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I. TEACHING & RESEARCH INTERESTS

1. **Power Electronics**: Analysis, Design, Modeling, Simulation and Control of power converters with Application to Power Supplies and Adjustable Speed Drives
2. **Control Systems:** Application of Modern and Intelligent Controls such as Fuzzy Logic, Neural Networks and Genetic Algorithms to Power Electronic and Motor Drives.
3. **Advance Energy Systems & Distributed Energy Resources.**

II. POSSESSION OF TERMINAL DEGREES IN FIELD

1992	PE	State of Ohio	Electrical Engineering
1992	FOE. (EIT)	State of Ohio	Electrical Engineering
1986	D.Sc.	Massachusetts Institute of Technology	Electrical Engineering
1981	E.E.	Massachusetts Institute of Technology	Electrical Engineering
1980	M.Sc.	Massachusetts Institute of Technology	Electrical Engineering
1976	B.Sc (Honors)	University of Khartoum	Electrical Engineering

III WORK EXPERIENCE

- **2014- 2015** Associate Chair, Department of Electrical and Computer Engineering, The University of Akron, Ohio, USA.
- **1998 - Present:** Professor, Department of Electrical and Computer Engineering, The University of Akron, Ohio, USA.
- **1993 - 1998:** Associate Professor (tenured), Department of Electrical and Computer Engineering, The University of Akron, Ohio, USA.
- **1989 - 1993:** Assistant Professor, Department of Electrical and Computer Engineering, the University of Akron, Ohio, USA.
- **1986-1989:** Visiting Assistant Professor, North Carolina State University, Department of Electrical and Computer Engineering, Raleigh, North Carolina.
- **1991 to 2007:** Collaborative Fellow Ohio Aerospace Institute (OAI), and NASA ASEE Summer Faculty Fellowship, Glenn Research Center, Cleveland, OH.
- **1984-1986:** Research Assistant, Massachusetts Institute of Technology,
- **1983-1985:** Teaching Assistant at Massachusetts Institute of Technology for a total of six terms in undergraduate and graduate courses.
- **1977-1978:** Teaching Assistant, Dept. of Elect. Engg, University of Khartoum, Sudan.
- **1976-1977:** Assistant Electrical Engineer, Electricity and Water Corporation of Sudan.
- **1975:** Summer Intern, Koldair Company, Cairo, Egypt.

IV. EXPERIENCE IN TEACHING

A. Graduate Courses

Course Number	Title	Times	Where Taught
ECE-516	Modern Control Theory	2	North Carolina State University
ECE-591	Power Electronics	2	North Carolina State University
4400-688	Control of Machines	1	University of Akron
4400-680	Dyn. & Contr. of Power Electronics	8	University of Akron
4400-689	Power Semiconductor. Devices	3	University of Akron
4400-687	Power Electronics II	6	University of Akron

B. Undergraduate Courses

Course Number	Title	Times Taught	Where Taught
ECE-305	Electric Power Systems	4	North Carolina State University
ECE-435	Elements of Control	3	North Carolina State University
4400:231	Circuits I	4	University of Akron
4400-332	Circuits II	30	University of Akron
4400-381	Energy Conversion	9	University of Akron
4400-481	Modern Power Systems	8	University of Akron
4400-483	Power Electronics I	28	University of Akron
4400-484	Power Electronics. Laboratory	5	University of Akron
4400-385	Energy Conversion Laboratory	10	University of Akron
4400-485	Electric Motor Drives	16	University of Akron
4400:320	Basic Electrical Engineering	1	University of
	Fundamentals of Engineering (Circuits)	12	University of Akron
	Fundamentals of Engineering (Math)	2	University of Akron

V. SCHOLARLY PUBLICATIONS

A. Theses

1) M. Elbuluk, "Design, Winding and Testing of an Induction Motor", B.S. Thesis, Electrical Engineering Dept., Faculty of Engineering, University of Khartoum Library, Sudan.
2) M. Elbuluk, "Parity Simulation of Coupled Magnetic Circuits," M. S. thesis, Electrical Engineering and Computer Science Dept., School of Engineering, Massachusetts Institute of Technology (MIT), Sept. 1980, MIT Engineering Library.
3) M.E. Elbuluk, "Resonant Converters: Topologies, Dynamic Modeling and Control", D.S. Thesis, Electrical Engineering and Computer Science Dept., School of Engineering, Massachusetts Institute of Technology (MIT), Sept. 1980, MIT Engineering Library.

B. Books

1) Chapter in an IEEE Workshop “Electronic Design”, University of Wisconsin, Madison.
2) Co-author with Edison Da Silva, Chapter “Introduction to Power Electronics”, To appear in Book by Wiley on “ Renewable Energy Sources”

C. Refereed Journal and Conference Publications

1) G.C. Verghese, M.E. Elbuluk and J.G.Kassakian, "A general Approach to Sampled-Data Modeling of Power Electronic Circuits," IEEE Trans. on Power Electronics, Vol. 1, No. 2, April 1986, pp. 76 - 89.
2) M.E.Elbuluk, G.C. Verghese, J.G. Kassakian, "Dynamic Modeling and Digital Control of Resonant Converters," IEEE Trans. on Power Electronics, Vol. 3, No. 3, July 1988, pp. 344 – 354.
3) M.J. Gorman, M.E. Elbuluk "A Simple Two Switch Cycloconverter for AC Drives," IEEE Trans. on Power Electronics, Vol. PE-6, No. 4, October 1991, pp. 759 – 764.
4) S. Mir, D. Zinger, M. Elbuluk "Fuzzy Logic Control of Inverter-Fed Induction Machines", The IEEE Trans. on Industry Application, Vol. 30, No. 1, Jan/Feb. 1994, pp. 78 - 84.
5) S. Mir, D. Zinger, M. Elbuluk "Fuzzy Implementation of Direct Self Control of Inverter-Fed Induction Machines," IEEE Trans. on Industry Application, Vol. 30, No. 3, May/June, 1994, pp. 29 – 735.
6) Tony Lee, M. Elbuluk, D. Zinger "Characterization and Snubbing of the MCT Under Zero Voltage Resonant Switching," IEEE Trans. on Industry Application, Vol. 31, No.5, 1995, pp. 978 – 985.
7) M.Elbuluk and M.D. Kankam, "Motor Drive Technologies for the Power-By-Wire (PBW): Options, Trends and Tradeoffs, Part I: Power Electronic Converters and Devices," IEEE Aerospace and Electronics Magazine, Vol. 10, No. 11, November 1995, pp.37-42.
8) M.Elbuluk and M.D. Kankam, "Motor Drive Technologies for the Power-By-Wire (PBW): Options, Trends and Tradeoffs, Part II: Motors and Controllers," IEEE Aerospace and Electronics Magazine, Vol. 10, No. 12, November 1995, pp.31-36.
9) Tony Lee, M. Elbuluk, D. Zinger "Performance of MCT in A Current-Regulated AC/AC PDM Converter," IEEE Trans. on Power Electronics, Vol. 11, No. 1, Jan 1996, pp. 49 – 56.
10) M.Elbuluk and D. Kankam, "Potential Starter/Generator technologies for Aerospace Applications," IEEE Aerospace and Electronics Systems Magazine, Vol. 11, No. 10, pp. 17-24, Oct. 1996, pp. 17 – 24. **Also,** NASA Technical Memorandum # 107224.
11) Luis Cabrera, M. Elbuluk " Tuning the Stator Resistance in Inverter-Fed Induction Machines Using Direct Self Control," IEEE Trans. on Power Electronics, Vol. 12, No. 5, Sep. 1997, pp. 779 - 787.
12) Luis Cabrera, M. Elbuluk & D. Zinger " Learning Techniques to train Neural Network As A State Selector for Inverter-Fed Induction Machines Using Direct Self Control," IEEE Trans. on Power Electronics, Vol. 12, No. 5, Sep.1997, pp. 788 – 799.
13) S. Mir, I. Husain and M. Elbuluk, "Energy Efficient C-dump converter for Switched Reluctance Motors," IEEE Trans. on Power Electronics, Vol. 12, No. 5, 1997, pp. 912 - 921.
14) S. Mir, M. Elbuluk & D. Zinger, " PI & Fuzzy Estimators for Tuning The Stator Resistance of Direct Torque Control of Inverter-Fed Induction Machines", IEEE Trans. on Power Electronics, Vol. 13, No. 2, March 1998, pp. 279 – 287.

