Curriculum Vitae of MOHAMMAD NASIR UDDIN

Professor, Department of Electrical Engineering, *Fellow, IEEE*
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1. Personal Information:

Citizenship status: Canadian
Sex: Male
Marital status: Married

2. Teaching Interests:

Power electronics, electric machines, variable speed drives, power systems, power system stability, electric circuit theory, digital signal processing, microcontroller, analog and digital electronics.

3. Research Interests:

Motor drives, solar energy, wind energy, power electronic converters and the application of intelligent control techniques (fuzzy logic, neural network, genetic algorithm, neuro-fuzzy, etc.).

4. Profile:

I have more than 25 years of teaching and research experience in various universities in Canada, USA, Bangladesh, Japan and Malaysia. This has yielded 50 highly qualified engineers (11-Ph.D., 24-Masters, 14-Research Associates and 3-Postdoctoral fellows) and 97 undergraduate students, who are currently working in reputed industries like GM, Rockwell, AMEC, Schneider and others. I have actively co-created and -enhanced the Masters and Doctoral programs in Electrical Engineering at Lakehead University, based on industrial demand. I have developed a power electronics, renewable energy and motor drives research laboratory with state-of-the-art equipment, to prepare my students for industrial job responsibilities. The technical community has immensely benefited from my research through more than 50 invited seminars, external reviews for Government Research Grant Agencies, and Professor/Associate Professor promotion/tenure and Ph.D./M.Sc. candidates evaluation in many Universities worldwide. I have authored/coauthored 255 papers in international journals (59 in IEEE Transactions/Journals, 21 in other journals) and conferences (more than 8500 citations in Google Scholar). I was bestowed upon with the IEEE Industry Applications Society (IAS) 2015 Service Award for distinguished service and outstanding contributions for IEEE-IAS-Industrial Automation and Control Committee (IACC). I received the Lakehead University Distinguished Researcher Award 2010 (highest research award of the University). I received four Prize Paper Awards from

IEEE/IAS/IACC. I am a registered Professional Engineer (since 2004) in the Province of Ontario, Canada. Currently, I am serving as an Executive Board Member of IEEE IAS and the Chair of the IEEE-IAS-Manufacturing Systems Development and Applications Department. Earlier I served IEEE IAS IACC for 9 years in different capacities.

I have excellent teaching and research experience focused on electric machines, variable speed drives, design and control of power electronic converters, intelligent control techniques, wind and solar energy, digital signal processing, microprocessors, system modeling, analog and digital circuit theory. I have a sound knowledge and hands on experience related to DSP based real-time implementation for variable speed drives, power converters, and renewable energy conversions. I have good analytical & technical abilities, good organizational & team skills and I am hard working with the ability for fast learning.

Currently, I am serving as coordinator for Lakehead University-Georgian College Partnership program (Barrie campus), earlier, I also gained good administrative experience through my service as a chair of senate committees for 5 years, member of task force for university strategic research plan committee and chair of other committees in university, faculty/department and professional societies.

5. Academic and Professional qualifications (In reverse chronological order):

- **Ph.D.** in **Electrical Engineering,** October 2000, Memorial University of Newfoundland, Canada.
  GPA: 3.0/3.0 (Obtained **95% marks** in each of the three courses from three different Instructors)
  Dissertation: Intelligent control of an interior permanent magnet synchronous motor drive.

- **M.Sc.** in **Electrical & Electronic Engineering**, April 1996, Bangladesh University of Engineering & Technology (BUET), Bangladesh.
  GPA: (3.83/4.0)
  Thesis: Relaxation Characteristics of Oxide Trapped Charge in an MOS Structure–A Quantum Mechanical Approach.

- **B. Sc.** in **Electrical & Electronic Engineering**, Nov. 1993, BUET, Dhaka, Bangladesh.
  Result: First Class (**Second in the order of merit in a class of 146 students securing 79.8% marks**) with honors (75% or more).
  Thesis: Design, Construction and Analysis of a Three-Phase Transistorized Voltage Source Inverter.

- **Fellow (**since Jan. 2021), **IEEE** (The Institute of Electrical and Electronic Engineers)

- **Review Panel Member** (2021-2022), IEEE Senior Member Evaluation

- **Member** (100067481, August 2004-present), **PEO** (Association of Professional Engineers Ontario), Canada

- **Associate Editor** (2018-2022, 2007-2015) IEEE Transactions on Industry Applications, Industrial Automation and Control Committee

- **Transactions Papers Review Chair** (2020-present (PSPC), 2013-2014, 2009-2011(IACC)), IEEE Transactions on Industry Applications)

- **Member** (2016-2017), IEEE **Industry Applications Society Executive Board**

6. Account of Career **(In reverse chronological order):**

July 2008-present, ***Professor***, Lakehead University, Canada
Task Performed: Teaching and evaluating both graduate & undergraduate students for the courses of electric machines, basic electric circuits, power systems, power electronics, digital signal processing, electronics, intelligent control and advanced power electronics, and motor drives. Also guiding graduate thesis and conducting labs, projects and tutorial classes. Serving as a **Director** of 'Power Electronics and Drives Research Lab' (CB 1030A, LU).

Concurrent: July-August 2018, ***Visiting Professor***, Universiti of Tenaga Nasional (The National Energy University), Putrajaya, Malaysia.

Concurrent: June-Dec. 2011 (sabbatical leave), ***Visiting Professor***, University of Malaya, Kuala Lumpur, Malaysia.

Concurrent: June-July 2010, ***International Visiting Professor***, Tokyo University of Science, Japan.

July 2004-June 2007, ***Associate Professor***, Lakehead University, Canada
Task Performed: Same as Professor.

Concurrent: July-December 2006 (on sabbatical leave from LU), ***Visiting Associate Professor***, North South University, Dhaka, Bangladesh.

Aug. 2001- June 2004**,** ***Assistant Professor***, Lakehead University, Canada.
Task Performed: Same as Associate Professor.

Jan. 2001-May 2001, ***Assistant Professor***, University of South Alabama, Mobile, USA.
Task Performed: Taught and evaluated both graduate & undergraduate students for the courses of digital computer architecture and analog electronics. Also conducted lab experiments, projects and tutorial classes.

Sept. 1997 – Aug. 2000, ***Ph. D. Candidate (Canadian Commonwealth Scholar) and Teaching Assistant***, Memorial University of Newfoundland, Canada.
Task performed: Set up and run the laboratory experiments for power electronics, electric machines (dc, induction and synchronous), basic electrical circuits and electromagnetic fields & waves. Also worked as a *Lab. Instructor* in various workshops in the faculty.

July 1996-Aug. 1997, ***Assistant Professor***, Bangladesh University of Engineering & Technology (BUET), Dhaka, Bangladesh.

March 1994 - June 1996, ***Lecturer***, BUET, Dhaka, Bangladesh,

July 1996– Aug. 1997, ***Junior Consultant***, Rural Electrification Board (REB), Bangladesh.
Task performed: Major responsibilities were to provide guidelines for feasibility study of transmission lines, power distribution, and quality maintenance of insulated cables, transformers, fault detection and protection of transmission lines.

July 1996-Aug. 1997, ***Assistant Provost***, Ahsanullah Hall, BUET, Dhaka, Bangladesh,
Task performed: Responsible for conducting student activities like indoor/outdoor games, debating, student union elections and distribution of seats among the students in the residence.

February 1994 –April 1996, ***M.Sc. Student*** (part-time), Dept. of Electrical Engg, BUET.

August 1988-Nov. 1993, ***B. Sc. Student***, Dept. of Electrical Engg, BUET, Bangladesh.
Due to political unrest in Bangladesh, the four year B. Sc. program took longer than 4 years.

7. University Services

- 2018 - present, Coordinator, B.Sc. in Electrical Engineering program under Lakehead University - Georgian College (GC) Partnership at GC, Barrie campus
- 2020, Member, Dean Search Committee, Faculty of Engineering, Lakehead University
- 2012-2021, Member, Electrical Engineering Faculty and Lab Technologists Search Committee
- 2019-2022, Member, Lakehead University (LU) Senate Teaching and Learning Committee
- 2019-2020, Member, Lakehead University faculty association (LUFA) Benefit committee
- 2018-present, Member, Faculty of Engineering Curriculum committee
- 2018-present, Member, Faculty of Engineering Graduate Studies committee
- 2017-2019, Member, Lakehead University Senate Nominations Committee
- 2017-2019, Member, LUFA Research committee
- 2018-2021, Member, Orillia Program Coordination committee
- 2016-2021, Member, Faculty of Engineering Infrastructure committee
- 2013-2015, Chair, LU Senate Honorary Degrees Committee
- 2013-2015, Member, LU Senate executive committee
- 2013-2015, Member, Lakehead University Senate
- 2013-2015, Chair, LUFA Benefit committee
- 2013-2015, Member, LUFA Executive committee
- 2014-2016, Member, LUFA Research Committee
- 2014, Member, Faculty of Engineering Assistant Dean Search Committee
- 2009-2017, Member, Faculty of Engineering Infrastructure committee
- July-Dec. 2014, Member, Faculty of Engineering Graduate Studies committee
- July-Dec. 2014, Graduate Coordinator (acting), Control Engineering Masters program, LU
- 2009-present, Dept. of Electrical Engineering, Health and Safety Committee
- November 2012, Member, Faculty of Engineering re-appraisal committee
- Jan. 2012-Aug. 2012, Counselor, IEEE Student branch, Lakehead Chapter
- 2010-2012, Member, LU Senate Honorary Degrees Committee
- 2010-2011, Member, Lakehead University Senate
- July-Aug. 2010, Graduate Coordinator (acting), ECE Masters program, LU
- 2009, Chair, Infrastructure subcommittee to prepare ECE PhD program proposal

