

Amr Mohamed Elnady

Areas of Strength:

(Electric Power Engineering)

- Distribution System Operation and Control
- Applications on Power Electronics in Power and Distribution Systems
- Distributed Generation Systems and Microgrids
- Power System Control Using FACTS
- Electric Drive Systems

Education

Jan. 2000 – Sept. 2004

Ph. D. in Electrical Engineering

University of Waterloo, Waterloo, ON, Canada

Thesis: Novel Control Strategy for Voltage Source Converter Based Custom Power Conditioner to Improve the Voltage Quality In Distribution Systems.

July 1995 - July 1998

M. Sc. in Electrical Engineering

Cairo University, Faculty of Engineering, Cairo, Egypt
Electric Power and Machines

Sept. 1989 - July 1994

B. Sc. in Electrical Power and Machines

Cairo University, Faculty of Engineering, Cairo, Egypt
Graduation Project: Automatic Control for Water Purification Plant Using Programmable Logic Control (PLC)

Working Experience

Administrative Experience

Sept. 2014- June 2016

Assistant Dean for Graduate Studies and Research

Sharjah University, Sharjah, UAE
College of Engineering

Teaching Experience

Jan. 2013 – Now

Associate Professor

Sharjah University, Sharjah, UAE
Electrical and Computer Engineering Dept.

Sept. 2007 – Dec. 2013

Assistant Professor

Sharjah University, Sharjah, UAE
Electrical and Computer Engineering Dept.

Teaching Load at University of Sharjah

At the University of Sharjah, the average teaching load per a faculty member is 12 credit hours (CH) a week. Meaning that every faculty teaches three courses and two labs. Since I joined the university, my average teaching load ranges from 13 CH to 14 CH. I am used to teaching some specialized courses in the area of electric power engineering and some other basic courses. Each one of the courses listed below has been taught by me several times with a common rate of one or even twice a year.

The courses I am teaching at University of Sharjah

- Electric Power Distribution Systems
- Power System Analysis
- Power System Laboratory
- Electricity and Power Distribution for Buildings
- Electric Power Engineering
- Electric Power Engineering Laboratory
- Electromechanical Systems
- Electromechanical Systems Laboratory
- Circuit Analysis I
- Circuit Analysis Laboratory
- Instrumentation and Measurements
- Instrumentation and Measurements Laboratory
- Power Systems Modeling and Control, (graduate course)
- Power Distribution System Operation and Control, (graduate course)
- Power System Protection (graduate course)

Jan. 2007 – April 2007

Adjunct Seasonal Lecturer

Royal Military University of Canada, Kingston, Canada
Electrical and Computer Engineering Dept.

The courses I taught

- Power electronics (Winter 2007)

Jan. 2007 – April 2007

Adjunct Seasonal Lecturer

St. Lawrence College, Kingston, Canada
Energy Systems Engineering Technician (ESET) and Technologist Program

The courses I taught

- Electric Power Distribution and Metering Instrumentation (Winter 2007)

Jan. 2005 – Dec. 2005

Assistant Professor

Cairo University, Cairo, Egypt
Electrical Power and Machines Dept.

The courses I taught

- Flexible AC Transmission System Devices (FACTS) and their applications in transmission systems (graduate course, Winter 2005)
- Power Electronics

Sept. 2004 - Dec. 2004

Lecturer

University of Waterloo, Waterloo, ON, Canada
Electrical and Computer Engineering Dept.

The courses I taught

- Introduction to Electrostatics, Magnetism and Electronics

Jan. 2000 - Aug. 2004

Teaching Assistant

University of Waterloo, Waterloo, ON, Canada
Electrical and Computer Engineering Dept.

I have conducted tutorials in the following courses:

- Electrical Circuits (fundamental course).
- Electrical Circuits (advanced course).
- Electric Machines.
- Power Electronics and Its Applications.

Sept. 1994 - Sept. 1998

Teaching Assistant

Cairo University. Cairo, Egypt
Faculty of Engineering,
Electrical Power and Machines Dept.

I have conducted tutorials in the following courses:

- Power Electronics. (Introduction and Advanced Course).
- Electrical Circuits (Fundamental Course).
- Electrical Circuits (Advanced Course).
- Electric Machines and Machine Design.
- Power System Analysis (Advanced Course).
- Linear Control Systems.

Research Experience

Jan. 2013 – Present

Associate Professor

University of Sharjah, Sharjah, UAE
Electrical and Computer Engineering Dept.

