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Department of Electrical Engineering
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PRESENT POSITION:

2005 - Present Professor, Electrical Engineering
University of North Dakota (UND), Grand Forks, North Dakota.

EDUCATIONAL BACKGROUND:

1990 Ph.D., Electrical Engineering
Texas A&M University at College Station

1984 M.S., Electrical Engineering
Texas A&M University at College Station

1981 B.S., Electrical Engineering
University of Texas at Austin

TEACHING INTERESTS:

Power electronics and control, electric power, renewable and clean energy systems, fuel cells, electric machines and drives, neuro-fuzzy intelligent decision systems, electromagnetic fields, control systems, electric power and other engineering systems reliability, statistical engineering data analysis, signals & systems, electric circuits, digital signal processing, senior design, and hands-on laboratories.

RESEARCH INTERESTS:

Power electronics and control, electric power, alternative and clean energy sources and systems, fuel cell technologies, electric load and energy management systems, power systems state estimation, neuro-fuzzy intelligent decision systems, electric drives, engineering systems and device reliability, expert systems applications to power and energy systems, large engineering systems modeling and simulation.

PROFESSIONAL EXPERIENCE:

2005 - Present Professor, Electrical Engineering
University of North Dakota (UND), Grand Forks, North Dakota.

1999 - 2005 Associate Professor, Electrical Engineering
University of North Dakota (UND), Grand Forks, North Dakota.

1999 – Present	Consultant, Energy & Environmental Research Center (EERC), University of North Dakota
1995 - 1999	Assistant Professor EE Department, University of North Dakota
1995 - 1997	Consultant, North Dakota State Coal Industry, North Dakota
1993 - 1993	Consultant, New York Power Pool, Altamont, New York
1990 - 1995	Assistant Professor ECE Department, Clarkson University, Potsdam, New York
1985 - 1990	Research Assistant Texas A&M University, College Station, Dept. of Electrical Engineering
1982 - 1985	Teaching Assistant Texas A&M University, College Station, Depts. of Electrical Engineering and Mathematics.

COURSES DEVELOPED AND TAUGHT (REGULAR ASSIGNMENTS, UNDERGRADUATE LEVEL):

- EE101 - Introduction To Electrical Engineering (University of North Dakota)
- EE307 - Electric Circuits Laboratory II (University of North Dakota)
- EE313 - Linear Electric Circuits II (University of North Dakota)
- EE316 - Electromagnetic Fields (University of North Dakota)
- EE318 - Statistical Engineering Data Analysis (University of North Dakota)
- EE326 - Electronic Circuit Design Laboratory (Texas A&M University)
- EE338 - Electric Machines Laboratory (Texas A&M University)
- EE381 - Electromagnetic Fields and Antennas (Clarkson University, New York)
- EE401 - Statistical Techniques for Electrical Engineers (University of North Dakota)
- EE403 - Senior Laboratory (University of North Dakota)
- EE405 - Control Systems (University of North Dakota)
- EE423 - Power Systems I (University of North Dakota and Clarkson University)
- EE431 - Electric Power Distribution and Utilization (Clarkson University, New York)
- EE480 - Senior Design I (University of North Dakota)

1990 - 1995

Advised an average of thirty students each Semester from their Freshman year to graduation (Clarkson University, New York).

ADVISEES (GRADUATE STUDENTS WITH RESEARCH TOPICS):

• **Ph.D. Students (Dissertation Option):**

Andrew Peters, 2003-present (University of North Dakota), “Fuel Cell Technology, Modeling and Simulation.”

Kevin Harrison, 2003– present (University of North Dakota), “Wind Energy to Electrolyzers to Hydrogen Production to Fuel Cells: Experimental and Theoretical Investigation, Modeling, and Simulation.”

Rhonda Hill, 2002-present, (University of North Dakota), “Impact of Distributed Generation Resources on Electric Power Systems.”

Shankar Karki, 2001– present, (University of North Dakota), “An Intelligent Neuro-Fuzzy Based Deregulated Electric Energy Policy Decision System.”

Ali Wehbe, 1997-2001, (University of North Dakota), “Minimizing Power Systems Distribution Losses Using Direct Load Control.”

Rongda Zhao, 1991- 995, (Clarkson University, New York), “Power System State Estimation And Bad Data Detection Using Neural Networks.”

Siswa Trihadi, 1991-1995, (Clarkson University, New York), “Animated Power-Generating Systems Reliability with Direct Load Control and Sensitivity.”

• **Master of Science Students (Thesis Option):**

Kevin Harrison, 2002- 2003, (University of North Dakota), “Using Wind Energy For Hydrogen Production for Fuel Cells.”

Jason Heinle, 2000-2001, (University of North Dakota), “Modeling of Mercury Speciation, Transformation and Emission in Coal Fired Power Plants Using Artificial Intelligent Neural Networks Techniques.”

Koby Asirvatham, 2000-2002, (University of North Dakota), “Power Electronics and Digital Signal Processing Based Space Vector Control of Induction Motors.”

Liyang Wang, 1999-2000, (University of North Dakota), “Automatic Generation Control (AGC) In A Deregulated Electric Utility Market.”

Jun Huang, 1999-2000, (University of North Dakota), “Fuzzy Identification and Control of Power Electronics DC-DC Buck Converters.”

Allan Narveson, 1999-Present, (University of North Dakota), “Scara Compliant Control For Engraving Applications.”

Tao Li, 1997-1998, (University of North Dakota) “An Alternative Power Generating System Reliability Evaluation Method.”

Patrick J. Noll, 1997-1998, (University of North Dakota) “A Fuzzy Logic Based Direct Load Control Model Recognizing Customer Preferences.”

T. Momen, 1994-1995, (Clarkson University, New York), “A Fast Stochastic Power Generating System Reliability Evaluation Model Using Expert Systems.”

Robert Rodick, 1992-1994, (Clarkson University, New York), “A New Generating System Reliability Model Using Petri Nets.”

- **Master of Engineering (Non-thesis Option):**

Purna Nallamotheu, 2002 -2004, (University of North Dakota), “Intelligent Sensorless Digital Signal Processing Based Switch Reluctance Electric Drives.”

Bharath K. Pasala, 2003-2004, (University of North Dakota), “Implimentation of a DSP Based Power Electronics and Electric Drives Laboratory.”

Christopher Sandison, 1999-2000 (University of North Dakota), “Design and Demonstration Of a Pendulum Control System.”

S. R. Andiappan, 1998-1999, (University of North Dakota), “Design of Power Electronics DC-DC Buck Converters Using Hysteresis Feedback Control.”

Gutam Shah, 1994 - 1995, (Clarkson University, New York), “An Interactive Engineering System Reliability Evaluation Model.”

Kevin Stanulevich, 1993 - 1994, (Clarkson University, New York) “Failure Rate and Reliability of Digital Gate Drives for Semiconductor Devices.”

