Mohamed Awadallah

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HIGHLIGHTS

- **23 years of research experience** in electrical machines, motor drive systems, AI applications in power systems, control system design, optimization, renewable energy, and energy storage
- **20 years of teaching experience** (in-class and online) at US, Canadian, and international universities
- **8 years of industrial experience** in electrical power and energy systems with AMP Solar Group, Alectra, Toronto Hydro, eCamion, Hydro One, SABIC, Aramco, and Delphi
  - More than 10 research projects
  - Ability to engage industry and professional organizations
- **58 publications** in reputable refereed journals and conferences
- **890+ Google Scholar citations:** h index (15) and i-10 index (24).
  https://scholar.google.ca/citations?user=LVYf5nAAAAAJ&hl=en
- **Pending patent** on energy storage scheduling and control
- Energy Storage Project won the **Centre of Excellence Award** of Canadian Electricity Association (CEA)
  https://electricity.ca/lead/centre-of-excellence/pole-mounted-energy-storage-system/
- **Taught and developed many graduate and undergrad courses**
  - Electrical machines, circuit theory, power electronics, motor drives, neural network applications, control theory, and energy storage.
- Distinguished Teaching Awards
- **Coordinated ABET accreditation activities** of the BS program in Electrical Power Engineering Technology at Yanbu Industrial College, Saudi Arabia.
- **Registered Professional Engineer** (PEng) in Ontario, Canada
- **PhD** in Electrical Engineering, Kansas State University, USA, 2004

WORK EXPERIENCE

2017 – Date ***AMP Solar Group Inc., Port Credit, Ontario, Canada***

- Energy Storage Specialist
- Lithium-ion battery projects for class-A customers in Ontario
- Leading initial load analysis and system design phases
- Developing new product/solution offering
- Supporting business development efforts
- Supporting financial close efforts for energy storage projects

- Leading energy storage project activities from initiation to commissioning
- Monitoring and evaluating the performance of battery systems

2017 – Data ***Ryerson University, Toronto, Canada***

- Part-Time Instructor
- Developed the teaching material and taught the following courses
  1. EE8903 – Energy Storage and Use (Graduate-level course)
  2. EE101 – Electrical Engineering Seminar Series
  3. CKEI140 – Selected Topics in Energy Innovation and Management

2013 – 2017 ***Centre for Urban Energy (CUE), Ryerson University, Toronto, Canada***

- Research Fellow
- Conducting research on power and energy systems
- Participating at roundtables of CUE
- Writing research proposals
- Communicating with personnel from different utilities and industries
- Supervising international exchange students
- Supervising engineering design project (EDP) students – ELE700/ELE800
- Teaching EE8903 "Energy Storage and Use" – graduate course
- Teaching online courses – Chang School of Continuing Education.

2011 – 2013 ***Yanbu Industrial College, EPET[1] Department, Yanbu Al-Sinaiya, Kingdom of Saudi Arabia***

- Head
- Member of college council
- Chairman of department council
- Member of program advisory and evaluation committee
- Developed department strategic plan in line with college strategy
- Managed annual department budget
- Managed lab equipment purchasing
- Managed program development and course revamping
- Managed student enrollment and academic advisory
- Managed teaching load schedule of faculty members
- Maintained discipline in classrooms and laboratories
- Organized teaching and research work in line with college strategies
- Performed other duties as assigned by college management
- Conducted research in Electrical Power Engineering
- Taught the following courses in Electrical Power Engineering

[1] *Electrical Power Engineering Technology*

1. EEET427 Senior Design Project – BS level
2. EEET424 Electrical Motor Drives – BS level
3. EEET103 Electrical Machines I – AS level.

2009 – 2011 ***Yanbu Industrial College, EEET[2] Department, Yanbu Al-Sinaiya, Kingdom of Saudi Arabia***

- Coordinator, ABET visit preparation committee
- Managed the write up of the ABET self-study report
- Supervised program documentation in ABET standards
- Supervised course filing
- Supervised lab preparation for ABET team visit
- Briefed program faculty and students about accreditation
- Accompanied the ABET team during visit
- Prepared reply to ABET initial report.