- 2008-2010, Member, LU Senate Nominations Committee
- 2008-2010, Member, LUFA Benefits Committee
- 2008, Member, University Academic Integrity policy development Taskforce
- 2005-2008, Chair, Senate Information Systems Committee, Lakehead University
- 2005-2008, Member, Lakehead University Senate
- 2005-2008, Member, Lakehead University Senate executive committee
- 2006-2009, Chair, Faculty of Engineering Computer Resources committee
- 2006-2009, Member, Faculty of Engineering Infrastructure committee
- 2005-2006, Member, Faculty Merit Increments Committee, Lakehead University
- 2008-2010, Chair, Electrical Engineering Curriculum Committee
- 2005-2007, Member, Lakehead University's Strategic Research Plan Committee
- 2005-2007, Member, LUFA Research Committee, Lakehead University
- 2007, Responsible to prepare/update some accreditation documents (CEAB) for the Dept. of Electrical Engineering
- 2006, Member, Re-appraisal committee for a degree project, Faculty of Engg., LU
- 2005-present, Member, Electrical Engineering Research Committee, Lakehead University
- 2004-2005, Elected Faculty Member, Lakehead University Senate
- Oct. 2004- Dec. 2007, Co-Chair, Electrical Engineering Curriculum Committee
- 2004, Chair, Software Engineering Department Organization Committee
- 2003-2004, Member of the Senate Computing Committee
- 2002-2003, Member of the Electrical Engineering Faculty Search Committee
- 2001-present, Member, Faculty of Engineering Research and Graduate Studies Committee
- 2002-2004, Member of Electrical Engineering Curriculum Committee
- 2003 (March), Provided a seminar as a representative for the Dept. of Electrical Engineering for Native Access Program on Engineering (NAPE) students

8. Academic Distinctions & Awards:

- 2021, Elevated to **IEEE Fellow** for contributions to control techniques for motor drives
- 2017, **First Prize for IEEE IAS Master's Thesis Contest Award** (Mr. Mizanur Rahman – completed Masters under my sole supervision in April 2016)
- 2015, **IEEE Industry Applications Society (IAS) 2015 Service Award** for distinguished service and outstanding contributions for IAS-Industrial Automation and Control Committee(IACC)
- 2015, Selected as top 50 Researchers of 50 years (1965-2015), Lakehead University
- 2014, **Second Prize Paper Award** for the paper "Asymmetrical Transistor-Clamped H-Bridge Cascaded Multilevel Inverter" presented in **IEEE IAS** (Industrial Automation and Control Committee**)** Annual Meeting 2012, Las Vegas, USA.
- 2011, **Lakehead University Distinguished Researcher Award 2010**, This is the highest research award of the University and only one can receive every year if there is a suitable candidate.
- 2011, **Third Prize, IEEE IAS Myron Zucker Student Design Contest Award,** students (Mr. Nirav Patel and Shawn Mclean) worked under my supervision for the project that won the award.
- 2010, **First Prize Paper Award** for the paper "Experimental Performance Evaluation of a Nonlinear Controller Based IM Drive Incorporating Iron Loss in the Motor Model" presented i**n IEEE Industry Applications Society (IAS)** (Industrial Automation and Control Committee**)** Annual Meeting 2008, Edmonton, Canada.

- 2010, **Third Prize Paper Award** for the paper "Efficiency Optimization of a Fuzzy Logic Controller Based IPMSM Drive" presented in **IEEE IAS** (Industrial Automation and Control Committee) Annual Meeting 2009, Houston, TX, USA.
- 2009, **Merit Increment Award** of Lakehead University, based on demonstrated excellence in research, scholarly and creative activities.
- 2007, **Merit Increment Award** of Lakehead University, based on demonstrated excellence in combination research, scholarly and creative activities and service to the Institution.
- 2007, **Invited Speaker,** for a seminar (Sept. 27) on "Application of Interior Permanent Magnet Synchronous Motor for Hybrid Electric Vehicle" University of South Alabama, Mobile, USA.
- 2005, **Merit Increment Award** of LU, as an elected member of the Merit Increments Committee based on demonstrated excellence in research, scholarly & creative activities.
- 2004, **Invited Speaker,** for a plenary session on "High Speed Drives" IEEE Power Engineering Society (PES) Annual Meeting, June 2004, Denver, CO, USA.
- 2004, **Contributions to Research Award**, Lakehead University, Canada
- 2004, **Contributions to Teaching Award**, Lakehead University, Canada
- 2004, Nominated for IEEE **Industry Applications Society (IAS) Outstanding Young Member Award** (Nominated by Dr. David Kankam, University Affairs Officer, Research & Technology Directorate, NASA, John Glenn Research Center, Cleveland, OH 44135)
- 2004, **Merit Increment Award** of Lakehead University based on exceptional performance in combination of teaching and research, scholarly and other creative activities.
- 2003, **Merit Increment Award** of LU based on exceptional performance in Research and other scholarly and creative activities.
- 2003, **First Prize Paper Award** for the paper "Development and Implementation of a Hybrid Intelligent Controller for Interior Permanent Magnet Synchronous Motor Drive" presented **in IEEE IAS (Industrial Automation and Control Committee)** Ann. Meet. 2002, Pittsburgh, USA.
- 1997-2000, **Canadian Commonwealth Scholarship** for Ph.D. at Memorial Univ. of Newfoundland, St. John's, NL. (That year I was selected as a lone candidate in Engineering from Bangladesh for this scholarship through a competitive interview process).
- 2000, Fellow, School of Graduate Studies, Memorial Univ. of Newfoundland, Canada.
- 1988-1993 First Grade Merit Scholarship, BUET, Dhaka, Bangladesh.
- 1986, **Gold Medal** for achieving star marks (≥75%) in 12 Grade for the first time since the birth of the college in 1968, Baliakandi College, Rajbari, Bangladesh
- 1984-1986 Merit Scholarship, Grade 11 & 12, Dhaka Board, Bangladesh.
- 1982-1984 Merit Scholarship in Grade 8 scholarship examination under Dhaka Board.

9. Research Grants:

- $25,000 US (2021-2022) IEEE-Industry Applications Society (IAS) Myron Zucker Foundation Student-Faculty research grant
- $ 45,000, NSERC Discovery Development Grant for the project "Control technologies to enhance the robustness, energy-efficiency and sustainability of wind energy conversion systems" for 3 years (2020-2023).
- $ 155,000, NSERC Discovery Grant for 5 years (2014-2019) for the project, "Control Strategies for Wind Energy Systems and Motor Drives with Efficient Electric Machines".
- $ 24,000, NSERC Discovery Grant for 1 year (2013-2014) for the project "Intelligent Controller Based Cost-Effective, and Efficiency-Optimized High Performance Motor Drives"

- $21,000, SWB Summer Research Fund (World Bank) (2013-2014) for the project "IPMSG based Efficient Wind Energy Systems"
- $ 140,000, NSERC Discovery Grant for 5 years (2008-2013) for the project, "Intelligent Controller Based High Performance and Highly Efficient Motor Drives".
- $50,000 (2010-2011), Funded by Husky Injection Molding Systems for PMSM Drives Project
- $ 145,000, NSERC Discovery Grant for 5 years (2003-2008)
- $5000, LU Senate Research Committee NSERC Research Development fund (2003)
- $11,000, Lakehead University Start-up research grant (2001-2003)

10. List of Publications:

A. Papers in Refereed Journals (Published/Accepted)

1. N. Rezaei and **M. Nasir Uddin**, "An Analytical Review on the State-of-the-Art Microgrid Power Protective Relaying and Coordination Techniques," IEEE Transactions on Industry Applications, vol. 57, no.3, May/June 2021, pp. 2258 - 2273.

2. Md. Mizanur Rahman, S. Hossain, S. Islam Sumon and M. Nasir Uddin, "Transformerless Six-Switch (H6)-based Single-Phase Inverter for Grid-Connected Photovoltaic System With Reducd Leakage Current," IEEE Trans. on Industry Applications, vol.58, no. 1, Jan/Feb. 2022, pp. 974-985.

3. **M. Nasir Uddin**, N. Rezaei, and Osaji Emmanuel, "Adaptive and Optimal Overcurrent Protection of Wind Farms with Improved Reliability," IEEE Transactions on Industry Applications (in press).

4. A. Z. Arsad, M. A. Hannan, M.S. Hossain Lipu, S. A. Rahman, Pin Jern Ker, M Mansor, K M. Muttaqi, and **M. N. Uddin**, "Rule-based fuzzy controller for solid state transfer switch towards fast sensitive loads transfer", IEEE Transactions on Industry Applications, vol. 58, no.2, March/April 2022, pp. 188-1898.

5. Yazdan H. Tabrizi, **M. Nasir Uddin**, and Hesamodin Allahyari, " A High-gain, High-voltage Bipolar Pulse Power Generator with Bidirectional Switch for Dielectric Barrier Discharge Applications Based on Resonance Charging Technique," accepted (1st review) for IEEE Transactions on Industry Applications, June 2022.