The research I am doing after I got promoted is related to distributed generation systems, which is related to the integration of small generation units in distribution systems. Particularly, I am developing and analyzing different control schemes used to control the distributed generation units and microgrids. These units are based on advanced power electronics inverter circuits.

Sept. 2007 – Dec. 2012

Assistant Professor

University of Sharjah, Sharjah, UAE
Electrical and Computer Engineering Dept.

I have done research in the power and distribution systems operation and control to improve the operational conditions of the power systems under the heavily non-linear loads environment.

I recently have started to do research on the integration of the renewable energy sources within the power grids.

May 2015 – present

Adjunct Associate Professor

Royal Military College, Kingston, Ontario, Canada
Electrical and Computer Engineering Dept.

May 2009 – May 2015

Adjunct Assistant Professor

Royal Military College, Kingston, Ontario, Canada
Electrical and Computer Engineering Dept.

I am doing research with some colleagues in this university for the applications of different digital signal processing techniques in power systems to extract the distortion in the system and improve its power quality.

Jan. 2006 – June 2007

Research Associate (NSERC Post Doctor Fellow)

Queens University, Kingston, ON, Canada
Electrical and Computer Engineering Dept.

I was conducting research in the application of signal processing in power and distribution systems. This research had two main aspects.

- Utilization of the signal processing technique to detect, estimate, track and extract the voltage and current disturbances in power and distribution systems. Also, the role of power electronics based devices for mitigating and compensating these disturbances
- The second aspect concentrated on the advantages and disadvantages of the employment of the renewable energy sources inside power grids.

Jan. 2000 - March 2004

Research Assistant, (Ph. D. degree)

University of Waterloo, Waterloo, ON, Canada
Electrical and Computer Engineering Dept.

1. My research focused on employing innovative control techniques for improving the power quality in the power and distribution systems. This research had several aspects:

- The theoretical work was done by using PSACD/EMTDC, FORTRAN and MATLAB.
- The experimental work was done on the prototype of a small distribution feeder with some linear and non-linear loads.
- I have built electrical and electronic circuits (digital and analog) for the entire test system. Also, I have built different voltage-source converters based custom-power conditioners which were based on power MOSFETs, BJTs and IGBTs. The digital control was done by Intel 16-bit micro-controllers (Intel 87C196MD, 87C196MH, assembly and C). In addition to simple programs using Digital Signal Processor (TMS320C2407), using its assembly language.

In this research, several objectives have been realized

- I developed a unified control strategy to track, detect, extract and mitigate the power quality disturbances in power and distribution systems.

- I verified the viability and practicality of the proposed control strategy on a distribution feeder with real loading conditions.
2. Beside the Ph. D. research, I was involved in the following research projects:
- a) High voltage power supply: Sponsored by Honeywell, Canada
 - b) Programming power system analysis simulator using MATLAB: At University of Waterloo

My graduate courses for this program are as follows: (GPA: 3.8/4)

- Power Electronics and Energy Processing
- HVDC and FACTS devices
- Distribution System Analysis and Design
- Computer Aided Techniques for Circuit Analysis and Design
- Simulation Techniques: Advanced Topics
- Multi-Input Multi-Output Linear Control Systems

June 1995 – July 1998

Research Assistant, (Masters degree)

Cairo University, Cairo, Egypt
Electrical Power and Machines Dept.

My research was related to the control of a series-parallel resonant converter, and its application in the armature voltage control for speed control of DC motors. A power MOSFET based a single-phase voltage source converter was built and controlled by a digital circuit using Intel 8-bit micro-controller. The micro-controller was programmed using its assembly language.

In this research, several objectives have been realized

- I developed a new theoretical model for power MOSFET
- I realized higher efficiency for the electric drive system that can be employed for speed control of a DC motor
- I verified the viability and practicality of the proposed control strategy on a separate excited DC motor.

My graduate courses for this program are as follows: (GPA: 3.75/4)

- Computer Methods for Circuit Analysis
- Technical English language
- Thyristors and Rectifiers Circuit Design and Analysis
- Electronic Control of Electric Motors
- Power Electronics

Industrial Experience

July 1997 – July 1999

Design and Control Engineer (part time)

SDA Engineering (Consultants) S.A.E
98 El-Tahrir Street, No. 409-410
Dokki Square, Giza, 12311, Egypt
Telephone : (20-3)-3368749

I was working for consultation in some voltage regulation problems in power system and distribution systems because of excessive loading conditions

Aug. 1994 – June 1996

Control Engineer (part time)