2005 – 2011 ***Yanbu Industrial College, EEET Department, Yanbu Al-Sinaiya, Kingdom of Saudi Arabia***

- Lecturer
- Taught the following courses in Electrical Power Engineering
  1. EEET427 Senior Design Project – BS level
  2. EEET424 Electrical Motor Drives – BS level
  3. EEET322 Power Electronics – BS level
  4. EEET321 Electrical Machines III – BS level
  5. EEET301 Electric Circuits II – BS level
  6. EEET103 Electrical Machines I – AS level
  7. EEET101 Electric Circuits I – AS level
- Published research papers on international journals and conferences
- Member of the scientific committee of EEET department
- Coordinated the scientific seminar of EEET department
- Developed lab and theory content of EEET424 Electrical Motor Drives
- Supervised industrial training of AS and BS students
- Promoted to Associate Professor with University of Zagazig, Egypt in 2010.

2004 – 2005 ***University of Zagazig, EPME[3] Department, Zagazig, Egypt***

- Assistant Professor
- Taught the following courses in Electrical Power Engineering
  1. EPE722 ANN Applications in Power Systems – Graduate level
  2. EPE687 Senior Design Project – BS level

[2] *Electrical and Electronics Engineering Technology*
[3] *Electrical Power and Machines Engineering*

3. EPE633 Motor Drive Systems – BS level
4. EPE581 Power Electronics – BS level
5. EPE557 Electromagnetic Theory – BS level
6. EPE441 Digital Logic Design – BS level

– Developed EPE722 ANN Applications in Power Systems
– Established and started the research project "AI-based diagnostics of electric machinery" jointly with Prof. I. F. Al-Arabawy and Dr. M. I. Masoud
  - Supervised one PhD student with University of Alexandria, Egypt
  - Developed an adaptive fuzzy system for fault diagnosis of VVVF induction motor drives
– Established and started the research project "Development of control systems in generation stations" jointly with Prof. H. K. Temraz and Dr. O. S. Ibrahim
  - Supervised one MS student with Ain Shams University, Egypt
  - Developed a GA-based automatic voltage regulator for AC alternators
– Member of the department council
– Member of the college final examination committee

1999 – 2004 ***Kansas State University, EECE[4] Department, Manhattan, KS, USA***

– Graduate Research and Teaching Assistant
– Completed ten graduate courses
– Pursued PhD research in the project "Automotive fault-tolerant components and systems" jointly with Delphi Corporation
  - Received summer internships in 2002 and 2003 from Delphi Corporation
  - Designed stator winding of brushless DC motors for fault testing
  - Conducted lab experiments on fault detection of brushless DC motors
  - Developed an adaptive fuzzy system for automatic fault diagnosis and location in brushless DC motor drives
– Assisted in the research project "Genetic-based adaptive fuzzy systems"
  - Developed an adaptive fuzzy system optimized via genetic algorithms
  - Applied the GA-based adaptive fuzzy system on static VAR compensation for voltage stability of power systems
– Published twelve journal papers and six conference papers
– Received an instructorship in the following courses
  1. EECE589 Electric Circuits and Machines Laboratory
  2. EECE581 Energy Conversion
– Laboratory TA for the following courses
  1. EECE684 Senior Design Power Laboratory
  2. EECE589 Electric Circuits and Machines Laboratory
  3. EECE501 Electrical Engineering Laboratory I

[4] *Electrical and Computer Engineering*

4. EECE431 Introduction to Microcontrollers

– Graded the following courses
  1. EECE530 Control Systems Design
– Promoted to Lecturer (Assistant Professor) with University of Zagazig, Egypt in 2004

1994 – 1999 ***University of Zagazig, EPME Department, Zagazig, Egypt***

– Teaching Assistant
– Completed eight graduate courses
– Pursued MS research in the project "Induction motor-driven electric vehicles"
  - Developed a laboratory model for an induction motor-based vehicle
  - Published one paper in a regional conference
– Promoted to Assistant Lecturer in 1997
– Graded and offered help sessions in the following courses
  1. EPE638 Power System Protection
  2. EPE611 Power System Analysis
  3. EPE581 Power Electronics
  4. EPE572 Electrical Machines II
  5. EPE559 Electrical Machines I
  6. EPE557 Electromagnetic Theory
  7. EPE553 Electric Circuits II
  8. EPE428 Electric Circuits I
– Taught the following Laboratory Courses
  1. EPE637 Electrical Measurement and Laboratory III
  2. EPE537 Electrical Measurement and Laboratory II
  3. EPE437 Electrical Measurement and Laboratory I