15) N. Langovsky, M. Elbuluk & D. Kankam, "Design and Implementation of A Closed-Loop Observer and An Adaptive Controller for Induction Motor Drives," IEEE Transactions on Industry Applications, Vol. 34, No. 3, May/June1998, pp. 435 – 443.
16) S. Mir, I. Husain and M. Elbuluk, "Switched Reluctance Motor Modeling with On-Line Parameter Adaptation," IEEE Trans. on Industry Application, Vol. 34, No. 4, July/August 1998, pp. 776-783..
17) K. Russa, M. Elbuluk and I. Husain, "Torque ripple Minimization of Switched Reluctance Machines Over A Wide Speed Range," IEEE Trans. on Industry Application, Vol. 34, No. 5, Sep./Oct. 1998, pp. 1105 – 1112.
18) S. Mir, M. Elbuluk and I Husain, "Torque Ripple Minimization of Switched Reluctance Machines using Adaptive Fuzzy Controller," IEEE Trans. on Industry Application, Vol. 35, No. 2, Mar./Apr. 1999, pp. 461 – 468.
19) K. Russa, I. Husain, M. Elbuluk, "A Self-Tuning Controller for Switched Reluctance Machines" IEEE Transactions on Power Electronics, May/June, 2000, Vol. 15, No. 3, pp. 545-552.
20) M. Elbuluk, T. Liu, I. Husain, "Neural Network-Based Model Reference Adaptive Systems For High Performance Motor Drives and Motion Controls" IEEE Transactions on Industry Applications, May/June, 2002, Vol. 38, No. 3, pp. 879-886.
21) M. Elbuluk, S. Gerber, A. Hammoud and R. Patterson, "Performance of High Speed PWM Chips at Cryogenic Temperatures," IEEE Transactions on Industry Applications, March/April, 2003, Vol. 39, No. 3, pp.545-552.
22) R.L. Patterson, A. Hammoud, J.E. Dickman, S. Gerber, M. Elbuluk and E. Overton "Electronics for deep space cryogenic applications" Journal de Physique IV, Vol. 12 No. 3, May 2002.
23) R.L. Patterson, A. Hammoud, M. Elbuluk "Assessment of electronics for cryogenic p space exploration missions" Journal of Cryogenics, Vol. 46, January 2006, pp. 231-236.
24) Idris, N.R.N; Ling, T.C.; Elbuluk, M.E., "A new torque and flux controllers for direct torque control of induction machines**",** IEEE Transactions on Industry Applications, Nov/Dec, 2006, Vol. 42, No. 6, pp. 1358-1366.
25) Sen G., Elbuluk M., "Voltage and Current-Programmed Modes in Control of the Z-Source Converter", IEEE Transactions on Industry Applications, Vol: 46, Issue: 2, pp: 680 - 686, 2010.
26) Jidin, A.; Idris, N.R.N.; Yatim, A.H.M.; Sutikno, T.; Elbuluk, M**.;** An Optimized Switching Strategy for Quick Dynamic Torque Control in DTC-Hysteresis-Based Induction Machines", IEEE Transactions on Ind. Electronics, Vol: 58, Issue: 8, Year: 2011 , Page(s): 3391 – 3400.
27) Jidin, A.; N Idris, N.; Yatim, A.; Sutikno, T.; Elbuluk, M.; "Simple Dynamic Over Modulation Strategy for Fast Torque Control in DTC of Induction Machines with Constant Switching Frequency Controller", IEEE Transactions on Ind. Applications, Vol: PP , Issue: 99, 2011.
28) Jidin, A.; Idris, N.; Yatim, A.; Sutinko, T. , Elbuluk, M**.**, "A Wide-Speed High Torque Capability utilizing Over Modulation Strategy in DTC of Induction Machines with Constant Switching Frequency Controller", IEEE Transactions on Power Electronics, Volume: PP , Issue: 99, Publication Year: 2011.
29) Auzani Jidin, Nik Rumzi Nik Idris, Abdul Halim Mohd Yatim, Tole Sutikno, and Malik E. Elbuluk, "Extending Switching Frequency for Torque Ripple Reduction

Utilizing a Constant Frequency Torque Controller in DTC of Induction Motors", Journal of Power Electronics, Vol. 11, No. 2, pp.148-155, 2011.

30) Yu Zou ; Elbuluk, M. ; Sozer, Y. "Simulation Comparisons and Implementation of Induction Generator Wind Power Systems", IEEE Trans. on Industry Applications, Vol: 49 , 2013 , pp: 1119 – 1128.
31) Yu Zou ; Elbuluk, M. ; Sozer, Y. "Stability Analysis of Maximum Power Point Tracking (MPPT) Method in Wind Power Systems", IEEE Transactions on Industry Applications, Vol: 49 , 2013 , pp: 1129 - 1136.
32) Elrayyah, A. ; Sozer, Y. ; Elbuluk, M.E., "Modeling and Control Design of Microgrid-Connected PV-Based Sources Emerging and Selected Topics in Power Electronics, IEEE Journal of Volume: 2 , Issue: 4 , pp. 907 – 919, 2014.
33) Elrayyah, A. ; Sozer, Y. ; Elbuluk, M.E., "A Novel Load-Flow Analysis for Stable and Optimized Microgrid Operation ", IEEE Transactions on Power Delivery, Vol: 29 , Issue: 4 , pp. 1709 – 1717, 2014.
34) Elrayyah, A. ; Sozer, Y. ; Elbuluk, M., "Robust phase locked-loop algorithm for single-phase utility-interactive inverters", IET Power Electronics, Volume: 7 , Issue: 5, pp. 1064 – 1072, 2014.
35) Elrayyah, A. ; Safayet, A. ; Sozer, Y. ; Husain, I. ; Elbuluk, M., "Efficient Harmonic and Phase Estimator for Single-Phase Grid-Connected Renewable Energy Systems", IEEE Transactions on Industry Applications, Vol: 50 , Issue: 1 , pp. 620 – 630, 2014.
36) Yu Zou ; Elbuluk, M.E. ; Sozer, Y., "Stability Analysis of Maximum Power Point Tracking (MPPT) Method in Wind Power Systems, Industry Applications, Volume: 49 , Issue: 3 , Page(s): 1129 – 1136, 2013.
37) Elrayyah, A. ; Sozer, Y. ; Elbuluk, M., "Microgrid-Connected PV-Based Sources: A Novel Autonomous Control Method for Maintaining Maximum Power", IEEE Industry Applications Magazine, Volume: 21, Issue: 2, Pages: 19 – 29, 2015,
38) G.C. Verghese, M.E. Elbuluk and J. G. Kassakian, "A general Approach to Sampled-Data Modeling of Power Electronic Circuits", Proceedings of The IEEE Power Electronics Specialists Conference, June, 1984, pp. 316-330.
39) M.E.Elbuluk, G.C. Verghese, J.G. Kassakian, "Dynamic Modeling and Digital Control of Resonant Converters," Proceedings of The International Workshop on Control Systems in New Energy Applications, Madrid, Spain, Sept. 1987, pp. 253-265.
40) M.E. Elbuluk "Closed-Loop Digital Control of Resonant Converters," Proceedings of The IEEE Power Electronic specialists Conference, June1987, pp. 567 - 576.
41) M.E. Elbuluk "Resonant Converter Topologies," Proceedings of The 30th Midwest Symposium on Circuits and Systems, Syracuse, N. Y., Aug. 1987, pp.185 - 189.
42) M. Chavez, M. Elbuluk "A Current-Fed Series Resonant Inverter for High Frequency High Power Applications", Proceedings of the IEEE 21st Southeastern Symposium on Systems Theory, University of Florida, Tallahassee, March 1989, pp. 18 -22.
43) M. Elbuluk, M. Chavez "A Complete Analysis of The Current-Fed Series Resonant DC-DC Converter", Proceedings of The IEEE Industrial Electronics Conference (IECON), Vol. 1, Philadelphia, PA, November 1989, pp. 27 - 32.
44) M.J. Gorman, M.E. Elbuluk "A Simple Two Switch Cycloconverter for AC Drives", Proceedings of The IEEE Power Electronics Specialists Conference (PES), Jun. 1989, Milwaukee, Wisconsin, pp. 590 - 596.

