School of Natural Resources Engineering and Management
German Jordanian University, GJU
Amman – Jordan
Ahmad.harb@gju.edu.jo

Prof. Ahmad Harb

SUMMARY

Over15 years of experience in Modern Nonlinear Theory (Bifurcation and Chaos) as applied Power Systems, Renewable Energy Sources (Solar PV, Wind and Biomass), Power Systems Stability and Control, Power Systems Planning, Electric Machines Dynamics and Stability, Power Electronics and Drives, and Mechanical Systems. Dr. Harb is highly active in the academic arena. Dr. Harb has published more than 55 papers in various international journals and conferences. Dr. Harb is the Editor-in-Chief for the International Journal of Modern Nonlinear Theory and Applications (IJMNTA), USA. Dr. Harb chaired to International conferences in Modern nonlinear theory (Bifurcation and Cahos), one in Montreal-Canada and the second in Orlando, Florida, USA. Dr. Harb is a senior member of the IEEE, the Jordan Engineers Association, JEA. In addition, Dr. Harb is a Co-PI of an International NSF grants jointly with University of Central Florida, where he is applying the modern nonlinear theory on Power Electronics Converters (DC-DC) buck and boost converters. Dr. Harb is highly active in industry arena. Dr. Harb directed many short courses in Jordan, Abu-Dhabi, Dubai, and Saudi Arabia in different topics in Power Systems Analysis, Energy Systems, Power Systems Operational and Control, Electric Power Distribution, Power Systems Planning, and Power Systems Protection. Currently, Dr. is a Professor at school of natural resources engineering at German Jordanian University, Amman – Jordan.

Scopus Citation:

Research

Documents	45	View Author Evaluator|Add to my list
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Citations	321	View citation overview
***h* Index**	**14**	**View h-GraphThe *h* Index considers Scopus articles published from 1996 forward**
Co-authors	50	
Web search	3641	

Google Scholar Citation:

Citation indices

	All	Since 2008
Citations	677	454
h-index	**14**	**12**
i10-index	22	15

Citations to my articles

QUALIFICATIONS

EXPERIENCE REQUIREMENTS (TECHNICAL EVALUATION)	CANDIDATE QUALIFICATIONS	COMPLIANT
Solar energy DC-DC and DC-AC Converters	Designed a portable inverter (1Kw and 5 Kw) based on solar energy, Orlando, Florida, USA	✓
Power Systems Analysis; Stability and Control	Studied the stability of Mohave Power Station, Arizona, USA and The Jordanian Electrical Network	✓
Area of Research	Modern Nonlinear Theory (Bifurcation and Chaos) and Nonlinear Control Theory as applied to Power Electronics, power systems and Communication Systems	✓
Education and Training Experience	Academic instructor	✓
Power Systems Planning	Design of Jordanian Electrical Network for a 15 year period	✓

EXPERIENCE

German Jordanian University, GJU, Amman Jordan **Sept. 2013 – Presents**

Professor at the School of Natural Resources Engineering and Management

Dr. Harb is a Full Professor at the school of natural resources engineering at German Jordanian University, Amman, Jordan. He is doing research on the renewable energy, solar and wind energy as well as applying the modern nonlinear theory (bifurcation and chaos) to smart power electronics systems.

German Jordanian University, GJU, Amman Jordan **Aug. 2011 – Sept. 2013**

Dean of the School of Natural Resources Engineering and Management

Dr. Harb is a Professor and the dean for the school of natural resources and management at German Jordanian University, Amman, Jordan. He is doing research on the renewable energy, solar and wind energy as well as applying the modern nonlinear theory (bifurcation and chaos) to smart power electronics systems.

Taibah University, Madinah Saudi Arabia **Oct. 2008 – June 2010**

Associate Professor and Vice Department Chair

Dr. Harb served as Associate Professor at the Electrical Engineering Department at Taibah University, Madinah Saudi Arabia. In addition to teaching some courses in renewable energy sources, Dr. Harb got and strategic fund in amount of 2,000,000 SR for three years. He is applying the modern nonlinear theory (Bifurcation and Chaos theory) to multi-port DC-DC converter based on solar PV energy.