COMPUMISR Inc.
16 Kolite El Zeraa St.
Geza, Egypt

I was working as a computer engineer for several automated tasks

Training

- **PSCAD/EMTDC Workshop:** American University in Sharjah, Sharjah, Oct. 13, 2009
- **LABVIEW Hands-on Seminar:** Sharjah University, Fall 2008
- **LABVIEW Hands-on Seminar:** (one full day), Kitchner, ON , March, 2002
- **LABVIEW Hands-on Seminar:** (one full day), Kitchner, ON , October, 2001
- **Training Course:** to program Intel micro-controller Intel_8031 using assembly, (4 weeks), Cairo University, Egypt, 1995
- **Summer Training:** in “EL Sokr Company” for sugar manufacturing for programming the Programmable Logic Controller using Ladder and Statement List programming languages, Sohag, Egypt, 1994
- **Summer Training:** in “Aluminium Company” for aluminium milling and manufacturing in the control room for the distribution substation feeding this factory. Nag-Hamady, Egypt, 1992

Computer Skills

- System administrator for server-client network, (2001-2003)
- Microsoft office; WORD, POWER POINT, and EXCEL
- Programming languages; MATLAB, C, ASSEMBLY, LABVIEW and FORTRAN
- Power system simulation software; PSCAD/EMTDC under UNIX and Windows, ETAP, and EMTP
- Power electronic simulation software; PSPICE, and PSIM

Microcontroller and DSP Skills

- Programming the micro-controller Intel 8031, 8-bit using its assembly language
- Programming the micro-controller Motorola MC68HC705B16FS, 8-bit using its assembly language
- Programming the micro-controller Intel 87C196MC,MD,MH, 16-bit using assembly and C language
- Programming the DSP TMS320CFL2407 using its assembly language.
- Programming the DSP TMS320C2812 using its assembly/C language.

Scholarships and Awards

- 3rd Place Award for the Graduate Poster Competition, University of Sharjah, 2019. (UAE)
- 2nd Place Award for the Undergraduate Senior Design Competition, University of Sharjah, 2016. (UAE)
- Sharjah Islamic Bank Research Award, University of Sharjah, 2012, (UAE)
- Outstanding Faculty Research Award, University of Sharjah, 2011, (UAE)
- Best Engineering Research Paper Award, University of Sharjah, 2011, (UAE)
- Best Senior Design Project Award, University of Sharjah, 2011, (UAE)
- Best Renewable Energy Project Idea Award, EAU University, 2011, (UAE)
- Second Award of IEEE SD Competition, Khalifa University, 2011, (UAE)
- Adjunct Assistant Professor, Royal Military College, Kingston, (Canada)
- Listed in Marquis Who's Who world edition in 2010/2011, (Sharjah)
- Instructor Award, Queen's University, (Winter 2007), (Canada)
- NSERC Post Doctor Fellowship, (2006-2007), (Canada)
- NSERC Industrial Research Fellowship, (2004), (Canada)
- Best Teaching Assistant (TA) Award, University of Waterloo, (Summer 2003), (Canada)
- Nominated Best TA, (Fall 2002), (Canada)
- Nominated Best TA, (Spring 2001), (Canada)
- Ontario Graduate Scholarship, (2003-2004), (Canada)
- Ontario Graduate Scholarship for Science and Technology, (2002-2003), (Canada)
- University of Waterloo, Faculty of Engineering Scholarship, (Winter 2002), (Canada)
- University of Waterloo, Faculty of Engineering Scholarship, (Fall 2001), (Canada)
- University of Waterloo, Faculty of Engineering Scholarship, (Summer 2001), (Canada)

Research Projects

- Monitoring and Control of a Clean Solar Power Supply, University of Sharjah, (2015-2017), (UAE)
- Distributed Generation Units, Seed Grants, Sharjah University, (2008-2010), (UAE)
- Monitoring, Control, Optimization and Applications of Solar Power System, it was accepted by the external reviewer, Sharjah University, (2009), (UAE)
- Brushless DC Motor Drive System, Queen's University, (2006-2007), (Canada).
- Power Quality in Buildings, Cairo University, (2005), (Egypt)
- Power Electronics for Hybrid Vehicles, Research Grant from NSERC IRF, (2004), (Canada). (Proposal was accepted but the company was bankrupt).