PUBLICATIONS:

Refereed Journals (Peer Reviewed):

- Eduardo Hernandez, Christian Biaku, Andrew Peters, **Hossein Salehfar**, and Michael Mann, “An Accurate Channel Model for the Prediction of The Performance Curves of PEM Fuel Cells,” Submitted for review and publication in *the Journal of Power Source*, March 2005.
- Karki, Shankar, Michael Mann, and **Hossein Salehfar**, “Energy and Environment in the ASEAN: Challenges and Opportunities,” the *Journal of Energy Policy*, Vol. 33, Issue 4, pp. 499-509, March 2005. Already Published and released.
- Jensen, R., S. Karki, and **Salehfar, H.**, “Artificial Intelligence Based Estimation of Mercury Speciation in Combustion Flue Gases” *Journal on Fuel Processing Technology* 85 (2004), pp. 451-462.
- Karki, Shankar, Michael Mann, and **Hossein Salehfar**, “Sustainable Rural Electrification: A Private Sector Initiative in Nepal,” Accepted for publication in the *Journal of Applied Energy*, 2004.

- **H. Salehfar** and S. A. Benson, “Electric Utility Coal Quality Analysis Using Artificial Neural Network Techniques,” *Journal of NeuroComputing*, Vol. 23, pp. 195-206, December 1998.
- **H. Salehfar** and S. Trihadi, “Application of Perturbation Analysis to Sensitivity Computations of Generating Units and System Reliability,” *IEEE Transactions on Power Systems*, Vol. 13, No. 1, pp. 152-158, February 1998.
- **H. Salehfar** and S. Trihadi, “Animated Monte Carlo Simulation for Teaching Power Generating System Reliability Analysis,” *IEEE Transactions on Education*, Vol. 41, No. 2, May 1998, pp. 130-140.
- **H. Salehfar** and R. Zhao, “A Neural Network Pre-Estimation Filter for Bad Data Detection and Identification in Power System State Estimation,” *Journal of Electric Power Systems Research*, Vol. 34, No. 2, pp. 127-134, August 1995.
- T.H. Ortmeyer, T. Hiyama, and **H. Salehfar**, “Power Quality Effects of Distribution System Faults,” *Journal of Electrical Power & Energy Systems*, Vol. 18, No. 5, pp. 323-329, 1996.
- **H. Salehfar** and R. Rodick, “A New Method for Reliability Evaluation of Power Generating Systems,” *journal of Electric Machines and Power Systems*, Vol. 24, No. 8, pp. 817-831, 1996.
- **H. Salehfar** and R. Rodick, “A New and Fast Electric Power Generating System Reliability Evaluation Model Using Petri Nets,” *International Journal of Reliability, Quality and Safety Engineering*, Vol. 1, No. 4, pp. 459-473, December 1994.
- **H. Salehfar** and A.D. Patton, “A Production Costing Methodology for Evaluation of Direct Load Control,” *IEEE Transactions on Power Systems*, vol. 6, no. 2, pp. 278-284, February 1991.
- **H. Salehfar** and A.D. Patton, “Modeling and Evaluation of the System Reliability Effects of Direct Load Control,” *IEEE Transactions on Power Systems*, vol. 4, no. 3, pp. 1024-1030, August 1989.
- **H. Salehfar**, A discussion of “Scheduling Direct Load Control to Minimize System Operational Cost,” authored by J. Chen, F. N. Lee, A. M. Breipohl, and R. Adapa. Published in the *IEEE Transactions on Power Systems*, Vol. 10, No. 4, p. 2001, November 1995.

Book Chapters (Peer Reviewed):

H. Salehfar, *Power Electronics Modulation Strategies: Hysteresis Feedback Control of DC-DC Buck Converters.*, Handbook of Power Electronics, CRC Press, 2001, ISBN: 0-8493-7336-0. Editor: Timothy L. Skvarenina.

H. Salehfar, *A Digital Signal Processor Based Vector Controller for AC Drives.* Automotive Handbook, CRC Press, 2005, ISBN: 0-8247-2361-9. Editor: A. Emadi.

Refereed Conferences (Peer Reviewed):

- **Hossein Salehfar**, “State-of-the-Art Power Electronics, Electric Drives, and Renewable Energy Systems Laboratories at the University of North Dakota,” Invited paper and accepted for presentation in Panel session on Power Systems laboratories during the 2005 IEEE Power Engineering Society General Meeting, San Francisco, California, June 12-16, 2005.

- Shankar Karki, **Hossein Salehfar**, and Michael Mann, “Assessment of Electric Microgrids in Isolated Rural Areas,” Submitted for review and presentation during the 2005 IEEE Power Engineering Society General Meeting, San Francisco, California, June 12-16, 2005.
- Shankar Karki, Michael Mann, and **Hossein Salehfar**, “Electricity Sector Reform through Privatisation and its Environmental Outcome: A Developing Country Perspective,” Paper accepted for presentation in the Clear Water Coal Conference, Florida, April 17 - 21, 2005.
- Karki, Shankar, Michael Mann, **Hossein Salehfar**, and Rhonda Hill, “Electricity Sector Reform in India: Environmental and Technical Challenges,” Proceedings of the *International Conference on Electricity Supply Industries in Transition: Issues and Prospects for Asia*, Bangkok, Thailand, January 14-16, 2004.
- Karki, Shankar, Michael Mann, **Hossein Salehfar**, and Kul Man Ghising, “Greenhouse Gas Emissions from Large Hydropower Plants: A Life Cycle Analysis Perspective,” Accepted for presentation and publication in the Proceedings of the *International Conference on Power Systems: Challenges to Electric Utilities in the New Millennium*, November 3-5, 2004, Kathmandu, Nepal.
- **H. Salehfar**, J. Watson, and A. Johnson, “Information Technology to Enhance On-Line Distance Engineering Degree Programs,” proceedings of the *2004 American Society for Engineering Education Annual Conference & Exposition*. Salt Lake City, Utah. June 2004.
- John Watson, George Bible, Kenneth Ebeling, John Erjavec, **Hossein Salehfar**, and Marcellin Zahui, “On-Line Laboratories For Undergraduate Distance Engineering Students,” Accepted for presentation and publication in the *Proceedings of the 34th Frontiers in Education Conference*, Session T1A, Savannah, GA. October 20-23, 2004.
- Dara Faul, Lynnete Krenelka, Tim McCartney, and **Hossein Salehfar**, “Internet Technology for Undergraduate Distance Engineering Degree Programs,” Accepted for presentation and publication in the proceedings of the *3rd Annual Conference: Beyond Boundaries, Integrating Technology into Teaching & Learning*, University of North Dakota, Grand Fork, ND. September 23-24, 2004.
- **H. Salehfar** and J. Huang, “A Neuro-Fuzzy Based Adaptive Controller for DC-DC Converters,” Proceedings of the *2003 North American Power Symposium (NAPS-2003)*, University of Missouri Rolla, October 19-21, 2003.
- **H. Salehfar**, J. Watson, and A. Johnson, “Internet Based Class Presentations to Enhance Distance Engineering Degree Programs,” Proceedings of the *2003 American Society for Engineering Education Annual Conference & Exposition*. Nashville, Tennessee, June 22-25, 2003.
- A. Wehbe and **H. Salehfar**, “Direct Load Control for Reducing Losses in The Main and Laterals of Distribution Systems,” Proceedings of the *2002 IEEE Power Engineering Society Summer Meeting*, Chicago, Illinois, July 21-25, 2002.
- **H. Salehfar**, J. Watson, and A. Johnson, “On-Line Class Presentations to Enhance Distance Engineering Degree Programs,” Proceedings of the *2002 North Midwest Section Annual Conference of the American Society for Engineering Education (ASEE)*, University of Wisconsin-Madison, October 10-12, 2002.
- S. Karki, R. Jensen, **H. Salehfar**, and S. Benson, “Artificial Intelligent-Based Estimation of Mercury Speciation in Combustion Flue Gases,” Proceedings of the *Third International Air Quality Conference*, Arlington, Virginia, September 10-12, 2002.

