

Fayez F. M. El-Sousy, Professor

Department of Electrical Engineering, College of Engineering, Prince Sattam bin Abdulaziz University, Saudi Arabia

Cell: +966-543861178

E-mail: f.elsousy@psau.edu.sa
fayez.sousy@gmail.com
fayez.sousy@ieee.org

Web-site: <http://faculty.psau.edu.sa/f.elsousy>

EDUCATION

Ph.D (EE): Cairo University, Faculty of Engineering, Major in Electrical Engineering, June, 2000, GPA: 4.0/4.0

M.Sc. (EE): Cairo University, Faculty of Engineering, Major in Electrical Engineering, April, 1994, GPA: 4.0/4.0

B.Sc. (EE): Menoufia University, Faculty of Engineering, Major in Electrical Engineering, May, 1988, GPA: 3.6/4.0

AREAS OF EXPERTISE & INTEREST

- Renewable Energy Conversion Systems
- Grid Connected Converters
- Induction Motor Drives
- PMSM Drives
- Induction Motor Drives
- Linear PMSM Motor Drives
- Multi-Axis Motion Control Systems
- Maglev Vehicles in Transportation Systems
- Doubly-Fed Induction Generator
- PMSG System
- Intelligent Control
- Sliding-Mode Control
- Optimal Control Using Adaptive Dynamic Programming
- H_∞ Tracking Control and Mixed H_2/H_∞ Tracking Control
- Backstepping Control
- Dynamic Surface Control
- Adaptive Control
- Nonlinear Control

WORK EXPERIENCE

- Professor, Prince Sattam bin Abdulaziz University, College of Engineering, Saudi Arabia, (2013-present).
- Associate Professor, Salman bin Abdulaziz University, College of Engineering, Saudi Arabia, (2012- 2014).
- Associate Professor, Al-Kharj University, College of Engineering, , Saudi Arabia, (2010-2012).
- Associate Professor, King Saud University, College of Engineering, Saudi Arabia, (2007-2010).
- Assistant Professor, Benha University, Faculty of Engineering, Egypt, (2003-2007).
- Assistant Professor, October Six University, Faculty of Engineering, Egypt, (2000-2003).
- Lecturer, October Six University, Faculty of Engineering, Egypt, (1995-2000).
- Teaching Assistant, Benha University, Faculty of Engineering, Egypt, (1990-1995).
- Research Assistant, Electronics Reserach Institute, Cairo, Egypt, (1988-1994).
- Research Ascociate, Electronics Reserach Institute, Cairo, Egypt, (1994-2000).
- Researcher, Electronics Reserach Institute, Cairo, Egypt, (2000-2006).
- Associate Professor, Electronics Reserach Institute, Cairo, Egypt, (2007-2013).
- Professor, Electronics Reserach Institute, Cairo, Egypt, (2013-2019).

TEACHING EXPERIENCE

- Professor, Prince Sattam bin Abdulaziz University, College of Engineering, Saudi Arabia, (2013-current).
- Associate Professor, Salman bin Abdulaziz University, College of Engineering, Saudi Arabia, (2012- 2014).
- Associate Professor, Al-Kharj University, College of Engineering, , Saudi Arabia, (2010-2012).
- Associate Professor, King Saud University, College of Engineering, Saudi Arabia, (2007-2010).
- Assistant Professor, Benha University, Faculty of Engineering, Egypt, (2003-2007).
- Assistant Professor, October Six University, Faculty of Engineering, Egypt, (2000-2003).
- Lecturer, October Six University, Faculty of Engineering, Egypt, (1995-2000).
- Teaching Assistant, Benha University, Faculty of Engineering, Egypt, (1990-1995).

1. TEACHING PHILOSOPHY

My teaching philosophy is summarized as follows:

- Most important, I bring a lot of excitement to my class.
- Students should love the class, I always create a positive atmosphere, and Students are called upon to discuss questions and mistakes.
- You should always ask yourself why and how, I always bring motivation and justification for anything discussed in class.
- I always manage to treat all my students with respect.
- My training and experience have shown me that students learn best when they are active participants in the learning process. Therefore, my approach promotes active student participation in the classes/labs.

- I believe that teaching is a learning two way process for teachers as well as students. I learned much from my students as well to match them.