Supervised Graduation Projects

- Smart Green Home (2017)
- Design of distribution system within residential/commercial building
- AC solar power source (2016)
- Multilevel Inverter for Power Quality Improvement, (2015)
- Robo Goalkeeper, (2013)
- Maximum Power Point Tracking System, (2012)
- Solar Wheelchair, (2011)
- STATCOM for Voltage Improvement, (2010)
- Wireless Power Adaptor for Mobile Charging, (2009).
- Power Quality Improvement, (Harmonics Mitigation Using Shunt Active Filters), (2009).
- Design of a Solar Powered Cell Phone Battery Charger, (2008).
- Design of a Residential Solar Power System, (2008).
- Solar Power Remote Traffic Light System, (2007).

Supervised Master Students

- Saif Sinan: (2017-2019)
Thesis Title
"Distributed Generation System Operated by Improved Sliding Mode Control"
- Nabeel Alwadi: (2018-2020)
Thesis Title
"Power Quality Improvement Using Unified Power Quality Conditioner Operated by Kalman Filter"

Professional Membership

- Member, Editorial Board for the journal of Electric Power Components and Systems (The publisher is Francis and Taylor).
- Adjunct Associate Professor, Royal Military College, Kingston, Ontario, Canada (2015-2018).
- Member, Egyptian Syndicate of Engineers.

Publications

Journal Papers (Accepted and Published):

1. **A. Elnady**, M. Al-Shabi, A. Adam, "Novel Filters Based Operational Scheme for Five-Level Diode Clamped Inverters in Microgrid," Accepted in Frontier in Energy Research, 2020. [doi: 10.3389/fenrg.2020.00011](https://doi.org/10.3389/fenrg.2020.00011).
2. **A. Elnady**, "ADALINE Based Efficient Voltage Stability with Variable Balanced and Unbalanced Loads in Microgrid," Accepted in International Journal of Smart Grid and Clean Energy, In press, 2020.
3. M Al-Shabi, KS Hatamleh, SA Gadsden, B Soudan, **A Elnady**, "Robust Nonlinear Control and Estimation of a PRRR Robot System," International Journal of Robotics and Automation, vol. 34, no. 6, 2019.
4. **A. Elnady**, M. AlShabi, "Microgrid Control and Operation Using Improved Power-Rate Sliding Mode Control", Accepted in Journal of Electrical Engineering and Technology, Springer, In press, 2019.
5. A. A. Adam, **A. Elnady**, "Adaptive Steering Based HDTC Algorithm for PMSM", Accepted for publication in Asian Journal of Control, Wiley, In press, 2019.
6. M. AlShabi, **A. Elnady**, "Recursive Smooth Variable Structure Filter for Estimation Processes in Direct Power Control Scheme Under Balanced and Unbalanced Power Grid" Accepted for Publication in IEEE Systems Journal, In Press, 2019.
7. **A. Elnady**, M. AlShabi, "Operation of Parallel Inverters in Microgrid Using New Adaptive PI Controllers Based on Least Mean Fourth Technique", Accepted for Publication in Mathematical Problems in Engineering- Hindawi LTD- USA, 2019. <https://doi.org/10.1155/2019/4854803>
8. A. Adam, **A. Elnady**, "Advanced Drive System for DC Motor Using Multilevel DC/DC Buck Converter Circuit", IEEE Access, vol. 7, pp. 54167 - 54178, 2019. DOI: [10.1109/ACCESS.2019.2912315](https://doi.org/10.1109/ACCESS.2019.2912315)
9. **A. Elnady**, M. AlShabi, A. Adam, "A New Combination of Super-Twisting and Kalman filter for Direct Power Control of Distributed Generation System at Different Modes of Operation", International Journal of Electric Power and Energy Systems- Elsevier, Vol. 109, pp. 618-640, 2019.
10. **A. Elnady**, "Comparative Analysis of Several Linear Controllers with Developed Feedback Controllers for DSTATCOM", International Journal of Power and Energy Conversion-Inderscience, Vol. 10, No. 1, pp. 1-13, 2019, DOI: [10.1504/IJPEC.2019.096712](https://doi.org/10.1504/IJPEC.2019.096712).
11. **A. Elnady**, M. Alshabi, "Operation of Direct Power Control Scheme in Grid-Connected Mode Using Improved Sliding Mode Observer and Controller", International Journal of Emerging Power Systems-De Gruyter, Vol. 19, No. 5, 2018, DOI: [10.1515/ijeeps-2018-0041](https://doi.org/10.1515/ijeeps-2018-0041).
12. **A. Elnady**, and A. Adam, "Decoupled State-Feedback Based Control Scheme for the distributed generation system", Journal of Electric Power Components and Systems-Taylor and Francis, UK, Vol. 46, No. 5, 2018, <https://doi.org/10.1080/15325008.2018.1453564>.