6. Ifte Amin, and **M. Nasir Uddin**, "Nonlinear Control Operation of DFIG based WECS Incorporated with Machine Loss Reduction Scheme," IEEE Trans. on Power Electronics, vol. 35, no. 7, July 2020, pp. 7031 - 7044.

7. F. Faisal, M. A. Hannan, P. J. Ker, M. Lipu and M. N. Uddin, "Implementation of Fuzzy Based Charging-Discharging Controller for Lithium-ion Battery in Microgrid Applications," accepted IEEE Transactions on Industry Applications, April 2021.

8. M. M. Rahman, S. Hossain, S. I. Sumon and M. N. Uddin, "Transformerless Six-Switch (H6)-based Single-Phase Inverter for Grid-Connected Photovoltaic System With Reducd Leakage Current," conditionally accepted for IEEE Transactions on Industry Applications, June 2021.

9. N. Rezaei, M. Nasir Uddin, I. K. Amin, M. L. Othman, M. Marsadek and M. Hasan, "A Novel Hybrid Machine Learning Classifier-Based Digital Differential Protection Scheme for Intertie Zone of Large-Scale Centralized DFIG-Based Wind Farms," IEEE Transactions on Industry Applications, vol. 56, no.4, July/August 2020, pp. 3453-3465.

10. **M. Nasir Uddin**, Z. Zhai and Ifte Amin, "Development and Implementation of a Port Controlled Hamilton with Dissipation Based High Precision Speed Control of IPMSM Drive," IEEE Trans. on Power Electronics, vol. 35, no. 2, Feb. 2020, pp. 1742 - 1752.

11. N. Rezaei, **M. Nasir Uddin**, I. Amin, Lutfi Othman, M. Marsadek, "Genetic Algorithm Based Optimization of Overcurrent Relay Coordination for Improved Protection of DFIG Operated Wind Farms" IEEE Trans. on Ind. Applications, vol. 55, no.6, Dec. 2019, pp. 5727 - 5736.

12. F. Faisal, M. A. Hannan, P. J. Ker, and M. N. Uddin, "Backtracking Search Algorithm Based Fuzzy Charging-discharging Controller for Battery Storage System in Microgrid Applications," IEEE Open Access Journal, vol. 7, November 2019, pp. 159357 - 159368.

13. M. A. Hannan, Aini Hussain, M. H. Saad, Afida Ayob, and, **M. Nasir Uddin**, "Extreme Learning Machine for SOC Estimation of Lithium-ion Battery using Gravitational Search Algorithm," IEEE Trans. on Ind. Applications, vol. 55, no.4, July/August 2019, pp. 4225-4234.

14. **M. Nasir Uddin**, and M. M. Rahman, "Online Torque-Flux Estimation Based Nonlinear Torque and Flux Control Scheme of IPMSM Drive for Reduced Torque Ripples," IEEE Trans. on Power Electronics, vol. 34, no. 01, Jan. 2019, pp. 636 - 645.

15. **M. Nasir Uddin**, M. M. Rahman, B. Patel, and B. Venkatesh, "Performance of a Loss Model Based Nonlinear Controller for IPMSM Drive Incorporating Parameter Uncertainties," IEEE Trans. on Power Electronics, vol. 34, no. 6, June 2019, pp. 5684 – 5696.

16. Md. Mizanur Rahman and **M. Nasir Uddin**, "Sinusoidal Third Harmonic Injection Based Nonlinear Control of IPMSM Drive for Wide Speed Range Operation," IEEE Trans. on Ind. Applications, vol55, no.3, May-June 2019, pp. 3174 – 3184.

17. M. G. M. Abdolrasol, M. A. Hannan, A. Mohamed, I. Z. Abedin, and M. N. Uddin, "An Optimal Scheduling Controller for Virtual Power Plant and Microgrid Integration using Binary Backtracking Search Algorithm," IEEE Trans. on Industry Applications, vol. 54, no. 3, May/June 2018, pp. 2834 – 2844.

18. M. F. Rosaln, M. A. Hannan, P. J. Ker and M. N. Uddin, "Microgrid control methods toward achieving sustainable energy management," Applied Energy, Elsevier, vol. 240, April 2019, pp. 583-607.

19. Ifte Amin, and **M. Nasir Uddin**, "Adaptive Step Size Based Hill-Climb Search Algorithm for MPPT Control of DFIG for Wind Energy Applications," Journal of Electric Power Components and Systems, Jan. 2019, pp. 2203-2214.

20. M. A. Hannan, J.A. Ali, A. Mohamed, U. A. Amirulddin, and **M. N. Uddin**, "Quantum-Behaved Lightning Search Algorithm to Improve Indirect Field-Oriented Fuzzy-PI Control for IM Drive." IEEE Trans. on Ind. Applications, vol.54, no.4, July/Aug. 2018, pp. 3793-3805.

21. M. M. Rahman, and **M. Nasir Uddin**, "Online Unbalanced Rotor Fault Detection of an IM Drive Based on Both Time and Frequency Domain Analyses," IEEE Trans. on Ind. Applications, Vol. 53, no. 4, July-Aug. 2017, pp. 4087 – 4096.

22. G. Schoonhoven, and **M. N. Uddin**, "Harmonic Injection based Adaptive Control of IPMSM Motor Drive for Reduced Motor Current THD," IEEE Trans. on Industry Applications, vol. 53, no. 1, Jan./Feb. 2017, pp. 483-491.

23. M. A. Hannan, J. A. Ali, A. Hussain, F. H. Hasim, U. A.U. Amirulddin, **M. N. Uddin**, and F. Blaabjerg, "A Quantum Lightning Search Algorithm based Fuzzy Speed Controller for Induction Motor Drive," IEEE Open Access Journal, vol.06, November 2017, pp. 1214 - 1223.

24. M A Hannan, Z A Ghani, A Mohamed and **M. N. Uddin**, "A Random Forest Regression Based Space Vector PWM Inverter Controller for the Induction Motor Drive", IEEE Trans. on Ind. Electronics, vol. 64, no. 4, April 2017, pp. 2689–2699.

25. M.A. Hannan, M.M Hoque, S. E. Peng, and **M. N. Uddin**, "Lithium-Ion Battery Charge Equalization Algorithm for Electric Vehicle Applications," IEEE Trans. on Ind. Applications, vol. 53, no.3, May/June 2017, pp. 2541 – 2549.

26. G. Schoonhoven and **M. Nasir Uddin**, "MTPA and FW Based Robust Nonlinear Speed Control of IPMSM Drive Using Lyapunov Stability Criterion" IEEE Trans. on Ind. Applications, vol. 52, no.5, Sept./Oct. 2016, pp.4365-4374.

27. **M. Nasir Uddin**, H. B. Zou, and F. Azevedo, "Online Loss Minimization Based Adaptive Flux Observer for Direct Torque and Flux Control of PMSM Drive" IEEE Trans. on Ind. Applications vol. 52, no.1, Jan/Feb. 2016, pp.425-431.

28. **M. Nasir Uddin** and N. Patel, "Maximum Power Point Tracking Control of IPMSG Incorporating Loss Minimization and Speed Sensorless Schemes for Wind Energy System", IEEE Trans. on Ind. Applications, vol. 52, no.2, March/April 2016, pp. 1902-1912.

29. M A Hannan, Z A Ghani, A Mohamed and M. N. Uddin, "Real-Time Testing of a Fuzzy Logic Controller Based Grid-Connected Photovoltaic Inverter System", IEEE Trans. on Ind. Applications, vol. 51, no. 6, Nov./Dec. 2015, pp.4775-4784.

30. A. Sagaphina, W. P. Hew and **M. Nasir Uddin**, "Adaptive Fuzzy Sliding-Mode Control into Chattering-Free Induction Motor Drive", IEEE Trans. on Industry Applications vol. 51, no.1, Jan./Feb 2015, pp. 692-701.

31. **M. Nasir Uddin**, and J. Khastoo, "Fuzzy Logic Based Efficiency Optimization and Improvement of Dynamic Performance of IPM Synchronous Motor Drive", IEEE Trans. on Ind. Applications, vol. 50, no. 06, Nov./Dec. 2014, pp. 4251 - 4259.

32. M. F. M. Elias, N. A. Rahim, W. P. Hew and **M. Nasir Uddin**, "Asymmetrical Transistor-Clamped H-Bridge Cascaded Multilevel Inverter", IEEE Trans. on Ind. Applications, vol. 50, no. 06, Nov./Dec. 2014, pp. 4281 - 4288.

33. Keping You, Dan Xiao, M. F. Rahman, **M. Nasir Uddin**, "Applying Reduced General Direct Space Vector Modulation Approach of AC-AC Matrix Converter Theory to Achieve Unity Power Factor Controlled Three-Phase AC-DC Matrix Rectifier", IEEE Trans. on Industry Applications, vol. 50, no. 3, May/June 2014, pp. 2243 - 2257.

34. Ahmad El Khateb, Nasrudin Abd Rahim, Jeyraj Selvaraj, and **M. Nasir Uddin**, "Fuzzy Logic Controller Based SEPIC Converter of Maximum Power Point Tracking", IEEE Trans. on Industry Applications, vol. 50, no. 4, July/Aug. 2014, pp. 2349 – 2358.

35. Nishad Mendis, K. M. Muttaqui, Sarath Perera and **M. Nasir Uddin**, "A Novel Control Strategy for Stand-alone Operation of a Wind Dominated RAPS System", IEEE Industry Applications Magazine, vol. 20, no. 3, May/June 2014, pp. .