University of Central Florida, USA **Aug. 2006 - Presents**

Research Associate Professor and Consultation Works

Dr. Harb is a Research Associate Professor in the school of electrical and computer engineering at University of Central Florida, Orlando, FL, USA. He is doing research in Power Electronics and application of modern nonlinear theory (Bifurcation and Chaos theory) into power systems and power electronics. Dr. Harb works as a consultant to ECE at UCF more than five years, where he did apply the bifurcation and chaos theory to power electronics problems as well as power systems.

Jordan University of Science & Technology (JUST) **Sept. 98 – July 2011**

Associate Professor

Teaching various graduate and undergraduate courses, such as; Advanced Power Systems, Renewable Energy Sources, Power Systems Panning, Linear Systems, Nonlinear Systems (Bifurcation and Chaos), Advanced Electrical Machines, Power Systems Operation and Control, Power System Stability and Control, Applied Mathematics for Engineers, Power Systems Analysis, Control Systems, Electromagnetic, Electrical Machines, and Power Electronics and Drives. Dr. Harb supervised more than 16 Master Students in so many different topics related to the industries. Dr. Harb supervised more than 50 industrial related undergraduate projects including voltage instability in power systems, DC-DC buck converter in power electronics, dynamics of stepper motors, chaos in electronic circuits, subsynchronous resonance, SSR in the Jordanian electrical network, and chaos and bifurcation in phased-locked loops in communication systems. Dr. Harb involved in so many committee as a part of his job at the Electrical Engineering Department at JUST. At Taibah University Dr. Harb served as a member of recruitment committee, curriculum and laboratory committee, ABET committee, graduate study committee, scientific research committee, scientific day committee, and social committee. While, at Jordan University of Science & Technology, Dr. Harb is a Co-PI to International NSF grants jointly with University of Central Florida (UCF), Orlando-Florida, USA.

Virginia Polytechnic Institute and State University,(VPI). **Jan. 1998 –Aug. 1998**

Blacksburg, Virginia, USA

Visiting Professor

Dr. Harb was a Visiting Professor at Virginia Tech. at the EE Dept. and the Nonlinear Dynamics Labs. Dr. Harb was teaching various undergraduate and graduate courses such as Power Systems Analysis, Power Systems Protection, Renewable Energy Sources, Electrical Circuits, Electrical Machines, and Electronics Circuits. In addition, Dr. Harb was working with Prof. Nayfeh from the Engineering Science and Mechanics Dept. at VPI in some nonlinear issues related to power systems.

Baku Beverage Company (BBC) **Jan. 97 – Dec. 1997**
Baku-Azerbiajan

Dr. Harb was working as a general director of BBC: Implementing all Electrical and Mechanical issues, in addition to the administrative work.

Virginia Polytechnic Institute and State University (VPI). **Nov. 1992 –Dec. 1996**
Blacksburg, Virginia, USA

Dr. Harb was as Research Assistant at EE Dept. Dr. Harb was working on various projects starting from Voltage Collapse in Power Systems based on Modern Nonlinear Theory, Subsynchrnous Resonance (SSR) in Power System of Mohave Power Station-Arizona-USA, and Power Electronics Converters. Bifurcation and Chaos theory is used in all mentioned topics.

EDUCATION

- Ph.D. in Electrical Engineering, Virginia Polytechnic and State University, Virginia, USA, 1996.
- M.A.Sc in Electrical Engineering, Jordan University of Science & Technology, Jordan, 1990.
- B.Eng. in Electrical Engineering, Yarmouk University, Jordan, 1987.

ADDITIONAL QUALIFICATIONS

- Editor-in-Chief for the International Journal of Modern Nonlinear Theory and Applications (IJMNTA), USA.
- IEEE Senior Member,
- Chair conference on Modern Nonlinear Theory (Bifurcation and Chaos), Montreal, Canada, May 2007.
- Chair conference on Modern Nonlinear Theory (Bifurcation and Chaos), Orlando, Florida, USA, Nov. 2008.
- Associate Editor for the International Journal of Modeling & Simulations (IJMS).
- Associate Editor for the International Journal of Power and Energy Systems (IJPES)