- **H. Salehfar** and K. Asirvatham, “Digital Signal Processor Based Vector Control of AC Motor Drives,” Proceedings of *the 2002 North American Power Symposium (NAPS-2002)*, Arizona State University, Tempe, Arizona, October 14-15, 2002.
- **H. Salehfar**, L. Wang, and N. Bengiamin, “Automatic Generation Control in Open Transmission Access Markets,” Proceedings of *the 2001 North American Power Symposium (NAPS-2001)*, Texas A&M University, College Station, Texas, 15-16 October 2001.
- P. Osburnsen (Undergraduate Electrical Engineering student), J. Pianfette (Undergraduate Electrical Engineering student), and **H. Salehfar**, “Real Time Instrumentation and Interactive Motor Control laboratory Experiments for Distance Education Via the Internet,” Proceedings of *the 2001 North Midwest Section Annual Conference of the American Society for Engineering Education (ASEE)*, University of North Dakota (UND), Grand Forks, North Dakota, September 27-29, 2001.
- **H. Salehfar** and A. Wehbe, “Direct Control of Residential Water Heater Loads to Reduce Power System Distribution Losses,” Proceedings of *the 2001 IEEE Power Engineering Society Winter Meeting*, Columbus, Ohio, January 28 - February 1, 2001.
- **H. Salehfar**, N. Bengiamin, and J. Huang, “A Systematic Approach to Linguistic Fuzzy Modeling Based on Input-Output Data,” Proceedings of *the 2000 Winter Simulation Conference (WSC’00)*, pp. 480-486, Orlando, Florida, December 10-13, 2000.
- **H. Salehfar**, J. Huang, and N. Bengiamin, “A Simplified Function Control For Buck Converters,” Proceedings of *the 32nd Annual North American Power Symposium (NAPS-2000)*, University of Waterloo, Waterloo, Ontario, Canada, October 23-24, 2000.
- N. Bengiamin, L. Wang, and **H. Salehfar**, “Assessment of Automatic Generation Control (AGC) In a Deregulated Environment,” Proceedings of *the 2000 IEEE Power Engineering Society Winter Meeting*, Singapore, January 23-27, 2000.
- **H. Salehfar**, K. Renick, (undergraduate Electrical Engineering student), and J. Milkovich (undergraduate Electrical Engineering student), “Harmonics and Power Quality Characteristics of Electronic and Electromechanical Loads,” Proceedings of *the 2000 North Midwest Section Annual Conference of the American Society for Engineering Education (ASEE)*, Paper No. PPR-008, University of Minnesota, Minneapolis, September 28-30, 2000.
- **H. Salehfar**, W. Thorson (undergraduate Electrical Engineering student), and D. Rustebakke (undergraduate Electrical Engineering student), “An Undergraduate Senior Design Project: Design and Implementation of a Lead-Acid Battery Charger,” Proceedings of *the 1999 North Midwest Section Annual Conference of the American Society for Engineering Education (ASEE)*, Paper No. MW203, University of Manitoba, Winnipeg, Canada, September 24-25, 1999.
- **H. Salehfar**, P. J. Noll, M. H. Nehrir and V. Gerez, “Fuzzy Logic-Based Direct Control of Residential Electric Water Heaters and Air Conditioners Recognizing Customer Preferences In A Deregulated Environment,” Proceedings of *the 1999 IEEE Power Engineering Society Summer Meeting*, Edmonton, Alberta, Canada, July 18-22, 1999.
- **H. Salehfar** and T. Li, “Stochastic Petri Nets for Reliability Assessment of Power Generating Systems With Operating Considerations,” Proceedings of *the 1999 IEEE Power Engineering Society Winter Meeting*, New York City, January 31 – February 4, 1999.

- **H. Salehfar** and T. Li, “A Stochastic State Machine Petri Net Based Model for Power Generating System Reliability Evaluation Including Planned Outages,” Proceedings of *the 30th North American Power Symposium (NAPS)*, Cleveland State University, Cleveland, Ohio, October 19-20, 1998.
- **H. Salehfar**, “Teaching Power Electronics Using Interactive Computer-based Instruction,” Proceedings of *the 60th annual American Society for Engineering Society (ASEE) North Midwest Section Meeting*, Winona State University, Winona, Minnesota, October 8-10, 1998.
- **H. Salehfar** and T. Li, “Stochastic Petri Nets for Reliability Assessment of Power Generating Systems with Operating Considerations,” Proceedings of *the 1999 IEEE Power Engineering Society Winter Meeting*, January 31 - February 4, 1999, New York City.
- **H. Salehfar** and A.D. Patton, “System Reliability and Production Costing Effects of Dynamic Direct Load Control,” Proceedings of *the 10th Power Systems Computation Conference (PSCC)*, Graz, Austria, August 1990.
- **H. Salehfar** and R. Zhao, “Multiple Bad Data Detection and Identification in Power System State Estimation Using Neural Networks,” Proceedings of *the 26th Annual North American Power Symposium (NAPS)*, Kansas State University, Manhattan, Kansas, September 26-27, 1994, pp. 225-231.
- **H. Salehfar** and S. Trihadi, “Animated Power-Generating System Reliability Evaluation,” Proceedings of *the 1994 IEEE Annual Reliability and Maintainability Symposium*, Anaheim, California, January 24-27, pp. 248-254.
- **H. Salehfar** and B. Bubar, “Reliability of Electro-hydraulic Steering Systems aboard Commercial Ships,” Proceedings of *the 1995 IEEE Annual Reliability and Maintainability Symposium*, Washington, D.C., January 16-19, pp. 44-48.
- **H. Salehfar** and S. Trihadi, “Animated Monte Carlo Modeling and Evaluation of Direct Load Control Effects on Power System Reliability,” Proceedings of *the 27th IEEE Annual North American Power Symposium (NAPS)*, Montana State University, Bozeman, Montana, October 2-3, 1995, pp. 555-560.
- **H. Salehfar** and A.D. Patton, “Operating Considerations and Distributions of Performance Measures for the Reliability Test system,” An internal report, Texas A&M University, Electric Power Institute, Dept. of Electrical Engineering, College Station, Texas, Summer 1988.
- **H. Salehfar**, “Power System Reliability Evaluation Techniques,” Proceedings of *the IEEE Dual-Use Technology Conference*, Session 8 - Paper 4, May 1991, SUNY, Utica, New York.
- **H. Salehfar** and R. Rodick, “Power Generating System Reliability Assessment Using Timed Petri Nets,” Proceedings of *the Second IASTED International Conference on Reliability, Quality Control and Risk Assessment*, Cambridge, Massachusetts, October 13-15, 1993, pp. 92-95.
- **H. Salehfar** and R. Rodick, “A Fast Power Generating System Reliability Evaluation Model,” Proceedings of *the 26th IEEE Annual North American Power Symposium (NAPS)*, Kansas State University, Manhattan, Kansas, September 26-27, 1994, pp. 260-266.