2. TEACHING PRACTICES

The following points may summarize my teaching practices:

- I provide to my students quality teaching by choosing the most updated/understandable texts in the fields and supply them with course notes that combine my experience in teaching. I always create and maintain a course website for conveying course material to the students outside of the class.
- I try, whenever convenient, to link the theoretical background the students learn with whatever available at the industry. Students usually get the message that what they study is real and a prosperous future awaits them.
- I provide, to my students, hands-on experience through developing computer based assignments and related lab experiments. This way, students believe in what they learn and explore new ideas.
- I always encourage team working (out side exam rooms!!) to open dialogue between students to help them learn more.
- Continuous evaluation of the students through series of short-exams (quizzes) keep students alert and keen to follow the course material.
- I also use mixed teaching facilities in presenting the course material. I use the board when developing ideas and algorithms, and use slides presentation to show block diagrams and results.

3. TEACHING DEVELOPMENT

I do evaluate and monitor my teaching output by either asking my students directly about how and what they have learnt from my course or by delivering some questions and comments that would help me to modify my way of teaching according to their needs. I also listen to any TA I may have, and do talk personally for my students during office hours.

4. UNDERGRADUATE COURSES:

- Electric Circuits
- Automatic Control Systems
- Microprocessors
- Signal and Systems Analysis
- Systems Analysis and Design
- System Dynamics
- Electric Machines (1)
- Electric Machines (1)
- Electric Machine Dynamics
- Electric Drives
- Power Electronics
- Control Systems Design and Simulation
- Digital Control Systems
- Industrial Control Systems
- Intelligent Control Systems
- Control Systems Design and Simulation
- Introduction to Statistics and Probability
- Advanced Bio Statistics
- Algebra & Analytic Geometry

- Differential Calculus

5. GRADUATE COURSES:

- Power Semiconductor Converters
- Design of Electrical Machines
- Advanced Theory of Electrical Machines
- Electrical Machines for Special Purposes
- Advanced Control Techniques
- Advanced Theory of Electro-Mechanical Energy Conversion
- Computer Aided Analysis of Electrical Machines
- Special Types of Electrical Machinery
- New Concepts in Electric Machine Design
- Voltage and Frequency Converter Systems
- Special Electric Drives and Reactive Power Control
- Advanced Topics in Electric Drives & Power Electronics
- Linear Electric Machines
- Microprocessor Based Instrumentation & Control
- Digital Control Systems
- Non-Linear Control Systems
- Adaptive and Learning Control Systems
- Advanced Topics in Computer & Control

RESEARCH EXPERIENCE

In my academic life I can identify myself as a researcher in the areas of modeling and control of motor drives, two-axis motion control systems, micro-motor control, wind energy systems, DSP-based computer control systems, computational intelligent of power electronics and electric drives, intelligent control theories including fuzzy logic, neural networks and wavelets, nonlinear control and optimal control and robust control. In addition, the intelligent control of Maglev vehicle transportation system. I am trying to link all areas to each other through out my different research projects. These are the areas I would be interested in working in and exploring funds and projects for:

- Renewable Energy Conversion Systems
- Control of Grid Connected Converters
- Control of Induction Motor Drives
- Control of PMSM Drives
- Control of Micro-Motor Actuators
- Control of Linear Induction Motor Drives
- Control of Linear PMSM Drives
- Control of Two-Axis Motion Control Systems
- Control of Multi-Axis Motion Control Systems
- Control of Maglev Vehicles Using LIM and PMLSM Drives
- Control of Doubly-Fed Induction Generator
- Control of PMSG in Energy Conversion Systems
- Intelligent Control
- Sliding-Mode Control
- Robust Optimal Control Using Adaptive Dynamic Programming
- H_∞ Tracking Control and Mixed H_2/H_∞ Tracking Control

- Dynamic Surface Control and Backstepping Control
- Adaptive Nonlinear Control

HONORS AND AWARDS

- Reward Research Excellence, Prince Sattam bin Abdulaziz University, 2020.
- Reward Research Excellence, Prince Sattam bin Abdulaziz University, 2019.
- Reward Research Excellence, Prince Sattam bin Abdulaziz University, 2018.
- Reward Research Excellence, Prince Sattam bin Abdulaziz University, 2017.
- Reward Research Excellence, Prince Sattam bin Abdulaziz University, 2016.
- Certificate of Appreciation and Recognition, Vice-Rectorate for Graduate Studies and Scientific Research, Salman bin Abdulaziz University, 2014.
- Certificate of Appreciation and Recognition, Deanship of Students Affairs, Salman bin Abdulaziz University, 2013.
- Certificate of Appreciation and Recognition, Deanship of Scientific Research for Publication in High Impact Factor International Journals, Salman bin Abdulaziz University, 2012.
- Certificate of Appreciation and Recognition, College of Engineering, Salman bin Abdulaziz University, 2012.
- Certificate of Appreciation and Recognition, College of Engineering, Al-Kharj University, 2010.
- Scholarship for Visiting Researcher, Faculty of Engineering, Graduate School of Information Science and Electrical Engineering, Energy Conversion Laboratory, Kyushu University, Fukuoka, Japan. January 2007 – February 2007.
- Scholarship for Visiting Researcher, Faculty of Engineering, Graduate School of Information Science and Electrical Engineering, Energy Conversion Laboratory, Kyushu University, Fukuoka, Japan. April 2004 –October 2004.
- Certificate of Appreciation and Recognition, Cairo University, 2000.
- Certificate of Appreciation and Recognition, Cairo University, 1994.
- Certificate of Appreciation and Recognition, Menoufia University, 1988.
- Award of High Honor, Menoufia University, 1983-1988.