AWARDS AND HONORS

– Best and most innovative project in Canada, Canadian Electricity Association (CEA), 2017
– Research Fellowship, Centre for Urban Energy, Ryerson University, 2013 – 2017
– University Award for Distinguished Publication, University of Zagazig, Egypt, 2008, 2009, and 2010
– International Publication Award, Cairo University, Egypt, 2009 and 2010
– Distinguished Teaching Award, Yanbu Industrial College, Kingdom of Saudi Arabia, 2010
– The Egyptian government sponsorship to pursue PhD degree in the USA, 1999
– Abdul-Aziz Al-Daly Award for First-Ranked College Graduates, University of Zagazig, Egypt, 1994
– Medal of Excellence for Engineering Graduates, Egyptian Syndicate of Engineers, 1993

- BSEE with Honors (ranked 1st of the 1993 class), University of Zagazig, Egypt, 1993
- Scholarship of Distinction, University of Zagazig, Egypt, 1989 – 1993
- Ranked 21st in the 1988 General High School Certificate of Egypt (over 230,000 students).

EDUCATION

1999 – 2004 ***Kansas State University, EECE[5] Department, Manhattan, KS, USA***
PhD
GPA: 4.0/4.0
Thesis title: **"**Automatic fault diagnosis and location in CSI-fed brushless DC motor drives using neuro-fuzzy systems"
Research partner: Delphi Corporation, Shelby Township, MI, USA.

1994 – 1997 ***University of Zagazig, EPME[6] Department, Zagazig, Egypt***
MS
GPA: 3.63/4.0
Thesis title: **"**Developed operation of electric vehicles"

1988 – 1993 ***University of Zagazig, EPME Department, Zagazig, Egypt***
BS
GPA: 3.68/4.0
Graduation grade: Distinction with Honors
Rank: 1st of the 1993 class
Senior design project: **"**Design and operation of cost-optimized transformers"

TEACHING INTERESTS

- Electric Machines and Motor Drive Systems
- Power Electronics
- Electric Circuits Theory
- Electromagnetic Theory
- AI Applications in Electrical Engineering
- Automatic Control
- Electrical Measurements
- Energy Conversion
- Analysis, Stability, Design, Planning, and Protection of Power Systems
- Circuits, Machines, Power Electronics, and Power Systems Laboratories.

RESEARCH INTERESTS

- Energy storage systems
- Renewable energy systems

[5] *Electrical and Computer Engineering*
[6] *Electrical Power and Machines Engineering*

- Smart grids
- Electric motor drive systems
- Unbalanced operation of electric machines
- Fault detection in electric machines and drives
- Robust and adaptive control
- Applications of artificial intelligence in electrical power engineering
  - Fuzzy and adaptive fuzzy systems
  - Genetic algorithms and evolutionary computations
  - Swarm optimization
  - Neural networks
  - Expert systems
- Power electronics
- Electric vehicles technology.

ACADEMIC SERVICES

- Editor of the *Electric Power Components and Systems Journal*
- Editor of the *International Journal of Industrial Electronics and Drives*
- Reviewer for *Middle East Power Conference (MEPCON)*: Bi-annual regional Power Engineering Conference held by Egyptian universities
- Member of the External Advisory Board (EAB), Department of Computer Science, Umm Al-Qura University, Makkah, Saudi Arabia, 2010–2013.
- Member of the Technical Program Committee, IEEE Electric Power and Energy Conference, EPEC 2015.

COMPLETED TRAINING

- Strategic planning in higher education institutes, August 2016
- Continuous improvement using Japanese "Kaizen", May 2013
- Active learning, February 2013
- Competency models, February 2011
- Performance management and KPI, January 2011
- Scientific publication, August 2008
- Time and meeting management, July 2008
- Preparing research proposals, August 2006
- Quality assurance, August 2006
- Preparing and writing scientific papers, August 2006
- Lifetime learning, August 2006
- Credit-hour systems, August 2006
- Fundamentals of teaching methodologies, June 1998.