13. **A. Elnady**, A. Adam, "Accurate Self-adaptive PI Controller of Direct Power and Voltage Control for Distributed Generation Systems", International Transactions on Electric Energy Systems- Wiley, Vol. 28, No. 10, 2018, <https://doi.org/10.1002/etep.2611>.
14. **A. Elnady**, "Newly developed 1st order sliding mode of power and voltage control of multilevel inverter based distributed generator", International Journal of Power and Energy Systems, Vol. 37, No. 4, ACTA Press, Canada, 2018.
15. **A. Elnady**, "Direct Power Control Applied on 5-Level Diode Clamped Inverter Power by a Renewable Energy Source", International Journal of Energy and Power Engineering- World Academy of Science, Engineering and Technology, Vol. 12, No. 3, pp. 139-144, 2018.
16. **A. Elnady**, M. S. Suleiman, "Simulation and experimental comparison between multilevel and conventional inverters", International Journal of Power and Energy Systems, Vol. 37, No. 3, 2017, ACTA Press, Canada, pp. 1-13, [DOI: 10.2316/Journal.203.2017.3.203-6329](https://doi.org/10.2316/Journal.203.2017.3.203-6329)
17. **A. Elnady**, S. Sinan, "An improved second-order sliding mode control for the distributed generation system in stand-alone and grid-connected modes", International Transactions on Energy Systems, Vol. 27, No. 11, Wiley, 2017.
18. **A. Elnady**, "First order integral sliding mode control for active and reactive current of a multilevel inverter based distributed generation unit", Journal of Renewable Energy & Power Quality, Vol. 1, No. 15, April 2017. <http://dx.doi.org/10.24084/repqj17.299>. DOI: [10.24084/repqj17.299](https://doi.org/10.24084/repqj17.299).
19. **A. Elnady**, "Modified Vector Control for the Multilevel Inverter in Distributed Generation Environment", International Journal of Electric Power and Energy, ACTA Press, Canada, Vol. 35, No. 2, 2015. [DOI: 10.2316/Journal.203.2015.2.203-6149](https://doi.org/10.2316/Journal.203.2015.2.203-6149).
20. **A. Elnady**, A. Masoud, A. Noureldin, "Recursive Implementation of MUSIC Algorithm to Minimize Power System Disturbances", Journal of Electric Power and Energy Systems-Elsevier, Vol. 56, pp. 9-18, 2014.
21. **A. Elnady**, "An Efficient Current Regulator for Multilevel Voltage Source Converter Based on A Simple Analog Control Circuit", Journal of Circuits Systems and Computers, Vol. 22, No. 4, 2013.
22. **A. Elnady**, "Accurate measurement and tracking for subharmonics and interharmonics", Journal of Electric Power Components and Systems, Taylor and Francis-USA, vol. 40, no. 9, 2012.
23. **A. Elnady**, Yanfei. Liu, "A Practical Solution for Current and Voltage Fluctuation in Power Systems", IEEE Transactions on Power Delivery, Vol. 27, No. 3, pp. 1339-1349, 2012.
24. **A. Elnady**, Yanfei. Liu, "An Efficient Current Regulator for a Power Conditioner Operated by an Innovative Strategy", International Journal of Power Electronics, Inderscience, Vol. 4, No. 1, 2012, pp. 94-118.
25. **A. Elnady**, "Improving the Performance of DSTATCOM Over Its Regular Performance Without Using Current Vector Control", International Journal of Integrated Energy System, Series Publications, Vol. 3, No. 1, 2011, pp. 39-56.
26. **A. Elnady**, A. Noureldin, and Yanfei Liu, "Enhancement of the Current Quality Using Efficient Extraction and Mitigation Processes", International Journal of Electrical Power and Energy Systems, Elsevier, Vol. 33, No. 5, 2011, pp. 1118-1124.

