

Amr Mohamed EI_Nady

Areas of Strength:

(Electric Power Engineering)

- Power system Control/Distribution System Control
- Renewable Energy Systems, (Wind and Solar)
- DC/AC Machines and 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

Thesis: Control of The DC-to-DC Resonant Converter and Its Application for DC Motor Control

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

Teaching Experience

Sept. 2007 – Present

Assistant Professor

Sharjah University, Sharjah, UAE

Electrical and Computer Engineering Dept.

The courses I am teaching

- Power Electronics
- Distribution Systems and Power Systems
- Electromechanical Systems
- Instrumentation and Measurement

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. 2006 – Sep. 2007

Visiting Staff

Queens University, Kingston, Canada

Electrical and Computer Engineering Dept.

The courses I taught

- AC machines and special machines (Winter 2006)
- Power electronics (Fall 2006)

Jan. 2005 – Dec. 2005

Assistant Professor

Cairo University, Cairo, Egypt

Electrical Power and Machines Dept.

The courses I taught

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

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. 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 Brushless DC motors and low-voltage induction motors for electric vehicles. This research had two main aspects.

- The first aspect focused on implementing the model reference adaptive control on a brushless DC motor in order to have an accurate speed and torque control that can be employed in the hybrid and electric cars.
- The second aspect concentrated on the practical implementation of the proposed strategy to check the viability of the proposed drive system for electric vehicle applications. In addition, an industrial collaborative work will be established to industrialize the outcomes of the first and second stages of this research.

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.
- 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 in the electric drive systems, where my responsibility was the design and implementation of AC drive system controls by utilizing indirect vector control for several induction machines. The implementation of the previous control strategies was carried out using Intel 8-bit and 16-bit micro-controllers on the three-phase inverter circuits.

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

Computer Skills

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

Microcomputer 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 language.

Scholarships and Awards

- 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)

Professional Membership

- Member, Institute of Electrical and Electronics Engineers (IEEE).
- Member, Egyptian Syndicate of Engineers.
- Member, Editorial Board for the journal of Electric Power Components and Systems (The publisher is Francis and Taylor)

Extracurricular Activities

- Member of the executive board of the Graduate Student Association, University of Waterloo, (2002– 2003), (Canada)
- Vice-President of Egyptian Student Association, (2001-2002)

Publications

Journal Papers (Accepted):

1. **A. El Nady**, A. Noureldin, and 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
2. **A. El Nady**, and 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.
3. **A. El Nady**, and 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.
4. **A. El Nady**, and 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.
5. **A. El Nady**, and 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.
6. **A. El Nady**, and M.M.A. Salama, (2005) “An Improved Control Technique for DSTATCOM Used for Voltage Flicker Mitigation”, Journal of Electric Power Components and Systems. Vol. 33, No. 2, 2005.
7. W. Elkhattam, **A. El Nady**, and M.M.A Salama, (2004) “Dynamic Voltage Restorer Cost Reduction in Distributed Generation Environment” Journal of Electric Power Components and Systems, Vol. 32, No. 6, 2004, pp 611-626.

Journal Papers (Submitted):

1. **A. El Nady**, A. Noureldin, and Yan-Fei Liu, "Current Quality Improvement Using Recursive Wiener Filters Based a Compensating Strategy", submitted to International Journal of Electrical Power and Energy Systems, Elsevier, July 2006.
2. **A. El Nady**, M. M. A. Salama "A Novel Application of Narrow-Band Filters for Voltage Enhancement in Industrial Distribution Systems", submitted to IEEE Trans. on Power Delivery, Oct. 2008.
3. **A. El Nady**, A. Noureldin, "Implementation of Adaptive Notch Filter for Power Quality Improvement", will be submitted to Journal of Electric Power Research, Elsevier, Jan. 2009.

Refereed Conference Papers:

1. **A. El Nady**, "Implementation of The Linear Digital Filter For Extracting Stationary Power Quality Disturbances", Proceedings of IEEE CCECE, 2008, pp. 1383-1386.
2. **A. El Nady**, A. Nouelldin, and Yan-Fei Liu, "Implementation of the Wiener Filter for Extraction Power Quality Disturbances", Proceedings of Power Electronics Specialist Conference, 2007, pp. 1116-1120.
3. **A. El Nady**, and Yan-Fei Liu, "Simple and Effective Speed Control Stratgy for The Brushless DC Motor", Proceedings of IEEE CCECE, 2007, pp.116-120
4. **A. El Nady**, and M.M.A Salama, (2004) "Compensation of the Voltage Flicker Using an Efficient Algorithm for Series and Parallel Mitigating Devices", Proceedings of IEEE General Meeting, Vol. 1, June 2004, pp. 554-559.
5. **A. El Nady**, and M.M.A Salama, (2003) "An Efficient Compensator for the Voltage Related Power Quality Problems", Proceedings of Power Electronics Specialist Conference, Vol. 3. 2003, pp 1235-1241.
6. **A. El Nady**, and M. M. A. Salama, (2003) "The Practical Approach of Employing the Series Power Conditioner for Power Quality Improvement in Distribution Systems", Proceedings of European Power Electronics and Applications, Vol. 3, No. 4, 2003, pp. 210-216.
7. **A. El Nady**, and M. M. A. Salama, (2003) "A Novel Mitigation Strategy for Voltage Fluctuations Produced By Arc Furnace", Proceedings of IEEE CCECE, Vol. 1, pp 447-450.
8. **A. El Nady**, W. Elkhattam, and M. M. A. Salama, (2002) "Mitigation of AC Arc Furnace Voltage Flicker Using the Unified Power Quality Conditioner", Proceedings of IEEE Power Engineering Society Winter Meeting, Vol. 2, 2002, pp. 735-739.
9. **A. El Nady**, and M. M. A. Salama, (2001) "New Functionalities of an Adaptive Power Quality Conditioner", Proceedings of IEEE Power Engineering Society Summer Meeting, vol. 1, 2001, pp 295-300.
10. **A. El Nady**, W. Elkhattam and M. M. A. Salama, (2003) "Distributed Generation Impact on the Dynamic Voltage Restorer Ratings", Proceedings of IEEE PES Transmission and Distribution Conference, Vol. 1, 2003, pp415-420.
11. **A. El Nady**, and M. M. A. Salama, (2001) "Unified Power Quality Conditioner in Distribution System" Poster in IEEE Power Engineering Society Winter Meeting.
12. **A. El Nady**, and M. M. A. Salama, (2001) "Unified Power Quality Conditioner With a Novel Control Algorithm Based on Wavelet Transform", Proceedings of IEEE CCECE, Vol. 2, pp 1441-1445.