36. **M. Nasir Uddin**, Jerry Huang and A. B. M. Siddque Hossain, "Development and Implementation of a Simplified Self-Tuned Neuro-Fuzzy Based IM Drive", IEEE Transactions on Industry Applications, vol. 50, no.1, Jan/Feb. 2014, pp. 51-59.

37. Amin Mahmoudi, S. Kahourzade, H.W. Ping, and **M. Nasir Uddin**, "Design, Analysis, and Prototyping of a Novel-Structured Solid-Rotor-Ringed Line-Start Axial-Flux Permanent-Magnet Motor", IEEE Trans. on Industrial Electronics, vol. 61, no.4, April 2014, pp. 1722-1734.

38. M. Hafeez, **M. Nasir Uddin**, Nasrudin Abd Rahim and W. P. Hew, "Self-Tuned NFC and Adaptive Torque Hysteresis based DTC Scheme for IM Drive", IEEE Trans. on Industry Applications, vol. 50, no.2, March/April 2014, pp. 1410-1420.

39. S. Kahourzade, A.Mahmoudi, H. W. Ping, and M. Nasir Uddin, "A Comprehensive Review of Axial-Flux Permanent-Magnet Machines", Canadian Journal of Electrical and Computer Engineering, vol. 37, no.1, Winter 2014, pp. 19-33.

40. A. Sagaphina, W. P. Hew, M. N. Uddin, and A. Amindoust, "Teaching of Simulation an Adjustable Speed Drive of Induction Motor Using MATLAB/Simulink in Advanced Electrical Machine Laboratory", Elsevier Procedia-Social and Behavioral Sciences, vol. 103, Nov. 2013, pp. 912 – 921.

41. A. Saghafinia, H. W. Ping, M. Nasir Uddin, "Sensored Field Oriented Control of a Robust Induction Motor Drive Using Novel Boundary Layer Fuzzy Controller", Journal of Sensors (open access) Dec. 2013, *13*(12), pp. 17025-17056.

42. M. A. Khan, **M. Nasir Uddin** and M. A. Rahman, "A Novel Wavelet Neural Network Based Robust Control of the Interior Permanent Magnet Motor Drives", IEEE Trans. on Industry Applications vol. 49, no. 5, Sept./Oct. 2013, pp. 2341-2351.

43. S. Kobayashi, M. Ooshima, and **M. Nasir Uddin**, "A Radial Position Control Method of Bearingless Motor Based on d-q Axis Current Control", IEEE Trans. on Industry Applications, vol. 49, no. 4, July/Aug. 2013, pp. 1827-1835.

44. Ahmed El-Khateb, Nasrudin Rahim, Jeyraj Selvaraj, **M. Nasir Uddin**, "Maximum Power Point Tracking of SEPIC Converter Employing a Novel Optimization Technique for PID Controller", IET Transactions on Power Electronics, 2013, vol. 6, no. 6, pp. 1111–1121.

45. S. Kahourzade, A. Gandumkar, A. Mahmoudi, N. A. Rahim, H. W. Ping, and **M. Nasir Uddin**, "Design Optimization and Analysis of AFPM Synchronous Machine Incorporating Power Density, Thermal Analysis, and Back-EMF THD" Progress In Electromagnetics Research (PIER), Vol. 136, 327-367, Jan. 2013.

46. Amin Mahmoudi, S. Kahourzade, Nasrudin Abd Rahim, W. P. Hew, and **M. Nasir Uddin**, "Design and Prototyping of an Optimized AFPM Synchronous Machine" IET Transactions on Electric Power Applications, May 2013, vol. 7, no. 5, pp. 338–349.

47. A. Saghafinia, S. Kahourzade, A. Mahmoudi, W. P. Hew, and M. Nasir Uddin, "Broken Rotor Bar Fault Detection of 3-phase Induction Motor Using Online Adaptive Continuous Wavelet Transform and Fuzzy Logic", Journal of International review of electrical engineering (IREE), praise worthy prize publishing house, Italy, vol.7, no. 3, May/June 2012, pp. 4383- 4391.

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B. Papers in Refereed Journals (Submitted)

C. Books

Mohammad Nasir Uddin, ***Modelling, Simulation and Implementation of FLC Based IPMSM Drive***, Nov. 2011, ISBN 978-3-8443-9587-7, LAP LAMBERT Academic Publishing GmbH & Co. KG, Saarbrucken, Germany.
This book can be used as a text for the graduate students, faculty members and practicing engineers in motor drives area.

D. Book Chapters

1. **M. N. Uddin,** "Fuzzy Logic Based High Speed Control of an IPM Motor Incorporating Maximum Torque per Ampere, and Field Weakening Techniques" *Fuzzy Logic, Soft Computing and Computational Intelligence,* ISBN # 7-302-11377-5, Tsinghua University Press and Springer, 2005, pp.870-875.

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E. Papers in Refereed Conference Proceedings (Published/Accepted)

1. Md. Shamsul Arifin, M. Nasir Uddin, and Wilson Wang, "Neuro-Fuzzy Adaptive Direct Torque and Flux Control of a Grid Connected DFIG-WECS with Improved Dynamic Performance," accepted for IEEE IAS Annual Meeting 2022, Oct. 9-13, Detroit, MI, USA.

2. M. Nasir Uddin, Md. Shamsul Arifin, and Nima Rezaei, " A Novel Neuro-Fuzzy Based Direct Power Control of a DFIG based Wind Farm Incorporated with Distance Protection Scheme and LVRT Capability," accepted for IEEE IAS Annual Meeting 2022, Oct. 9-13, Detroit, MI, USA.

3. Yazdan H. Tabrizi, **M. Nasir Uddin**, Hesamodin Allahyari, "A Solid-State Pulse Power Generator Employed with Magnetic Switch for Dielectric Barrier Discharge Applications Based on Resonance Charging Concept," accepted for IEEE IAS Annual Meeting 2022, Oct. 9-13, Detroit, MI, USA.

4. **M. Nasir Uddin** and Yazdan H. Tabrizi, "Machine Learning Based Control Strategy of a Three-Phase Neutral-Point Clamped Back-to-Back Power Converter for WECS with Ensured Power Quality," accepted for IEEE IAS Annual Meeting 2022, Oct. 9-13, Detroit, MI, USA.

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73. A. El-khateb, N. A. Rahim, Jeyraj Selvaraj and **M. Nasir Uddin**, "Fuzzy Logic Controller Based SEPIC Converter of Maximum Power Point Tracking" Proceedings of 47th IEEE IAS Annual Meeting, Oct. 2012, Las Vegas, USA.

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75. A. Sagaphina, S. Kahourzade, A.Mohammadi, W. P. Hew and **M. Nasir Uddin**, "On line Adaptive Continuous Wavelet Transform and Fuzzy Logic Based High Precision Fault Detection of IM with Broken Rotor Bars", Proceedings of IEEE IAS Ann. Meet., Oct. 2012, Las Vegas, USA.

76. A. Sagaphina, W. P. Hew and **M. Nasir Uddin**, "Adaptive Fuzzy Sliding-Mode Control into Chattering-Free Induction Motor Drive Proceedings of 47th IEEE IAS Annual Meeting, Oct. 2012, Las Vegas, USA.

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78. S. Pervin, Z. Siri and **M. Nasir Uddin**, "Newton-Raphson Based Computation of id in the Field Weakening Region of IPM Motor Incorporating the Stator Resistance to Improve the Performance" Proceedings of 47th IEEE IAS Annual Meeting, Oct. 2012, Las Vegas, USA.

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82. A. N. Azad, M. H. T. Imam, M. A. Azam, M. A. Kabir, **M. Nasir Uddin**, and M.A. Choudhury, "Ĉuk Topology Based New Three Phase to Single Phase Cycloconverter with Input Current Shaping and Input Power Factor Improvement", conference record of IEEE PES ISGT Asia, May 21-24 2012, Tainjin, China.

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87. S. Kobayashi, M. Ooshima, and **M. Nasir Uddin**, "A Radial Position Control Method of Bearingless Motor Based on d-q Axis Current Control", IEEE IAS Annual meeting Conference Record, Oct. 5-9, 2011, Orlando, FL, USA.

88. **M. Nasir Uddin**, and Ronald S. Rebeiro, "Improved Dynamic and Steady State Performance of a Hybrid Speed Controller Based IPMSM Drive", IEEE IAS Annual meeting Conference Record, Oct. 5-9, 2011, Orlando, FL, USA

89. **M. Nasir Uddin**, Ronald S. Rebeiro and Hao Wen, "Experimental Performance of a Model Reference Adaptive Flux Observer Based NFC for IM Drive", IEEE IAS Annual meeting Conference Record, Oct. 5-9, 2011, Orlando, FL, USA

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91. **M. Nasir Uddin,** Muhammad Hafeez and Nasrudin Abd Rahim, "Self-Tuned NFC and Adaptive Torque Hysteresis based DTC Scheme for IM Drive", IEEE IAS Annual meeting Conference Record, Oct. 5-9, 2011, Orlando, FL, USA.

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98. M. A. Khan, **M. Nasir Uddin** and M. A. Rahman, "Digital Techniques for Faults Diagnostic and Protection of IPM Motors", Accepted for IEEE PES general meeting, July 24-28, 2011, Detroit, MI, USA.