27. **A. M. Elnahdy**, M. M. A. Salama, "Voltage Enhancement in Industrial Distribution Systems Using Narrow-Band Filters", IET Generation, Transmission and Distribution, Vol. 5, No. 1, Jan. 2011, pp. 108-118.
28. **A. Elnady**, "Current Improvement in Distribution Systems Using a Modeless Strategy", Journal of Electric Power components and Systems, Taylor and Francis, Vol. 39, pp. 142-157, 2011.
29. **A. Elnady**, A. Noureldin, "Mitigation of Arc Furnace Voltage Flicker Using an Innovative Scheme of Adaptive Notch Filters", IEEE Trans. on Power Delivery, Vol. 26, No. 3, July 2011, pp. 1326-1336.
30. **A. Elnady**, Yanfei Liu, "A Shunt Power Conditioner Operated by a Simplified Version of Gauss-Newton Algorithm", International Journal of Emerging Electric Power Systems, Vol. 11, issue 2, June, 2010.
31. **A. El Nady**, A. Noureldin, Yan-Fei Liu, "Power Quality Improvement Using Wiener Filters Based On a Modular Compensating Strategy", IEEE Trans. on Power Delivery, Vol. 23, No. 2, April 2008, pp. 841-850.
32. **A. Elnady**, M.M.A Salama, "Mitigating of the Voltage Fluctuation by Using an Efficient Disturbance Extraction Technique", Journal of Electric Power System Research, Vol. 77, No. 3-4, March 2007, pp. 265-275.
33. **A. Elnady**, M.M.A Salama, "Adaptive Perceptron Based Generalized Algorithm for Power Quality Problems Mitigation", IEEE Trans. on Power Delivery, Vol. 20, issue 1, Jan. 2005, pp. 309-318.
34. **A. Elnady**, M. M. A. Salama, "Unified Control Algorithm for Mitigating Voltage Sag and Voltage Flicker", IEEE Trans. on Power Delivery, Vol. 20, issue 2, part II, April 2005, pp. 992-1000.
35. **A. Elnady**, M.M.A. Salama, "Increasing the Usability Index of Dynamic Voltage Restorer in the Distribution Systems", International journal of Power and Energy Systems, ACTA press, Vol. 3, No. 203, 2005.
36. **A. Elnady**, M.M.A. Salama, "An Improved Control Technique for DSTATCOM Used for Voltage Flicker Mitigation", Journal of Electric Power Components and Systems. Vol. 33, No. 2, 2005.
37. W. Elkhattam, **A. Elnady**, M.M.A Salama, "Dynamic Voltage Restorer Cost Reduction in Distributed Generation Environment" Journal of Electric Power Components and Systems, Vol. 32, No. 6, 2004, pp 611-626.

Refereed Conference Papers:

1. N. Alawadi, **A. Elnady**, "Estimation and Mitigation of Voltage Flicker Using Extended Complex Kalman Filter," International Conference on Advances in Science and Engineering Technology, Dubai, pp. 1-6, Feb. 2020.
2. **A. Elnady**, "PI Controller Based Operational Scheme to Stabilize Voltage in Microgrid", International Conference on Advances in Science and Engineering Technology, Dubai, pp. 1-6, March 2019.

3. N. Elwadi, **A. Elnady**, S. Sinan, " Estimation of Voltage Symmetrical Components and Current Harmonics Using Multi-Output Kalman Filter" Internationa Conference on Advances in Science and Engineering Technology, Dubai, pp. 1-6, March 2019.
4. S. Sinan, **A. Elnady**, M. AlShabi " Distributed Generator in Grid-Connected Mode Using Improved Exponential Sliding Mode Control" IEEE International Conference on Renewable Energy and Power Engineering, Toronto, Canada, Nov. 2018, pp. 1-5.
5. N. Elwadi, **A. Elnady**, " Mitigation of Power Quality Problems Using Unified Power Quality Conditioner by an Improved Disturbance Extraction Technique" International Conference on Electrical and Computing Technologies and Applications, Ras Alkhaimah-UAE, Nov. 2017, pp. 1-5.
6. S. Sinan, **A. Elnady**, "Optimized PID Controller Based Voltage Oriented Control of the 7-level Diode Clamped Inverter for Distributed Generation System" International Conference on Electrical and Computing Technologies and Applications, Ras Alkhaimah-UAE, Nov. 2017, pp. 1-5.
7. **A. Elnady**, "First Order Integral Sliding Mode Control for Active and Reactive Current of A Multilevel Inverter Based Distributed Generation Unit" International Conference on Renewable Energies and Power Quality, Malaga-Spain, April 2017, pp. 1-5.
8. **A. Elnady**, and A. Adam " Multilevel Inverter Operated by Voltage Orientation Control", 5th International Confefrene on Electronic Devices, Systems and Application (ICEDSA), Ras Alkhima-UAE, Dec. 2016, pp. 1-4, [DOI: 10.1109/ICEDSA.2016.7818466](https://doi.org/10.1109/ICEDSA.2016.7818466)
9. Ali Adam; **A. Elnady**; Amer Ghias "A novel multilevel DC chopper supplying DC motor", 5th International Conference on Electronic Devices, Systems and Applications (ICEDSA), Dec. 2016 pp. 1 - 5, [DOI: 10.1109/ICEDSA.2016.7818494](https://doi.org/10.1109/ICEDSA.2016.7818494).
10. A. T. Al Sakhen, A. M. Qasim, B. Qaisieh and **A. Elnady**, " Experimental and Simulation Analysis for the 5-level Diode Clamped Inverter", International Conference on Electric Power and Energy Conversion Systems, Sharjah-UAE, 24-26 Nov. 2015.
11. Ali A. Adam ,and **Amr M. Al-Nady**, "Evaluation of Electric Power Engineering Courses at University of Sharjah", 7th International Forum on Engineering Education (IFEE2015) , Sharjah-UAE, March 2015.
12. Adam, **A. Elnady**, Evaluation of Electric Power Engineering Courses at University of Sharjah, 7th International Forum on Engineering Education, Sharjah, 2014.
13. **A. Elnady**, "A Power Conditioner versus A DSTATCOM for Mitigation the Current Fluctuation and Voltage Flicker" International Conference of Electric Power and Energy Conversion systems, Sharjah, 13-15 Nov. 2011.
14. **A. Elnady**, "A Comparative Study for the common Current Regulators of Multilevel and Cascaded Inverters" International Conference of Electric Power and Energy Conversion Systems, Sharjah, 13-15 Nov. 2011.
15. **A. Elnahdy**, "A Single-Phase Current Vector Control for a DSTATCOM INSTALLED in Distribution Systems" Proc. of IEEE GCC, Dubai, UAE, 19-22 Feb. 2011.

