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New Mexico State University
Klipsch School of Electrical and Computer Engineering

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Tenure Consideration

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Resume

JOYDEEP MITRA

Associate Professor

New Mexico State University

Klipsch School of Electrical and Computer Engineering

Las Cruces, NM 88003-8001

505-646-3783, jmitra@nmsu.edu

EDUCATION

January 1992 to May 1997

Doctor of Philosophy, Electrical Engineering

[Texas A&M University](#), College Station, TX 77843

July 1985 to May 1989

Bachelor of Technology (Honors), Electrical Engineering

[Indian Institute of Technology](#), Kharagpur 721302, India

EXPERIENCE

August 2004 to present

Associate Professor

[Klipsch School of Electrical & Computer Engineering](#), New Mexico State University, Las Cruces, NM 88003

Associate Director

[Electric Utility Management Program](#), New Mexico State University, Las Cruces, NM 88003

- Research:
 - Current projects:
 - “Microgrid Architecture and Reliability,” supported by the National Science Foundation;
 - “Resource Optimization in Microgrids,” supported by Sandia National Laboratories;
 - Catastrophic Failures of Power Systems;
 - Application of Evolutionary Methods in Reliability Analysis and Planning.
 - Student advising:
 - Graduated:
 - Yashwant J. Patil (M.S., December 2006, passed oral examination);
 - Ramesh Earla (M.S., August 2005).
 - Current students:
 - Shashi B. Patra (Ph.D., passed comprehensive examination);
 - Mallikarjuna R. Vallem (Ph.D., passed qualifying examination);
 - Jamil A. Al-Nouman (Ph.D.)
 - Daryl R. Jensen (M.S.);
 - Kaushik Vemulapally (M.S.);
 - Education:
 - Currently teaching:
 - Power Systems II (EE 431/542);
 - Power System Reliability and Risk Assessment (EE 590).

- Courses taught:
 - Power System Reliability and Risk Assessment (EE 590);
 - Power System Relaying (EE 534);
 - Power Systems II (EE 431/542);
 - Energy Economics (EE 490/590); one of four faculty in team-taught course.
- Member, NMSU Teaching Academy.
- Service:
 - Member, Faculty Search Committee, ECE Department, New Mexico State University, 2006–present.
 - Member, Technology Committee, ECE Department, New Mexico State University, 2006–present.
 - Member, Ph.D. Qualifying Examination Coordination Committee, ECE Department, New Mexico State University, 2006–present.
 - Member, Graduate Committee, ECE Department, New Mexico State University, 2005–present.
 - Member, Associate Dean (Academic) Search Committee, College of Engineering, NMSU, 2005.
 - Organized and Chaired Tutorials on Power System Reliability at three IEEE-PES Conferences.
 - Organized Student Programs at several IEEE-PES Conferences.
 - Received an IEEE Power Engineering Society Technical Committee Working Group Recognition Award (Group Award for all members of the IEEE Standard 762 Working Group), in August 2005.
 - Participated in Career Proposal Workshop and provided critical reviews of proposals, New Mexico State University, July 2005.
- Other:
 - Member, [Center for Stochastic Modeling](#), New Mexico State University.

August 2003 to August 2004

Assistant Professor

[Klipsch School of Electrical & Computer Engineering](#), New Mexico State University, Las Cruces, NM 88003

Associate Director

[Electric Utility Management Program](#), New Mexico State University, Las Cruces, NM 88003

- Student graduated:
 - Narender Aeron (M.S., May 2004) at North Dakota State University.
- Service:
 - Organized Student Programs at several IEEE-PES Conferences.
 - Received the IEEE Power Engineering Society Technical Committee Working Group Recognition Award (Group Award for all members of the Power Engineering Education Committee’s Student Meeting Subcommittee), in August 2003.
 - Organized the Distributed and Renewable Energy Symposium (DRES2003), December 3, 2003, Las Cruces, NM.