99. K. Miyashita, M. Ooshima, and **M. Nasir Uddin**, "Design of a Time-divided Torque and Suspension Force Control Type Bearingless Motor", Accepted for IEEE PES general meeting, July 24-28, 2011, Detroit, MI, USA.

100. **M. Nasir Uddin**, and Ronald S. Rebeiro, "Neuro-Fuzzy and Fuzzy Logic Controllers Based IPMSM Drive for Speed Control - A Torque Ripple Optimization Approach", Conference record of IEEE IECON, Nov. 07-10, 2010, Phoenix, AZ, USA, pp.

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137. **M. N. Uddin**, and H. Wen “Development of a Self-Tuned Neuro-Fuzzy Controller for Induction Motor Drives”, IEEE IAS Ann. Meeting, Seattle, USA, October 2004, pp. 2630-2636.

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141. **M. Nasir Uddin,** "Control of Interior Type PM Synchronous Motor for High Speed Operations", IEEE Power Engineering Society (PES) Ann. Meeting, Denver, CO, USA, June 2004, pp.1280-1283. **(Invited)**

142. **M. N. Uddin,** T. S. Radwan and M. A. Rahman, "Performance Analysis of a 4-Switch, 3-phase Inverter Based Cost Effective IPM Motor Drives", IEEE CCECE, Niagara Falls, Canada, May 2004, pp 85-88.

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146. **M. N. Uddin**, M. A. Abido and M. A. Rahman, "Real-Time Performance Evaluation of a Genetic Algorithm Based Fuzzy Logic Controller for IPM Motor Drives", IEEE/IAS Annual Meeting Conf. Record, Sault Lake City, Utah, USA, October 2003, pp. 731-737.

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149. **M. N. Uddin**, "Comparative Analysis of Intelligent Controllers for High Performance Interior Permanent Magnet Synchronous Motor Drive" Large Engineering Systems Conference on Power Engineering (LESCOPE), Montreal, Canada, May 2003, pp. 50-54.

150. **M. N. Uddin**, M. A. Abido and M. A. Rahman, "Real-Time Implementation of a Genetic Algorithm Based Fuzzy Logic Controller for Interior Permanent Magnet Synchronous Motor Drive" Int. Conf. on Elect. & Comp. Engineering, Dhaka, Bangladesh, Dec. 2002, pp. 4-7.

151. M. A. Rahman, M. A. Hoque, C.B. Butt, **M. N. Uddin** and M. A. Abido, "Testing of Genetic Algorithm Based PI Controller for IPMSM Drive", IEEE ICIT, Bangkok, Thailand, Dec. 2002.

152. **M. N. Uddin**, M. A. Abido and M. A. Rahman, "Development and Implementation of a Hybrid Intelligent Controller for Interior Permanent Magnet Synchronous Motor Drive" IEEE/IAS Annual Meeting Conference Record, Pittsburgh, USA October 2002, pp. 1639-1646.

153. **M. N. Uddin**, M. A. Abido and M. A. Rahman, "Laboratory Implementation of an Artificial Neural Network for Online Tuning of a Genetic Algorithm Based PI Controller for IPMSM Drive", Int. Conference on Modeling, Simulation of Electric Machines, Converters and Systems, Montreal, Canada, Aug. 2002.

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160. **M. N. Uddin** and M.A. Rahman, "Wide Speed Range Operation of Interior Permanent Magnet Synchronous Motor Incorporating the Fuzzy Logic Controller" Proceedings of the International Conference on Control, Automation, Robotics and Vision, Singapore, Dec.5-8, 2000, pp. .

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162. **M. N. Uddin** and M.A. Rahman, "Experimental Implementation of Fuzzy Logic Based Speed Control of an Interior Type PM Motor Drive", Proceedings of Large Engineering Systems Conference, Halifax, Canada, June 1999, pp.159-163.

163. **M. N. Uddin**, T. S. Radwan and M. A. Rahman, "Performance of Interior Permanent Magnet Motor Drive over Wide Speed Range", Proceedings of the IEEE/IEMDC, Seattle, USA, May 1999, pp. 546-548.

164. **M. N. Uddin** and M. A. Rahman, "Fuzzy Logic Based Speed Control of an IPM Synchronous Motor Drive", Proceedings of the IEEE CCECE, Edmonton, Canada, May1999, pp. 1259-1264.

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167. M. A. Rahman, **M. N. Uddin**, T. S. Radwan and M. A. Hoque, "Intelligent Speed Control of Interior Permanent Magnet Synchronous Motors" IEEE Industry Application Society (IAS) Annual Meeting Conference Record, St. Louis, USA, October 12-15, 1998, pp. 364-370.

168. Q. D. M. Khosru, **M. N. Uddin**, and M. R. Khan, "A simple approach to study time evolution of trapped electrons in metal-oxide-semiconductor devices", Proceedings of IEEE International Conference on Semiconductor Electronics (ICSE), Nov. 1998, pp. 240 – 244.

169. **M. N. Uddin**, M. A. Hoque and M. A. Rahman, "Recent Developments in Large PM Synchronous Machine Drives Technology", Proceedings of IEEE LESCOPE, Halifax, Nova Scotia, Canada, June 1998, pp. 201-205.

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171. **M. N. Uddin** and M. A. Rahman, "Performance of Fuzzy Logic Controller for IPMSM Drive", Proceeding of the IEEE Newfoundland Electrical and Computer Engineering Conference (NECEC), St. John's, Newfoundland, Canada, November 1999.

172. **M. N. Uddin**, T. S. Radwan and M. A. Rahman, "Position and Speed Control of Permanent Magnet Synchronous Motor for Robotic Applications", Proceedings of the IEEE Newfoundland Electrical and Computer Engineering Conference (NECEC), St. John's, Canada, November 1999.

173. **M. N. Uddin**, T. S. Radwan and M. A. Rahman, "Real-Time Implementation of Current-Controlled VSI-Fed IPM Synchronous Motor Drive for High Performance Application", IEEE NECEC Record, St. John's, Newfoundland, Canada, November 1998.

11. Courses taught at different Universities:

At Lakehead University (2001-present)

Barrie campus (2018-)

(i) Undergraduate Courses

- EELE 0573 - Fuzzy Logic Expert Systems (Fall term 2020)
- EELE 4632 – Digital Signal Processing (Winter terms 2020)
- EELE 1236 (old-2236) – Electric Circuits-I (Fall terms 2018-2019)
- EELE 3318 – Electric Machines (Fall 2019-2020)
- EELE 1232 – Introduction to Microcontrollers (Winter 2019)
- EELE 2134 – Electronics II (Winter 2019)
- EELE 4159 – Power Electronics and Drives (Winter 2021)

(ii) Graduate Courses

- EELE 5739 (Reading course) – Power Systems III (Summer 2019)

Thunder Bay Campus (2001-2018)

(i) Undergraduate Courses

- Engi. 4632 – Digital Signal Processing (Winter terms 2002-2018)
- Engi. 0554 – Power Electronics (Winter 2002, 2003, 2009-2012, 2014, 2015, Fall 2017)
- Engi. 4017 – Electronics (Summer 2004, 2008)
- Engi 2258 – Electric Machines I (Fall 2005, 2007-2010,2012, 2013-2014)
- Engi. 2451 (old-3551) – Power Systems I (Fall terms 2001-2005, 2012-2015, Winter 2017-2018)
- Engi 2430- Electronic Control Devices and Applications (Winter 2007-2009, 2013)
- Engi. 1232 (old-3232) – Introduction to Microprocessor (Winter 2004,2005)
- Engi. 1236 (old-2236) – Electric Circuits-I (Fall terms 2001-2004, 2007-2010, 2017)

(ii) Graduate Course

- Engi. 5431– Advanced Power Electronics and Motor Drives (Winter 2003, Fall 2005, Winter 2009, 2010, 2011, 2012, 2014-2016, Fall 2017)
- Engi. 5411– Intelligent Control (Winter 2013)

At University of South Alabama, Assistant Professor (2001)

- Engi. 437- Digital Computer architecture (Dual listed both for graduate and undergraduate)
- Engi. 337 – Analog Electronics.

At College of the North Atlantic, Instructor (Sept. 1999-Dec. 2000)

- Analog Electronics
- Basic Electric Circuits
- Engineering Management
- Electrical System Design in a Building
- Industrial Process Control
- Power Electronics and Drives
- Power Transmission and Distribution.

12. Postdoctoral / Research Assistant Supervision

Postdoctoral Fellow

1. Nima Rezaei (Sept. 2021- August 2022)
   Research Project: FPGA Based Cost-effective Digital Protection Schemes for Reliable Protection of Large-scale Wind Farms

2. 2016, Dr. Ahmad El-Khateb
   Research Project: Development and Implementation of Fuzzy logic Control Based D-Converter for Photovoltaic Solar Conversion System

3. 2010-2011, Dr. Abdesh Khan
   Research Project: FPGA Based Implementation of Closed Loop Vector Control of PMSM for High performance Molding System Drives

Research Assistant

4. Nicholas Frayn, (2017-2018), M. Sc. in Electrical and Computer Engineering, Lakehead University
   Project: Neuro-fuzzy based MPPT control of Solar Energy System.