GRANTS

- The Research and Development Office (RDO), Ministry of Education, Saudi Arabia “Multi-objective Multi-Purpose Applications of Energy Storage in Electric Power Systems with High Penetration of Renewable Energy [Grand Challenge], (2020-2023).
- Prince Sattam bin Abdulaziz University, Saudi Arabia, “Energy Management in Smart Grids for the Integration of Renewable Energy Resources using Telematics,” (2017-2018).
- Prince Sattam bin Abdulaziz University, Saudi Arabia, “Energy Management in Smart Grids for the Integration of Renewable Energy Resources using Telematics,” (2017-2018).
- University of Bisha, Saudi Arabia, “Research and Development on the Intelligent Control System Using Improved Particle Swarm Optimization of Micro-Motor Servo Drives for Micro-Electromechanical Systems (MEMS) in Industrial Applications,” (2017-2018).
- Electronics Research Institute, Egypt, “Research and Development on the Robust Adaptive Tracking Control for Unmanned Underwater Vehicle Actuated by PMSM Servo Drives,” (2016-2017).

- Electronics Research Institute, Egypt, “Multi-objective Multi-Purpose Application of Energy Storage in Power Systems with High Penetration of Renewable Energy” (2016-2017)
- Salman bin Abdulaziz University, Saudi Arabia, “A New Fiber Optic Sensor for Measuring Weigh-In-Motion for Wheel Loads of Vehicles on Highways,” (2012-2014).
- Salman bin Abdulaziz University, Saudi Arabia, “Research and Development on the Practical Implementation of Control of Two–Axis Motion Control System in CNC Machines,” (2012-2013).
- Salman bin Abdulaziz University, Saudi Arabia, “Research and Development on the Control of Micro-Permanent Magnet Synchronous Motor (Micro-PMSM) Drive for Micro-Electromechanical Systems (MEMS) Applications,” (2011-2012).
- King Saud University, Saudi Arabia, “Hybrid Supervisory Control Using Recurrent Wavelet–Neural–Network for Two–Axis Motion Control System in CNC Machines,” (2009-2010).
- King Saud University, Saudi Arabia, “Intelligent Maximization Control Using Wavelet–Neural–Network with Improved Particle Swarm Optimization for Variable Speed Wind Driven Self-Excited Induction Generator Feeding a Double-Sided CRPWM AC/DC/AC Converters Connected to a Utility Grid,” (2009-2010).
- Electronics Research Institute, Egypt, “Design and Implementation of DSP Board Utilizing TMS320F240 for Motion Control Systems,” (2002-2004).
- Electronics Research Institute, Egypt, “Control of High Performance AC Drives,” (1990-1992).

MANAGERIAL EXPERIENCE

- **Chair of Electrical Engineering Department**, College of Engineering, King Saud University, April 28, 2008 - April 7, 2010.
- **Chair of Electrical Engineering Department**, College of Engineering, Al-Kharj University, April 7, 2010 - March 27, 2011.
- **Chair of Electrical Engineering Department**, College of Engineering, Salman bin Abdulaziz University, March 27, 2011 - August 15, 2015.
- **Chair of Electrical Engineering Department**, College of Engineering, Prince Sattam bin Abdulaziz University, August 16, 2015 – August 11, 2016.
- **Chair of Electrical Engineering Department**, College of Engineering, Prince Sattam bin Abdulaziz University, August 12, 2016 – September 10, 2017.
- **Chair of Electrical Engineering Department**, College of Engineering, Prince Sattam bin Abdulaziz University, September 10, 2017 – September 1, 2018.
- Vice-Chair of Electrical Engineering Department, College of Engineering, Prince Sattam bin Abdulaziz University, 2019-present.
- Member of Deanship of Scientific Research Council, PSAU, 2019-present.
- Member of Scientific Council, Salman bin Abdulaziz University, 2010-2014.
- Member of College of Engineering Council, 2008-2018.
- Member of Academic Accreditation Committee, 2010-present.
- Member of Strategic Plan Committee, 2011-2019.
- Member of External Advisory Board of College of Engineering, , Prince Sattam bin Abdulaziz University, 2012-present.