August 2000 to August 2003

Assistant Professor

Department of Electrical & Computer Engineering, North Dakota State University, Fargo, ND 58105

- Research:
 - **NSF Career Award**, 2002.
 - Research projects:
 - “Advanced Transformer Modeling for Transients Simulation,” supported by the Bonneville Power Administration;
 - “A Real Time Price Signal Driven Demand Management System,” supported by the Otter Tail Power Company;
 - “Dynamic Modeling of Large Induction Motors for Stability and Load Flow Studies,” supported by the Otter Tail Power Company.
 - “Dynamic Ratings of Transmission Lines, Transformers, Traps and Current Transformers,” supported by the Otter Tail Power Company.
- Students graduated:
 - Ryan David Retzlaff (M.S., 2003);
 - Julian Feng (M.S., 2003).
- Education:
 - **Fellow of the Faculty Institute of Excellence in Learning**, NDSU, 2002.
 - Courses taught:
 - Power System Protection (ECE 731);
 - Power Distribution (ECE 733);
 - Machines and Controls Lab (ECE 402);
 - Power Systems Design (ECE 433/633);
 - Energy Conversion (ECE 331);
 - Electrical Engineering II (ECE 303);
 - Electrical Engineering Lab I (ECE 306).
- University Service:
 - Member, Graduate Committee, ECE Department, NDSU, 2001–03.
 - Coordinator for Graduate Seminars, ECE Department, NDSU, 2002–03.
 - Member, Curriculum Committee, ECE Department, NDSU, 2000–01.

May 1997 to July 2000

Senior Consulting Engineer

LCG Consulting, 4962 El Camino Real, Suite 112, Los Altos, CA 94022

- Nature of work: Development of models and algorithms for generation production cost analysis. Involved in the development of the UPLAN-E package, an integrated electric utility planning tool that can be used for various resource planning and analysis applications such as generation and transmission planning, demand side management, maintenance scheduling, single area and multi-area production costing, network power market analysis, and determination of bidding and pricing strategies in a competitive market. Responsibilities also included conducting the above studies for various utilities in the USA and abroad.
- Projects:
 - Developed a model to determine optimal bidding strategies in competitive markets for both energy and ancillary services.
 - Developed a data verification model to identify suspicious data in generation, transmission and load databases.

- Developed a response surface model for rapid estimation of electricity prices.
- Participated in the development of an energy market risk management model. This model optimizes portfolios consisting of electricity futures and transmission contracts and recommends optimal transaction quantities and suitable hedging strategies.
- Built and integrated the uncertainty module, which enables UPLAN-E to simulate random variations in demand, fuel costs, fuel cost escalations, hydrological conditions, unit availability and transfer capability.
- Incorporated in UPLAN-E the ability to assess wheeling charges and take these charges into account while performing the optimization and while determining the market clearing prices and nodal spot prices.
- Developed and integrated in UPLAN-E improved models for unit commitment and dispatch, by implementing a linear programming (LP) formulation that incorporates a linearized approximation of the power flow problem as well as suitable compensation for system losses. The resulting optimization module consists of LPs for unit commitment and dispatch, integrated with an LP-OPF for AC power flow optimization and redispatch.
- Conducted network power market analysis of the Western Systems Coordinating Council (WSCC) Region, as part of a contract with the Sacramento Municipal Utility District (SMUD). Developed, in collaboration with SMUD, generation, transmission and load databases, conducted market analysis for 1998, and compiled report titled “Tools and Data for the Analysis of the Impact of the California Power Exchange and the Independent System Operator on the California and Regional Power Markets.”
- Training: Participated in workshops and seminars designed to train UPLAN-E user-groups. Instructed user-groups on power market simulation, electric network modeling and use of the UPLAN-E package.