16. **A. Elnady**, "Improved time-based hysteresis for a Multilevel Inverter based shunt active filter", Proc. Of the 4th Asian IASTED Conference Electrical Power and Energy Systems-ACTA Press, Thailand, Phuket, 24-26 Nov., 2010.
17. **A. Elnady**, "Mitigation of current harmonics by a modified Gauss-Newton" Proc. of IEEE International Conference on Power Electronics and Drive Systems, 2-5 Nov. Taiwan 2009.
18. **A. Elnady**, "Implementation of The Linear Digital Filter For Extracting Stationary Power Quality Disturbances", Proc. of IEEE CCECE, 2008, pp. 1383-1386.
19. **A. Elnady**, A. Noureldin, and Yan-Fei Liu, "Implementation of the Wiener Filter for Extraction Power Quality Disturbances", Proc. of Power Electronics Specialist Conference, 2007, pp. 1116-1120, 2007.
20. **A. Elnady**, and Yan-Fei Liu, "Simple and Effective Speed Control Strategy for The Brushless DC Motor", Proc. of IEEE CCECE, 2007, pp.116-120, 2007.
21. **A. Elnady**, and M.M.A Salama, "Compensation of the Voltage Flicker Using an Efficient Algorithm for Series and Parallel Mitigating Devices", Proc. of IEEE General Meeting, Vol. 1, June 2004, pp. 554-559, 2004.
22. **A. Elnady**, and M.M.A Salama, "An Efficient Compensator for the Voltage Related Power Quality Problems", Proc. of Power Electronics Specialist Conference, Vol. 3. 2003, pp 1235-1241, 2003.
23. **A. Elnady**, and M. M. A. Salama, "The Practical Approach of Employing the Series Power Conditioner for Power Quality Improvement in Distribution Systems", Proc. of European Power Electronics and Applications, Vol. 3, No. 4, 2003, pp. 210-216, 2003.
24. **A. Elnady**, and M. M. A. Salama, "A Novel Mitigation Strategy for Voltage Fluctuations Produced By Arc Furnace", Proc. of IEEE CCECE, Vol. 1, pp 447-450, 2003.
25. **A. Elnady**, W. Elkhattam, and M. M. A. Salama, "Mitigation of AC Arc Furnace Voltage Flicker Using the Unified Power Quality Conditioner", Proc. of IEEE Power Engineering Society Winter Meeting, Vol. 2, 2002, pp. 735-739, 2002.
26. **Elnady**, and M. M. A. Salama, "New Functionalities of an Adaptive Power Quality Conditioner", Proc. of IEEE Power Engineering Society Summer Meeting, vol. 1, 2001, pp 295-300, 2001.
27. **A. Elnady**, W. Elkhattam and M. M. A. Salama, "Distributed Generation Impact on the Dynamic Voltage Restorer Ratings", Proc. of IEEE PES Transmission and Distribution Conference, Vol. 1, 2003, pp415-420, 2003.
28. **A. Elnady**, and M. M. A. Salama, "Unified Power Quality Conditioner in Distribution System" Poster in IEEE Power Engineering Society Winter Meeting, 2001.
29. **A. Elnady**, and M. M. A. Salama, "Unified Power Quality Conditioner With a Novel Control Algorithm Based on Wavelet Transform", Proc. of IEEE CCECE, Vol. 2, pp 1441-1445, 2001.