PROFESSIONAL TRAINING

- ABET Institute for the Development of Excellence in Assessment Leadership (IDEAL), Baltimore, Maryland, USA, August 4-7, 2014.
- Leadership Training Workshop, British Council, Saudi Arabia, March 2, 2013.
- Program Specifications and Report, Salman bin Abdulaziz University, Saudi Arabia, September 18-19, 2012.
- Planning and Implementation of Self Study for Program Accreditation, British Council, Saudi Arabia, February 15-16, 2011.
- Strategic Planning in Higher-Education Institutions, Al-Kharj University, Saudi Arabia, October 9-10, 2010.
- Quality and its Applications in Higher-Education Institutions, King Saud University, Saudi Arabia, September 25-26, 2009.
- Academic Programs Development for Preparation of Academic Accreditation, King Saud University, Saudi Arabia, January 31 - February 1, 2009.

PROFESSIONAL ACTIVITIES

Reviewer and referee of the following International Journals:

- IEEE Transactions on Industrial Electronics.
- IEEE Transactions on Industrial Informatics.
- IEEE Transactions on Power Electronics.
- IEEE Transactions on Energy Conversion.
- IEEE Transactions on Mechatronics.
- IEEE Transactions on Control Systems Technology.
- IEEE Transactions on Neural Network and Learning Systems.
- IEEE Transactions on Fuzzy Systems.
- IEEE Transactions on Industry Applications.
- IEEE Transaction on Cybernetics
- IEEE Transactions on Systems, Man and Cybernetics: Systems
- IEEE Access.
- IEEE/CAA Journal of Automatica Sinica.
- IET Electric Power Applications.
- IET Power Electronics.
- IET Control Theory Applications.
- IET Electronic Letters
- IET Renewable Power Generation
- IET Science, Measurement & Technology
- IET Signal Processing
- International Journal of Power Electronics.
- Neurocomputing – Elsevier.
- Information Sciences – Elsevier.
- Control Engineering Practice – Elsevier.
- ISA Transactions – Elsevier.
- International Journal of Electrical Power & Energy Systems – Elsevier.
- Automatica– Elsevier.
- Applied Soft Computing– Elsevier.

- Expert Systems with Applications – Elsevier.
- Institute of Mechanical Engineering, Journal of Systems and Control Engineering.
- International Journal of Electronics, Tylaor Francis.
- Sensors Journal – MDPI.
- European Transactions on Electrical Power.
- Advances in Mechanical Engineering.
- International Journal of Control, Automation and Systems, Springer.
- International Journal of Numerical Modelling: Electronic Networks, Devices and Fields.
- Journal of Mechanical Engineering Science
- Journal of Systems and Control Engineering
- International Journal of Control
- Journal of Mechanical Systems and Signal Processing
- International Journal of Adaptive Control and Signal Processing

SOCIETY MEMBERSHIP

- Membership in IEEE Organization
- Member in IEEE Industrial Electronics Society
- Member in IEEE Control Systems Society
- Member in IEEE Computational Intelligence Society
- Member in IEEE Industry Applications Society
- Member in IEEE Power Electronics Society

JOURNAL PUBLICATIONS

- J1 - **Fayez F. M. El-Sousy** and K. A. Abuhasel, "Nonlinear Robust Optimal Control via Adaptive Dynamic Programming of Permanent-Magnet Linear Synchronous Motor Drive for Uncertain Two-Axis Motion Control System," IEEE Transactions on Industry Applications, vol. 56, no. 2, pp. 1940-1952, March/April 2020.
- J2 - **Fayez F. M. El-Sousy** and Khaled A. Abuhasel, "Intelligent Adaptive Dynamic Surface Control System with Recurrent Wavelet Elman Neural Networks for DSP-Based Induction Motor Servo Drives," IEEE Transactions on Industry Applications, vol. 55, no. 2, pp. 1998 - 2019, March/April 2019.
- J3 - Khaled A. Abuhasel, **Fayez F. M. El-Sousy**, M. F. El-Naggar and Ahmed Abu-Siada, "Adaptive RCMAC Neural Network Dynamic Surface Control for Permanent-Magnet Synchronous Motors Driven Two-Axis X-Y Table," IEEE Access, vol. 7, pp. 38068 – 38084, April 2019.
- J4 - **Fayez F. M. El-Sousy**, M. F. El-Naggar, Mahmoud Amin, Ahmed Abu-Siada, and Khaled A. Abuhasel, "Robust Adaptive Neural-Network Backstepping Control Design for High-Speed Permanent-Magnet Synchronous Motor Drives: Theory and Experiments," IEEE Access, vol. 7, pp. 99327 – 99348, August 2019.
- J5 - **Fayez F. M. El-Sousy** and Khaled A. Abuhasel, "Adaptive Nonlinear Disturbance Observer Using Double Loop Self-Organizing Recurrent Wavelet-Neural-Network for Two-Axis Motion Control System," IEEE Transactions on Industry Applications, vol. 54, no. 1, pp. 764 - 786, Jan./Feb. 2018.