- Advisory Board member for Scientific Journals International.
- Organizing committee member for PESC07, Orlando, Florida.
- Referee to the IEEE Transaction for Circuit and Systems, USA.
- Referee to the International Journal Nonlinear Dynamics, USA.
- Referee to the International Journal of Modeling and Simulation, Canada.
- Referee to the Jordan University journal, Al-Derassat, Jordan.
- Referee to the JIEEE Conference in Electrical Engineering, Jordan.
- Organizing Member Committee, 1st UAE-USA, International Workshop on Power Electronics, Research and Education. Dec. 2005, Sharjah, UAE.
- Member, Technical Committee, Evaluation of the Electrical and Computer Engineering Program, Applied Balqa University, Jordan, 1999
- Member, IASTED Power and Energy organizing committee, from 2000 – 2004.
- Member, Jordan Engineers Association, since 1987.
- Organizing Member Committee, 2nd Jordanian-USA, International Workshop on Power Electronics, Research and Education. held Dec. 2002, Amman, Jordan.
- Program Chair, 2nd Jordanian-USA, International Workshop on Power Electronics, Research and Education. held Dec. 2002, Amman, Jordan.

RESEARCH FUNDING

1- Taibah University Strategic Research Fund, Madinah Saudi Arabia: (2,000,000 SR) equivalent to 700,000 $, Modern Nonlinear Theory as Applied to Multi-port DC-DC Converter,
2- NSF grants (Five NSF international grant on power electronics) jointly with Dr. Issa Batarseh from University of Central Florida, 400,000 USD total.
3- Jordan University of Science & Technology, Scientific Research Deanship: (20,000 USD). Design wind turbine based one permanent magnetic generator.
4- German Jordanian University grant (30,000 JD), Performance of Hybrid System powered DC and AC Motors.

WORKSHOPS & SPECIAL SESSION

1- "Control and Communication Applications of Modern Nonlinear Methods (Bifurcation and Chaos)", Anchorage, Alasks, USA, May 6-10, 2002
2- "Control and Modern Nonlinear as Applied to Power Systems", Special session on the second IASTED International Conference on Power and Energy Systems, Crete-Greece, June, 25-28, 2002.
3- "Modern Power Electronics: Research and Education": Amman-Jordan, Dec. 2002. It is a USA-Jordan workshop that has been funded from NSF-United States of America

ON-GOING RESEARCH

The research funded by the NSF, USA is mainly to analyze the dynamics of DC-DC Power electronics converters and the stability of SSR and voltage collapse in Power Systems.

UNDERGRADUATE & GRADUATE TEACHING COURSES

1- Power system analysis
2- Renewable energy sources
3- Advanced power system analysis
4- Operation and control of power systems
5- Power system protection
6- Power system planning
7- Electric mahines and drives
8- Modern nonlinear theory
9- Linear systems
10- Advanced control systems

RESEARCH PUBLICATIONS

Over 55 published research papers in refereed journals and international conferences.

Journal Papers:

1. **Ahmad Harb** and Bassam Harb, "**Chaos Synchronization in Josephson Junctions", Journal of Superconductivity and Novel Magnetism,** Vol. 25, No. 6, August 2012.

2. **Ahmad Harb** Nabil Ayoub, "**Nonlinear Control of Chaotic Rikitake Two-Disk Dynamo",** International Journal of Nonlinear Science, 2012.

3. Qais H. Alsafasfeh, Ikhlas Abdel-Qader, and **Ahmad M. Harb,** "**Fault Classification and Localizationin Power Systems Using Fault Signatures and Principal Components Analysis",** Energy and Power Engineering, Scientific Research, 2012.

4. Ghassan M. Tashtoush, **Ahmad M. Harb,** Natheer Al-Atawneh,"Assessing Energy-Saving in JUST Facilities: A case study", International Journal of Thermal & Environmental Engineering, Vol. 2, No. 2, 2011.

5. **Ahmad M. Harb**, Souhib M. Harb and Issa E. Batarseh," Chaos and Biburcation of Voltage-Mode-Controlled Buck DC-DC Convertor with Multi Control Parameters", International Journal of Modelling and Simulation, Vol. 30, No. 4, 2010.

6. Mohammad Widyan and **Ahmad Harb**, "On The Effect of TCSC and TCSC-Controller Gain on Bifurcation of Subsynchronous resonance in Power Systems", International Journal of Modelling and Simulation, Vol. 30, No. 2, 2010

7. Mohammad Widyan and **Ahmad Harb**, "On The Effect of Turbine Governor Gain on Bifurcation of Subsynchronous resonance in Power Systems", International Journal of Modelling and Simulation, Vol. 30, No. 3, 2010.