45) Hilborn, S. Middleton, N.T., Noe, P., Szeto, A.Y.J., and Elbuluk, M.E., "Teaching Design Principles," in *Teaching Design in Electrical Engineering*, J.G. Webster (ed.), IEEE Press, 1990.
46) Tony Lee, D. Zinger, M. Elbuluk, "Modeling & Simulation of MCT Under Zero Voltage Resonant Switching", Proceedings of The IEEE Industrial Electronics Conference (IECON), November 1991, Kobe Japan, pp. 341 – 346.
47) Tony Lee, M. Elbuluk, D. Zinger "Characterization and Snubbing of the MCT Under Zero Voltage Resonant Switching," Proceedings of The IEEE Industry Applications Society Annual Meeting, Vol. 1, Houston, Texas, October 1992, pp. 1165 - 1178.
48) S. Mir, D. Zinger, M. Elbuluk "Fuzzy Logic Control of Inverter-Fed Induction Machines", Proceedings of The IEEE Industry Application 27th Annual Meeting, Houston, Texas, October 1992, pp. 464 – 471.
49) W. Palthukumskil, D. Zinger, M. Elbuluk, L. Xu, , "Switching Characteristics of MCT in Resonant DC Link Soft Switching Power Converters", Proceedings of The IEEE Industry Application Society 27th Annual Meeting (IAS), Houston, Texas, October 1992, pp. 1173 –1178.
50) S. Mir, D. Zinger, M. Elbuluk " Fuzzy Implementation of Direct Self Control of Inverter-Fed Induction Machines", Proceedings of The IEEE Industry Application Society 28th Annual Meeting (IAS), Vol. 1, Toronto, Canada, October 1993, pp. 710 - 717.
51) Tony Lee, M. Elbuluk, D. Zinger "Performance of MCT in A Current-Regulated AC/AC PDM Converter," Proceedings of The IEEE 24th Power Electronics Specialists Conference, (PESC'93), Seattle, June 1993, pp. 935 - 941.
52) W. Palthukumskil., Malik Elbuluk & D. Zinger, " Comparative Study of IGBTs and MCTs in Resonant DC Link Converters", Proceedings of The 1993 IEEE Industry Application Society 28th Annual Meeting, (IAS'), Vol. 2, Toronto, Canada, October 1993, pp. 1293 – 1298.
53) M. Elbuluk, D. Zinger, W. Path. "Performance of A Three-Phase Resonant DC Link Voltage Source Inverter Using MCTs", Proceedings of The IEEE Industry Application Society 28th Annual Meeting (IAS'93), Toronto, Canada, October 1993, pp. 1009 - 1014.
54) J. Bates, M. Elbuluk & D. Zinger " Neural Network Control of A Chopper-Fed DC Motor", Proceedings of The IEEE 24th Power Electronics Specialists Conference, (PESC), Seattle, June 1993, pp. 893 - 899.
55) J. Bates, M. Elbuluk & D. Zinger " Inverse Plant Control using Neural Networks", IEEE Symposium on Intelligent Systems in Communication and Power, (SISCAP), Puerto Rico, February 1994, pp. 165 - 174.
56) Luis Cabrera, M. Elbuluk & D. Zinger "Training of A Neural Network As A State Selector for Inverter-Fed Induction Machines Using Direct Self Control", IEEE Symposium on Intelligent Systems in Communication and Power, (SISCAP), Puerto Rico, February 1994, pp. 28 - 40.
57) Luis Cabrera, M. Elbuluk & D. Zinger "Learning Techniques to train Neural Network As A State Selector for Inverter-Fed Induction Machines Using Direct Self Control", The IEEE 25th Power Electronics Specialists Conference, (PESC'94), Vol. 1, Taiwan, June 1994, pp. 233 -242.

58) S. Mir, M. Elbuluk & D. Zinger, " PI & Fuzzy Estimators for Tuning The Stator Resistance of Direct Torque Control of Inverter-Fed Induction Machines", IEEE 25th Power Electronics Specialists Conference, (PESC), Vol. 1, Taiwan, June 1994, pp. 744 - 751.
59) N. Langovsky and M. Elbuluk, "Spectral Comparison of Microprocessor PWM Control Strategies under Light and Heavy Loading Conditions," The 1st International Conference on Electronics, Circuits and Systems, EGYPT, December 1994**.**
60) N. Langovsky and M. Elbuluk, "Sub-harmonic Instabilities and Control of A Single Phase Current-Regulated Controlled Rectifier," The 1st International Conference on Electronics, Circuits and Systems, EGYPT, December 1994.
61) Wei Hei Chan, M. Elbuluk " Improving the Power Factor of Utility Interface Power Electronic Circuits Using Neural Networks", The 1st International Conference on Electronics, Circuits and Systems, EGYPT, December 1994.
62) Luis Cabrera, M. Elbuluk " Tuning the Stator Resistance in Inverter-Fed Induction Machines Using Direct Self Control", IEEE 26th Power Electronics Specialists Conference, (PESC), Vol. 1, Atlanta, June 1995, 421 - 427.
63) Saeed Mir, M. Elbuluk " Precision Torque Control Of Inverter-Fed Induction Machines", IEEE 26th Power Electronics Specialists Conference, Vol. 1, (PESC), Atlanta, June 1995, pp. 396 – 401.
64) M.Elbuluk and D. Kankam, "Motor Drive technologies for The Power-By-Wire Program: Options, Trends and Tradeoffs," Proceedings of The National Aerospace and Electronics Conference, NAECON'95, Dayton, Vol. 1, May 1995, pp. 511 –522. Also published as NASA Technical Memorandum 106885.
65) ""Application of Neural Networks & Fuzzy Logic in Control of Induction Machines," Proceedings of The Ohio Aerospace Institute 4th Neural Network Workshop and Symposium, (OAINN'95), Athens, Ohio, August 1995, pp. 63 - 75.
66) "Training Neural Networks using Genetic Algorithm for Inverter-Fed Induction Machines," Proceedings of The Ohio Aerospace Institute 4th Neural Network Workshop and Symposium, (OAINN'95) Dynamics & Control Focus Group, Athens, Ohio, August 1995, pp. 205 -214.
67) N.Langovsky, M.Elbuluk and D. Kankam, "Nonlinear Flux observer with On-line Parameter Tuning for Wide Speed Range of Induction Machines," Proceedings of The IEEE Industry Application Society 30th Annual Meeting (IAS), Vol. 1, Orlando, Florida, October 1995, pp. 144 - 151.
68) T. Perl, I. Husain and M.Elbuluk, "Design Trends and Tradeoffs for Sensorless Operation of Switched Reluctance Motor Drives," Proceedings of The 30th IEEE Industry Application Society Annual Meeting (IAS), Vol. 1, Orlando, Florida, October 1995, pp. 278 - 285.
69) M.Elbuluk & Brian Makulinski, "Periodic Gain Feedback Control of Power Converters," Proceedings of The 21st IEEE Industrial Electronics Society Conference (IECON), Orlando, Florida, November 1995, pp. 500 - 505.
70) M.Elbuluk and D. Kankam, "Potential Starter/Generator technologies for Aerospace Applications," National Aerospace and Electronics Conference, (NAECON), Vol. 1, Dayton, May 1995, pp. 75 - 82.

71) N. Langovsky, M. Elbuluk and D. Kankam, "Evaluation of The MCT in Soft Switching Motor Drive Converter," Proceedings of The Space Technology and Applications International Forum (STAIF-96), Albuquerque, New Mexico, Jan. 1996.
72) S. Mir, I. Husain and M. Elbuluk, "Energy Efficient C-dump converter for Switched Reluctance Motors," Proceedings of IEEE Applied Power Electronics Conference (APEC), Vol. 2, San Jose, California, March 1996, pp. 968 - 973.
73) M. Elbuluk and I. Husain, "Towards A Comprehensive Program in Power Electronics and Motor Drives," Proceedings of The National Science Foundation Workshop on Developing Power Electronics Curricula: Courses, Hardware and Software Laboratories, Orlando, Florida, March 24-26, 1996.
74) N. Langovsky, M. Elbuluk and D. Kankam, "Optimized Switching Sequence for Snubberless Operation of Bidirectional Switches in AC Resonant Link Converters," IEEE 1996 Power Electronic Specialists Conference, Vol. 2, Italy, June 1996, pp. 1724 – 1730.
75) M. Oppenhimer, I. Husain, M.Elbuluk and A. De Abreu "Sliding Mode Control of a Cuk Converter," IEEE 27th Power Electronic Specialists Conference, Vol. 2, Italy, June 1996, pp. 1519 - 1526.
76) X. Wang, M. Elbuluk and L. Cabrera, " Neural Network Control of Induction Machines Using Genetic Algorithm Training," In The IEEE 31st Industry Applications Society Annual Meeting, Vol. 3, San Diego, October 1996, pp. 1733 - 1740.
77) M. Elbuluk and D. Kankam, "Speed Sensorless Induction Motor Drives for Electrical Actuators: Schemes, Trends and tradeoffs," IEEE 1997 National Aerospace and Electronics Conference, (NAECON), Dayton, May 1995, pp. 137 - 144.
78) N. Langovsky, M. Elbuluk & D. Kankam, "Design & Implementation of A Closed-Loop Observer and An Adaptive Controller for Induction Motor Drives," IEEE 31st Industry Applications Society Annual Meeting, Vol. 1, San Diego, October, 1996, pp. 365 – 372.
79) S. Mir, I. Husain and M. Elbuluk, "Model of A Switched Reluctance Machine with On-Line Parameter Adaptation," Proceedings of The 32nd IEEE Industry Application Society Meeting, Vol. 1, New Orleans, October 1997, pp. 333 – 340.
80) S. Mir, M. Elbuluk and I Husain, "Torque Ripple Minimization of Switched Reluctance Machines using Adaptive Fuzzy Controller," Proceedings of The 32nd IEEE Industry Application Society Meeting, Vol. 1, New Orleans, October 1997, pp. 571 - 578.
81) K. Russa, M. Elbuluk and I. Husain, "Torque Ripple Minimization of Switched Reluctance Machines Over A Wide Speed Range," Proceedings of The 32nd IEEE Industry Application Society Meeting, Vol. 1, New Orleans, October 1997, pp. 668 – 675.
82) M. Elbuluk, H.W. Chan and I. Husain, "Neural Network Controllers for Power Factor Correction of AC/Dc Switching Converters," Proceedings of The 33rd IEEE Industry Application Society Meeting, Vo. 3, St. Louis, October 1998, pp. 1617 –1624.
83) T. Liu, I. Husain and M. Elbuluk, **"**Torque Ripple Minimization with on-line Parameter Estimation Using Neural Networks in Permanent Magnet Synchronous Motors," Proceedings of The 33rd EEE Industry Application Society Meeting, Vol. 1, St. Louis, October 1998, pp. 35 – 40.
84) M. Elbuluk, D. Kankam "Power Electronics Building Blocks and The Aerospace Focus", IEEE IECEC, August 1999.