- **H. Salehfar** and A. Wehbe, “Minimizing Power System Distribution Losses Using Direct Load Control,” Proceedings of *the IEEE 28th Annual North American Power Symposium (NAPS)*, Massachusetts Institute of Technology (MIT), Cambridge, Massachusetts, pp. 39-42, Nov. 10-12, 1996.
- **H. Salehfar** and S. A. Benson, “Neural Network Based Power Plant Coal Quality Analysis,” Proceedings of *the IEEE 29th Annual North American Power Symposium (NAPS)*, University of Wyoming, Oct. 13-14, 1997.
- T. Li and **H. Salehfar**, “An Alternative Stochastic Power System Reliability Evaluation Model,” A poster presentation during the first North Dakota - South Dakota EPSCoR Conference, Brookings, SD, September 26-27, 1997.
- P. J. Noll and **H. Salehfar**, “Utility Load Management Programs Using Fuzzy Logic Technique,” A poster presentation during the first North Dakota - South Dakota EPSCoR Conference, Brookings, SD, September 26-27, 1997.

PROFESSIONAL/INVITED PRESENTATIONS:

- “Renewable Energy Systems: A New Undergraduate Course in Electrical Engineering At The University of North Dakota,” Invited paper and presentation during the National Science Foundation (NSF) Sponsored Workshop on Teaching of First Course in Power Systems, Orlando, Florida, February 11-13, 2005.
- “Internet Technology for Undergraduate Distance Engineering Degree Programs,” Accepted for presentation and publication in the proceedings of the *3rd Annual Conference: Beyond Boundaries, Integrating Technology into Teaching & Learning*, University of North Dakota, Grand Fork, ND, September 23-24, 2004.
- “A Neuro-Fuzzy Based Adaptive Controller for DC-DC Converters,” Presented during the 2003 North American Power Symposium (NAPS-2003), University of Missouri Rolla, and October 19-21, 2003.
- “Internet Based Class Presentations to Enhance Distance Engineering Degree Programs,” Presented during the 2003 American Society for Engineering Education Annual Conference & Exposition. Nashville, Tennessee, June 22-25, 2003.
- “Direct Load Control for Reducing Losses in The Main and Laterals of Distribution Systems,” Presented during the 2002 IEEE Power Engineering Society Summer Meeting, Chicago, Illinois, and July 21-25, 2002.
- “Artificial Intelligent-Based Estimation of Mercury Speciation in Combustion Flue Gases,” Presented during the Third International Air Quality Conference, Arlington, Virginia, September 10-12, 2002.
- “Digital Signal Processor Based Vector Control of AC Motor Drives,” presented during the 2002 North American Power Symposium (NAPS-2002), Arizona State University, Tempe, Arizona, October 14-15, 2002.
- “Automatic Generation Control in Open Transmission Access Markets,” Presented during the 2001 North American Power Symposium (NAPS-2001), Texas A&M University, College Station, Texas, 15-16 October 2001.

- “Real Time Instrumentation and Interactive Motor Control laboratory Experiments for Distance Education Via the Internet,” Presented during the 2001 North Midwest Section Annual Conference of the American Society for Engineering Education (ASEE), University of North Dakota (UND), Grand Forks, North Dakota, September 27-29, 2001.
- “Harmonic and Power Quality Characteristics of Electronic and Electromechanical Loads,” a paper presentation at the 2000 North Midwest Section Annual Conference of the American Society for Engineering Education (ASEE), University of Minnesota, Minneapolis, September 28-30, 2000.
- “Fuzzy Logic-Based Direct Control of Residential Electric Water Heaters and Air Conditioners Recognizing Customer Preferences In A Deregulated Environment,” Presented during the 1999 IEEE Power Engineering Society Summer Meeting, Edmonton, Alberta, Canada, July 18-22, 1999.
- “An Undergraduate Senior Design Project: Design and Implementation of A Lead-Acid Battery Charger,” Presented during the 1999 North Midwest Region Conference of American Society of Engineering Education (ASEE), Winnipeg, Canada, September 24-25, 1999.
- “Stochastic Petri Nets for Reliability Assessment of Power Generating System With Operating Considerations,” Presented during the 1999 IEEE Power Engineering Society Winter Meeting, New York City, January 31 – February 4, 1999.
- “A Stochastic State Machine Petri Net Based Model for Power Generating System Reliability Evaluation Including Planned Outages,” Presented during the 30th North American Power Symposium (NAPS), Cleveland State University, Cleveland, Ohio, October 19-20, 1998.
- “Coal Quality Analysis Techniques Using Artificial Neural Networks and Expert Systems,” A presentation given as an invited panelist during the 1999 IEEE Power Engineering Society Summer Meeting , Edmonton, Alberta, Canada, July 18-22, 1999.
- “Integration of Research Into Educational Curriculum,” A presentation given as an invited panelist during the 1998 IEEE Power Engineering Society Summer Meeting, San Diego, California, July 11-15, 1998.
- “Intelligent System Techniques for Decision Making,” Presented at the Summer Meeting of the Probabilistic Decision Making Working Group of the IEEE Power Engineering Society, San Diego, California, July 11-17, 1998.
- “Statistical Neural Networks,” Presented at the Winter Meeting of the Probabilistic Decision Making Working Group of the IEEE Power Engineering Society, Tampa, Florida, February 3, 1998.
- “Neural Network Based Power Plant Coal Quality Analysis,” Presented during the 29th IEEE North American Power Symposium, University of Wyoming, Oct. 13-14, 1997.
- “Application of Perturbation Analysis to Sensitivity Computations of Generating Units and System Reliability,” Presented during the 1997 IEEE Power Engineering Society Summer Meeting, Berlin, Germany, July 20-24, 1997.
- “Power Plant Coal Quality Analysis Using Neural Networks,” Presented during the First North Dakota - South Dakota National Science Foundation’s EPSCoR Conference, Brookings, SD, Sept. 26-27, 1997.