MEMBERSHIP

- Professional Engineers Ontario (PEO)
- PHI KAPPA PHI
- TAU BETA PI
- ETA KAPPA NU
- Egyptian Syndicate of Engineers.

PUBLICATIONS

Journal Publications

[1] M.A. Awadallah and B. Venkatesh, "Optimal balancing of three-phase distribution feeders using energy storage systems," Submitted to *IET Generation, Transmission, and Distribution*.

[2] M.A. Awadallah and B. Venkatesh, "Energy storage in distribution system planning and operation: Current status and outstanding challenges," Submitted to *Electric Power Systems Research*.

[3] N. Hajia, B. Venkatesh, and M. Awadallah, "Optimal asset expansion in distribution networks based on energy storage elements," Accepted for publication in *IEEE Canadian Journal of Electrical and Computer Engineering*, to appear.

[4] M.A. Awadallah and B. Venkatesh, "Optimization-based parameter estimation of photovoltaic modules," *International Journal of Industrial Electronics and Drives,* vol. 4, no. 1, pp. 33-43, 2018.

[5] G.R. Barai, B. Venkatesh, and M.A. Awadallah, "Optimization of hybrid energy storage systems for power curve smoothening at grid scale," *IEEE Canadian Journal of Electrical and Computer Engineering*, vol. 41, no. 2, pp. 87-94, 2018.

[6] M.A. Awadallah, B. Venkatesh, E. Tolentino, and G. Thompson, "Pole-mounted battery energy storage for reliability enhancement of local distribution companies," *Journal of Energy Storage*, vol. 13, pp. 425-434, 2017.

[7] M.A. Awadallah, B.N. Singh, and B. Venkatesh, "Impact of EV charger load on distribution network capacity: A case study in Toronto," *IEEE Canadian Journal of Electrical and Computer Engineering*, vol. 39, no. 4, pp. 268-273, 2016.

[8] M.A. Awadallah, T. Xu, B. Venkatesh, and B.N. Singh, "On the effects of solar panels on distribution transformers," *IEEE Trans. on Power Delivery*, vol. 31, no. 3, pp. 1176-1185, 2016.

[9] M.A. Awadallah, "Variations of the bacterial foraging algorithm for the extraction of PV module parameters from nameplate data," *Energy Conversion and Management*, vol. 113, pp. 312-320, 2016.

[10] M.A. Awadallah and B. Venkatesh, "Bacterial foraging algorithm guided by particle swarm optimization for parameter identification of PV modules," *IEEE Canadian Journal of Electrical and Computer Engineering*, vol. 39, no. 2, pp. 150-157, 2016.