June 1995 to May 1997 and January 1992 to May 1994

Graduate Research Assistant

[Department of Electrical Engineering](#), Texas A&M University

- Research Area: Reliability Evaluation of Interconnected Systems.
- Research Projects:
 - Developed two hybrid methods for the reliability analysis of interconnected power systems. These techniques combine the advantages of the state space decomposition technique and Monte Carlo simulation to provide multi-area and composite system reliability analysis tools which allow improved system modeling by including DC load flow constraints. Both techniques can deal with arbitrary network configurations, and can treat arbitrary probability distributions of generation and transmission systems.
 - Developed a technique for determining probability distributions of capacity assistance available to an area in an arbitrarily configured multi-area network. (Earlier methods had solved this problem only for radially connected systems.)
- Assisted with the preparation of research proposals for National Science Foundation Grant ECS-9412712 and Energy Resources Grant 95-20 (Texas A&M University).

June 1994 to May 1995

Assistant Lecturer

[Department of Electrical Engineering](#), Texas A&M University

- Received the **1994–95 Outstanding Assistant Lecturer Award**.
- Courses taught:
 - Electromechanical Energy Conversion (ELEN 338);
 - Electric Circuit Theory and Instrumentation (ELEN 306).

July 1989 to August 1991

Electrical Engineer

[The Tata Iron & Steel Company](#), Jamshedpur 831001, India

- Nature of work: Installation, on-site testing, and commissioning of new electrical equipment in the plant, such as cables, overhead lines, isolators, circuit breakers, relays, metering instruments, inverters, converters, motors, starters (DOL and star-delta), and controllers (both relay logic controllers and programmable logic controllers).
- Major Project: Directed complete electric installation on an Electric Overhead Traction Crane. Installation work included mounting, interconnection, on-site modification and testing, and commissioning of all equipment — two hoist motors, four traction motors, control panels, resistance panels, controller units in operator's cabin, as well as burden weight sensors and instrumentation equipment.

May 1988 to July 1988

Summer Trainee

[The Tata Iron & Steel Company](#), Jamshedpur 831001, India

- Nature of work: Observation and documentation of industrial processes and equipment.
- Project: Developed program and performed fault level analysis of TISCO's captive power system.

TEACHING INTEREST AND AREA

Area of Teaching Interest

Energy Systems Engineering: reliability analysis; distributed energy resources; energy market modeling, simulation and analysis; resource and network planning; power flow analysis and optimization; stability analysis; power system control; state estimation.

RESEARCH INTEREST AND FUNDED RESEARCH

Area of Research Interest

Energy Systems Engineering: reliability analysis; distributed energy resources; energy market modeling, simulation and analysis; resource and network planning; stability analysis.

Research Grants

1. Co-author, Proposal for the establishment of the Electric Power Surety Institute, a center of excellence in research on electric power system reliability, security, and other timely issues. \$200,000 of funding has been approved, but not yet granted.
2. Principal Investigator, "Resource Optimization in Microgrids," Sandia National Laboratories, \$40,000; 2006–07.
3. Principal Investigator, "Storage Optimization in Microgrids," Sandia National Laboratories, \$40,000; 2005–06.
4. Principal Investigator, **NSF Career Grant** ECS-0134598, \$375,000; 2002–07.
5. Principal Investigator (co-PI: Don L. Stuehm), "Advanced Transformer Modeling for Transients Simulation," Bonneville Power Administration, \$60,000; 2002–03.
6. Principal Investigator (co-PI: Don L. Stuehm), "A Real Time Price Signal Driven Demand Management System," Otter Tail Power Company, \$60,000; 2001–03.

7. Principal Investigator (co-PI: Don L. Stuehm), “Dynamic Modeling of Large Induction Motors for Stability and Load Flow Studies,” Otter Tail Power Company, \$15,000; 2001–02.
8. Co-Investigator (PI: Don L. Stuehm), “Dynamic Ratings of Transmission Lines, Transformers, Traps and Current Transformers,” Otter Tail Power Company, \$15,000; 2001–02.