- J6 - **Fayez F. M. El-Sousy** and Khaled A. Abuhasel, "Self-Organizing Recurrent Fuzzy Wavelet Neural Network-Based Mixed H_2/H_∞ Adaptive Tracking Control for Uncertain Two-Axis Motion Control System," *IEEE Transactions on Industry Applications*, vol. 52, no. 6, pp. 5139-5155, Nov./Dec. 2016.
- J7 - **Fayez F. M. El-Sousy**, "Intelligent Mixed H_2/H_∞ Adaptive Tracking Control System Design Using Self-Organizing Recurrent Fuzzy-Wavelet-Neural-Network for Uncertain Two-Axis Motion Control System", *Applied Soft Computing Journal (Elsevier)*, vol. 41, no. 4, pp. 22-50, April 2016.
- J8 - **Fayez F. M. El-Sousy**, "Adaptive hybrid control system using a recurrent RBFN-based self-evolving fuzzy-neural-network for PMSM servo drives," *Applied Soft Computing*, vol. 21, no. 9, pp. 509-532, August 2014.
- J9 - **Fayez F. M. El-Sousy** and Khaled A. Abuhasel, "Adaptive Recurrent Functional-Link-Based Petri Fuzzy-Neural-Network Controller for a DSP-Based Induction Motor Servo Drive System", *WSEAS Transactions on Circuits and Systems*, vol. 13, pp. 381-404, August 2014.
- J10 - **Fayez F. M. El-Sousy** and Khaled A. Abuhasel, "Intelligent Adaptive Backstepping H_∞ Tracking Control System for a DSP-Based PMSM Servo Drive", *International Journal of Circuits, Systems, and signal processing*, vol. 8, pp. 441-463, August 13, 2014.
- J11 - **Fayez F. M. El-Sousy**, "Intelligent Hybrid Controller for Identification and Control of Micro Permanent-Magnet Synchronous Motor Servo Drive System Using Petri Recurrent-Fuzzy-Neural-Network", *WSEAS Transactions on Systems and Control*, vol. 9, pp. 336-355, July 2014.
- J12 - **Fayez F. M. El-Sousy**, "Adaptive Dynamic Sliding-Mode Control System Using Recurrent RBFN for High-Performance Induction Motor Servo Drive", *IEEE Transactions on Industrial Informatics*, vol. 9, no. 4, pp.1922-1936, Nov. 2013.
- J13 - **Fayez F. M. El-Sousy**, "Intelligent Optimal Recurrent Wavelet Elman Neural Network Control System for Permanent-Magnet Synchronous Motor Servo Drive", *IEEE Transactions on Industrial Informatics*, vol. 9, no. 4, pp.1986-2003, Nov. 2013.
- J14 - **Fayez F. M. El-Sousy**, "Robust Recurrent Wavelet Interval Type-2 Fuzzy-Neural-Network Control for a DSP-Based PMSM Servo Drive System", *Journal of Power Electronics (JPE)*, vol. 13, no. 1, pp. 139-160, Jan. 2013.
- J15 - **Fayez F. M. El-Sousy**, "Hybrid recurrent cerebellar model articulation controller-based supervisory H_∞ motion control system for permanent-magnet synchronous motor servo drive", *IET—Electric Power Application* vol. 5, no. 7, pp. 563–579, Aug. 2011.
- J16 - **Fayez F. M. El-Sousy**, "Robust wavelet–neural–network sliding–mode control system for permanent magnet synchronous motor drive", *IET—Electric Power Application*, vol. 5, no. 1, pp. 113–132, Jan. 2011.
- J17 - **Fayez F. M. El-Sousy**, "Robust Adaptive Wavelet-Neural-Network Sliding-Mode Control for a DSP-Based PMSM Drive System," *Journal of Power Electronics (JPE)*, vol. 10, no. 5, pp. 518-527, 2010.
- J18 - **Fayez F. M. El-Sousy**, "Robust adaptive H_∞ position control via a wavelet-neural-network for a DSP-based permanent-magnet synchronous motor servo drive system," *IET—Electric Power Application*, vol. 4, no. 5, pp. 333–347, May 2010.
- J19 - **Fayez F. M. El-Sousy**, "Hybrid H_∞ -Based Wavelet-Neural-Network Tracking Control for Permanent-Magnet Synchronous Motor Drives", *IEEE Transactions on Industrial Electronics*, vol. 57, no. 9, pp. 3157-3166, September 2010.
- J20 - **Fayez F. M. El-Sousy**, "Robust Tracking Control Based on Intelligent Sliding-Mode Model-

Following Position Controller for PMSM Servo Drives”, Journal of Power Electronics (JPE), vol. 7, No. 2, pp. 159-173, April, 2007.

