Aloquili," Small boundary-pulse-width control for dc to ac single-phase Inverters". 10th International Conference on Automatic Control, Modeling and Simulation. Istanbul, Turkey, May 27-29, 2008, (ACMOS '08).

10. Jasim A. Ghaeb," Reactive power control for unbalanced loads". WSEAS, International Conference on Energy and Environment, Izola, Slovenia, 2007.

11. Jasim A. Ghaeb," Determination of optimum sampling frequency for discrete-data control system." SICE annual Control, Osaka, Japan, 2002.

12. Jasim A. Ghaeb," Determination of the sampling period required for a fast dynamic response of DC-motors". International Conference on Energy and Environment, Chalkida, Evia Island, Greece, 2006.
13. Jasim A. Ghaeb," Transient response of a numerical line with static Var control system". UPEC Conference, Napier, England, 1998.
14. Jasim. A Ghaeb, D. O'Kelly," Transient response of transmission system with reactive compensation." UPEC Conference, Belfast, Ireland, 1989.

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