- “Minimizing Power System Distribution Losses Using Direct Load Control,” Presented during the IEEE 28th North American Power Symposium, Massachusetts Institute of Technology (MIT), Nov. 10-12, 1996.
- “Animated Monte Carlo Modeling and Evaluation of Direct Load Control Effects on Power System Reliability,” Presented during the IEEE 27th North American Power Symposium, Montana State University, Bozeman, Montana, October 2-3, 1995.
- “Multiple Bad Data Detection and Identification in Power System State Estimation,” Presented during the IEEE 26th North American Power Symposium, Kansas State University, Manhattan, Kansas, Sept. 26-27, 1994.
- “Long Term Power System Stability and Dynamic Problems,” Presented at the New York Power Pool, Albany, New York, August, 1993.
- “Neural Networks: Their Structure and Operation,” Presented at Milton R. Young Power Plant of Minnkota Power Company, Center, North Dakota, March, 1996.
- “Neural Network Based Coal Quality Assessment,” Presented at BNI Coal Company, Center, North Dakota, August 14, 1996.
- “A Production Costing Methodology for Evaluation of Direct Load Control,” Presented during the IEEE Power Engineering Winter Meeting, New York, New York, February 1990.
- “Modeling and Evaluation of the System Reliability Effects of Direct Load Control,” Presented during the IEEE Power Engineering Society Winter Meeting, New York, New York, February 1989.
- “Animated Power-Generating System Reliability Evaluation,” Presented during the 1994 IEEE Annual Reliability and Maintainability Symposium (RAMS), Anaheim, California, January 24-27, 1994.
- “Reliability of Electro-hydraulic Steering Systems Aboard Commercial Ships,” Presented during the IEEE Annual Reliability and Maintainability Symposium (RAMS), Washington, DC, January 1995.
- “Power System Reliability Evaluation Techniques,” Presented during the IEEE Dual-Use Technology Conference, State University of New York, Utica, New York, May 1991.
- “Power Generating Reliability Assessment Using Timed Petri Nets,” Presented during the 2nd IASTED International Conference on Reliability, Quality Control, and Risk Assessment, Cambridge, Massachusetts, October 1993.
- “A Fast Power Generating System Reliability Evaluation Model,” Presented during the 28th IEEE North American Power Symposium, Kansas State University, Manhattan, Kansas, Sept. 26-27, 1994.
- “Teaching Power Electronics Using Interactive Computer-based Instruction,” Presented during the 60th annual American Society for Engineering Society (ASEE) North Midwest Section Meeting, Winona State University, Winona, Minnesota, October 8-10, 1998.
- “A Stochastic State Machine Petri Net Based Model for Power Generating System Reliability Evaluation Including Planned Outages,” Presented during the 30th Annual North American Power Symposium, Cleveland State University, Ohio, Cleveland, October 19-20, 1998.

- “Stochastic Petri Nets for Reliability Assessment of Power Generating Systems with Operating Considerations,” Presented during the 1999 IEEE Power Engineering Society Winter Meeting, January 31 - February 4, 1999, New York City.

GRANTS AND CONTRACTS:

Grants Submitted:

- Development of Firm Wind Energy For Distributed Applications: Prototype Development. Submitted to Xcel Energy. April 2004. **Co-PI: H. Salehfar.**
- Development and Dissemination of PEM Fuel Cell Educational Modules for School and University Communities. Submitted to the U.S. Department of Energy (DOE). April 2003. **Co-PI: H. Salehfar.**
- Addressing Electrolysis Issues Required for the Development of Autonomous Wind to Hydrogen to Energy Systems. Re-submitted to the U.S. Department of Energy (DOE). July 2003. **Co-PI: H. Salehfar.**
- Renewable Energy Systems: A New Undergraduate Course in Electrical Engineering. Submitted to the UND Office of Instructional Development, February 3, 2003. **PI: H. Salehfar.**
- Collaborative Research: A Novel Approach in Improving Power Electronics and Electric Drives Courses, Curriculum, and Laboratories: Multi-University Adaptation and Implementation. Submitted to the National Science Foundation (NSF), Track – CCLI – A&I. December 4, 2002. **PI: H. Salehfar**
- Effects of Ash Chemistry on Mercury Speciation in Combustion Flue Gases of Power Plants: A Neural Network Analysis. Submitted to the U.S. Department of Energy. February 28, 2002. **Co-PI: H. Salehfar.**
- Development of Real-Time Online Engineering Laboratories to Enhance Distance Education Opportunities. Submitted to the U.S. Department of Education. June 2002. **Co-PI: H. Salehfar.**
- Addressing Electrolysis Issues Required for the Development of Autonomous Wind to Hydrogen to Energy Systems. Submitted to the U.S. Department of Energy (DOE). July 2002. **Co-PI: H. Salehfar.**
- A Digital Signal Processing and Power Electronics Based Motor Control Laboratory. Submitted to the EPSCoR Program of the National Science Foundation (NSF-EPSCoR). July 2001. **PI: H. Salehfar.**
- Modeling of Mercury Speciation, Transformation, and Emission in Coal Fired Power Plants Using Artificial Intelligent Neural Network Techniques. Submitted to the U.S. Environmental Protection Agency (EPA) and the North Dakota Energy and Environmental Research Center (EERC). April 2000. **Co-PI: H. Salehfar.**
- An Inter-Disciplinary Education, Research, and Design Laboratory for Undergraduate Electrical Engineers. Submitted to the National Science Foundation (NSF), June 2000. **PI: H. Salehfar.**
- An Intelligent Neuro-Fuzzy Buck Converter Controller. Submitted to the EPSCoR Program of the National Science Foundation (NSF-EPSCoR), January 2000. **PI: H. Salehfar.**

- A Modular Inter-Disciplinary Design Laboratory for Undergraduate Electrical Engineers. Submitted to the National Science Foundation (NSF), June 4, 1999. **PI: H. Salehfar.**
- Acquisition of A Real-Time Power System Digital Simulator. A Pre-proposal submitted to University of North Dakota's Office of Research and Development (ORPD) Office for the NSF Major Research Instrumentation (MRI) Program, December 1998. **Co-PI: H. Salehfar.**
- Impact of Utility Load Management Programs on Power System Reliability and Production Cost. Submitted to the National Science Foundation (NSF), 1997. **PI: H. Salehfar.**
- Neural Network Based Coal Quality and Power Plant Performance Evaluation in North Dakota. Submitted to the EPSCoR Program of the National Science Foundation (NSF-EPSCoR), 1996. **PI: H. Salehfar.**
- Artificial Neural Network Based Optimization of Coal Ash Behavior in Power Plants. Submitted to the U.S. Department of Energy, 1996. **Co-PI: H. Salehfar.**
- An Alternative Stochastic Power Generating System Reliability Evaluation Method. Submitted to the EPSCoR Program of the National Science Foundation (NSF-EPSCoR), 1995. **PI: H. Salehfar.**
- Artificial Neural Network Based Analysis of the Coal Quality Effects on Power Systems Performance. Submitted to the Microbeam Technologies Inc., 1995. **PI: H. Salehfar.**
- A Power Engineering Research Laboratory. Submitted to the EPSCoR Program of the National Science Foundation (NSF-EPSCoR), 1995. **PI: H. Salehfar.**
- An Interactive Reliability Engineering Education Program. Submitted to Proctor and Gamble's 1995 Curriculum Development Grant Program, 1995. **PI: H. Salehfar.**
- Electric Energy Saving and Improved Electric Power Quality on Defense Installations. Submitted to the DEPSCoR Program of the U.S. Department of Defense (Defense-DEPSCoR), 1995. **Co-PI: H. Salehfar.**
- Reliability and Operating Cost Modeling of Direct Load Control and Wind Turbine Generator Forms of Electric Utility Load Management Programs. Submitted to the National Science Foundation (NSF), 1990. **PI: H. Salehfar.**
- Variance Reduction Techniques For Sequential Monte Carlo Reliability and Production Costing Models. Submitted to the General Electric (GE), New York, 1991. **PI: H. Salehfar.**
- The Design and Implementation of The Miller Brewing Integrated Energy Management System. Submitted to Niagara Mohawk Power Corporation, New York, 1991. **Co-PI: H. Salehfar.**
- Development of Novel Electric and Thermal Load Leveling Techniques to Facilitate Use of Intermittent Renewable Energy Resources. Submitted to the New York State Energy Research and Development Authority, 1991. **PI: H. Salehfar.**
- A Petri Net Based Power Generating System Reliability Model. Submitted to the National Science Foundation (NSF), 1992. **PI: H. Salehfar.**