- J21 - **Fayez F. M. El-Sousy**, “Robust Adaptive Tracking Control of PMSM Drives Using Neural-Network Model-Following Response for Electric Vehicles”, WSEAS Transactions on Signal Processing, Issue 5, Vol. 2, pp. 589-596, May, 2006.
- J22 - **Fayez F. M. El-Sousy**, Mohamed Orabi and Hatem Godah, “Maximum Power Point Tracking Control Scheme for Grid Connected Variable Speed Wind Driven Self-Excited Induction Generator,” Journal of Power Electronics, vol. 6, no. 1, pp. 52-66, January, 2006.
- J23 - Kinjiro Yoshida, M. El-Nemr and **Fayez F. M. El-Sousy**, “Propulsion and Levitation H_{∞} Optimal Control of Underwater Linear Motor Vehicle ME02,” WSEAS Transactions on Systems, Issue 7, Vol. 4, pp. 1009-1016, July 2005.
- J24 - **Fayez F. M. El-Sousy** and Maged N. F. Nashed, “Fuzzy Adaptive Neural-Network Model-Following Speed Control for PMSM Drives,” WSEAS Transactions on Systems, vol. 4, no. 4, pp. 265-261, April, 2005.
- J25 - **Fayez F. M. El-Sousy**, “A Vector-Controlled PMSM Drive with a Continually On-Line Learning Hybrid Neural-Network Model-Following Speed Controller,” Journal of Power Electronics, vol. 5, no. 2, pp. 197-210, April 2005.
- J26 - **Fayez F. M. El-Sousy**, “A High-Performance Induction Motor Drive with 2DOF I-PD Model-Following Speed Controller,” Journal of Power Electronics, vol. 4, no. 4, pp. 198-209, October, 2004.
- J27 - **Fayez F. M. El-Sousy** and Maged N. F. Nashed, “PID-Fuzzy Logic Position Tracking Controller for Detuned Field-Oriented Induction Motor Servo Drive”, WSEAS Transactions on Systems, Issue 2, Vol. 3, pp. 707-713, April, 2004.
- J28 - **Fayez F. M. El-Sousy** and M. M. Salem, “High Performance Simple Position Neuro-Controller for Field-Oriented Induction Motor Servo Drives,” WSEAS Transactions on Systems, vol. 3, no. 2, pp. 941-950, April 2004.
- J29 - **Fayez F. M. El-Sousy** and M. M. Salem, “A Simple On-Line Trained Neuro-Controllers for Vector Controlled Induction Motor Drive,” Scientific Bulletin, Faculty of Engineering, Ain Shams University, Part II, Electrical Engineering, Cairo, Egypt, vol. 39, no. 1, pp. 673-687, March, 2004.
- J30 - **Fayez F. M. El-Sousy** and M. M. Salem, “Simple Neuro-Controllers for Field Oriented Induction Motor Servo Drive System,” Journal of Power Electronics, vol. 4, no. 1, pp. 28-38, January 2004.
- J31 - **Fayez F. M. El-Sousy** and Maged N. F. Nashed, “Robust Fuzzy Logic Current and Speed Controllers for Field-Oriented Induction Motor Drive,” Journal of Power Electronics, vol. 3, no. 2, pp. 115-123, April 2003.

INTERNATIONAL CONFERENCE PUBLICATIONS

- C1 - **Fayez F. El-Sousy**, Mahmoud Amin, Ghada A. Abdel Aziz, and Osama Mohammed, “Adaptive Sliding-Mode H_{∞} Control of PMLSM Drive System via Interval Type-2 Petri Fuzzy-Neural-Network for a Two-Dimensional X-Y Table,” The 2020 IEEE Industry Applications Society Annual Meeting (IAS), Detroit, Michigan, October 11-15, 2020.
- C2 - **Fayez F. El-Sousy**, Mahmoud Amin, Ghada A. Abdel Aziz, and Osama Mohammed, “Adaptive Super-Twisting Sliding-Mode Control via TSK-Petri Fuzzy-Neural-Network for Induction