5. Zhukun Zhai, (April-June, 2017), RA at LU
   Project: Implementation of H-infinity based Robust control of PMSM drive

6. Md. Mizanur Rahman (May-July 2016), **Research Assistant**
   Research Project: Nonlinear DTFC Based IPMSM Incorporating Parameter Uncertainty

7. Garin Schoonhoven (May-July 2015), **Research Assistant**
   Research Project: Nonlinear Controller Based Efficiency Optimization of PMSM drive

8. Vittoria Andrade (May 2014-Aug. 2014), **Research Assistant**
   Research Project: Fuzzy Logic based efficiency optimization of induction motor drives

9. Geiza Gomez (May 2014-Aug. 2014), **Research Assistant**
   Research Project: Torque ripple minimization of PM motor drives

10. Thais Barreto Soares (May 2014-Aug. 2014), **Research Assistant**
    Research Project: Intelligent Control of high performance PM Motor Drives

11. Felipe Azevedo (May 2013-Aug. 2013), **Research Assistant**
    Research Project: Real-Time Implementation of Nonlinear Controller Based Efficiency Optimization of PMSM Drive

12. Almusa Hossain (2011-2012), **Research Assistant**
    "Model Reference Flux Observed Based DTC scheme for IM Drive"

13. Shewng Hua Lee (Sept. 2009-April2010), **Research Assistant**

14. Munga Mshana (2010-2011), **Research Assistant**
    Project: Flux-weakening Based DTC scheme for wide speed range operation of IM drive

15. Ronald S. Rebeiro (2010-2011), **Research Assistant**
    Research Project: Torque Ripple Minimization of PMSM Drives

16. Muhammad Hafeez (2010-2011), **Research Assistant**
    Research Project: Novel Flux Observer Based DTC Scheme for IPMSM Drive

17. Sang Woo Nam (2006), **Research Assistant**
    Research Project: Efficiency Optimization of IM drives

13. Graduate Student Supervision:

PhD (supervisor)

1. Shamsul Arifin (2020 -), PhD in Electrical & Computer Engineering, Lakehead University
   Tentative thesis title: ANFIS based Optimal Battery Power Management Scheme for standalone mode of Wind Energy Systems

2. Yazdan Tabrizi (2020 -), PhD in Electrical & Computer Engineering, Lakehead Univ.
   Tentative thesis title: Intelligent algorithm based DTFC control incorporated with fault protection for DFIG based Wind Energy System

3. Mohammadmahdi Asghari (2021 -), PhD in Electrical & Computer Engineering, Lakehead Univ.
   Tentative thesis title: Cyber security of smart microgrid system.

4. Ifte Khairul Amin (2015- 2019), PhD in Electrical & Computer Engineering, Lakehead Univ.
   Thesis title: Robust Control Techniques for DFIG Driven WECS with Improved Efficiency

5. Nima Rezaei (2017-2021), PhD in Electrical & Computer Engineering, Lakehead Univ.
   Thesis title: Intelligent and Cost-effective Protection Schemes to Improve Security and Reliability of Large-Scale Wind Farms

PhD (co-supervisor)

6. M. Rubaiyat Tanvir Hossain (2011-2016), PhD in Electrical & Electronic Engg., Bangladesh University of Engineering & Technology
"Design and Testing of A Three-Phase Buck-Boost AC-AC Voltage Converter"

7. Amina Hasan Abedin (2011-2017), PhD in Electrical & Electronic Engg., Bangladesh University of Engineering & Technology
"Input Switched High Performance Three Phase Buck-Boost Controlled Rectifier"

8. Ali Sagaphina (2011-2013), UMPEDAC Lab, Univ. of Malaya, Kuala Lumpur, Malaysia
"Fuzzy Boundary Layer Based Sliding Mode Control of Induction Motor Drive"

9. Ahmad El Khateb (2011-2013), UMPEDAC Lab, Univ. of Malaya, Kuala Lumpur, Malaysia
"FLC Based MPPT Control of SEPIC Converter for PV Solar Power Applications"

10. Fathi Mohammad Elias (2011-2012), UMPEDAC Lab, Univ. of Malaya, KL, Malaysia
"Design and Control of Asymmetrical Cascaded Multilevel Inverter based on Transistor-Clamped H-Bridge Power Cell"

11. Amin Mahmoudi (2011-2013), UMPEDAC Lab, Univ. of Malaya, Kuala Lumpur, Malaysia
"Design, Analysis, and Prototyping of a Novel-Structured Axial-Flux Permanent-Magnet Motor"

M. Sc. (Supervisor)

1. Maryam Papari (2021-), M. Sc. in Electrical and Computer Engineering, Lakehead University
Tentative thesis title: Neuro-Fuzzy Based DTFC Control of IPMSM drive Incorporating Flux Weakening

Design optimization of SiC converter technology for renewable energy conversion system

2. Jeffrey Andrew Cotter, (2017-2019), M. Sc. in Electrical and Computer Engineering, Lakehead University
Thesis title: Particle Swarm Optimization based Adaptive Neuro-Fuzzy Inference System for MPPT Control of a Three Phase Grid Connected Photovoltaic System.

3. Shyam Joshi, (2017-2018), M. Sc. in Electrical and Computer Engineering, Lakehead University
Project title: Control Strategy of a Permanent Magnet Synchronous Generator for a Variable Speed Wind Turbine Application

4. Oluwaseun Ajose, (2017-2018), M. Sc. in Electrical and Computer Engineering, Lakehead University
Project title: Nonlinear efficiency optimization based PMSM Drive.

5. Zhuoqun Zhai, (2015-2017), M. Sc. in ECE, Lakehead University
Thesis: Performance Investigation of H∞ Control and Port Controlled Hamilton with Dissipation Based Nonlinear Control for IPMSM Drives

6. Md. Mizan Rahman, (2014-2016), M. Sc. in ECE, Lakehead University
Thesis: A Novel DTFC Based Efficiency and Dynamic Performance Improvement of IPMSM Drive

7. Garin Schoonhoven, (2013-2016), M. Sc. in Electrical and Computer Engg., Lakehead University
Thesis: Nonlinear Adaptive Control for Robust Wide Speed Range Operation of IPMSM

8. Aakarshan Singh, (2014-2016), M. Sc. in ECE, Lakehead University
Project: Real-time Implementation of Bidirectional DC-DC converter for electric vehicle application

9. Hong Bin Zou (2012- 2014), M. Sc. in Electrical & Computer Engg., Lakehead University

"Online Loss Minimization Based Direct Torque and Flux Control of IPMSM Drive"

10. Nirav Patel (2011-13), M. Sc. (completed), Control Engineering, Lakehead University
"Speed Sensorless and MPPT Control of IPM Synchronous Generator for Wind Energy Conversion System"

11. Bhumikumar Patel (2011-2013) M. Sc. (completed), Control Engineering, Lakehead University
"Development and Implementation of High Performance and High Efficiency Interior Permanent Magnet Synchronous Motor Drive"

12. Jamshid Khastoo (2009-2011), M. Sc. (completed), Electrical and Computer Engineering, Lakehead University
Thesis title: Fuzzy Logic Based Efficiency Optimization of IPM Synchronous Motor Drive

13. Ronald S. Rebeiro (2008-2010), M. Sc.(Completed), Control Engineering, Lakehead University
Thesis title: Fuzzy Logic Based Online Adaptation of Current and Speed Controllers for Improved Performance of IPMSM Drive

14. Muhammad Hafeez (2008-2010), M. Sc. (completed), Control Engineering, Lakehead University
Thesis title: Self Tuned NFC and Adaptive Hysteresis Based DTC Scheme for IM Drive.

15. Fasil Abera (2006-2009), M. Sc. (completed), Control Engineering, Lakehead University
Thesis title: Efficiency Optimal Control of Interior Permanent Magnet Synchronous Motor

16. Md. Mumniul Islam Chy, (2005-2007), M. Sc. (completed), Control Engg. Lakehead Univ.
Thesis title: Development and Implementation of Various Speed Controllers for IPMSM Drive.

17. Zhi Rui Huang, (2005-2007), M. Sc.(completed), Control Engineering, Lakehead University
Thesis title: Self-Tuned Neuro-Fuzzy Controller Based Induction Motor Drive.

18. Sang Woo Nam, (2004-2006), M. Sc. (Completed), Control Engineering. Lakehead University
Thesis title: Adaptive backstepping based on-line loss minimization of an IM drive.

19. Jason Lau, (2002-2005), M.Sc. (completed), Control Engineering, Lakehead University
Thesis title: Adaptive backstepping based nonlinear control of an interior permanent magnet synchronous motor.

20. Hao Wen, (2002-2005), M.Sc. (completed), Control Engineering, Lakehead University
Thesis title: Development and analysis of a self-tuned neuro-fuzzy controller for IM.

Co-supervisor

21. Ramtin Golrang, co-supervisor with Dr. K. Natarajan (2012)
Thesis Title: MPPT control of doubly fed induction generator for Wind energy systems

22. Li Wang, co-supervision with Dr. X. Liu (04-06), M.Sc., Control Engg., LU
Thesis title: Nonlinear control of a two degree of freedom robot.

23. Yonggang Yin, co-supervision with Dr. X. Liu (04-06), M.Sc., Control Engg., LU

Tentative Thesis title: Robust backstepping based control of buck converter

24. M. Yektaii, co-supervised with Dr. K. Natarajan (01-05), M.Sc.(completed), Control Engg, LU
Thesis title: Control of parallel buck dc-dc converter.