TECHNICAL PUBLICATIONS

Books

- [1] “IEEE Tutorial on Electric Delivery System Reliability Evaluation.” IEEE, 2005. Publication number 05TP175. (Editor and chapter co-author.)
- [2] “IEEE Standard Definitions for Use in Reporting Electric Generating Unit Reliability, Availability and Productivity.” IEEE Standard 762-2005. To be published.¹ (Co-author.)

Book Chapters

- [1] “Emergency Power Supply,” with C. Singh, the *Wiley Encyclopedia of Electrical and Electronics Engineering* (editor: J. G. Webster), Vol 7, pp 61–67. Wiley, New York, NY; 1999.

Journal Publications

- [1] “A Method for Developing Reliability-Stipulated Optimal Microgrid Architectures,” with S. B. Patra and S. J. Ranade, submitted to *Electric Power Systems Research*. (*under review*²)
- [2] “Hybrid Transformer Model for Transient Simulation: Part I—Development and Parameters,” with B. A. Mork, F. Gonzalez, D. Ischenko and D. L. Stuehm, to be published in the *IEEE Transactions on Power Delivery*. (*accepted*³)
- [3] “Hybrid Transformer Model for Transient Simulation: Part II—Laboratory Measurements and Benchmarking,” with B. A. Mork, F. Gonzalez, D. Ischenko and D. L. Stuehm, to be published in the *IEEE Transactions on Power Delivery*. (*accepted*)
- [4] “A Direct Method for Determination of Failure Frequency Indices Using State Space Decomposition,” with C. Singh, *WSEAS Transactions on Systems*, Vol 6, No 2, pp 243–250, Feb 2007.
- [5] “Reliability-Specified Generation and Distribution Expansion in Microgrid Architectures,” with S. B. Patra, S. J. Ranade and M. R. Vallem, *WSEAS Transactions on Power Systems*, Vol 1, No 8, pp 1446–1453, Aug 2006.
- [6] “Pruning and Simulation for Determination of Frequency and Duration Indices of Composite Systems,” with C. Singh, *IEEE Transactions on Power Systems*, Vol 14, No 3, pp 899–905, Aug 1999.
- [7] “Capacity Assistance Distributions for Arbitrarily Configured Multi-Area Networks,” with C. Singh, *IEEE Transactions on Power Systems*, Vol 12, No 4, pp 1530–1535, Nov 1997.

¹ This Standard has been balloted on and approved. The IEEE editorial staff will make necessary formatting changes and make the Standard available for purchase by April 2007.

² This is the only listed publication that is still under review and has not yet been accepted for publication.

³ This paper and the accompanying part have been accepted and are expected to appear in the April 2007 issue. Evidence of acceptance has been provided in Appendix B.

- [8] “Composite System Reliability Evaluation using State Space Pruning,” with C. Singh, *IEEE Transactions on Power Systems*, Vol 12, No 1, pp 471–479, Feb 1997.
- [9] “Incorporating the DC Load Flow Model in the Decomposition-Simulation Method of Multi-Area Reliability Evaluation,” with C. Singh, *IEEE Transactions on Power Systems*, Vol 11, No 3, pp 1245–1254, Aug 1996.
- [10] “Reliability Analysis of Emergency and Standby Power Systems,” with C. Singh, *IEEE Industry Applications Society Magazine*, Vol 3, No 5, pp 41–47, Sep/Oct 1997.
- [11] “New Architectures for Space Power Systems,” with M. Ehsani, M. O. Bilgic and A. D. Patton, *IEEE Aerospace and Electronic Systems Magazine*, Vol 10, No 8, pp 3–8, Aug 1995.
- [12] “Magnetically Inflatable SPS with Energy Storage Capability,” with M. Ehsani, M. O. Bilgic and A. D. Patton, *IEEE Aerospace and Electronic Systems Magazine*, Vol 10, No 8, pp 9–14, Aug 1995.