- A Computer-Aided Design Laboratory in Electric and Electronic Power Control. Submitted to the National Science Foundation (NSF), 1992. **Co-PI: H. Salehfar.**
- An Expert-System-Based Reliability Model for Electric Power Generating Systems. Submitted to the National Science Foundation (NSF), 1993. **PI: H. Salehfar.**
- A Survey of 115-kV, 138-kV and 230-kV Transmission Lines. Submitted to the Empire State Electric Energy Research Corporation, New York, 1993. **Co-PI: H. Salehfar.**
- An Integrated Modular Design Laboratory for Electrical Engineers. Submitted to the National Science Foundation (NSF), 1993. **Co-PI: H. Salehfar.**
- Demonstration of Knowledge Base to Aid Building Operators in Responding to Real-Time Pricing Electricity Rates. Submitted to the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE), 1993. **Co-PI: H. Salehfar.**

Grants Awarded:

- Development and Dissemination of PEM Fuel Cell Educational Modules for School and University Communities. The U.S. Department of Energy (DOE). \$249,000. October 2003 – October 2005. **Co-PI: H. Salehfar.**
- Addressing Electrolysis Issues Required for the Development of Autonomous Wind to Hydrogen to Energy Systems. The U.S. Department of Energy (DOE). \$501,666. February 2004 – February 2007. **Co-PI: H. Salehfar.**
- Collaborative Research: A Novel Approach in Improving Power Electronics and Electric Drives Courses, Curriculum, and Laboratories: Multi-University Adaptation and Implementation. The National Science Foundation (NSF), Track – CCLI – A&I. \$79,242. August 2003 – August 2004. **PI: H. Salehfar.**
- Renewable Energy Systems: A New Undergraduate Course in Electrical Engineering. The UND Office of Instructional Development. \$3,000. Summer 2003. **PI: H. Salehfar.**
- The U.S. Department of Education: “Development of Real-Time Online Engineering Laboratories to Enhance Distance Education Opportunities,” \$670,000. **Co-PI: H. Salehfar.** September 2002 – September 2005.
- The EPSCoR Program of the National Science Foundation (NSF-EPSCoR): “A Digital Signal Processing and Power Electronics Based Motor Control Laboratory,” \$3,000. **PI: H. Salehfar.** 2001-2002.
- The EPSCoR Program of the National Science Foundation (NSF-EPSCoR): “An Intelligent and Adaptive Neuro-Fuzzy Buck Converter Controller,” \$7,000. **PI: H. Salehfar,** May 2000 – May 2001
- University of North Dakota Summer Professorship, “An Adaptive Fuzzy Logic Controlled DC-DC Buck Converter,” \$6,000. **PI: H. Salehfar,** Summer 2000.
- Microbeam Technologies Inc.: “Artificial Neural Network Based Analysis of The Coal Quality Effects on Power Systems Performance,” \$20,000. **PI: H. Salehfar,** 1996-1997.

- The EPSCoR Program of the National Science Foundation (NSF-EPSCoR): “An Alternative Stochastic Power Generating System Reliability Evaluation Method,” \$33,000. **PI: H. Salehfar**, 1996-1998.
- The EPSCoR Program of the National Science Foundation (NSF-EPSCoR): “A Power Engineering Research Laboratory,” \$3,500. **PI: H. Salehfar**, 1995-1996.
- National Science Foundation (NSF): “An Integrated Modular Design Laboratory For Electrical Engineers at Clarkson University,” \$106,402. **Co-PI: H. Salehfar**, 1994-1996.
- PowerTronics Systems Inc.: “Engineering System Reliability Software,” \$47,622. **PI: H. Salehfar**, 1994-1997.

PROFESSIONAL ASSOCIATIONS, SERVICES, AND OFFICES HELD:

- Senior Member: Institute of Electrical and Electronics Engineers (IEEE) Power Engineering Society (PES)
- Senior Member: IEEE Power Electronics Society
- Senior Member: IEEE Industrial Electronics
- Member: IEEE PES Reliability, Risk, and Probability Applications Subcommittee
- Member: American Society for Engineering Education (ASEE)
- Member: International Program Committee for the 2002, 2003, and 2005 Power and Energy Systems Symposium (IASTED)
- Member: Eta Kappa Nu
- Treasurer of the IEEE (Institute of Electrical and Electronics Engineers) Section of Red River Valley, (Region 4) North Dakota, 2000-2001. The Red River Valley Section of the IEEE is a professional society with members from various professionals throughout the State of North Dakota.
- Vice President of the IEEE Section of Red River Valley (Region 4), North Dakota, 2001-2002. The Red River Valley Section of the IEEE is a professional society with members from various professionals throughout the State of North Dakota.
- President: Red River Valley Section (Region 4) of the IEEE, 2002-2003. The Red River Valley Section of the IEEE is a professional society with members from various professionals throughout the State of North Dakota.
- Secretary/Treasurer: North Midwest Section of the American Society for Engineering Education (ASEE), 2002-2003. The Red River Valley Section of the IEEE is a professional society with members from various professionals throughout the State of North Dakota.
- Chair: North Midwest Section of the national American Society for Engineering Education (ASEE), 2003-2004.

- Was nominated by the national members of the American Society for Engineering Education (ASEE) for the Chair of the Zone III of the ASEE. Zone III of ASEE includes North Dakota, South Dakota, Minnesota, Wisconsin, Michigan, Iowa, Nebraska, and New Mexico. The nomination was announced in the ASEE's Prism Magazine (a monthly publication at national level). 2003-2004.
- Member: Coal Quality Task Force of the State of North Dakota. The Task Force members included Minnkota Power Cooperative, Inc., BNI Coal Company, North Dakota Industrial Commission, and Microbeam Technologies, Inc. (1995-1997).
- Chair of the IEEE St. Lawrence International Subsection, Potsdam program, upstate New York (1994 - 1995).
- Faculty Advisor: The IEEE Student Branch at Clarkson University, New York (1991 - 1995).