8. **A. M. Harb** and I. A. Smadi, "Parallel Distributed Compensation Fuzzy Controller For Nonlinear Control of A Series DC Motor", International Journal of Modelling and Simulation, Vol. 3, No. 3, 2010.

9. **Ahmad M. Harb** and Issam A. Smadi, " Tracking control of DC motors via mimo nonlinear fuzzy control", *Chaos, Solitons & Fractals, Vol. 42, Issue 2, October 2009.*

10. **Ahmad Harb** and Magdi Omari, "Bifurcation and Chaos Theory as Applied to SSR of the IEEE Second Benchmark Model (System # 2) with the Presence of the Damper Windings", International Journal of Modelling and Simulation, Vol. 29, No. 1, 2009.

11. Q. M. Qananwah; S. R. Malkawi; **Ahmad Harb**,"Chaos Synchronization of a third-order Phase Locked Loop", International Journal of Electronics, 1362-3060, Volume 95, Issue 8, 2008, Pages 799 – 803

12. **Ahmad M. Harb**, Ashraf A. Zaher, Ahmad A. Al-Qaisia and Mohammad A. Zohdy," Recursive Backstepping Control of Chaotic Duffing Oscillators", *Chaos, Solitons & Fractals, Volume 34, Issue 2, October 2007.*

13. **Ahmad M. Harb** and Bassam A. Harb, "Controlling Chaos in Josephson-Junction Using Nonlinear Backstepping Controller", IEEE Transaction on Applied Superconductivity, Vol. 16, No. 4, pages 1988-1998, Dec. 2006.

14. **A.M. Harb** and I.A. Smadi, "An Approach to Fuzzy Control for a class of Nonlinear Systems: Stability and Design Issues", International Journal of Modelling and Simulation, Vol. 25, No.2, 2005.

15. **Ahmad M. Harb** , Moh'd R. D. Al-Mothafar, and Ammar Natsheh, Application of Bifurcation Theory to Current Mode Controlled Parallel-Connected DC-DC Boost converters", International Journal of Modeling and Simulation, Vol. 25, No. 1, 2005.

16. Bassam A. Harb, **Ahmad M. Harb**, "Chaos and Bifurcation in Third-Order Phase Locked Loop", *Chaos, Solitons and Fractals, Vol. 19, Issue 3 Feb. 2004.*

17. **Ahmad M. Harb** and Bassam A. Harb," Chaos control of third-order phase-locked loops using backstepping nonlinear controller", *Chaos, Solitons & Fractals, Volume 20, Issue 4, May 2004.*

18. **Ahmad M. Harb**, "Nonlinear chaos control in a permanent magnet reluctance machine", *Chaos, Solitons and Fractals, Vol. 19,Issue 5, March 2004.*

19. **Ahmad M. Harb**, M. S. Widyan, "Chaos and Bifurcation control of SSR in the IEEE second benchmark model", *Chaos, Solitons & Fractals, Vol. 21, Issue 3, July 2004.*

20. **Ahmad M. Harb** Issam Al-Smadi, "ON FUZZY CONTROL OF CHAOTIC SYSTEMS", Journal of Vibration and Control, 10, 979-993, 2004.

21. **Ahmad M. Harb** and Bassam A. Harb, "Galerkin-Based New Method for Analyzing Bifurcations in a Single Machine Infinite Busbar Power System", *Electric Power Components and Systems Journal*, July, 2004.

22. **Ahmad M. Harb** and Ashraf A. Zaher, "Nonlinear Control of permanent magnet stepper motors", *Communications in Nonlinear Science and Numerical Simulation*, August, 2004.

23. **Ahmad M. Harb** and Nabil Abdel-Jabbar," Controlling Hopf bifurcation and chaos in a small power system", *Chaos, Solitons & Fractals, Vol. 18, Issue 5, December 2003.*

24. A. A. Al-Qaisia, **A. M. Harb**, A. A. Zaher, and M. A. Zohdy, "Robust Estimation-Based Control of Chaotic Behavior in an Oscillator with Inertial and Elastic Symmetric Nonlinearities", *Journal of Vibration and Control*, Vol. 9, pp. 665-684, June, 2003.