Statement of Research Interests

My research interests include the fields of electric power system engineering; particularly, power system control using the FACTS controllers, distribution system operation and its power quality improvement. At the present time, I am working on the integration of renewable energy sources within the power grids.

In My Post Doctor Fellowship, I was conducting research in the applications signal processing techniques in power and distribution systems. This research had two different aspects. The first aspect focused on selecting and the formulation of some simple digital signal processing techniques to track and extract the disturbances of the power systems. The second aspect concentrated on the practical implementation of power electronics operated by these digital signal processing techniques to improve the voltage and current quality of power systems, and the role of the power electronics based renewable energy sources inside the power grids has been investigated.

In my Ph. D., I had developed different techniques for improving the power quality in distribution systems by using power electronics based custom power conditioners; with much emphasis on the voltage quality problems such as voltage harmonics, voltage unbalance, voltage sags and voltage flicker. Also, I had investigated the employment of custom power devices based series, shunt and series-shunt mitigating devices to improve the voltage profile and to mitigate the voltage disturbances. Moreover, I had devised a technique to minimize the energy required to restore and stabilize the voltage by using the series and parallel power electronics based power conditioners. Aforementioned techniques and strategies were implemented on micro-controllers and the digital signal processor TMS320LF2407A.

In my Masters, I had worked in the resonant converters and their applications in DC motor drives. I had developed a simple and effective control technique for a resonant converter based DC motor drive; this technique facilitated the regulation of the speed by adopting armature voltage control with the help of an analog circuit for the implementation of the phase shift pulse width modulation switch strategy.

Through my Masters, Ph. D., and Post Doctor Fellowship, (almost over 14 years of research in electric power applications), I have gained knowledge in power and distribution system control and operation,

distributed generation systems, and microgrids. This experience helps me to select my present research plans which include digital signal processing techniques for power system applications such as power quality improvement in distribution systems, Interharmonics and subharmonics estimation and tracking in power systems.

My future research plans will, of course, be influenced by the ideas and opportunities which present themselves at my future employment, but my intention is to work in renewable energy sources, (wind and solar energy); and their different control algorithms that meet the system and load requirements. Also, I am very much concerned with integration of these renewable sources with the power grids and their impact the power grids such as the protection coordination and power quality.

Statement of Teaching Philosophy

My teaching philosophy focuses on thorough knowledge and preparation, as well as a strong commitment to connecting with the students to expand their boundaries in the area of electrical engineering. Beyond the classroom, it is important to engage students in undergraduate research programs and relevant real-world assignments.

I believe that students can accomplish more than they believe is possible. My task is to encourage and nudge them to take the intellectual risks that are fundamental to their success. In order to accomplish this, I try to empower students as much as possible by making them active participants in their own education. I often employ interactive lectures and large group discussions. Also, I make use of small group work in which students take on more responsibility for their own education. Carefully structured research projects, often a combination of individual and group efforts, provide a meaningful way for students to undergo their own intellectual explorations in a supportive and cooperative environment. These projects usually have a presentation component to them so that students can share their conclusions, while gaining competency in delivering oral and/or visual presentations.

I imagine teaching undergraduate and graduate courses as having three overlapping parts: curricula, methods, and assessments. Curricula may be understood as what instructors are teaching. It also can be viewed, however, as what students are learning, what they end up learning and what they are able (and/or are willing) to actually do with what they learn. Embracing the understanding of curricula in the latter way transfers the focus of teaching away from me as a teacher to the students who should be actively engaged. I adopt methods as a mélange of possibilities for assisting students who wish to learn something new along a range of eventualities that extends from what I want for them to what they

veritably will invest time doing. Assessment, the third element, I visualize as points of convergence where all of us, teacher and students, stop to discover the gaps between what we are learning, what we ought to be learning, and what we actually are learning. Assessments, in my understanding, are the scholarship of learning. Likely, they ought to be evidence-based and flow over the duration of the course with specific course objectives. Assessments, seen this way, may take many forms, ranging from exams to one-on-one conversations.

Dr. Amr Mohamed Elnady