85) M. Elbuluk, A. Hammoud, S. Gerber and R. Patterson, "Investigation of Management Technologies for Rechargeable Batteries under low temperature" IEEE IECEC, August 1999.
86) T. Liu, I. Husain and M. Elbuluk, **"**Speed and Position Sensorless Control of Permanent Magnet Synchronous Motors," Proceedings of The 1999 IEEE International Conference on Electric Machines and Drives (IEMD), Seattle, May 1999, pp. 287 – 289.
87) T. Liu, M. Elbuluk and I. Husain **"**Speed and Position Estimation and DSP Implementation in Permanent Magnet Synchronous Motors Using Neural Networks," Proceedings of The 5th Brazilian Power Electronics Conference, Foz do Iguacu, Brazil, September 1999.
88) K. Russa, M. Elbuluk and I. Husain,"A Self-Tuning Controller for Switched Reluctance Machines," Proceedings of 29th IEEE Power Electronic Specialists Conference (PESC), June 1998, pp. 1269 - 1275.
89) M. Elbuluk, S. Gerber, A. Hammoud and R. Patterson, "Evaluation of low power DC/DC Converter Modules at Low Temperatures," Proceedings of IEEE Power Electronic Specialists Conference (PESC), June 2000, Galway, Ireland, pp. 1201 - 1206.
90) Elbuluk, S. Gerber, A. Hammoud and R. Patterson, "Efficiency and Regulation of Low Power DC/DC Converter Modules at Cryogenic Temperatures," Proceedings of IEEE IECEC'00, Vol. 1, Las Vegas, pp. 1 – 6.
91) M. Elbuluk, S. Gerber, A. Hammoud and R. Patterson, "Characterization of low power DC/DC Converter Modules at Low Temperatures," Proceedings of IEEE IAS'00, Vol. 5, Rome, Italy, Oct. 2000, pp. 3028 – 3035.
92) M. Elbuluk, T. Liu and I. Husain and, **"**Neural Network Based Model reference Adaptive Systems For High Performance Motor Drives and Motion Control," Proceedings of The IEEE-IAS'00, Vol. 2, Rome, Italy, pp. 959 – 965.
93) M. Elbuluk, S. Gerber, A. Hammoud and R. Patterson, "Performance of Power Converters at Cryogenic Temperatures," Proceedings of IEEE the 8th International Conference in Electronics Circuits and Systems (ICECS), Vol. 1, Malta, September 2001, pp. 153 – 156.
94) M. Elbuluk, S. Gerber, A. Hammoud and R. Patterson, "Low Temperature Performance of High-Speed PWM Chips," Proceedings of IEEE Industry Applications Annual Meeting, Vol. 3, October 2001, pp. 1919 – 1924.
95) M. Elbuluk, S. Gerber, A. Hammoud and R. Patterson, "Low Temperature Evaluation of High Power Density DC/DC Converter Modules," Proceedings of IEEE IECEC, August 2001.
96) LI, C. and M. Elbuluk, "A Sliding Mode Position and Speed Observer for Sensorless Control of PMSM," Proceedings of IEEE Industry Applications Annual Meeting, Vol. 2, October 2001, pp. 1273 – 1278.
97) Kankam, M. Elbuluk, "A survey of Power Electronics Application in Aerospace Technologies", Proceedings of IEEE IECEC, August 2001.
98) R.L. Patterson, A. Hammoud, J.E. Dickman, S. Gerber, M. Elbuluk, "Electronic for Space Cryogenic Applications", Proceedings of the 5th European Workshop on Low Temperature Electronics, France, June 2002, pp. 207 – 210.

99) M. Elbuluk, S. Gerber, A. Hammoud and R. Patterson, "Cryogenic Evaluation of An Advanced DC/DC Converter," Proceedings of IEEE IAS Annual Conference, IAS'02, Vol. 2, Pittsburgh, October, 2002, pp. 227 - 233.
100) M. Elbuluk, S. Gerber, A. Hammoud and R. Patterson, "Low Temperature Evaluation of Bipolar- and CMOS-Based Current-Mode PWM Controllers," Proceedings of IEEE IECON'02, Vol. 1, Seville, November, 2002, pp. 456 – 461.
101) C. LI, and M. Elbuluk, **"**A Robust Sliding Mode Observer for PMSM Drives," Proceedings of IEEE IECON'02, Vol. 2, Seville, Spain, Nov., 2002, pp. 1014 – 1019.
102) M. Elbuluk,"Torque Ripple Minimization in Direct torque Control of Induction Machines" Proceedings of IEEE IAS Annual Conference, IAS'02, Vol. 1, Salt Lake City, October, 2003, pp. 11 – 16.
103) M. Elbuluk, Changsheng LI, **"**Sliding Mode Observer for Wide Speed Sensorless Control of PMSM Drives," Proceedings of IEEE 38th Industry Applications Annual Meeting, Vol. 1, October 2003, pp. 480 – 485.
104) Hammoud, A.; Patterson, R.L.; Gerber, S.; Elbuluk, M., "Electronic components and circuits for extreme temperature environments", Proceedings of the 2003 10th IEEE International Conference on Electronics (ICECS), Circuits and Systems Volume 1, Dec. 14-17, 2003, pp. 44 – 47.
105) Toh, C.L.; Idris, N.R.N.; Yatim, A.H.M.; Muhamad, N.D.; Elbuluk, M.; "Implementation of a New Torque and Flux Controllers for Direct Torque Control (DTC) of Induction Machine Utilizing Digital Signal Processor (DSP) and Field Programmable Gate Arrays (FPGA)," IEEE 36th Power Electronics Specialists Conference, 11-14 Sept. 2005, pp.1594 - 1599
106) Elbuluk, M.; Hammoud, A.; Patterson, R.; "Power Electronic Components, Circuits and Systems for Deep Space Missions"," IEEE 36th Power Electronics Specialists Conference, 11-14 Sept. 2005, pp. 1156 – 1162.
107) M. Elbuluk, A. Hammoud, A., "Power electronics in harsh environments", Proceeding of 40th IAS Annual Meeting Conference, Volume 2, Oct. 2-6. , 2005, pp.1442 - 1448
108) Idris, N.R.N; Ling, T.C.; Elbuluk, M.E., **"**Implementation of a New Torque and Flux Controllers for Direct Torque Control (DTC) of Induction Machine Utilizing Digital Signal Processor (DSP) and Field Programmable Gate Arrays (FPGA)**",** Proceeding of 40th IAS Annual Meeting Conference, Vol. 2, Oct 2-6. , 2005, pp. 979 – 984.
109) Toh, C.L.; Idris, N.R.N.; Yatim, A.H.M.; Muhamad, N.D.; Elbuluk, M, "Implementation of a New Torque and Flux Controllers for Direct Torque Control (DTC) of Induction Machine Utilizing Digital Signal Processor (DSP) and Field Programmable Gate Arrays (FPGA).;Power Electronics Specialists Conference, 2005. PESC '05. IEEE 36th, 2005 Page(s):1594 – 1599.
110) Toh, L.S.; Ramli, M.Z.; Salam, Z.; Elbuluk, M.E.; "AC Voltage Regulation of a Bidirectional High-Frequency Link Converter Using a Deadbeat Controller", Industry Applications Conference, 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Volume: 2 Publication Year: 2006 , Page(s): 1045 - 1052
111) Elbuluk, M.E.; Hammoud, A.; Patterson, R.; "Performance of Silicon Germanium Power Devices at Extreme Temperatures", Power Electronics Specialists Conference, 2007. PESC 2007. IEEE Publication Year: 2007 , Page(s): 66 – 71.