25. Wajdi M. Ahmad and **Ahmad M. Harb**, "On Nonlinear Control Design for Autonomous Systems of Integer and Fractional Orders", *Chaos, Solitons & Fractals, Vol. 18, Issue 4, Dec. 2003*.

26. **A. Harb**, W. A. Al-Hussaibi, and L. M. Khadra, "Effects of Filtering Chaotic Signals of Power Electronic Circuit", *International journal of Modeling and Simulation, Vol.* 23, No. 1, 2003.

27. **A. M. Harb**, A. H. Nayfeh, L. Mili, ``On the Effect of Machine Saturation on Subsynchronous Oscillations in Power Systems,'' *Electrical Machines and Power Systems Journal*, Vol. 28, pp.1019-1035, 2000.

28. A. H. Nayfeh, **A. M. Harb**, C-M. Chin, A. Hamdan, L. Mili, ``Application of Bifurcation Theory to Subsynchronous Resonance in Power Systems,'' *International Journal of Bifurcation and Chaos*, Vol. 8, No. 1, pp. 157-172, 1998.

29. **A. M. Harb**, A. H. Nayfeh, Anan M. Hamdan, L. Mili, ``A Bifurcation Analysis of Subsynchronous Oscillations in Power Systems,'' *Electrical Power and System Research*, Vol. 47, Issue 1, Oct. 1998.

30. A. H. Nayfeh, **A. M. Harb**, C-M. Chin, "Bifurcation in a Power System Model," *International Journal of Bifurcation and Chaos*, Vol. 6, No. 3, 1996.

31. M. El-Metwaly, **A. M. Harb**, ``Transmission Planning using Admittance Approach and Quadratic Programming,"*Electrical Machine and Power Systems Journal*, Vol. 21, 1993.

Conference Papers:

1. **Ahmad Harb,** "Chaos and Bifurcation in DC-DC Buck Converter", IREC2012, Sousee – Tunisia, Dec. 20-22.

2. Mohammad Widyan and **Ahmad Harb**, "Modeling, Simulation and Performance Characteristics of DC Series Motors Powered by Photovoltaic and DC Shunt Generators", IREC2011, Hammamet – Tunisia, Dec. 20-22, 2011.

3. **Ahmad Harb** and Souhib Harb, "**Chaos and Bifurcation of DC-DC Buck Convertor**", Renewable Energy Congress, Sousse, Tunisia, Dec. 2012

4. Alsafasfeh, Q., Abdel-Qader, I., and **Harb, A**., "Symmetrical Pattern and PCA Based Framework for Fault Detection and Classification in Power Systems," Proceedings of IEEE Electro/Information Technology Conference, Normal, IL, May, 2010.

5. Ala Hussein Michael Pepper, Issa Bataresh and **Ahmad Harb**, "Solar Charging Considerations for Common Battery Chemistries", IEEE Vehicle Power and Propulsion Conference, 2009, IEEE VPPC09, September 7-10, 2009.

6. Ala Al-Haj Hussein, Michael Pepper, Issa Batarseh, and **Ahmad Harb**, "An Efficient Solar Charging Algorithm for Different Battery Chemistries", International Conference

on Modeling, Simulation and Visualization Methods Proceedings, p.p. 249-253, Las Vegas, NV, July, 2009.

7. M. Widyan and **Ahmad Harb**, "Bifurcation Analysis of Subsynchronous Resonance of the IEEE Second Benchmark Model with TCSC", Proceeding of Intelligent Systems and Control, ISC2008, November 16-18, Orlando, Florida, USA, 2008.

8. **Ahmad Harb**, Mohammad Al-Mothafar, Ammar Natsheh, and Issa Batarseh," Quasi-Periodicity to Period-Doubling of Parallel –Input /Parallel – Output Boost DC-DC Converter", Proceedings of the Ninth IASTED International Conference, Control and Applications, May 29 – June 1, 2007, Montreal, Quebec, Canada.

9. **Ahmad Harb,** Bassam Harb, Qasem Qananweh,**"**Intermittency from mutually-coupled autonomous third-order phase-locked loop", Proceedings of the Thirty-Seventh Southeastern Symposium on System Theory, SSST05, 20-22 March, 2005.