Conference Publications

- [1] “Determination of Failure Frequency Indices from State Space Decomposition,” with C. Singh, Proceedings of the 5th *WSEAS International Conference on Circuits, Systems, Electronics, Control & Signal Processing*, Dallas, TX, Nov 1–3, 2006, pp 230–235.
- [2] “Optimization of Generation and Distribution Expansion in Microgrid Architectures,” with S. B. Patra, M. R. Vallem and S. J. Ranade, Proceedings of the 6th *WSEAS International Conference on Power Systems*, Lisbon, Portugal, Sep 22–24, 2006, pp 14–21.
- [3] “Reliability Evaluation and Need-Based Storage Assessment for Surety Microgrids,” with M. R. Vallem and D. R. Jensen, Proceedings of the 38th annual *North American Power Symposium*, Carbondale, IL, Sep 2006.
- [4] “Reliability Stipulated Microgrid Architecture Using Particle Swarm Optimization,” with S. B. Patra and S. J. Ranade, Proceedings of the 9th *International Conference on Probabilistic Methods Applied to Power Systems*, Stockholm, Sweden, June 11–15, 2006.
- [5] “A Probabilistic Search Method for Optimal Resource Deployment in a Microgrid,” with M. R. Vallem and S. B. Patra, Proceedings of the 9th *International Conference on Probabilistic Methods Applied to Power Systems*, Stockholm, Sweden, June 11–15, 2006.
- [6] “Designing a Sufficient Reactive Power Supply Scheme to Multi-Islands in a Microgrid,” with S. A. Al-Askari and S. J. Ranade, Proceedings of the *IEEE-PES Annual General Meeting*, Montreal, Canada, June 18–22, 2006.
- [7] “A Self-Supporting Microgrid Architecture Achievable with Today’s Technology,” with S. J. Ranade, (Panel Paper), Proceedings of the *Transmission and Distribution Conference and Exposition*, Dallas, TX, May 21–24, 2006, p 935.
- [8] “Distributed Generation Placement for Optimal Microgrid Architecture,” with M. R. Vallem and S. B. Patra, Proceedings of the *IEEE-PES Transmission and Distribution Conference and Exposition*, Dallas, TX, May 21–24, 2006, pp 1191–1195.
- [9] “A New Intelligent Search Method for Composite System Reliability Analysis,” with S. B. Patra and R. Earla, Proceedings of the *IEEE-PES Transmission and Distribution Conference and Exposition*, Dallas, TX, May 21–24, 2006, pp 803–807.