112) Soliman, H.F.E.; Elbuluk, M.E.; "Direct Torque Control of a Three Phase Induction Motor Using a Hybrid PI/Fuzzy Controller", Industry Applications Conference, 2007. 42nd IAS Annual Meeting. Conference Record of the 2007 IEEE Publication Year: 2007 , Page(s): 1681 – 1685.
113) Elbuluk, Malik E.; Hammoud, Ahmad; Patterson, Richard; "Performance of Silicon Germanium Power Devices at Extreme Temperatures**",** Power Electronics Specialists Conference, 2007. PESC 2007. IEEE, 17-21 June 2007 Page(s):66 – 71.
114) F. Hussien, M. Elbuluk, "Direct Torque Control of A Three Phase Induction Motors using a Hybrid PI/Fuzzy Controller", Proceeding of 42nd IAS Annual Meeting Conference, Volume 2, Sep. 23-28. , 2007.
115) Elbuluk, M.; Idris, N.R.N.; "The role power electronics in future energy systems and green industrialization", Power and Energy Conference, 2008. PECon 2008. IEEE 2nd International 1-3 Dec. 2008 Page(s):1 – 6.
116) Sen, G.; Elbuluk, M.; "Voltage and Current Programmed Modes in Control of the Z-Source Converter", Industry Applications Society Annual Meeting, 2008. IAS '08. IEEE Publication Year: 2008 , Page(s): 1 - 8
117) Soliman, H.; Elbuluk, M.E.; "Improving the Torque Ripple in DTC of PMSM Using Fuzzy Logic", Industry Applications Society Annual Meeting, 2008. IAS '08. IEEE Publication Year: 2008 , Page(s): 1 – 8.
118) Patterson, R.; Hammoud, A.; Elbuluk, M.; "Silicon-on-insulator (SOI) devices and mixed-signal circuits for extreme temperature applications", Power Electronics Specialists Conference, 2008. PESC 2008. IEEE Publication Year: 2008 , Page(s): 3165 – 3170.
119) Jidin, A.; Idris, N.; Yatim, A.; Elbuluk, M.; "A Novel Overmodulation and Field Weakening Strategy for Direct Torque Control of Induction Machines", Industry Applications Society Annual Meeting, 2008. IAS '08. IEEE Publication Year: 2008 , Page(s): 1 – 8.
120) Jidin, A.; Idris, N.R.N.; Yatim, A.H.M.; Elbuluk, M.E.; "A wide-speed high torque capability utilizing overmodulation strategy for direct torque control of induction machines", Energy Conversion Congress and Exposition, 2009. ECCE 2009. IEEE Publication Year: 2009 , Page(s): 2757 – 2762.
121) Elbuluk, M.E.; Hammoud, A.; Patterson, R.; "Wide Range Temperature Sensors for Harsh Environments" Industry Applications Society Annual Meeting, 2009. IAS 2009. IEEE Publication Year: 2009 , Page(s): 1 – 6.
122) Lock, A.S.; da Silva, E.; Elbuluk, M.E.; Jacobina, C.B.; "A clamping current control technique, based on one cycle control OCC", Power Electronics Conference, 2009. COBEP '09. Brazilian Publication Year: 2009 , Page(s): 319 – 325.
123) Ayob, S.M.; Salam, Z.; Azli, N.A.; Elbuluk, M.E.; "Control of a Single Phase Inverter Using Fuzzy Logic", Industry Applications Society Annual Meeting, 2009. IAS 2009. IEEE Publication Year: 2009 , Page(s): 1 - 6.
124) A. Jidin; N R. N. Idris, A. H. M. Yatim, M. Elbuluk, "A Novel Over modulation and Field Weakening Strategy for Direct Torque Control of Induction Machines", Proceeding of 43rd IAS Annual Meeting Conference, Oct. 5-9. , 2008.

125) Hussein F. E. Soliman, M. E. Elbuluk, ”Improving the Torque Ripple in DTC of PMSM Using Fuzzy Logic”, Proceeding of 43rd IAS Annual Meeting Conference, Oct. 5-9. , 2008.
126) G. Sen, M. Elbuluk, “Voltage and Current Programmed Modes in Control of the Z-Source Converter”, Proceeding of 43rd IAS Annual Meeting Conference, Oct. 5-9. , 2008.
127) Elbuluk, Malik E.; Hammoud, Ahmad; Patterson, Richard; “A Wide Range Temperature Sensor Using SOI Technology”, Proceedings of the 215th Electrochemical Society Conference, 24-28 May 2009.
128) Jidin, A.; Idris, N.R.N.; Yatim, A.H.M.; Elbuluk, M.E.;”A wide-speed high torque capability utilizing over-modulation strategy for direct torque control of induction machines” IEEE Energy Conversion Congress and Exposition, ECCE 2009, pp.2757 – 2762.
129) Lock, A.S.; da Silva, E.R.C.; Elbuluk, M.E.; “One Cycle-Control method for obtaining Discontinuous PWM strategies to control a three-phase rectifier”, 9th IEEE/IAS International Conference on Industry Applications (INDUSCON), 2010 Publication Year: 2010 , Page(s): 1 - 6
130) A hybrid current control for a controlled rectifier Lock, A.S.; da Silva, E.R.; Elbuluk, M.E.; Fernandes, D.A.; Energy Conversion Congress and Exposition (ECCE), 2010 IEEE Publication Year: 2010 , Page(s): 920 – 926.
131) Jidin, A.; Idris, N.R.N.; Yatim, A.H.M.; Sutikno, T.; Elbuluk, M.; “Simple Dynamic Overmodulation Strategy for Fast Torque Control in DTC of Induction Machines with Constant Switching Frequency Controller” Industry Applications Society Annual Meeting (IAS), 2010 IEEE Publication Year: 2010 , Page(s): 1 – 8.
132) A Complete Modeling and Simulation of Induction Generator Wind Power Systems , Yu Zou; Elbuluk, M.; Sozer, Y.; Industry Applications Society Annual Meeting (IAS), 2010 IEEE Publication Year: 2010 , Page(s): 1 – 8.
133) Soto-Lock, A.; da Silva, E.R.; Jacobina, C.B.; Elbuluk, M.E.; A current control implementation based on a clamping one-cycle control strategy”, Twenty-Sixth Annual IEEE Applied Power Electronics Conference and Exposition (APEC), 2011 Publication Year: 2011 , Page(s): 542 - 549
134) Elrayyah, A.; Sozer, Y.; Husain, I.; Elbuluk, M., "Power flow control in a microinverter based microgrid", 2012 Twenty-Seventh Annual IEEE Applied Power Electronics Conference and Exposition (APEC), 2012 , Page(s): 1933 - 1939.
135) Soto-Lock, A.; da Silva, E.R.; Jacobina, C.B.; Elbuluk, M.E.; “A current control implementation based on a clamping one-cycle control strategy”, IEEE 26th Applied Power Electronics Conf. and Exhibition, 2011 , Page(s): 542 - 549.
136) Mahmoud, E.A.; Soliman, H.F.; Elbuluk, M.E., "A sensorless induction motor drive using a least mean square speed estimator and the matrix converter", 2011 IEEE Industry Applications Society Annual Meeting (IAS), 2011 , Page(s): 1 - 7.
137) Yu Zou; Elbuluk, M.; Sozer, Y., "Stability analysis of maximum power point tracking (MPPT) method in wind power systems", 2011 IEEE Industry Applications Society Annual Meeting (IAS), 2011 , Page(s): 1 - 8.
138) Lock, A.S.; da Silva, E.R.C.; Elbuluk, M.E.; Jacobina, C.B., "Application of One-Cycle Control to Stator Field-Oriented Control", 2011 IEEE Energy Conversion Congress and Exposition (ECCE), 2011 , Page(s): 3595 - 3602.

139) Lock, A.S. ; da Silva, E.R. ; Elbuluk, M.E. ; Fernandes, D.A. " Torque control of induction motor drives based on One-Cycle Control method" 2012 IEEE Industry Applications Society Annual Meeting (IAS), 2012 , Page(s): 1 - 8.

140) Yu Zou ; Elbuluk, M.E. ; Sozer, Y., "Stability Analysis of Maximum Power Point Tracking (MPPT) Method in Wind Power Systems, Industry Applications, Volume: 49 , Issue: 3 , Page(s): 1129 – 1136, 2013.

141) Mahmodicherati, S. ; Elbuluk, M. ; Sozer, Y. An improved direct power control of a doubly fed induction generator wind power system, IEEE Industry Applications Society Annual Meeting, 2013 , Page(s): 1 – 8.

142) Lock, A.S. ; Fernandes, D.A. ; Silva, E.R.C. ; Lucena, D.C. ;Elbuluk, M. "A current based OCC technique implemented by DSP for a three-phase OCC rectifier", Industrial Electronics Society, IECON 2014 - 40th Annual Conference of the IEEE Publication Year: 2014 , Page(s): 5136 – 5142

143) Lock, Alberto S. ; da Silva, Edison R.C. ; Fernandes, Darlan A. ;Elbuluk, M. "An OCC-APF control strategy for unbalanced grid condition", IEEE s Applied Power Electronics Conference and Exposition (APEC), 2015 Publication Year: 2015 , Page(s): 1677 – 1684.