10. Shadi Harb, K. Kalaldeh, **Ahmad Harb**, Issa Batarseh,"Interactive Java applets for power electronics E-learning", Power Electronics Education, 2005 IEEE workshop, pp26-33.

11. A. Zaher**, Ahmad Harb,** M. Zohdy, "Recursive Backstepping Control of Chaotic Duffing Oscillators", Proceeding of the 2004 American Control Conference, Boston, Massachusetts, June 30 – July 2, 2004.

12. Bassam Harb and **Ahmad Harb,** "Controlling Chaos in A Second-Order PLL in the Presence of CW Interference", Proceedings of Applied Simulation and Modeling, ASM2003, Marbella-Spain, September 3-5, 2003

13. **Ahmad Harb** and M. Widyan, "Modern nonlinear theory as applied to SSR of the IEEE second benchmark model", *Proceedings of IEEE Bologna power tech. conference*, 2003, June 23-26, 2003, Bologna, Italy.

14. **Ahmad Harb**, Ashraf Zaher, Mohammed Zohdy, "Nonlinear Recursive Chaos Control", *Proceedings of the American Control Conference (ACC)*, pp. 2251-2254, Anchorage, Alaska, May 8-10, 2002.

15. **Ahmad M. Harb**, Wajdi A. Ahmad, "Control of Chaotic Oscillators Using Nonlinear Recursive Backstepping Controllers", *Proceedings of the IASTED International Conference, Applied Simulation and Modeling*, pp. 451-454, Crete, Greece, June 25-28, 2002.

16. **A. M. Harb**, A. H. Nayfeh, L. Mili, ``Bifurcation Control for Mitigating Subsynchronous Oscillations in Power Systems,"Power Systems Computation Conference, PSCC, Sevilla-Spain, June, 24-28, 2002.

17. **Ahmed Harb**, Ashraf Zaher, Mohammed Zohdy, "Nonlinear Recursive Chaos Control", *Proceedings of the American Control Conference (ACC)*, pp. 2251-2254, Anchorage, Alaska, May 8-10, 2002.

18. **Ahmad M. Harb**, Wajdi A. Ahmad, "Control of Chaotic Oscillators Using Nonlinear Recursive Backstepping Controllers", *Proceedings of the IASTED International Conference, Applied Simulation and Modeling*, pp. 451-454, Crete, Greece, June 25-28, 2002.

19. **A. M. Harb,** A. H. Nayfeh, L. Mili, ``Bifurcation Control for Mitigating Subsynchronous Oscillations in Power Systems,"Power Systems Computation Conference, PSCC, Sevilla-Spain, June, 24-28, 2002

20. **A. M. Harb**, "Normal Form Near the Hopf Bifurcation in Power Systems", *Proceedings of the sixth IASTED International Conference on Power and Energy Systems*, Rhodes-Greece, pp. 408-412, July 3-6, 2001.

21. **A. M. Harb**, "Normal Form Near the Hopf Bifurcation in Power Systems", *Proceedings of the sixth IASTED International Conference on Power and Energy Systems*, Rhodes-Greece, July 3-6, 2001, pp. 408-412.

22. A. H. Nayfeh, **A. M. Harb**, ``Bifurcation Control of Subsynchronous Oscillations in Power Systems," *Tunisian Scientific Society/The Network of Arab Scientists and Technologists Abroad* (TSS/ASTA), Tunisia, 23 July, 1996.

23. A. H. Nayfeh, **A. M. Harb**, C-M. Chin, ``Bifurcation and Chaos in a Power System Model," *Proceedings of the IEEE International Symposium on Circuits and Systems*, ISCAS, Seattle, Washington, April 29 - May 3, 1995.

Book Chapters:

1. Issa Batarseh and **Ahmad Harb**,"E-Book on Electrical Circuits", John Wiley, under preparation, Dec. 2008

2. **Ahmad M. Harb** and Bassam A. Harb, "Chaos Control for Circuit and Systems", Controlling Chaotic Circuit and Systems, 2008.

3. **Ahmad M. Harb** and Issam Al-Smadi, "ON FUZZY CONTROL OF CHAOTIC SYSTEMS", Intelligent Control on Chaotic Nonlinear Systems, 2005.