[11] M.A. Awadallah and B. Venkatesh, “Accuracy improvement of SOC estimation in lithium-ion batteries,” *Journal of Energy Storage*, vol. 6, pp. 95-104, 2016.
[12] F. Salem and M.A. Awadallah, “Detection and assessment of partial shading in photovoltaic arrays,” *Journal of Engineering Systems and Information Technology*, vol. 3, no. 1, pp. 23-32, 2016.
[13] M.A. Awadallah, “Identification of partial shading in solar panels using genetic algorithms, simulated annealing, and particle swarm optimization,” *International Journal of Renewable Energy Technology*, vol. 7, no. 2, pp. 125-147, 2016.
[14] F. Salem, M.A. Awadallah, and E.H.E. Bayoumi, “Model predictive control for deadbeat performance of induction motor drives,” *WSEAS Trans. on Circuits and Systems*, vol. 14, art. 35 , pp. 304-312, 2015.
[15] F. Salem, M.I. Mosaad, and M.A. Awadallah, “A comparative study of MPC and optimized PID Control,” *International Journal of Industrial Electronics and Drives*, vol. 2, no. 4, pp. 242-250, 2015.
[16] M.A. Awadallah and B. Venkatesh, “Energy storage in flywheels: An overview,” *IEEE Canadian Journal of Electrical and Computer Engineering*, vol. 38, no. 2, pp.183-193, 2015.
[17] M.A. Awadallah and F. Salem, “Adaptive-fuzzy detection and assessment of partial shading in solar panels feeding induction motor drives,” *International Journal of Industrial Electronics and Drives*, Vol. 2, No. 3, pp. 151-162, 2015.
[18] M.A. Awadallah, B. Venkatesh, and B.N. Singh “Impact of solar panels on power quality of distribution networks and transformers,” *IEEE Canadian Journal of Electrical and Computer Engineering*, vol. 38, no. 1, pp. 45-51, 2015.
[19] M.A. Awadallah and F. Salem, “Neuro-fuzzy modeling and MPPT control of photovoltaic arrays feeding VSI induction motor drives,” *Journal of Electrical Engineering (JEE)*, Vol. 14, No. 1, pp. 122-131, 2014.
[20] F. Salem and M.A. Awadallah, “Parameters estimation of photovoltaic modules: Comparison of ANFIS and ANN,” *International Journal of Industrial Electronics and Drives*, Vol. 1, No. 2, pp. 121-129, 2014.
[21] M. Azab and M.A. Awadallah, "Selective harmonic elimination in VSI-fed induction motor drives using swarm and genetic optimization," *International Journal of Power Electronics*, Vol. 5, No. 1, pp. 56-74, 2013.
[22] E.H.E. Bayoumi, M.A. Awadallah, and H.M. Soliman, "Deadbeat performance of vector-controlled induction motor drives using particle swarm optimization and adaptive neuro-fuzzy inference systems," *Electromotion*, Vol. 18, No. 4, pp. 231-242, 2011.
[23] H.M. Soliman, E.H.E. Bayoumi, and M.A. Awadallah, "Reconfigurable fault-tolerant PSS and FACTS controllers," *Electric Power Components and Systems*, Vol. 38, No. 13, pp. 1446-1468, 2010.
[24] M.A. Awadallah and M. Azab, "Particle-swarm-optimization and genetic-algorithm approaches to selective harmonic elimination in voltage-source inverter-fed permanent-magnet synchronous motor drives," *Electromotion*, Vol. 17, No. 4, pp. 280-290, 2010.

[25] M.A. Awadallah, "Fuzzy-based online detection and prediction of switch faults in the brushless excitation system of synchronous generators," *Electric Power Components and Systems*, Vol. 38, No. 12, pp. 1370-1388, 2010.
[26] E.H.E. Bayoumi, M.A. Awadallah, and H.M. Soliman, "Robust Control of Switched Reluctance Motor Drives using Kharitonov Theorem and Swarm Intelligence," *International Journal of Modeling, Identification, and Control*, Vol. 7, No. 3, pp. 234-245, 2009.
[27] M.A. Awadallah and H.M. Soliman, "A neuro-fuzzy adaptive power system stabilizer using genetic algorithms," *Electric Power Components and Systems*, Vol. 37, No. 2, pp. 158-173, 2009.
[28] M.A. Awadallah, E.H.E. Bayoumi, and H.M. Soliman, "Adaptive deadbeat controllers for brushless DC drives using PSO and ANFIS techniques," *Journal of Electrical Engineering (JEEEC)*, Vol. 60, No. 1, pp. 3-11, 2009.
[29] H.M. Soliman, M.F. Morsi, M.F. Hassan, and M.A. Awadallah, "Power system reliable stabilization with actuator failure," *Electric Power Components and Systems*, Vol. 37, No. 1, pp. 61-77, 2009.
[30] H.K. Temraz, O.S. Ibrahim, M.A. Awadallah, and K.H. Gharib, "Parameter tuning of AVR and governor controllers for synchronous generators using AI techniques," *Ain Shams Engineering Journal (ASEJ)*, 2009.
[31] M.A. Awadallah, "Parameter estimation of induction machines from nameplate data using PSO and GA techniques," *Electric Power Components and Systems*, Vol. 36, No. 8, pp. 801-814, 2008.
[32] M.A. Awadallah and H.M. Soliman, "An adaptive power system stabilizer based on fuzzy and swarm intelligence," *International Journal of Modeling, Identification, and Control*, Vol. 5, No. 1, pp. 55-65, 2008.
[33] H.M. Soliman, M.A. Awadallah, and M.N. Emira, "Robust controller design for active suspensions using particle swarm optimization," *International Journal of Modeling, Identification, and Control*, Vol. 5, No. 1, pp. 66-76, 2008.
[34] M.A. Awadallah, M.M. Morcos, S. Gopalakrishnan, and T.W. Nehl, "Detection of stator short circuits in VSI-fed brushless DC motors using wavelet transform," *IEEE Trans. on Energy Conversion*, Vol. 21, No. 1, pp. 1-8, 2006.
[35] M.A. Awadallah and M.M. Morcos, "Automatic diagnosis and location of open-switch fault in brushless DC motor drives using wavelets and neuro-fuzzy systems," *IEEE Trans. on Energy Conversion*, Vol. 21, No. 1, pp. 104-111, 2006.
[36] M.A. Awadallah and M.M. Morcos, "Performance analysis of low-inductance PM brushless DC motors under stator inter-turn faults," *Electric Power Components and Systems*, Vol. 33, No. 7, pp. 767-780, 2005.
[37] M.A. Awadallah and M.M. Morcos, "Automatic fault diagnosis of electric machinery: A case study in PM brushless DC motors," *Electric Power Components and Systems*, Vol. 33, No. 6, pp. 597-610, 2005.
[38] M.A. Awadallah, M.M. Morcos, S. Gopalakrishnan, and T.W. Nehl, "A neuro-fuzzy approach to automatic fault diagnosis and location of stator inter-turns in CSI-fed PM brushless DC motors," *IEEE Trans. on Energy Conversion*, Vol. 20, No. 2, pp. 253-259, 2005.