144) Alberto Lock; Edison da Silva; Malik Elbuluk; Darlan Fernandes, "An APF-OCC Control Strategy for Common Mode Current Rejection**",** IEEE Transactions on Industry Applications, Year: 2016, Accepted and in print, Vol: PP, Issue: 99, Pages: 1 - 1,

C. Seminars & Invited Talks

1) "Power Quality 1992", An Annual Seminar held in the Spring Break since 1992 at The University of Akron. Attended by 34 Students from the Utility and Power Companies, Cost $365.00, Total $12,410.
3) "Power Quality 1993", An Annual Seminar held in the Spring Break since 1992 at The University of Akron. Attended by 32 Students from the Utility and Power Companies, Cost $395.00, Total $12,640.
4) "Power Electronics & Motor Controls Program at The University of Akron" Presented to:

- Power Electronics Group at Reliance Electric, Cleveland, Ohio, and 1990,1995
- Allen-Bradley Control Group, in conjunction with The Mechanical Engineering Department. This meeting resulted in Allen Bradley donated about $50,000 worth of Programmable Controllers to be used in The Motor Drives Laboratory. 1992.
- Interested Companies in the Akron Area, as Part of the University of Akron Control Program, The College of Engineering, U. of Akron, Spring 1992.
- The Hoover Company Engineering Group, Canton, OH, 1995.
- Ford Motor Company Research and Development Group, Dearborn, MI, 1995.
- Cybrex Company, Mentor Ohio. August 1995.
- Tri-Delta Motor and Drives Company, Mentor Ohio, November 1996.
- Ametek Company, Kent Ohio, November, 1996.

5) "Application of Neural Networks & Fuzzy Logic in Control of Electric Machines", Presented to The Artificial Intelligence & Adjustable Speed Drives Groups at Reliance Electric, Cleveland, Ohio, spring 1993.
6) "Power Electronics & Motor Controls Program at The University of Akron" Presented to Power Electronics Interested Companies in the Northeast Ohio, Akron, Ohio, 1992.

7) "Neural Networks Control of Electric Motors", Presented to The OAI/NASA/USAF/SIGART Ohio Area Neural Network Workshop, OAI, Cleveland, Ohio, June 14-15, 1993.
8) "Application of Neural Networks in Control of Power Electronics & Electric Machines", Presented to The 2nd Workshop on Neural Networks, Ohio Aerospace Institute (OAI) Dynamics & Control Focus Group, OAI, Cleveland, Ohio, August 1993.
9) "PSPICE Simulation of The 20 kHz Test Bed Components," Presented to the Power Technology Group at NASA Lewis Research Center, Cleveland, OH, August 1993.
10) "Power Electronics: An emerging Discipline," Presented to the Power Technology Group at NASA Lewis Research Center, Cleveland, OH, July 1994.
11) "Comparison of Neural Networks Training Algorithms in Control of Inverter-Fed Induction Machines", Presented to The 3rd Workshop on Neural Network, Ohio Aerospace Institute (OAI) Dynamics & Control Focus Group, Columbus, Ohio, August 1994.
12) "Investigation of A Current-Fed Resonant Converter for Induction Motor Drives," Technical Report, NASA/ASEE OAI Collaborative Faculty Fellowship, summer 1991.
13) "Modeling and Simulation of The 20-kHz Test Bed," Technical Report, NASA/ASEE OAI Collaborative Faculty Fellowship, summer 1992.
14) "Modeling and Simulation of The TRW 20 KHz Bi-directional Receivers," Technical Report, NASA/ASEE OAI Collaborative Faculty Fellowship, summer 1993.
15) "Status of Motor Drive Technologies," Technical Report, NASA/ASEE OAI Collaborative Faculty Fellowship, summer 1994.
16) "Speed and position Sensorless Methods for Electro-mechanical Actuators," Technical Report, NASA/ASEE OAI Collaborative Faculty Fellowship, summer 1995.
17) "Power Electronic Building Blocks and the Aerospace Focus," NASA/ASEE OAI Collaborative Faculty Fellowship, summer, 1996.
18) "Investigation of Low Temperature Performance of Rechargeable Battery Management Technologies," NASA/ASEE OAI Collaborative Faculty Fellowship, summer 1997.
19) “High Performance Induction Motor Drives Using Fuzzy Logic,” **Invited Talk**, FEPCON III, Skuzuka, South Africa, July 1998.
20) “Investigation of Management Technologies for Rechargeable Batteries under low temperature” NASA-JPL Conference on Electronics for Extreme Environments, Pasadena, CA, Feb. 1999.
21) “A Comprehensive Program in Power Electronics and Motor Drives,” **Invited Talk**, US-Jordan Joint Workshop on Teaching and Research of Power Electronics and Applications, Amman, Jordan, May 1999.
22) "Motor Drive Technologies: Options, Trends and Tradeoffs," **Invited Talk**, US-Jordan Joint Workshop on Teaching and Research of Power Electronics and Applications, Amman, Jordan, May 1999.
23) "Power Electronics & Motor Controls Program at The University of Akron" **Invited Talk**, American University of Beirut, May 1999.
24) "Application of Intelligent Controls in Motor Drives", **Invited Talk**, The Department of Mechatronics, University of Sao Paulo, Brazil, Sep. 1999.
25) "Power Electronics & Motor Controls Program at The University of Akron" **Invited Talk**, EE Department, Federal University of Santa Catrina, Brazil, Sep. 1999.

26) "Motor Drive Technologies: Options, Trends, Tradeoffs and Research," **Invited Talk**, Department of Electrical Engineering, Federal University of Rio de Janeiro, Brazil,1999.
27) "Motor Drive Technologies: Options, Trends and Tradeoffs," **Invited Talk**, IEEE-IAS Chapter, Rockford, Illinois, 2000.
28) "High Performance Induction Motor Drives Using Fuzzy Logic," **Invited Talk**, NSF Workshop "US-Jordan Teaching and Research Opportunities in Power Electronics and Motor Drives", Princess Summia University, Amman, Jordan, December 2002.
29) "Multi-Media Education in Power Electronics and Motor Drives," **Invited Talk**, NSF Workshop "US-Italy Workshop on use of Multi-Media & Distance Learning in Power Electronics and Motor Drives", University of Salerno, Salerno, Italy, September 2003.
30) "Power Electronics and Applications" A 2-day Course, University of Teknologi, Malaysia, Summer 2004.
31) "Undergraduate Engineering Accreditation" **Invited Talk**, A one-day Workshop, University of Teknologi, Malaysia, August 2004.
32) "Power Electronics Education: Teaching & research", **Invited Talk**, An NSF Joint US-UAE Workshop, American University of Sharjah, Dec. 2004.
33) "Motor Drive Technologies" **Invited Talk**, King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia, 2009.
34) "Research and Teaching of Energy**", Invited Talk**, NSF Workshop at Texas A & M University, Qatar, 2009.
35) "Power and Energy Research, Education and Application in the Clean Energy Era" **Invited Talk**, Power Electronics Industry Application Conference (PEIA 2011), Texas A & M University, Qatar, 2011.
36) "Motor Drives Technologies Research and Applications" **Key-Note Speaker**, Second EPECS, American University of Sharjah, UAE, 2011.
37) "Engineering in the 2010", Africa International University, Aug. 2013.
38) "ABET Accreditation", University of Tripoli, Libya, May, 2014.

VI OTHER ACTIVITIES IN RESEARCH

A. Research Grants/Contracts

[1] "Design, Construction and Testing of a Current-Fed Series Resonant Converter", October 1989, $2,600.

[2] "Study of Switching Transients in High frequency power Converters," NASA Lewis Research Center, October 1990, $49,981.

[3] "Study of A Bi-directional Converter for Aerospace Application", NASA Head Quarter, Washington DC, $66,000, 1993-1996**.**

[4] "Design and Evaluation of A DC/DC Converter for Cryogenic Temperature**,"** NASA Lewis Research Center, August 1999, $30,000.

[5] "Control of a Climate Control Valve using Sliding Mode", Visteon Company, January 2001, $30,000.

[6] **"**Power Electronics Components and Circuits at Cryogenic Temperatures for Deep space Missions," Low Temperature Electronics Group, NASA Glenn research Center, Summer Fellowship Contracts, 1998 – 2008, $350,000.

[7] "Assessment of a Solectra E10 into A Plug-In Hybrid Vehicle", Co-PI, First Energy, $25,000, 2006.

[8] CO-PI (With Drs. Husain and Sozer), #00730 GE Global Research subcontract US Department of Energy, "Scalable, Low-Cost, High-Performance Non-Rare Earth PM Motor for Hybrid Vehicles" Research Grant., Total request $249,995, Submitted 2/15/2011. (Funded)

B. Proposals and Grants Submitted

[1] "Limitation of Computer-Based Control in High Frequency Power Converters", Submitted to the NSF, Research Initiation Awards, January 1990, $152,125.

[2] "Application of Periodic Output Feedback to Power Electronic Circuits", 1990, $3,400.

[3] "Power Electronics & Motor Drives Laboratory," Submitted to the National Science Foundation Undergraduate Laboratory Equipment Grant, November, 1990, $84,292.

[4] "Implementation of Periodic Output Feedback to Power Electronic Circuits", Submitted to The IEEE IAS, The Myron Zucker Fellowship, January 1991, $24,898.

[5] "AF Wright Patterson Laboratory Power Management and Distribution Technologies", Submitted through Ohio Aerospace Institute to Rocketdyne Division of Rockwell International, Feb. 1991, $30, 595.

[6] "Power Electronics Laboratory Research Equipment Grant", Submitted to the National Science Foundation Research Equipment Grant, Feb. 1991, $50,882.

[7] "20 kHz Bus Regulation for Automotive Applications," Submitted to NASA Lewis Research Center, Cleveland, $47,337, October 1991.