Awards:

- **Award for graduate students**, Jordan University of Science & Technology, 1987-1990.
- **Jordan University of Science & Technology Ph.D Scholarship, Virginia Tech.**, 1992-1996.
- **Electrical Engineering Dept. Scholarship, Virginia Tech.**, 1993-1995.
- **Engineering Science and Mechanics Dept. Scholarship, Virginia Tech.,** 1995-1996

Membership in Professional Organizations:

- Institute of Electrical & Electronic Engineers (IEEE). Senior Member
- Power System Society, IEEE.
- Jordan Engineers Association.

M.S. student supervision:

I supervised the following students:

1- Eng. Belal Tumeh: "Bifurcation as applied to power electronics (Buck- to – Buck converter)", 2000
2- Eng. Mohammad Widyan: " Application of Bifurcation theory to subsynchronous resonance in power systems" , May 12, 2002
3- Eng. Ghassan Marji: "Feasibility Study on Optimization of Loss Reduction in Distribution Network in Irbid-Distribution Electric Company (IDECO)", May 19, 2002.
4- Eng. Lena Hmoud: "Chaos Control in Power Systems", Nov. 2002.
5- Eng. Ammar Natsheh: "Bifurcation and Chaos in Power Electronics", Oct. 2002.
6- Eng. Gasem Qananweh: "Chaos Theory in Phased Locked Loop (PLL)", March, 2003
7- Eng. Essam Esmadi: "Stability Analysis and Design of Fuzzy Control Systems of Nonlinear Systems", April, 2003.
8- Eng. Majdi Al-Umari: "Bifurcation Theory and Chaos as Applied to the IEEE Second Benchmark Model (Second System) of Subsynchronous Resonance", November 2003.
9- Eng. Jumanah Shawawreh "Modern Nonlinear as applied to multi-machines to study the subsynchronous resonance", November 2003.
10- Eng. Ammar Natsheh "Bifurcation and Chaos on Power Electronics", 2003.
11- Eng. Qais Safasfeh: "Upgrading the Jordanian Power Systems", August 2004.
12- Eng. Natheer Atawneh, "Energy Auditing for Jordan University of Science & Technology (JUST) facilities". August, 2006.

Member committee for the following students:

13- Eng. Jareer Abedl Qader: “Chaotic Behavior of Heart Rate Variability Signals”, Dec. 1999.
14- Eng. Waleed Al-Husaibi: “Effects of Filtering Chaotic Signals”, August, 2000.
15- Eng. Mua’ayed Al-Rawi: “Lyapunov Exponents for Chaotic Signals Prediction”, Dec. 1999.
16- Eng. Osamah Badarneh: “Chaotic Behavior in Electronic Circuits”, May, 2001.
17- Eng. Sameeh Zahi Ismail, "Dynamics and control of a rotating flexible arm with root flexibility", University of Jordan, Mechanical Engineering Dept. August, 2003.

PhD Students Co Supervision

1. Qais Safasfeh, “Fault Detection using DSP Algorthem”, Michigan Western University May, 2010.

Member committee of a PhD student (External Examiner):

1. Majdi M. Omari, “Bifurcation Phenomena in Power System-Subsynchronous Resonance”, University of Technology, Sydney (UTS), 2010.

External collaborators (past 10 years):

Prof. Issa Batarseh (U. of Central Florida) Florida, USA.
Prof. M. Zohdy, (Oakland University) Michigan, USA.
Dr. N. Deeb (Delenova Energy, LLC), Fairfax, Virginia, USA.

References:

1- Prof. Ali H. Nayfeh, Virginia Tech., anayfeh@vt.edu
2- Prof. I. Batarseh, Director of ECE at university of UCF, Orland-Florida, batarseh@mail.ucf.edu
3- Mohammad Slim, KAUST, slim.alouini@kaust.edu.sa
4- Prof. Marwan Krunz, University of Arizona, Tuscon, Arizona, krunz@ece.arizona.edu
5- Prof. Hassan Khalil, Michigan State University, East Lansing, Michigan, khalil@msu.edu
6- Prof. Saifurahman, Virginia Tech. Blacksburg-Virginia, srahman@vt.edu