- Motor Servo Drive System,” The 2020 IEEE Industry Applications Society Annual Meeting (IAS), Detroit, Michigan, October 11-15, 2020.
- C3 - **Fayez F. El-Sousy**, Mahmoud Amin, Ghada A. Abdel Aziz, Ahmed Al-Durra, and Osama Mohammed, “Adaptive Neural-Network Optimal Tracking Control for Permanent-Magnet Synchronous Motor Drive System via Adaptive Dynamic Programming,” The 2020 IEEE Industry Applications Society Annual Meeting (IAS), Detroit, Michigan, October 11-15, 2020.
- C4 - **Fayez F. El-Sousy**, Mahmoud Amin, Ghada A. Abdel Aziz, Ahmed Al-Durra, and Osama Mohammed, “Optimal Super-Twisting Sliding-Mode Control Using Adaptive Dynamic Programming for Uncertain Linear-Stage Considering PMSM Servo Drive Dynamics,” The 2020 IEEE Energy Conversion Congress and Exposition (ECCE 2020), Detroit, Michigan, October 11-15, 2020.
- C5 - **Fayez F. El-Sousy**, Mahmoud Amin, Ghada A. Abdel Aziz, and Osama Mohammed, “Adaptive Sliding-Mode H_∞ Control via Self-Evolving Function-Link Interval Type-2 Petri Fuzzy-Neural-Network for XY-Stage Nonlinear System,” The 2020 IEEE/ASME AIM Conference, Boston, MA, July 2020.
- C6 - **Fayez F. El-Sousy**, Mahmoud Amin, Ghada A. Abdel Aziz, and Osama Mohammed, “Robust Adaptive Neural-Network Super-Twisting Sliding-Mode Control for PMSM-Driven Linear Stage with Uncertain Nonlinear Dynamics,” The 2020 IEEE ITEC Conference, Chicago, Illinois, 24-26 June 2020.
- C7 - Ghada A. Abdel Aziz, Mahmoud Amin, and **Fayez F. El-Sousy**, “MRAS-based Super-Twisting Sliding-Mode Observer with DTC of Six-Phase Induction Motor for Ship Propulsion Application,” The 2020 IEEE Industry Applications Society Annual Meeting (IAS), Detroit, Michigan, October 11-15, 2020.
- C8 - **Fayez F. M. El-Sousy**, Mahmoud Amin, Osama A. Mohammed, “High-Precision Adaptive Backstepping Optimal Control Using RBFN for PMSM-Driven Linear Motion Stage,” International Electric Machines & Drives Conference (IEMDC 2019), San Diego, CA, USA, May 12-15, 2019.
- C9 - **Fayez F. M. El-Sousy**, Mahmoud Amin, Osama A. Mohammed, “Adaptive H_∞ -Based Variable Structure Control for Permanent-Magnet Synchronous Motor-Driven Uncertain Linear Stage via Self-Learning Recurrent Fuzzy-Wavelet-Neural-Network,” IEEE Energy Conversion Congress & EXPO Conference (ECCE 2019), Baltimore, MD, USA, pp. 4069-4076, September 29 - October 3, 2019.
- C10 - **Fayez F. M. El-Sousy**, Mahmoud Amin, Osama A. Mohammed, “Robust Optimal Control of High-Speed Permanent-Magnet Synchronous Motor Drives via Self-Constructing Fuzzy Wavelet Neural Network,” IEEE Industry Application Society (IAS), 54th Annual Meeting Conference), Baltimore, MD, USA, September 29 - October 3, 2019.
- C11 - **Fayez F. M. El-Sousy** and Khaled A. Abuhasel, “Nonlinear Adaptive Backstepping Control-Based Dynamic Recurrent RBFN Uncertainty Observer for High-Speed Micro Permanent-Magnet Synchronous Motor Drive System,” IEEE Energy Conversion Congress & EXPO Conference, Portland, Oregon, USA, September 23-27, 2018.
- C12 - **Fayez F. M. El-Sousy** and Khaled A. Abuhasel, “Nonlinear Robust Optimal Control via Adaptive Dynamic Programming of Permanent-Magnet Linear Synchronous Motor Drive for Uncertain Two-Axis Motion Control System,” IEEE Industry Application Society (IAS), 53th Annual Meeting Conference, Portland, Oregon, USA, September 23-27, 2018.
- C13 - **Fayez F. M. El-Sousy** and Khaled A. Abuhasel, “Adaptive Self-Organizing Recurrent RBFN-Based Dynamic Surface Control for Linear Induction Motor Drive System with Dynamic