PROFESSIONAL EDUCATION/CONSULTANT ACTIVITIES AND SERVICES:

- Served as a technical consultant/expert to the office of North Dakota State Attorney General in its investigation of business entities in the State and at the national level. 2003-2004.
- Served as a Technical Session Chair for the 2002 Annual IEEE Power Engineering Society (IEEE / PES) Summer Meeting, Chicago, Illinois, July 21-25, 2002.
- Served as a Technical Session Chair for the 32nd Annual IEEE North American Power Symposium (NAPS), University of Waterloo, Ontario, Canada, October 23-24, 2000.
- Served as a Technical Session Chair for the 31st Annual IEEE North American Power Symposium (NAPS), California State University, San Luis Obispo, California, October 10-12, 1999.
- Served as a Technical Session Chair for the 30th Annual IEEE North American Power Symposium (NAPS), Cleveland State University, Cleveland, Ohio, October 19-20, 1998.
- Served as a Technical Session Chair for the 1998 Annual IEEE Power Engineering Society (IEEE / PES) Summer Meeting, San Diego, California, July 11-15, 1998.
- Served as a Technical Session Chair for the 29th Annual IEEE North American Power Symposium (NAPS), University of Wyoming, Laramie, Wyoming, Oct. 13-14, 1997.
- Served as a Technical Session Chair for the 28th Annual IEEE North American Power Symposium (NAPS), Massachusetts Institute of Technology (MIT), Cambridge, Massachusetts, Nov. 10-12, 1996.
- Reviewer for the IEEE Transactions on Power Electronics.
- Reviewer for the IEEE Transactions on Vehicular Technology.
- Reviewer for the IEEE Power Engineering Society.
- Reviewer for the IEEE Transactions on Education.

- Reviewer for the Journal of Intelligent and Fuzzy Systems.
- Reviewer for the International Journal of Power and Energy Systems.
- Reviewer for the International Conference on Power and Energy Systems (IASTED)
- Reviewer for the National Science Foundation.
- Reviewer for the North American Power Symposium.
- Reviewer for the Power Electronics Specialists Conference.
- Reviewer for the MONTS (Montana On a New Trace for Science), NSF-EPSCoR Program.
- Reviewer of textbooks for John Wiley & Sons Publisher.
- Reviewer of textbooks for Springer Publisher.

UNIVERSITY, COLLEGE, AND DEPARTMENTAL SERVICES:

Electrical Engineering Services:

- Served as the coordinator for technical seminars and colloquium activities at the Dept. of Electrical Engineering, UND. Fall 1997 - 2000.
- Served as the secretary for many of the Electrical Engineering Faculty Meetings. Responsibility includes taking notes and reporting the meeting minutes to the faculty after the meetings. This responsibility alternates among all the faculty members of the department. 2000-present.
- Coordinated the annual student project contest among undergraduate Electrical Engineering students at UND (University of North Dakota) and NDSU (North Dakota State University). The contest is held annually in April and alternates between Fargo and Grand Forks, ND. 1998-present.
- Academic advisor to 28 undergraduate Electrical Engineering students. 2003-2004. All undergraduate students in the School of Engineering and Mines (including Electrical Engineering) at UND as assigned an academic advisor. Students are required to consult with their academic advisor every semester before they are allowed to register for any of their classes.
- Academic advisor to 28 undergraduate Electrical Engineering students. 2002-2003. All undergraduate students in the School of Engineering and Mines (including Electrical Engineering) at UND as assigned an academic advisor. Students are required to consult with their academic advisor every semester before they are allowed to register for any of their classes.
- Academic advisor to 25 undergraduate Electrical Engineering students. 2001-2002. All undergraduate students in the School of Engineering and Mines (including Electrical Engineering) at UND as assigned an academic advisor. Students are required to consult with their academic advisor every semester before they are allowed to register for any of their classes.

classes.

- Academic advisor to about 25 undergraduate Electrical Engineering students. 2000-2001. All undergraduate students in the School of Engineering and Mines (including Electrical Engineering) at UND as assigned an academic advisor. Students are required to consult with their academic advisor every semester before they are allowed to register for any of their classes.
- Academic Advisor to 20 undergraduate Electrical Engineering students. 1998-1999. All undergraduate students in the School of Engineering and Mines (including Electrical Engineering) at UND as assigned an academic advisor. Students are required to consult with their academic advisor every semester before they are allowed to register for any of their classes.
- Technical advisor to four undergraduate Electrical Engineering students working with the UND Solar Car Project. This activity was voluntary and on top of our regular academic duties and is considered as a part of departmental services. 1998-1999.
- Faculty advisor to the UND student branch of the national IEEE (Institute of Electrical and Electronics Engineers) organization. Fall 1997 - present.
- Research advisor to seven undergraduate Electrical Engineering students working on their Senior Design I and II projects. This activity was voluntary and on top of our regular academic duties and is considered as a part of departmental services. 2000-2001.
- Member of the Electrical Engineering Strategic Planning Committee, University of North Dakota, 1999-2000.
- Attended a gathering/meeting with the Electrical Engineering Alumni to discuss various issues of interest to Alumni, UND, and to the Department. Minneapolis, MN, September 30, 2000.
- Faculty editor of the UND student chapter of the national IEEE (Institute of Electrical and Electronics Engineers) organization and the Electrical Engineering Departmental newsletter, 20001-2002. This newsletter is a multi-page high quality and glossy publication that is mass produced (over 2,000 copies) and sent to alumni and former students each year.
- Faculty editor of the UND student chapter of the national IEEE (Institute of Electrical and Electronics Engineers) organization and the Electrical Engineering Departmental newsletter, 20002-2003. This newsletter is a multi-page high quality and glossy publication that is mass produced (over 2,000 copies) and sent to alumni and former students each year.
- Research advisor to five (5) undergraduate Electrical Engineering students working on their Senior Design I and II projects. This is an additional load without compensation and is considered as part of our departmental services.
- Designed and developed an Internet based delivery system for all online engineering courses for Distance Engineering Degree Program (DEDP) at UND. Using this system, for the first time at UND all the DEDP courses are now offered on-line during the Fall 2003. The development of this system took several years (i.e., 2000 to present) and many hours of design and testing. The system is now being used to offer all DEDP courses online. The delivery system is becoming locally, nationally, and internationally known. This delivery system was recently recognized by WCET (The

Western Cooperative for Educational Telecommunications, founded by the Western Interstate Commission for Higher Education) and won its 2004 WOW (WCET Outstanding Work) award at the national level. WCET is a cooperative that promotes and advances the effective use of technology in higher education. For more information, please contact Lynette Krenelka the DEDP program in the Continuing Education at UND. 2000-present.

- Member of Electrical Engineering Department faculty search committee. 2002-2003.
- Member of Electrical Engineering Department faculty search committee. 2004-2005.