[8] "Fuzzy Logic and Neural Network Control of Induction Machines", NSF & EPRI Grant for Intelligent Controllers, April 1992, $152,000.

[9] "Using Fuzzy Logic for Stator Resistance Estimator in Electromechanical Actuators", Submitted to The OAI-Wright Paterson Air Force Laboratory Power Electronic Research Enhancement Program, $12,000, August 1993.

[10] "Modeling & Performance Simulation of The 20 kHz Test Bed Sub-Systems," Submitted to NASA Lewis Research Center, $102,904, September 1993.

[11] "Comparison of Motor Drive Technologies for The Power by Wire Program," Submitted to NASA Lewis Research Center, November 1994.

[12] "Efficiency and Cost Optimization of Electric Vehicles Using AC Drives," Submitted to NASA for Graduate Research Assistant Program, $66,000.

[13] "Efficiency and Cost Optimization of Electric Vehicles Using AC Drives: Phase I," Submitted NASA for Graduate Research Assistant Program, $30,000.

[14] "Development of A Switched Reluctance Motor Drive For Automotive Power Steering," Submitted to Ford Research Labs, Dearborn, MI, $19,360.

[15] "Development of a Switched Reluctance Motor Drive for Low Cost Appliance Application," Submitted to The Hoover Company, Canton, OH, $143,807.

[16] "Development of An Advanced Battery Charger-Discharger System," Submitted to Eveready Battery Company, Inc., $104,000.

[17] "Critical Evaluation of Fuzzy Logic and Neural Networks Controls in The More Electric Aircraft," Submitted to Marshall Space Flight Center, NASA, Advanced Concepts Research Projects, Washington D.C., $250,000.

[18] "Soft-Switching High-Power DC-DC and DC-AC Converters for Aerospace Applications," Submitted to Marshall Space Flight Center, NASA, Advanced Concepts Research Projects, Washington D.C., $250,000**.**

[19] "Development of a Sensorless Controller for High Speed Switched Reluctance Motor Drive Application", Reliance Electric, $63,730, Sep. 20, 1996.

[20] "Power Electronics, Electric Machines and Drives Laboratory", Instrumentation and Laboratory Improvement Program, NSF, $55,678, Nov. 1996.

[21] "Precision Torque Control of Switched Reluctance Motor Drives with On-Line Parameter Adaptation and Indirect Position Sensor", NASA for Graduate Research Assistant Program, $30,000, April 1997.

[20] "Design and Evaluation of a DC/DC Converter for Cryogenic Applications", NASA Glenn Research Center, NSF, $30,000, Aug. 1999.

[21] Reliability Assessment and Technology Development of Low Temperature DC/DC Converters for Space Applications," Space Power Technology, NASA Research Announcement NRA01-GRC-01, Jan. 2001.

[22-25]Recent NSF Proposals (not funded)

Proposal Number	Proposal Title	Performing Organization	Status Date	Requested Amount
0323237	EPNES: A Socio-Technical Approach to Integrating Distributed Energy Resources in The Future Electric Power Systems	University of Akron	07/22/2003	$577,069.00
0400673	Intelligent-Based Sensorless Motion Control Systems	University of Akron	02/09/2004	$316,140.00
0423510	Critical Evaluation of Intelligent Control Methods	University of Akron	06/23/2004	$240,616.00
0621787	Development of High Performance Sensorless Speed Control of PMSM Drives using Adaptive Recurrent Neural Networks	University of Akron	07/14/2006	$165,673.00

[26] CO-PI, #00266 Edison Materials Technology Center Subaward US Department of Energy, "Distributed Voltage Regulation Scheme for Smart Grid" Research Grant, Total request $877,970, Submitted 6/21/10 (Not funded)

[27] C0-PI, 00600 Ohio Department of Development / Ohio Third Frontier, "Clean Energy Vehicle Charging Station with Grid Interface" Research Grant, Total request $1,591,044, Submitted 1/20/2011. (Not funded)

[28] PI, Youngstown State University subaward proposal / Ohio Department of Development, "Smart Grid Proving Ground and Commercialization Infrastructure" Research Grant, Request $189,117, Submitted January 19, 2011. ((Not funded)

[29] PI, GreenField Solar subaward proposals / US Department of Defense STTR, "New Affordable Energy Storage Technologies for Power Grids and Micro-Grids" Research Grant., Request $45,873, Submitted March 29, 2011. (Not funded)

C1. Postdoctoral Fellows and Visiting Professors Hosted

1. Dr. Xiufeng Wang, Nankai University, P.R. China, Mar/95 – Dec./95.
2. Dr. Mous K. Beck, University of Aleppo, Syria, July/98 – Jan/99.
3. Dr. Mohab Hallouda, University of Cairo, Egypt, April/99 – Sep/99.
4. Nik Rumz Nik Idris, University of Technology, Malaysia, April – Aug., 2002.

C2. Theses/Dissertations Directed or In-progress

[1] Miguel E. Chavez, "Analysis of the Current-Fed Series Resonant DC-DC Converter" Master Thesis, North Carolina State University, August 1989.

[2] Worapania Palthkumskil, "Comparison of Resonant D.C. Link Converter using MCTs", Master Thesis, University of Akron, May 1993.

[3] Tony Lee, "Characterization of MCTs in Resonant Link ac/ac Pulse Density Modulated Converters" Master Thesis, University of Akron, August 1993.

[4] Saeed Mir, "Fuzzy logic control of Inverter-Fed Induction Motors", Master Thesis, University of Akron, December 1993.

[5] Luis Cabrera, "Direct Torque Control of Inverter Fed Induction Motors Using Neural Networks", Master Thesis, University of Akron, December 1994.

[6] Brian Makulinski, "Periodic Feedback Digital Control of Power Electronic Converters", Master Thesis, August 1995.

[7] John Bates, "Neural Network Control of A Chopper-Fed DC Motor", Master Thesis, University of Akron, December 1995.

[8] "Closed-Loop Observer and Adaptive Controller of An Induction Motor Drive", Master Thesis by Nick Langovsky, University of Akron, May 1996.

[9] Tom Perl,"Design Considerations for Sensorless Operation Switched Reluctance Motors" Master Thesis, University of Akron, expected May 1996.

[10] Mike Oppenhimer,"Sliding Mode Control of a Cuk Converter," Master Thesis, University of Akron, August 1996.

[11] Hei Wei Chan, "Improving the Power Factor of Utility Interface Power Electronic Circuits Using Neural Networks," Master Thesis, University of Akron, August 1997.

[12] Kryzsztof Russa, "Torque Ripple Minimization of A Switched Reluctance Motor Over a wide Speed Range," Master Thesis, December 1997.

[13] Nahid Jabeen, "Investigation of Soft Switching Techniques for High Power DC/AC Conversion" Master Thesis, May 1998.

[14] "A High Performance Switched Reluctance Machine," Ph.D. Dissertation, S. Mir, 1998.

[15] "A high Performance Brushless DC Motor Drive", Ph.D. Dissertation, by Liu Tong, December 1999.

[16] "Torque Ripple Minimization in Direct Torque Control of Induction Machines," Master Thesis by A/Nasir A. Abbas, January 2004.

[17] "Modeling & control of A Z-Source Converter", M.S. Thesis, by Gokhan Sen**,** summer 2008.

[18] Auzni Jidin, Doctoral Dissertation, "Overmodulation Strategy for Fast Torque Control in DTC of Induction Machines With Constant-Switching-Frequency Controller" Co-Supervised with Prof. Nik Rumzi Nik Idris, University of Technology, Malaysia, 2010.

[19] Alberto Soto Lock, Doctoral Dissertation, "One-Cycle Control (OCC) Application to Power Electronics and Motor Drives", Co-Supervised with Prof. Edison Da-Silva, University of Campina Grande Brazil, 2011.

[20] Yu Zou, Doctoral Dissertation "Maximum Power Point Tracking of A Doubly-Fed Induction Generator wind Power System" Co-supervised with Prof. Yilmaz Sozer, The University of Akron, Summer 2012.

[21] Ali Elrrayh, Doctoral Dissertation "Control of A Solar-Fed Inverters for Micro-Grid Applications" Co-Supervised with Prof. Yilmaz Sozer, The University of Akron, **Summer2013.**

[22] Sam Mahmoucherat Doctoral Dissertation, "Direct Power Control of Doubly-Fed Induction Generator for Wind Power Systems", July, 2016.
[23] Aida Gorgani, M.s. Thesis , Quasi-Z-source-based Multilevel Inverter For Single Phase PV Applications", August, 2016.
[24] Mostak Mohamed"

[25] Md. Zakirul"A Sensorless Permanent Magnet Synchronous Motor Drive," Doctoral Dissertation, by Quingjun Lu, **Never finished**.