- Uncertainties,” IEEE Industry Application Society (IAS), 53th Annual Meeting Conference, Portland, Oregon, USA, September 23-27, 2018.
- C14 - **Fayez F. M. El-Sousy** and Khaled A. Abuhasel, “Intelligent Adaptive Dynamic Surface Control System with Recurrent Wavelet Elman Neural Networks for DSP-Based Induction Motor Servo Drives,” IEEE Industry Application Society (IAS), 52th Annual Meeting, Cincinnati, Ohio, USA, October 1-5, 2017.
- C15 - **Fayez F. M. El-Sousy** and Khaled A. Abuhasel, “Robust Adaptive Dynamic Surface Control Using Recurrent Cerebellar Model Articulation Controller-Based Function Link Neural Network for Two-Axis Motion Control Systems,” IEEE Industry Application Society (IAS), 52th Annual Meeting, Cincinnati, Ohio, USA, October 1-5, 2017.
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BOOK CHAPTERS

Book Title:

Discrete Wavelet Transforms - A Compendium of New Approaches and Recent Applications

<http://dx.doi.org/10.5772/3424>

Published by InTech

Janeza Trdine 9, 51000 Rijeka, Croatia

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First published February, 2013

Chapter (7)

Fayez F. M. El-Sousy and Awad Kh. Al-Asmari, "Wavelet-Neural-Network Control for Maximization of Energy Capture in Grid Connected Variable Speed Wind Driven Self-Excited Induction Generator System," Published by InTech, pp. 162-206, Feb. 2013.

CONSULTANT EXPERIENCE

Design and supervision of more than 100 projects in Electrical Power Installations and low Current Systems (Hospitals, Hotels, Universities, Factories, Schools, Institutes, Malls, Shops, Villas, Conference Halls, Sporting Stadiumsetc) in Egypt and Saudi Arabia.

1- Electrical Power Installation:

- Electrical Power Stations
- Medium Voltage Distributers
- Low Voltage Distribution Boards
- Cable Feeders
- Bus-Duct Feeders
- Lighting Systems and its Network
- Earthing Systems
- Elevators and Esclators
- Electrical Power of the Central Air-Conditioning System

2- Low Current Systems:

- Fire Alarm System
- Telephone System
- Public Address Sound System
- Video Projector System
- Central Antenna System
- Closed TV Camera System
- Master Clock System
- Nurse Call System
- Conference System
- Data Network System
- Monitoring and Control System
- Security System
- Intercom System

3- Designed Projects:

Summary of different projects which has been designed in Egypt and Saudi Arabia (more than 100 projects)

1- Salman bin Abdulaziz University, Al-Kharj University, King Saud University, Saudi Arabia:

Design and supervision of 15 projects on Electrical Power Installation and Low Current Systems.

2- Cairo University, Egypt:

Design and supervision of 18 projects in Electrical Power Installation and Low Current Systems.

3- Helwan University, Egypt:

Design and supervision of 3 projects in Electrical Power Installation and Low Current Systems.

4- South Vally University, Egypt:

Design and supervision of 2 projects in Electrical Power Installation and Low Current Systems.

5- Tanta University, Egypt:

Design and supervision of 1 project in Electrical Power Installation and Low Current Systems.

6- Conference Halls, Egypt:

Design and supervision of 4 projects in Electrical Power Installation and Low Current Systems.

7- Omar Effindy Company, Egypt:

Design and supervision of 13 projects in Electrical Power Installation and Low Current Systems.

8- Lapoir Company, Egypt:

Design and supervision of 4 projects in Electrical Power Installation and Low Current Systems.

9- Hyper-1, Egypt:

Design and supervision of 1 project in Electrical Power Installation and Low Current Systems.

10- Hospitals, Egypt:

Design and supervision of 11 projects in Electrical Power Installation and Low Current Systems.

11- Sport Clubs, Egypt:

Design and supervision of 7 projects in Electrical Power Installation and Low Current Systems.

12- Hotels, Egypt:

Design and supervision of 13 projects in Electrical Power Installation and Low Current Systems.

13- Factories, Egypt:

Design and supervision of 12 projects in Electrical Power Installation and Low Current Systems.

14- Modern Building - Towers, Egypt:

Design and supervision of 11 projects in Electrical Power Installation and Low Current Systems.

REFERENCES

- Prof. Osama Mohammed, Professor, Fellow IEEE, Fellow ACES, Associate Dean for Research ECE Department, Florida International University, +1(305)348-3040, mohammed@fiu.edu
- Prof. Mahmoud M Amin, SMIEEE, Department of Electrical & Computer Engineering, Manhattan College, Cell: +1 (786) 488-7243, Office Tel: +1 (718) 862-7928, mahmoud.amin@manhattan.edu