- [10] “Sizing and Siting of Distributed Generation for Optimal Microgrid Architecture,” with M. R. Vallem, Proceedings of the 37th annual *North American Power Symposium*, Ames, IA, Oct 23–25, 2005, pp 611–616.
- [11] “Optimal Allocation of Shunt Capacitors Placed in a Microgrid Operating in the Islanded Mode,” with S. A. Al-Askari and S. J. Ranade, Proceedings of the 37th annual *North American Power Symposium*, Ames, IA, Oct 23–25, 2005, pp 406–411.
- [12] “A Dynamic Programming Based Method for Developing Optimal Microgrid Architectures,” with S. B. Patra and S. J. Ranade, Proceedings of the 15th *Power System Computation Conference*, Liege, Belgium, Aug 22–26, 2005.
- [13] “Microgrid Architecture: A Reliability Constrained Approach,” with S. B. Patra and S. J. Ranade, Proceedings of the *IEEE-PES Annual General Meeting*, San Francisco, CA, June 12–16, 2005, pp 2372–2377.
- [14] “Identification of Chains of Events Leading to Catastrophic Failures of Power Systems,” with S. J. Ranade and R. Kolluru, Proceedings of the *IEEE International Symposium on Circuits and Systems—2005*, Kobe, Japan, May 23–26, 2005, pp 4187–4190.
- [15] “A Particle Swarm Based Method for Composite System Reliability Analysis,” with R. Earla and S. B. Patra, Proceedings of the 36th annual *North American Power Symposium*, Moscow, Idaho, Aug 9–10, 2004, pp 294–298.
- [16] “Recent Experience with Directed Mentoring and Laboratory Development in the Electric Power Area,” with S. J. Ranade and H. A. Smolleck, *Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition*.
- [17] “Applications of Reliability Analysis to Power Electronics Systems,” with C. Singh and P. N. Enjeti, *India International Conference on Power Electronics—2002*, Mumbai, India, Dec 2002.
- [18] “Integration of Standby Generators into Distributed Generation Systems,” with J. Feng and R. Mascarenhas, Proceedings of the 34th annual *North American Power Symposium*, Tempe, Arizona, Oct 2002, pp 269–273.
- [19] “A Hybrid Approach to Addressing the Problem of Noncoherency in Multi-Area Reliability Models,” with C. Singh, Proceedings of the 12th *Power System Computation Conference*, Dresden, Germany, Aug 1996, pp 1011–1017.
- [20] “Monte Carlo Simulation for Reliability Analysis of Emergency and Standby Power Systems,” with C. Singh, Proceedings of the 30th *IEEE Industry Applications Society Conference*, Orlando, Florida, Oct 1995, pp 2290–2295.
- [21] “A Comparison of Two Hybrid Methods for Multi-Area Reliability Analysis,” with C. Singh, Proceedings of the *International Conference on Electrical Engineering*, Matsue, Japan, Jul/Aug 1997.
- [22] “A Diakoptic Formulation of the Economic Power Flow Problem,” with L. Roy, Proceedings of the 27th annual *North American Power Symposium*, Bozeman, Montana, Oct 1995, pp 159–162.
- [23] “A Survey of Methods of Forming Reduced Order Equivalent for Energy Function Analysis,” Proceedings of the 27th annual *North American Power Symposium*, Bozeman, Montana, Oct 1995, pp 231–234.

- [24] “Combining Textbook Material and Current Research in a Graduate Course in Energy Systems,” with M. Ehsani, et al, Proceedings of the annual conference of the *Energy Conversion and Conservation Division* of the ASEE, Anaheim, California, Jun 1995, pp 1845–1851.

Research Reports

- [1] “Storage Optimization in a Microgrid,” a report submitted to the Sandia National Laboratories, Oct 2006.
- [2] “Advanced Transformer Modeling for Transients Simulation. Tasks 4, 5 and 6: Additional Laboratory Testing of 3-leg and 5-leg Distribution Transformers for Parameter Refinement,” a report submitted to the Bonneville Power Administration, Sep 2003.
- [3] “Advanced Transformer Modeling for Transients Simulation. Task 3: Frequency Dependence of Parameters of 3-leg and 5-leg Distribution Transformers,” with R. D. Mascarenhas and M. A. Jayachandran, a report submitted to the Bonneville Power Administration, Sep 2003.
- [4] “Advanced Transformer Modeling for Transients Simulation. Task 2: Library of Model Topologies,” with B. A. Mork and F. Gonzalez-Molina, a report submitted to the Bonneville Power Administration, June 2003.
- [5] “Advanced Transformer Modeling for Transients Simulation. Task 1: Laboratory Testing of 3-leg and 5-leg Distribution Transformers,” a report submitted to the Bonneville Power Administration, Dec 2002.
- [6] “Dynamic Rating of Transmission Lines, Transformers, Traps and Current Transformers,” with D. L. Stuehm, a report submitted to the Otter Tail Power Company, June 2002.
- [7] “Tools and Data for the Analysis of the Impact of the California Power Exchange and the Independent System Operator on the California and Regional Power Market,” with R. Albert, a report submitted to the Sacramento Municipal Utility District, Oct 1997.

PATENTS

- [1] “Standby Generator Integration System,” with J. A. Jorgenson, D. L. Stuehm and T. Shaner. Patent admitted, but yet to be granted.