External examiner (International)

1. PhD Dissertation, June 2021, "STANDALONE AND GRID INTERACTIVE PMSG BASED SMALL HYDRO GENERATION WITH PV AND BATTERY INTEGRATION", (Author- Mr. Chandran) IIT Delhi, India

2. PhD Dissertation, August 2021, "LOW-VOLTAGE RIDE-THROUGH CAPABILITY ENHANCEMENT OF A SINGLE-STAGE GRID-CONNECTED PHOTOVOLTAIC SYSTEM", (Author- Mrs. Norazila Zaalam), University of Malaya, Malaysia

3. PhD Dissertation, July 2020, "OPTIMAL ENERGY STORAGE SOLUTION TO REDUCE ELECTRICITY BILLS FOR CLASS-A CUSTOMERS IN ONTARIO" (Author- Abdeslem Kadri) Ryerson University, Canada

4. PhD Dissertation, Jan. 2020, "Control techniques for Induction Motor drives", (Author- Mr. Joseph Gerald) Anna University, India

5. PhD Dissertation, Jan. 2020, "Harmonic Mitigation Techniques for enhancing power system stability using DDSRF theory", (Author- Mr. Rajesh C. R.) Anna University, India

6. PhD Dissertation, Nov. 2019, "Lumped Parameter Thermal Network Modelling for Thermal Characterization and Protection of Traction Motors in Electric Vehicle Application" (Author- Mr. Firoz Ahmed) Univ. of Windsor, Canada

7. PhD Dissertation, (July 2019), "ZERO –VOLTAGE SWITCHING PWM FULL-BRIDGE CASCADED VOLTAGE MULTIPLIER BASED DC-DC CONVERTER FOR HIGH VOLTAGE-GAIN APPLICATION" (Author- Md Zakir Hossain), Univ. of Malaya, Malaysia

8. PhD Dissertation, (Nov. 2018), "Disturbance-Estimator Dead-Beat Current Controller for Grid-Connected Single-Phase Power Electronic Converters" (Author- Haider Mohomad A R), Univ. of New Brunswick, Canada

9. PhD Dissertation, (March 2017), "CONDITION MONITORING FOR IDENTIFICATION AND DETECTION OF FAULT IN ELECTRICAL MACHINES" (Author- Deepa Mehta), Anna University, India

10. PhD Dissertation, (Aug. 2015), "APPLICATIONS OF POWER ELECTRONICS FOR RENEWABLE ENERGY" (Author- Babak Roodsari), Univ. of Calgary, Canada

11. PhD Dissertation (April 2015), "ANALYSIS, DESIGN AND IMPLEMENTATION OF IMPROVED POWER QUALITY CONVERTERS FED ADJUSTABLE SPEED INDUCTION MOTOR DRIVES" (Author- Madhishetti Sandeep), IIT Delhi, India

12. PhD Dissertation, (Dec. 2014), "Fault Diagnosis in Electrical Systems using Signal Processing Techniques", (Author-Mrs. Deepa S.), Anna University, India

13. PhD Dissertation (2012), "WAVELET BASED FAULT TOLERANT CONTROL OF INDUCTION Motor" (Author- Khalaf Salloum Gaeid), University of Malaya, Kuala Lumpur, Malaysia

14. PhD Dissertation (2012), , University of Malaya, Kuala Lumpur, Malaysia

15. M.Sc. thesis (2011), "Design and Performance Evaluation of A Unity Power Factor Converter for Wind Energy Conversion System", (Author: Nirnaya), Nanyang Technological University, Singapore

16. PhD Dissertation (2010), " Robust and Adaptive Control via Backstepping Technique," (Author: Wijono) University of Malaya, Kuala Lumpur, Malaysia

Internal Examiner (LU)

1. PhD Dissertation, Peter Luong (2016-2019), "Intelligent Controller Based Online Fault Diagnostics of Induction Motor', Electrical and Computer Engineering, Lakehead University

2. Kaiyu Zhao (Nov. 2017), M.Sc. Electrical and Computer Engineering, "Attitude control for a quadrotor UAV using adaptive fuzzy backstepping".

3. Ruiqi Song (2016), M.Sc. Electrical and Computer Engineering, Lakehead University
AN INTEGRATED FULL-BRIDGE CLASS-DE ULTRASOUND TRANSDUCER DRIVER FOR HIFU APPLICATIONS

4. Mr. Hamid Abareghi (2016), M. Sc., Electrical and Computer Engineering, Lakehead University

5. Shamendu Roy Rohit (2014), "Robust H∞ Model Reference Tracking Control of Singular System Using T-S Fuzzy Model and LMI"

6. Tarik Menkad (2013), M. Sc., Control Engineering, Lakehead University

7. Gregory Togtema (2013), M. Sc., Control Engineering, Lakehead University

8. Ibrahim (2012) M. Sc., Control Engineering, Lakehead University

9. Kuang Liang Kuo (2010), M. Sc., Control Engineering, Lakehead University
Thesis title: Analysis and Improvement of Turn/off Performance MOSFET sturcture

10. Jie Qi, Internal Examiner, (2005), M. Sc., Control Engineering, Lakehead University
Thesis title: Modeling of PWM Boost Converters for Continuous and Discontinuous Inductor Current Mode

11. Antoine G. Ibrahim, Internal Examiner (2005), M.Sc., Control Engineering, Lakehead Univ.
Thesis title: Robust and Adaptive control via Backstepping Technique.

Supervisor for Undergraduate Students

- David Edgecombe, David Van Bonilla and Stephen Bond (2020-2021)
  Developing Transient-Free Capacitive Voltage Transformers (CVTs) for Protection Applications

- Mihajlo Antonijevic, Aaron Crofts, Matthew A Sutor, Elliot Wolfe (2017-2018)
  Design and Construction of a DC-AC converter for Solar energy conversion.

- Robert Manteuffel, Stephen Freeman, Chris Dimtses (2015-2016)
  Small Scale Wind Turbine

- PashmaNanayakkara Harrison Pyke, Hammad Jadoon (2015-2016)
  Harnessing Marine Wave Energy

- Malcolm Sinclair, Kyumyung Oh, Jodel Patrick De Jesus (2014-2015)
  Wireless Charging for Low Power Devices

- Gurpreet Khaira, Travis Proskurniak, Harpreet Sohal (2014-2015)
  Automatic Retrieval of a car from a multistoried car parking

- Eric Franke, Patrick Deault, Stuart Akam (2013-2014)
  Wind Turbine Power Generating System

- Meric Forest, William Vanderwall, Imad Uddin (2013-2014)
  Maximum MPPT Based PV Solar Power Conversion System

- Asa Kinkead, Saric Mladen, Victor Vuckoski and Matt Coutu (2012-2013)
  Self Integrated watering System

- Justin Smith, Garin Schoonhoven, Bradley Robb (2012- 2013)
  An Application of PID Control of DC Motor Involving DC-DC Regulator and Wireless data Acquisition

- Nirav Patel, Shawn McLean (2010-2011)
  Maglev Vertical Axis Wind Turbine

- Baljit Ubhi, Matt Elliott, Mohammad Shekarforoush (2010-2011)
  Control of DC Motor drive

- Sean Corcoran, Zac Trolley, Fifi Markin, and Joshua Rondgers (2009-2010)
  Design of a Small Scale Solar Power System

- Josh McGill, Hani Henein, Massimo Vento, and Mitcehll Bedard (2009-2010)
  Modulating Transfer Function Sensory System

- Mustapha Chawqui, Bijal Patel and Saif Hoque (2008-2009)
  Variable Speed DC Motor Drive

- Nathan Lealess, Andrew Mulcaster, James Sternbauer (2008-2009)

Electromagnetic Field Generator to Levitate and Object

- Paras Patel, Swaran Singh and Devendra Gadgil (2007-2008)
  Building Automation System
- Spencer Joyce and Tyler Krug Wilson (2007-2008)
  Single Dwelling Sub-metering
- Bashir Jamal, Umair Shamshad, Thaibang Tran (2005-2006)
  Project title: Digital Energy Meter.
- Adam Jones, Scott Reid (2005-2006)
  Project title: Controlling a six degree of freedom parallel robot.
- Angel Liu, Neil Bright and Martin Sterling (2005-2006)
  Project title: Robotic sound detector.
- Girilal Gopakuar (2005-2006)
  Project title: Obstacle avoiding robot.
- M. Kuzma, Timothy Ricard (2005-2006)
  Tentative project title: IR detection System.
- Liam Somer, Tristan Ransom and Adam Kerr, (2004-2005)
  Project title: FLC based efficient control of a gas lawn mower.
- Nathaniel Kamell, Andrew Waud (2004-2005)
  Project title: FLC based control of a boost converter.
- Jimmy Low and Marc Tietz (2003-2004)
  Project title: Design of autonomous inch worm
- Trevor Heiman, Victor Batniovic and Marvin Galvez (2003-2004)
  Project title: Design of Lakehead University New Ring Type Electrical Distribution System
- Ali Taghizadeh, Rajinder Bajiwa, and Dhasminder Chima (2003-2004)
  Project title: Study of Protection and Coordination of a Power system.
- Elmir jaservic and Harry Pietila (2003-2004)
  Project title: Zero voltage switching resonant buck converter.
- Trevor Boughner, Alphon Tan and G. Gill, 2002-2003
  Project title: Automatic audio band equalizer.
- Jeff Gandier, Charles Walford and Paul Ariganello, 2002-2003
  Project title: Motion Controlled Camera
- Mark Peters, 2002-2003
  Project title: Automatic Power Factor Correction.
- Q. Truong, W. Bataclan, R. Ahmed, 2001-2002,
  Project: Voice recognition and autodialing of telephone

- M. Tkach and J. Littlejohn, 2001-2002
  Project: Multiple band automated audio equalizer.