[39] M.A. Awadallah and M.M. Morcos, “Diagnosis of stator short circuits in brushless DC motors by monitoring phase voltages,” *IEEE Trans. on Energy Conversion,* Vol. 20, No. 1, pp. 246-247, 2005.
[40] M.A. Awadallah and M.M. Morcos, “ANFIS-based diagnosis and location of stator interturn faults in PM brushless DC motors,” *IEEE Trans. on Energy Conversion,* Vol. 19, No. 4, pp. 795-796, 2004.
[41] M.A. Awadallah and M.M. Morcos, “Diagnosis of open-phase faults in PM brushless DC motors using wavelet and adaptive fuzzy techniques,” *Electric Power Components and Systems,* Vol. 32, No. 11, pp. 1165-1190, 2004.
[42] M.A. Awadallah and M.M. Morcos, “Switch fault diagnosis of PM brushless DC motor drive using adaptive fuzzy techniques,” *IEEE Trans. on Energy Conversion,* Vol. 19, No. 1, pp. 226-227, 2004.
[43] M.A. Awadallah and M.M. Morcos, “Application of AI tools in fault diagnosis of electrical machines and drives – An overview,” *IEEE Trans. on Energy Conversion,* Vol. 18, No. 2, pp. 245-251, 2003.
[44] M.A. Awadallah and M.M. Morcos, “Adaptive-fuzzy-based stator-winding fault diagnosis of PM brushless DC motor drive by monitoring supply current,” *PESL – IEEE Power Engineering Review,* Vol. 22, No. 12, pp. 46-49, 2002.
[45] M.A. Awadallah and M.M. Morcos, “A fuzzy-logic-based AVR for a stand-alone alternator feeding a heating load,” *PESL – IEEE Power Engineering Review,* Vol. 21, No. 10, pp. 53-56, 2001.