HONORS AND AWARDS

Awards

- Supervisor of First prize winner in Student Poster Contest at the IEEE Power Systems Conference & Exposition 2006, Atlanta, GA, Oct 2006.
- (Group Award) IEEE Power Engineering Society Technical Committee Working Group Recognition Award, 2005. For services for the Std 762 WG.
- (Group Award) IEEE Power Engineering Society Technical Committee Working Group Recognition Award, 2003. For Services to the Student Meetings Subcommittee.
- The **NSF Career Award**, 2002.
- The **1994–95 Outstanding Assistant Lecturer Award** (Department of Electrical Engineering, Texas A&M University), April 1995.
- The **Jagadis Bose National Science Talent Search Scholarship** (India), July 1985 to June 1989.

Honors

- Member, NMSU Teaching Academy.
- Nominated for the College of Engineering and Architecture Researcher of the Year Award, North Dakota State University, 2003.
- **Senior Member, IEEE**, 2002.
- **Fellow** of the **Faculty Institute of Excellence in Learning**, North Dakota State University, 2002.
- Listed on **Who's Who in Engineering Academia**.

PROFESSIONAL SERVICE

Professional Society & Committee Membership

Senior Member, [Institute of Electrical and Electronics Engineers \(IEEE\)](#).

- *Member*, [IEEE Power Engineering Society](#); IEEE-PES Committee affiliations:
 - *Member*, Power Systems Analysis, Computing, and Economics (PSACE) Committee.
 - *Vice-Chair*, Reliability, Risk, and Probability Applications (RRPA) Subcommittee (2006–present);
 - *Secretary*, Reliability, Risk, and Probability Applications (RRPA) Subcommittee (2002–06);
 - *Member*, IEEE Standard 762 Task Force.
 - *Member*, IEEE Standard 859 Task Force.
 - *Member*, IEEE-PES Power Systems Education Committee (PEEC).
 - *Chair*, Student Activities Subcommittee (2005–present);
 - *Vice Chair*, Student Activities Subcommittee (2003–05);
 - *Secretary*, Student Activities Subcommittee (2001–03);
 - *Member*, Research Subcommittee;
 - *Member*, Lifelong Learning Subcommittee.
 - *Member*, IEEE-PES History Committee.
- *Member*, [IEEE Industry Applications Society](#).
- *Member*, [IEEE Standards Association](#).

Proposal, Manuscript and Book Review

- Panel Review for the National Science Foundation, April 2001 and May 2006.
- Proposal Review for ND-EPSCoR, December 2001.
- Review of manuscripts submitted for publication in:
 - IEEE Transactions on Power Systems;
 - IEEE Transactions on Power Electronics;
 - Journal of Intelligent and Fuzzy Systems;
 - International Journal for Computation and Mathematics in Electrical and Electronic Engineering;
 - IEEE Power Engineering Society conferences;
 - North American Power Symposium;
 - IEEE International Symposium on Circuits and Systems.
- Books and book chapters for publishers (McGraw-Hill).
- External reviewer for doctoral students in foreign universities.

Short Courses

1. Taught a short course on *Electric Power System Reliability Evaluation* at the Indian Institute of Technology, Kharagpur, January 9–12, 2006. 16 hours of instruction. Co-Instructor: C. Singh, Texas A&M University.
2. Team-taught a short course on Life Extension of Substations at New Mexico State University, Las Cruces, August 10–11, 2006. Co-Instructor: Gene Wolf, Public Service Company of New Mexico.
3. Team-taught a short course on Fundamentals of Electric Power System Analysis at New Mexico State University, Las Cruces, August 7–9, 2006. Co-Instructors: H. A. Smolleck, S. J. Ranade, NMSU.

