

Magdy Salama

Professor, Ph. D., P.Eng, Fellow IEEE

University Research Chair

CV ([link](#))

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Research Interests

Areas:

Distribution System Analysis

- Distribution system planning
- Load forecasting
- Substation Engineering
- Distribution system performance analysis
- Reactive power control
- Distribution System Protection
- Distribution System Reliability

Power Quality Analysis

- Power quality performance benchmarking

- Power quality monitoring protocols
- Power quality detection and identification
- Power quality source identification
- Power quality monitoring devices locations in the distribution system

Smart Grid Analysis

- Load management advisory service for smart meters
- Large area power quality monitoring and classification
- Automatic fault detection and system restoration in smart systems
- Decision assistive models for distribution systems asset management
- Impact of distributed generation on smart grid operation and protection
- Communication protocols and IT infrastructure for smart grid

Renewable Energy Analysis

- Solar energy
- Wind energy
- Fuel mix analysis
- Renewable energy penetration analysis
- Storage system design and analysis

Power System Asset Management and Risk Analysis

- Transformer techno-economic replacement and end of life analysis
- Transformer outage probability distribution analysis
- Transmission lines condition monitoring and asset health assessment
- Transmission lines decision support system (DSS) for the analysis and prioritization of asset sustainment investment
- Circuit breaker condition monitoring and health analysis
- Circuit breaker risk and uncertainty modeling for asset sustainment analysis

Grounding system analysis

- Substation grounding design and analysis
- Transient aspect in grounding systems
- Stray voltage measurements and analysis

Teaching and Supervision

- **Office hours:** By appointment (e-mail or call)

Courses:

- E&CE 765: Distribution System Engineering
- E&CE 760: Power System Transients
- E&CE 6606PD: Power System Protection
- E&CE 6616PD: Electric Safety and Grounding System Design
- E&CE 6617 PD: Asset Management and Risk Assessment of Power Systems

Grad students, Postdocs and Visitors:

Former Students

1. W. Omran, Ph.D. 2010, "Performance Analysis of Grid-Connected Photovoltaic Systems"
2. N. Rahman, M.Sc. 2009, "Energy storage solutions for wind generator connected distribution systems in rural Ontario"
3. J. Maggard, M.Sc. 2009, "Automation of Sleep Staging"
4. W. Moussa, M.Sc. 2009, "A Multiprocessor Application Driven Platform Based on FPGA Technology"
5. S. Zhang, M.Sc. 2008, "Classification of sleep staging for Narcolepsy assistive device"
6. M. Wahba, M.Sc. 2008, "An automated modified region growing techniques for prostate segmentation in trans-rectal ultrasound images"
7. T. El-Fouly, Ph.D. 2007, "Wind farms production: Control and prediction"
8. M. El-Dery, Ph.D. 2007, "Retrofit control to prevent ASD nuisance tripping due to power quality problems"
9. F. Sahba, Ph.D. 2007, "Reinforced segmentation of images containing one object of interest"
10. S. Rahnayyan, Ph.D. 2007, "Opposition based differential evolution"
11. G. Awad, Ph.D., 2007, "Knowledge based prostate segmentation and regions of interest detection in transrectal ultrasound images"
12. C. Lawrence, M.Sc. 2007, "Improving fuel economy via management of auxiliary loads in fuel-cell electric vehicles"
13. A. Lueng, M.Sc. 2007, "Predictive maintenance of circuit breakers"
14. S. Mohamed, Ph.D. 2006, "Integrated feature analysis for prostate tissue characterization using TRUS images"
15. H. Zeneldien, Ph.D., 2006, "Distributed generation micro-grid operation: Control, protection, and electricity market operation"
16. P. Hapuarachchi, M.Sc., 2006, "Feature selection and artifact removal in sleep stage classification"
17. A. Salib, M.Sc., 2006, "Voltage sag ride-through for inverter-based load"
18. C. Yiu, M.Sc., 2006, "Voltage sag localization for power distribution system"
19. S. Gabran, M.Sc., 2006, "Design and optimization methodology of sub-dermal electroencephalography dry spike-array electrode"
20. M. Wei, M.Sc. 2005, "Energy management of hybrid electric vehicles"
21. Q. Trinh, M.Eng., 2005, "Reactive power control".