School of Engineering and Mines (SEM) Services:

- Member of the UND School of Engineering and Mines (SEM) Ph.D. Committee (University of North Dakota), 2000-present.
- University of North Dakota Campus representative to the American Society for Engineering Education (ASEE), 2000-present.
- Appointed by the Dean of School of Engineering and Mines, Dr. Don Richard, as the General Chair of the American Society for Engineering Education Annual Regional Conference held at University of North Dakota, Fall of 2001.
- Member of the School of Engineering and Mines Strategic Planning Committee, University of North Dakota, 1999-2000.
- Served as a committee member of the School of Engineering and Mines (SEM) Open House activities, Spring 2000.
- Served as a committee member of the School of Engineering and Mines (SEM) Engineers Week (E-Week) activities, Spring 2000.
- Designed and developed an Internet based delivery system for all online engineering courses for Distance Engineering Degree Program (DEDP) at UND. Using this system, for the first time at UND all the DEDP courses are now offered on-line during the Fall 2003. The development of this system took several years (i.e., 2000 to present) of design and testing. The system is now being used to offer all DEDP courses online. The delivery system is becoming locally, nationally, and internationally known. This delivery system was recently recognized by WCET (The Western Cooperative for Educational Telecommunications, founded by the Western Interstate Commission for Higher Education) and won its 2004 WOW (WCET Outstanding Work) award at the national level. WCET is a cooperative that promotes and advances the effective use of technology in higher education. For more information, please contact Lynette Krenelka the DEDP program in the Continuing Education at UND. 2000-present.
- Member of the School of Engineering and Mines Computer Committee, 2002-present.
- In cooperation with the UND's Mechanical Engineering (Professor Scott Tolbert) and the Industrial Technology Department (Dr. Ray Diez) Coordinated an taught a technology

workshop on fuel cells for high school teachers from across the State of North Dakota. I taught these teachers the basics of fuel cells, their operation (hands-on), their friendly impact on the environment and the society. This workshop was well covered by the local media, including WDAZ TV during several of their news programs. This workshop is scheduled to be offered again to other interested high school teacher next summer. 2004-present.

University of North Dakota Services:

- UND faculty representative to Barry M. Goldwater Scholarship and Excellence in Education Foundation (Fall 1997- Fall 1999) and Harry S. Truman Scholarship Foundation (Fall 1997-Fall 1999). The mission of these national foundations is to foster and encourage excellence in mathematics, the natural sciences, and engineering among college junior or senior students throughout the nation by providing them with competitive scholarship awards. In order to be considered for an award, students must be nominated by their respective faculty representative.
- University of North Dakota Campus representative to the American Society for Engineering Education (ASEE), 2000-present.
- Member of the University Senate, University of North Dakota, 2003-2004.
- Member of the University Senate Library Committee, University of North Dakota, 1999-2001.
- Member of the University Senate Academic Computing Committee (ACAC), University of North Dakota, 2001-2002.
- Traveled to Winnipeg, Canada, with UND Enrollment Services personnel to recruit new students during the 2000 Canadian Career Fair, Winnipeg, Canada, April 4-6, 2000.
- UND representative to the National Engineers Week (E-Week) Organization, 1999-2001. The National Engineers Week headquarters is located at: 1420 King Street, Alexandria, Virginia, 22314. The primary responsibility includes increasing and promoting the engineers public outreach within the State of North Dakota and to account for participating engineering organizations in E-Week activities throughout the State. Various engineering related firms and businesses throughout the State were contacted and were encouraged to participate in promoting the engineering profession and publicizing the engineers contribution to the society and our quality of life by, for example, sending their engineers to elementary schools, as well high schools, to engage students in engineering activities and/or projects.
- Member of the UND's University Information Technology Council (UITC), University of North Dakota, 2002-Present.
- Designed and developed an Internet based delivery system for all online engineering courses for Distance Engineering Degree Program (DEDP) at UND. Using this system, for the first time at UND all the DEDP courses are now offered on-line during the Fall 2003. The development of this system took several years (i.e., 2000 to present) of design and testing. The system is now being used to offer all DEDP courses online. The delivery system is becoming locally, nationally, and internationally known. This delivery system was recently recognized by WCET (The Western Cooperative for Educational Telecommunications, founded by the Western Interstate Commission for Higher Education) and won its 2004 WOW (WCET Outstanding Work) award at the national level. WCET is a

cooperative that promotes and advances the effective use of technology in higher education. For more information, please contact Lynette Krenelka the DEDP program in the Continuing Education at UND. 2000-present.

- In cooperation with the UND's Mechanical Engineering (Professor Scott Tolbert) and the Industrial Technology Department (Dr. Ray Diez) Coordinated and taught a technology workshop on fuel cells for high school teachers from across the State of North Dakota. I taught these teachers the basics of fuel cells, their operation (hands-on), and their friendly impact on the environment and the society. This workshop was well covered by the local media, including WDAZ TV during several of their news programs at the time. This workshop is scheduled to be offered again to other interested high school teacher next summer. 2004-present.

HONORS/AWARDS:

- Senior Member of the IEEE.
- Member of the Eta Kappa Nu Honor Society.
- Was nominated by the national members of the American Society for Engineering Education (ASEE) for the position of the ASEE Chair of Zone III. Zone III of ASEE includes North Dakota, South Dakota, Minnesota, Wisconsin, Michigan, Iowa, Nebraska, and New Mexico. The nomination was announced in the ASEE's Prism Magazine (a monthly publication) at the national level. 2003-2004.
- Olson Research Professor of School of Engineering and Mines at UND, 2004-2005. This award is given to School of Engineering and Mines Engineering Faculty at UND in recognition of their achievements and continued promise in their research activities. 2004-2005.

SOME OF THE TEACHING INNOVATIONS:

- Have developed and personally maintained an Internet Homepage for all the courses I am teaching at University of North Dakota. This Homepage is utilized extensively for my teaching activities. The Homepage is interactively used during class presentations and discussions. The URL for the Homepage is: <http://power.ee.und.nodak.edu>
- Have developed and utilized an Internet-based real-time online classroom lectures delivery system. Using this system, all the classroom presentations (video, audio, and text) are interactively made available to on-campus and off-campus students. This system has been well received by the off-campus students registered in our "Distance Engineering Degree Program".
- Online development of some of the hardware laboratories of the electrical engineering courses is in progress. Using these online laboratory experiments, distance students will be able to remotely control and conduct the same experiments that their on-campus peers will perform. A recent U.S. Department of Education grant will support these laboratory development activities.
- Have developed several interactive MATLAB based computer software programs for teaching Fuzzy Logic and Neural Networks Decision Systems. These programs are being used during classroom presentations and discussions to help students visualize and understand the complex concepts of fuzzy logic and neural networks. The materials are also made available to students

through the course's Internet Homepage for their assignments and projects.

- Using JAVA, have developed an Internet based interactive teaching and learning program for EE511 - Power Electronics at University of North Dakota. This material is heavily utilized during class room presentations and is available to students over the Internet. This mode of teaching and presentation has been well received by students. Off-line computer based simulations are also used extensively as a teaching tool during this course.
- Have developed and used various interactive simulation programs for teaching EE313 - Linear Electric Circuits at University of North Dakota. The operation of each electric circuit is first simulated followed by an analytical analysis of the concepts. The computer programs are made available to students so that they can study various other modes of circuits operation and simulation. This approach has been well received by students.
- Developed and used an interactive graphical simulation program to teach various power system reliability evaluation methods to students at Clarkson University.
- Have used various 3-D electromagnetic simulation programs during lectures to help students visualize various complex electromagnetic fields, waveguides, and antennas concepts. Used the MIT's electro-magnetic educational video tapes while teaching in class to discuss various electromagnetic related theories and laws.
- Have developed and used several sets of interactive MATLAB based simulation/animation programs to teach the practical as well as the abstract Control Systems Engineering concepts to students at University of North Dakota.

REFERENCES: Available Upon Request.