Organizer

1. Organized and Chaired the IEEE Tutorial on *Electric Delivery System Reliability Evaluation* at the IEEE-PES Annual General Meeting—2006, Montreal, Quebec, on June 21, 2006 and at the IEEE-PES Annual General Meeting—2005, San Francisco, CA, on June 12, 2005.
2. Organized and Chaired the IEEE Tutorial on *Reliability of Electric Delivery Systems* at the IEEE-PES Transmission and Distribution Conference and Exposition — 2006, Dallas, TX, on May 21, 2006.
3. Organized Student Programs at several IEEE-PES Conferences.
4. The *Distributed and Renewable Energy Symposium—2003*, Las Cruces, December 4, 2003. Co-organizer: S. J. Ranade.

Session Chair

1. Paper session on *Advanced Circuits Development and Applications*, WSEAS International Conference on Circuits, Systems, Electronics, Control & Signal Processing, Dallas, TX, Nov 2006.
2. Paper session on *Electric Power Industry Restructuring I*, North American Power Symposium, Carbondale, IL, September 2006.
3. Paper session on *Distribution Systems I*, North American Power Symposium, Ames, IA, October 2005.
4. Paper session on *Power System Analysis, Modeling and Simulation*, North American Power Symposium, Moscow, ID, August 2004.
5. Paper session on *Electromagnetic Transients: Modeling and Simulation*, IEEE-PES General Meeting, Denver, June 2004.
6. Paper session on *Power System Reliability Assessment*, IEEE-PES Summer Meeting, Chicago, July 2002.

Invited Talks

1. *Secure Power Systems Through Autonomous Microgrids*. Plenary presentation at the 5th WSEAS International Conference on Circuits, Systems, Electronics, Control & Signal Processing, Dallas, TX, Nov 1, 2006.

2. *Toward Understanding Catastrophic Failure Modes in Power Systems*. Panel presentation at the *IEEE-PES Transmission and Distribution Conference and Exposition*, Dallas, TX, May 22, 2006.
3. *A Self-Supporting Microgrid Achievable with Today's Technology*. Panel presentation at the *IEEE-PES Transmission and Distribution Conference and Exposition*, Dallas, TX, May 22, 2006.
4. *Preventing Catastrophic Failures in Power Systems*. Presented at the *Workshop on Power System Security*, sponsored by the Ministry of Power, India. Kharagpur, January 13–14, 2006.
5. *Economics and Impact of Distributed Generation*. Presented before the Red River Valley Section of the IEEE, October 2002.
6. *Reliability of Distributed Energy Resources*. Presented at the Department of Electrical Engineering, University of Manitoba, Winnipeg, October 2002.
7. *How Does Electricity Deregulation Affect Us?* Presented before the Rough Rider Kiwanis (Fargo Chapter of the Kiwanis International), July 2001.
8. *Reliability Analysis of Interconnected Power Systems*. Presented at the Department of Electrical Engineering, Indian Institute of Technology, Kharagpur, August 1995.
9. *Power System Reliability*. Presented at the Electrical Power Department, Tata Iron & Steel Company, Jamshedpur, India, August 1995.

University Service

1. Member, Graduate Committee, ECE Department, NMSU, 2005–present.
2. Member, Technology Committee, ECE Department, NMSU, 2005–present.
3. Member, Faculty Search Committee, ECE Department, NMSU, 2006–present.
4. Member, Ph.D. Qualifying Examination Coordination Committee, ECE Department, NMSU, 2006–present.
5. Member, Associate Dean (Academic) Search Committee, College of Engineering, NMSU, 2005.
6. Member, Graduate Committee, ECE Department, NDSU, 2001–03.
7. Coordinator for Graduate Seminars, ECE Department, NDSU, 2002–03.
8. Member, Curriculum Committee, ECE Department, NDSU, 2000–01.

Community Service

1. Participated in Career Proposal Workshop and provided critical reviews of proposals, New Mexico State University, July 2005.
2. Served as a Judge for the Graduate Research and Arts Symposium, New Mexico State University, April 2005.
3. Treasurer, Texas A&M Chapter of the Society for Promotion of Indian Classical Music and Culture Amongst Youth, 1995–96.