22. W. El-Khattam, Ph.D., 2004, "Power delivery system planning implementing distribution generation"
23. A. El-Nady, Ph.D., 2004, "Novel control strategies for voltage source converter based mitigating devices to improve the voltage quality"
24. M. Marie, Ph.D., 2004, Novel control algorithms for invert based custom power conditioners".
25. J. Liu, Ph.D., 2004, "A Study of distributed energy recourses and RF triggered high temperature superconductive current switches"
26. J. Li, M.Sc. 2004, "An automated malignant tumor localization algorithm for prostate cancer detection in trans-rectal ultrasound images"
27. Q. Xu, M.Sc. 2004, "Statistical Significance Test-Based Feature Selection for Neural Network Classification Used in Mass Spectrometry-Based Proteomic Pattern Analysis for Prostate Cancer Detection"
28. T. Abdel Galil, Ph.D., 2003, "Automated recognition system for power quality disturbances".
29. E. Hui, M.Sc., 2003, "Region-based feature extraction of prostate ultrasound images: A knowledge based approach using fuzzy inference"
30. B. Chui, M.Sc., 2003, A new segmentation algorithm for prostate boundary detection in 2D ultrasound images".
31. E. Ibrahim, M.Sc., 2003, "Investigation of manufacturing tolerance effects on mass production filters"
32. S. Ahmed, M.Sc., 2002, "Automated frequency dependent network equivalence utilizing maple"
33. K. Sreenivasachar, Ph.D. 2001, "Unified power flow controller: modeling, stability analysis, control strategy and control system design".
34. A. Gaouda, Ph.D. 2001, "Wavelet-automated recognition system for power quality monitoring".
35. R. El Shatshat, Ph.D. 2001, "A novel modular approach to active power-line harmonic filtering in distribution systems".
36. H. Ng, Ph.D., Ph.D. 1999, "A novel and practical approach to distribution system performance enhancement using a fuzzy capacitor application method".
37. E.F. El-Saadany, Ph.D., 1998, "Power quality improvement for distribution systems under non-linear conditions".
38. J. Levine, M.Sc., 1998, "Secondary fault current calculation"
39. D. Bouchard, Ph.D., 1997, "Towards loss minimization in distribution systems using AI: the WATDIST algorithm"
40. Y. Lui, Ph.D., 1997, "Space charge distribution measurements in polymers by an improved pulsed electro-acoustic method"
41. Y.G. Hegazy, Ph.D., 1996, "Identification of harmonic current characteristics in electric distribution systems".
42. R.J. Sarfi, Ph.D., 1996, "Reduction of distribution system losses and improvement of service quality: a novel application based upon a coupling of knowledge based and numerical methods".
43. S. Fouda, Ph.D., 1996, "A new hybrid technique for harmonic suppression in distribution systems".
44. B. Lian, Ph.D., 1995, "A flexible frequency window approach to the power transmission line fault location algorithm".
45. A. Ibrahim, M.Sc., 1995, "Frequency dependent network equivalents for AC power systems".
46. A. Mathias, M.Sc., 1995, "Digital simulation of static VAR system using the electromagnetic transient analysis program (EMTP)".
47. M. Wadie, M.Sc. 1995, "A novel comprehensive approach for distribution system planning".

48. A. Dastaviz, M.Sc., 1994, "Partial discharge in solid insulating materials: detection and analysis".
49. A. Mazroua, M.Sc., 1993, "Pattern based partial discharge diagnosis system using neural networks".
50. T. El-Sheikh, Ph.D., 1991, "Underground transmission theory and technology of high voltage cables".
51. E.A. Aliem, M.Sc., 1990, "Optimum design of interior lighting systems".
52. M.H. Fahmy, M.Sc., 1990, "Optimum design of cathodic protection systems".
53. H.M. Mostafa, M.Sc., 1989, "Electric load forecasting using different methods suitable to Egyptian network".
54. M..M. Sallam, M.Sc., 1988, "Tracking of electric insulating materials".
55. M.M. Ahmed, M.Sc., 1988, "Optimum allocation for static and switched capacitors on primary feeders".
56. H.K. Temraz, M.Sc., 1988, "Studying of fault current limiter devices".
57. A.M. El-Harras, M.Sc., 1987, "Field calculations and corona discharges on high voltage lines".
58. M. Abd. El Hamid, M.Sc. 1987, "Electromagnetic interference from high power high voltage equipment".
59. T.S. Abd El Salam, M.Sc., 1986, "Dynamic reactive power control for distribution feeder".
60. M. El-Desoky, M.Sc., 1986, "Transient analysis of three phase induction machines".
61. M.M. Rizk, M.Sc., 1982, "Partial discharge measurements".
62. T. El-Sheikh, M.Sc., 1981, "Calculation of electric fields in belted cables".
63. El. Abaseiry Mahmod, M.Sc., 1981, "Reactive power control for distribution system".