C3. Recent Graduate Students Committee Member

1. Mohamed Islam, Ph.D. Dissertation, 2001.
2. Mohamed Anwar, Ph.D. Dissertation , 2001.
3. Maryiam Akho, Ph.D. Dissertation, 2006.
4. Akin Koglogou, Ph.D. Dissertation, 2006.
5. Sandeep Narla, M.S. Thesis, 2010.
6. John McGonnel, M.S. Thesis, 2011
7. Prasanna Mantravadi, M.S. Thesis, 2011
8. Matt Tachner, M.S. Thesis, 2011.
9. Brad Mularcik, M.S. Thesis, 2012
10. Mohamed Badawi, M.S. Thesis, 2013
11. Rakesh Mitra , M.S. Thesis, 2014
12. Nayeem Arafat, Ph.D. Dissertation, 2014
13. Mohamed E. Elagaily, Ph.D. Dissertation., 2014
14. Asif Chowdury, M.S. Thesis, 2016
15. Mohamed Badawy, Ph.D. Dissertatiojn, 2016

C4. Special Projects Directed

[1] Michael Gorman, "A Two Switch Cycloconverter for Low Frequency AC Drives ", North Carolina State University, Fall & Spring 1989.
[2] Tony Wagner, "A PWM Utility Interface Inverter with unity power factor", University of Akron, Spring & Fall 1992.
[3] Nick Langovsky,"Sub-Harmonic Instabilities in Rectifiers", University of Akron, Spring & Fall of 1993. **Won 3rd Prize** (out of 13 papers submitted) Award in Industry Application Society, Undergraduate Paper Award.
[4] Nick Langovsky,"Microprocessor Control Strategies of Single-Phase PWM Converters", University of Akron, Spring & Fall of 1993, **Honorable mention** in The 1993 Industry Application Society Undergraduate Paper Award.
[5] Tom Perl, "Design and Construction of a Two Quadrant DC Chopper for DC Motor Drive," Honor Project, Electrical Engineering Department, University of Akron, OH, Spring 1993.
[6] Bill Whal, "Precision Torque Control of Induction Motor," OAI Fellowship Senior Project, fall 1998 and spring 1999.
[7] "Design, Simulation and Implementation of a UPS", Senior Design Project 2005.
[8] "Smart Motor Cycle Helmet", Senior Design Project , 2007.
[9] "The Shop-Mate Robot", Senior Design Project 2008.

[10] "A smart Sprinkler System", Senior Design Project, 2009.
[11] "Battery Charger System", 2011-2012
[12] "Electrostatic Loudspeaker", 2011-2012.
[13] **"**Sump Pump Overflow Alarm", 2012-2013
[14] **"**Air Hockey Robot", 2013-2014
[14] "Micro-Chess", 2014-2015
[15] "Voice-Activated Chess", 2015-2016

VII. Service to University and Profession

A. University of Akron Service

1. Department of Electrical & Computer Engineering

- 2014: ECE Associate Chair
- 2012-2013: ECE Chair Search Committee
- 2010 -2014: Chair of Graduate Policy Committee ()
- 1993-Present: ECE Retention and Promotion to Associate Professor Committee,
- 1999-Present: ECE. Promotion to Full Professor Committee (**Chair** 2-years)
- 2002-2006: ECE ABET Committee .
- 1993-2000: ECE Department Search Committee (4 times, **Chai**r for 3 times)
- 2003-2010: Undergraduate Policy Committee (UPC) (6 years).
- 1994-2000: Graduate Policy Committee
- Donovan Chair Search 2003-2008, (Member 4 years, **Chair** one year)
- Heritage Day Revere Middle School (2 years)
- Career Day at Revere Elementary School (2 years)

2. College of Engineering

- Dean Search Committee (3 times)
- College-Wide RTP Committee (6 years).
- Dean's Advisory Committee (5 years).
- Advisor, National Society of Black Engineers (NSBE) (16 years).
- Fundamental of Engineering Examination (FOE) Committee (3 years).
- Doctoral Dissertation Committee (10 times, 2 times Chair)
- Master Thesis Committee (20 times, 13 Chair)

3. University of Akron

- University –Wide RTP Review Committee (2 years)
- University-Wide RTP Appeal Committee (1 year)
- Faculty Senate (2 Years)
- University Wide United Way Campaign Committee (2 years)
- University Students Hearing Board (6 years).

B. Professional Development and Service

- 2004-Present Member of NCEES FOE Committee.
- 1999- 2007: **Program Evaluator for ABET** (Electrical Engineering Programs).
- 2008 ABET Mock Visit at KFUPM (Electrical, Computer and Automation Engineering Programs), Saudi Arabia

- 2013 ABET Mock Visit, KFUPM-HBCC EEET and CSET Programs, KSA
- 2013 ABET Workshop, University of Tripoli, Libya
- 2008-2010 **Chair,** MSDAD, IAS, IEEE.
- 2008-2010 **Executive Board Member** of IEEE Industry Application Society.
- 2005-2007: **Vice Chair** papers for MSADD, IEEE IAS Transactions.
- 2005-2007 Associate Editor, IEEE Transactions on Industry Applications.
- 2006-2008 **Chair,** Industrial Automation & Control Committee (IACC), IAS, IEEE
- 2004-2006t: **Vice Chair**, Industrial Automation & Control Committee, IAS, IEEE
- 2002-2004: **Secretary**, Industrial Automation & Control Committee, IAS, IEEE
- 1997-2002: **Associate Editor**, IEEE Transactions on Power Electronics.
- 1999- Present: **Member** of different Proposals **Panel Reviews at the NSF**.
- 1988-Present: Member of Power Electronics Specialists Conference Program Committee
- 1986 –1990: Reviewer for the IEEE Applied Power Electronics Conference (**APEC**)
- 1986-Present Reviewer for the IEEE Power Electronics Specialists Conference (**PESC**).
- 1986-Present Reviewer for the IEEE Industrial Electronics Conference (**IECON**).
- 1986-Present: Reviewer for the IEEE Power Electronics Transactions. (**PE**).
- 1990- Present: Reviewer for the IEEE Industry Applications Transactions. (**IA**).
- 1985 – Present: Reviewer for the IEEE Trans. on Industrial Electronics & Control (**IEC**).
- 1987 – Present: Reviewer for the IEEE Aerospace & Electronics Transactions (**AES**).
- Session Organizer, Session Chair to **Many** IEEE Conferences.
- Industry Applications Society
    - Industrial Drives Committee
    - Industrial Power Converter Committee
    - Electric Machines Committee
    - Industrial Automation and Control
    - Power Electronics Components and Devices
- Power Electronics Specialists Conference (PESC)
- Reviewer for the book "**Principles of Power Electronics**", by J. Kassakian, M.
    - Schlecht & G. Verghese, to be published Sep. 1990, Addison Wesley, Reading Mass.
- Reviewer for the Encyclopedia of Applied Physics.
- Reviewer of a book, Power System Analysis", McGraw Hill Co., 1997.

C. Professional Organizations Membership

[1] Senior Member of IEEE (1996 - Present)

[2] Member IEEE, 1979-1996

(a) Power Electronics Society (**PELS**)

(b) Industry Applications Society (**IAS**)

- Industrial Drives Committee (**IDC**)
- Industrial Power Converter Committee (**IPCC**)
- Electric Machines Committee (**EMC**)
- Power Electronic Components and Devices Committee (**PEDC**)
- Industrial Automation Committee (**IACC**)

(c) Industrial Electronics & Control Society (**IEC**)

(d) Power Engineering Society **(PES)**

(e) Fuzzy logic & Neural Network systems.

[3] Member of Eta Kapa Nu Electrical Engineering Society.
[4] Collaborative Member of Ohio Aerospace Institute (**OAI**).
[5] Technical Director of Northeast Ohio Power Quality Association.
[6] Faculty Advisor to the National Society of Black Engineers (**NSBE**).

VIII OTHER INFORMATION

A. Academic Honors:

[1] 1971: University prize for best student in the preliminary year, Science department, Mathematical section, University of Khartoum, Sudan.
[2] 1972: Shell Prize, for best student in first year Engineering, University of Khartoum, Sudan.
[3] 1974: University Prize, for best student in third year Electrical Engineering, University of Khartoum, Sudan.
[4] 1976: Electricity and water Corporation Prize, for best student in final year, Electrical Engineering, University of Khartoum, Sudan.
[5] 1976: Mirghani Hamza Prize, for best student in the final year, Electrical Engineering Department, University of Khartoum, Sudan.
[6] 1991 to 1996: Ohio Aerospace Institute (OAI) Collaborative Fellowship at NASA GRC.
[7] 1997 to present: NASA ASEE Summer Faculty Fellowship.
[8] 1993: Project Director of "Sub-harmonic Instabilities of Current-Regulated Rectifiers" 3rd Prize Award of Industry Application Society Undergraduate Paper Award.
[9] 1997: 3rd Prize Award of Industry Application Society, Industrial Drives Committee.
[10] 2000: 1st Prize Award of Industry Application Society, Industrial Automation & Control Committee.
[11] 2007 "The Louis Hill Award in Recognition of Exceptional Dedication and Service", The College of Engineering, The University of Akron.
[12] 2009 2nd Prize Paper Award of Industrial Automation and Control Committee of IEEE Industry Application Society.
[13] 2012 The National Technical Association Nsoroma Life Achievement Award.