- J. Semerdjian, K. Lachnitt, 2001-2002
  Project: Design and implementation of a direct cost monitoring energy meter.

14. Editorship/Professional Committee Service

- **Transactions Papers Review Chair** (2020-2022, Acting), IEEE Transactions on Industry Applications, (IAS-Power system Protection Committee)

- **Associate Editor** (2018-2022, 2007-2015), IEEE Transactions on Industry Applications

- **Member,** (2016-2017), IEEE Industry Applications Society (IAS) Executive Board

- **Chair** (2016-2017), IEEE-IAS-Manufacturing Systems Development and Applications Department (MSDAD)

- Member, (2017-2018), IEEE-IAS Faculty Research Grant Proposal Evaluation committee

- Member, (2017), IEEE-IAS PhD Thesis Contest Evaluation committee

- **Co-Chair,** Technical program committee, IEEE Electrical Power Engineering Conference (EPEC), (Oct.10-11, 2018) Toronto, Canada.

- **Co-Chair,** Technical program committee (motor drives, components and packaging sections) of 2015 IEEE Energy Conversion Congress and Expo (ECCE) at Montreal, Canada.

- **Member** (May 22-24, 2018), Technical program committee, IEEE IPEC, Niigata, Japan.

- **Member,** (2015), **NSERC Strategic Network Grant** Application Site Visit Committee, Ryerson University, Canada

- **Member** (2005-present), **NSERC Discovery Grant** Evaluation, Canada

- Member, (2016-2017), Transactions and Magazine Prize Paper Awards selection committee (IEEE-IAS)

- **Transactions Papers Review Chair** (2013-2014, 2009-2011), IEEE Transactions on Industry Applications, (IAS-Industrial Automation and Control Committee (IACC))

- **Editor** (2008-2012), International Journal on Power and Energy Conversion, Inderscience publishers

- **Associate Editor** (2008-2010), International Journal of Industrial Electronics and Drives (IJIED), Inderscience publishers

- **Past chair** (2013-2015), **Chair (**2011-2012), **vice-Chair (**2009-2010), **Secretary** (Elected, 2007-2009) IEEE IAS Industrial Automation and Control Committee (IACC).
- **Technical Committee Program Chair** (IACC), 47th (Oct. 2012, Las Vegas, USA) and 46th (Oct. 2011, Orlando, USA) IEEE IAS Annual Meetings
- **Vice-Chair, Technical committee** EEE IEMDC meeting 2011, Niagara Falls, Canada.
- **Chair**, Advanced Control Working group of Motor subcommittee, IEEE Power and Energy Society (PES) (2006-2010).
- Technical program committee member IEEE LESCOPE (2003-2007)
- 2005-present, Member, Research proposal evaluation committee, King Fahd University of Petroleum and Minerals, Saudi Arabia.

Promotion & Tenure Evaluation

- Jan. 2021- Dec. 2022, **External Reviewer** for evaluation of Masters Program in Mechatronics, International Islamic University of Malaysia (IIUM), Kuala Lumpur, Malaysia.
- Sept. 2019 – Sept. 2022, **External assessor** for Professor/Assoc. Prof. promotion and Appointment at University of Malaya, Kuala Lumpur, Malaysia.
- Jan. 2020, one **Associate Professor** promotion evaluation, King Abdul Aziz University, Jeddah, Saudi Arabia
- April 2018, March 2019, two **Full Professor** promotion evaluation, King Abdul Aziz University, Jeddah, Saudi Arabia
- Aug. 2015, **Full Professor** promotion evaluation, King Mongkut`s University of Technology, North Bangkok, Thailand
- April 2015, **Assoc. Professor & Tenure** evaluation, Petroleum Institute, Abu Dhabi, UAE
- 2014, **Assoc. Professor & Tenure** Evaluation, University of North Carolina, Charlotte, USA
- 2012, **A-Grade Prof.** evaluation, University of Malaya, Malaysia
- 2010, **Professor** Evaluation, International Islamic University of Malaysia

Other Scholarly Activities

- Regular reviewer for the following refereed Journals, Conferences and publisher:
    - IEEE Transactions on Industry Applications (IACC, IDC, IPCC)
    - IEEE Transactions on Industrial Electronics
    - IEEE Transactions on Power Electronics

- IEEE Transactions on Energy Conversion
- IEEE/ASME Transactions on Mechatronics
- IEEE/ASME Trans. on Fuzzy Systems
- IEEE IAS Magazine
- Book reviewer for John Wiley and Sons Ltd., UK.
- Reviewer, NSERC Discovery Grant Proposal
- Canadian Journal of Electrical and Computer Engineering (CJECE)
- International Journal of Control and Applications (ACTA Press)
- Arabian Journal of Science and Engineering, KSA
- Member, Editorial board, Special issue on Web Intelligence, Applications and Services, The US Journal of Computer Science, NY, USA.
- Journal of Simulation, Modeling, Practice and Theory (Published from Amsterdam, Netherlands)
- Iranian Journal of Electrical and Computer Engineering (IJECE)
- Distinguished reviewer for evaluation of scientific research project proposals for King Fahd University of Petroleum & Minerals (KFUPM), Saudi Arabia.

- IEEE Sponsored conferences (IAS, PESC, PES, IECON, CCA (sponsored by IEEE Control Society), IPEC, and LESCOPE), IEEE-GCC-2006 (Gulf Cooperation Council, members are: Saudi Arabia, Bahrain, Kuwait, Oman, Qatar and the United Arab Emirates (UAE)), IEEE ICIT 2006 (Mumbai, India), and IEEE ICEIS 2006 (Islamabad, Pakistan).

- **Invited Research Seminars** at University of Tenaga Nasional (UNITEN), Malaysia (2019), City University of New York, USA (2016), Ryerson University, Canada (2016), University of Calgary, Canada (2015, 2009), Nanyang Technological University (NTU), Singapore (2011); American International University and North South University, Dhaka, Bangladesh (2011), Tokyo Institute of Technology (TIT) (2010), Tokyo University of Science, Japan (2010) East West University (2010), Bangladesh, United International University, Bangladesh (2015, 2010), Bangladesh Univ. of Engg & Tech. (2004, 2008, 2012), University of South Alabama, USA (2007), Petroleum Institute Abu Dhabi, UAE (2006).

- Book Review, 2009, Oxford University Press, (Introduction to Electric Circuits, 8th Ed., by- H.W. Jackson, D. Temple and B. Kelly)

- Organized special sessions on "Intelligent Motor Control" for IEEE PES 2006 (Minneapolis, USA) and 2007 (Tampa, USA).

- Invited special session organizer "Advanced Intelligent Controllers for AC Motor Drives" for IEEE International Conference on Industrial Technology (ICIT 2006), Mumbai, India (sponsored by IEEE Industrial Electronic Society, IIT Kharagpur and IIT Delhi).

- Serving as an endorser/referee/nominator (2005-present) for IEEE Fellow grade or Senior member elevation as an expert in electric motor drives area.

- One of the technical session organizers for IEEE IAS Annual Meetings 2003-2008.

- Technical program committee member for the following conferences
  - IEEE IEMDC meeting 2011, Niagara Falls, Canada.
  - IEEE IAS Annual Meetings 2003-2012
  - IEEE PES 2004-2007

  - IEEE Large Engineering Systems Conference on Power Engineering (LESCOPE) since 2003.
  - IEEE International Conference on Engineering of Intelligent Systems (ICEIS) 2006, Islamabad, Pakistan

- Collaborative research work with University of Kebangsan, Malaysia, Univ. of Tenaga Nasional (UNITEN), UMPEDAC Lab, University of Malaya, Malaysia; Memorial University of Newfoundland, Canada; Menoufiya University, Egypt; Nanyang Technological University, Singapore; King Fahd University of Petroleum and Minerals, Saudi Arabia and Tokyo University of Science, Japan.

- Invited lecture for Shad Valley Program 2005, where I talked about the Power Systems in general and the causes and effects of 2003 power blackout of North America.

- Arranged field trips (Dec. 2004-2009) at Thunder Bay Hydro Operations Center for students in Engi 2451 (Power Systems-I) class.

- Lead Judge (2003-2017), Northwestern Regional Science Fair
- 2010-present, **Founding Chairman**, **Dr. Nasir-Shahida Foundation**, Bangladesh (involved in giving scholarships to the meritorious and poor students in Bangladesh, helping poor people and donating money for other charitable Institutions)
- 2011, I established "**Arshed-Sajeda Primary School**" in my village (Baliakandi, Rajbari, Bangladesh) after the name of my parents. The school offers free primary education (Grade1-5). The poor and meritorious students are also supported by scholarships from Dr. Nasir-Shahida Foundation. The school became nationalized by the Government in 2015.

15. Professional Associations:

- Fellow, The Institute of Electrical and Electronic Engineers (IEEE) (Membership # 40362684 since 1998-present
- Member, IEEE Industry Applications Society (IAS) (1999-present)
- Member, IEEE Power Electronics Society (PELS) (2002-present)
- Member, IEEE Power Engineering Society (PES) (2003-present)
- Member, IEEE Industrial Electronic Society (IES) (2008-present)
- Member PEO (Association of Professional Engineers Ontario) (Membership # 100067481, August 2004-present)