B: Current Students

1. G. Gilbert, Ph.D.
2. K.Wong, Ph.D.
3. Abu Elanien Ph.D.
4. M. Elnashar, Ph.D.
5. S. Gabran,, Ph.D.
6. C.Yiu, Ph.D.
7. M. El-Khatib, Ph.D.
8. M. Mohamed, Ph.D.
9. J. Saad, Ph.D.
10. M. Eldein, Ph.D.
11. R. Hasan, Ph.D..
12. R. Xu, M.Sc.
13. Y. Alhazmi, M.Sc
14. M. Mukerji M.Sc

C. Supervision of Post-Graduate Assistance (September 1990- Present)

1. Dr. A. Gouda, June 2008 – July 2008, Assistance Prof., American University, Sharjah, UAE
2. Dr. A. El-Hag, June 2008 – Aug. 2008, Assistance Prof., American University, Sharjah, UAE
3. Dr. A. Nafeh, Sept. 2007- Oct. 2008, Postdoctoral, Electrical and Computer Engineering Department, University of Waterloo, Waterloo, Canada
4. Dr. R. El-Sharkhawy, June 2007- Sept 2007, Assistance Professor, Arabic Academy of Science, Cairo, Egypt
5. Dr. S. Ghania, July 2006- Nov. 2007, Assistant Professor, Banha University, Egypt

6. Dr. M. Bacheit, April 2005- July 2005, Postdoctoral, Electrical and Computer Engineering Department, University of Waterloo, Waterloo, Canada
7. Dr. M. Marei, May 2004- 2006, Postdoctoral Fellow, Mechanical Engineering Department, University of Waterloo, Waterloo, Canada.
8. Dr. A. El-Hag, Jan. 2004- Aug. 2004, Postdoctoral Fellow, Electrical and Computer Engineering Department, University of Waterloo, Waterloo, Canada.
9. Dr. T. Abdel-Galil, Sept. 2003- Aug. 2004, Post Doctoral Fellow, Electrical and Computer Engineering Department, University of Waterloo, Waterloo, Canada.
10. Mr. E. Hui, Feb. 2004 – April 2004, Research Assistance Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, Ontario.
11. Mr. M. Ibrahim, March 2004- Feb. 2005, Visiting Research Scholar, NABCO, Abu-Dabi, United Arab Emirates
12. Dr. R. El-Sharkhawy, July 2003- Sept 2003, Assistance Professor, National Standards Institute, Cairo, Egypt
13. Mr. B. Chui, May 2003- Sept. 2003, Research Assistance, Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, Ontario.
14. Dr. N. Sahoo, April 2002- April 2003, Post Doctoral Fellow, Electrical and Computer Engineering Department, University of Waterloo, Waterloo, Canada.
15. Dr. K. Nigim, September 2001- August 2003, Visiting Research Associate, Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, Ontario.
16. Dr. Y. Hegazy, June 2000- Sept. 2000, Visiting Assistance Professor, Department of Electrical Technology, Riyadh College of Technology, Riyadh, Saudi Arabia.
17. Ms. Liu Jie, Oct. 1999- Sept. 2000, Visiting Scholar, Sichuan Union University, Chengdu, China.
18. Dr. E.F. El-Saadany, June 1999- Sept. 1999, Visiting Assistant Professor, Electrical Power and Machines Department, Ain Shams University, Cairo, Egypt.
19. Dr. Ke Liu, August 1999- July 2000, Post Doctoral Fellow, Electrical and Computer Engineering Department, University of Waterloo, Waterloo, Canada.
20. S. Kanoun, May 1999-Sept. 1999, Research Associate, Electrical and Computer Engineering Department, University of Waterloo, Waterloo, Canada.
21. Mr. M. Ibrahim, March 1999- Feb. 2000, Visiting Research Scholar, NABCO, Abu-Dabi, United Arab Emirates
22. Dr. E.F. El-Saadany, July 1998- June 1999, Post Doctoral Fellow, Electrical and Computer Engineering Department, University of Waterloo, Waterloo, Canada.
23. Dr. M. El Sherbiny, July 1993- June 1995, Senior Research Fellow, (co-supervision with Prof. Chow), Electrical and Computer Eng. Department, University of Alexandria, Egypt.
24. Dr. G. Djogo, Jan. 1994- Sept. 1994, Post Doctoral Fellow, (co- supervision with Prof. J.D. Cross), Electrical and Computer Eng. Dept, University of Waterloo, Waterloo, Canada.
25. Dr. Y. Mizuno, June 1992- March 1993, Research Associate, Department of Electrical and Electronic Eng., Toyohashi University of Technology, Tempaku-Chu, Toyohashi, Japan.
26. Dr. H. K. Temraz, July 1993- Sept. 1993, Research fellow, Electrical Power and Machines Department, Ain Shams University, Cairo, Egypt.
27. Mr. T. Brincourt, July 1992- October 1993, Research Engineer, The Electrotechnical Group, Electricite de France (EDF), France.

More Information

For more information, visit:

http://www.ece.uwaterloo.ca/~www_info/people/faculty/salama.html