Conference Publications

[46] M. Baun, M.A. Awadallah, and B. Venkatesh, “Implementation of load-curve smoothing algorithm based on battery energy storage system,” *Proc. IEEE Canadian Conference on Electrical and Computer Engineering,* Vancouver, BC, Canada, 15-18 May, 2016, pp. 1-5.
[47] M.A. Awadallah and B. Venkatesh, “Estimation of PV Module Parameters from Datasheet Information Using Optimization Techniques,” *Proc. IEEE Int. Conference on Industrial Technology,* Seville, Spain, 17-19 March, 2015, pp. 2777-2782.
[48] H.M. Soliman, E.H. Bayoumi, and M.A. Awadallah, “Robust reconfigurable fault-tolerant controllers for PSS/FACTS using Kharitonov theorem and particle swarm optimization,” *Proc. IEEE Int. Energy Conference and Exhibition,* pp. 200-204, Manama, Bahrain, 18-22 Dec., 2010.
[49] M.A. Awadallah, "Diagnosis of switch faults in brushless-excited synchronous generators using fuzzy systems," *Proc. 5th Saudi Technical Conference and Exhibition (STCEX'08),* Vol. 3, pp. 313-327, Riyadh, Saudi Arabia, 11-14 Jan., 2009.
[50] K.H. Gharib, O.S. Ebrahim, H.K. Temraz, and M.A. Awadallah, "Application of the genetic algorithm to design an optimal PID controller for the AVR system," *Proc. 6th Int. Conference on Electrical Engineering (ICEENG'08), Military Technical College, Cairo, Egypt,* 27-29 May, 2008.
[51] I.F. El-Arabawy, M. Masoud, M.A. Awadallah, and G.M. Mahmoud, “Fault diagnostics of voltage-fed inverter system for induction motor drive

– A review," *Proc. Int. Conference on Electrical Machines*, Chania, Crete Island, Greece, 2-5 September, 2006.
[52] M.A. Awadallah and M.M. Morcos, "Diagnosis of insulation failure faults in PM brushless DC motors using adaptive neuro-fuzzy techniques," *Proc. 10th Int. Electrical Insulation Conference (INSUCON'06),* pp. 364-368, Birmingham, UK, 24-26 May, 2006.
[53] M.A. Awadallah and M.M. Morcos, "Detection of insulation failure in BLDC motors using neuro-fuzzy systems," *Proc. IEEE Conference on Electrical Insulation and Dielectric Phenomena (CEIDP'05)*, Nashville, TN, USA, 16-19 October, 2005.
[54] M.A. Awadallah and M.M. Morcos, "Identification of stator-winding insulation failure in PM brushless DC motors," *Proc. North American Power Symposium*, Rolla, MO, USA, 20-21 October, 2003.
[55] M.A. Awadallah and M.M. Morcos, "Diagnosis of switch open-circuit fault in PM brushless DC Motor Drives," *Proc. Large Engineering Systems Conference on Power Engineering*, pp. 69-73, Montreal, Canada, 7-9 May, 2003.
[56] M.A. Awadallah and M.M. Morcos, "A universal fuzzy-logic-based AVR for a stand-alone synchronous generator," *Proc. Int. Conference on Electrical Machines*, Bruges, Belgium, 26-28 August, 2002.
[57] M.A. Awadallah and M.M. Morcos, "Stator-winding fault diagnosis of PM brushless DC motor drives," *Proc. Large Engineering Systems Conference on Power Engineering*, pp. 147-152, Halifax, Canada, 26-28 June, 2002.
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Magazine Articles

[59] B. Venkatesh and M.A. Awadallah, "Electricity storage reaches new heights," *Electric Energy T&D Magazine*, pp. 31-33, January-February Issue, 2016.
http://www.electricenergyonline.com/show_article.php?mag=111&article=920
[60] M.A. Awadallah, B. Venkatesh, and H. Subramanian, "PMESS the shape of ESS to come," *Batteries International*, Issue 101, pp. 76-79, Autumn 2016.
https://issuu.com/rizzo48/docs/bat101.issuu.2

REFERENCES

1. **Prof. B. Venkatesh**
   Professor and Academic Director, Centre for Urban Energy, Ryerson University, 350 Victoria Street, Toronto, Ontario M5B 2K3, Canada, Phone: (416) 979-5359, e-mail: bala@ryerson.ca

2. **Dr. D. McGillivray**
   Distinguished Visiting Professor, Faculty of Engineering and Architectural Science, Ryerson University, 350 Victoria Street, Toronto, Ontario M5B 2K3, Canada, Phone: (416) 458-1475, email: dan.mcgillivray@ryerson.ca

3. **Mr. B. Singh**
   IESO Distinguished Fellow, Centre for Urban Energy, Ryerson University, 350 Victoria Street, Toronto, Ontario M5B 2K3, Canada, Phone: (416) 979-5000 ext. 2975, email: bnsingh@ryerson.ca