

*Curriculum Vitae***Siddharth Suryanarayanan**

Last updated: January 5, 2016

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1 Personal Information

1.1 Contact Information

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1.2 Education

<i>Degree</i>	<i>Date</i>	<i>University</i>
Ph.D.	May 2004	Arizona State University (ASU), Tempe, AZ
M.S.	Dec. 2001	Arizona State University, Tempe, AZ
B.E. (First class with distinction)	May 2000	Madras University, Chennai, India

Doctoral Dissertation: Accommodation of loop flows in competitive electric power systems.

Doctoral Dissertation Advisor: Gerald T. Heydt.

Masters Thesis: Analysis of the impact of hidden failures using the analytical hierarchy process.

Masters thesis Advisor: Ravi S. Gorur.

1.3 Employment History

Jul. 2014 – present

Associate Professor (with tenure), Department of Electrical and Computer Engineering, CSU.

Aug. 2010 – Jun. 2014

Assistant Professor, Department of Electrical and Computer Engineering, CSU.

Jan. 2008 – Aug. 2010

Assistant Professor, Division of Engineering, Colorado School of Mines (CSM), Golden, Colorado.

Mar. 2005 – Dec. 2007

Assistant Scholar Scientist, Center for Advanced Power Systems, Florida State University (FSU), Tallahassee, Florida.

Aug. 2004 – Feb. 2005

Faculty Research Associate, Department of Electrical Engineering, ASU.

Jan. 2002 – May 2004

Graduate Research Associate, Department of Electrical Engineering, ASU.

Aug. 2000 – Dec. 2001

Graduate Research Assistant, Department of Electrical Engineering, ASU.

Dec. 1999 – Apr. 2000

Project Intern, CDG Cell, Alstom Ltd., Chennai, India.

1.4 Other Appointments

Mar. 2013 – Feb. 2014

Joint Appointee, Scientific Staff, National Renewable Energy Laboratory (NREL), Golden, Colorado.

Mar. 2012

Visiting Academic (Assistant Professor), University of Cyprus, Nicosia, Cyprus.

Feb. 2012 – Jan. 2015

Courtesy Appointment, Department of Mechanical Engineering, CSU.

Oct. 2010 – Oct. 2014

Site Director, Center for Research and Education in Wind (CREW), CSU.

Sep. 2012 – Aug. 2014

Junior Adjunct Researcher, Power Systems Engineering Research Center (PSERC), ASU.

Aug. 2010 – May 2011

Adjunct Assistant Professor, Division of Engineering, CSM.

1.5 Awards and Honors

- [1] (Sep. 2015) Invited delegate, 2nd Global Grand Challenges Summit of US National Academy of Engineering (NAE), Royal Academy of Engineering, and Chinese Academy of Engineering, Beijing, China.
- [2] (Aug. 2015) Article co-authored by Suryanarayanan and collaborator included among the *32 best-of-the-best insightful articles* of IEEE Smart Grid Newsletter in the first IEEE Smart Grid Compendium.
- [3] (Jul. 2015) Sole recipient, Outstanding Young Engineer Award of the Institute of Electrical and Electronics Engineers (IEEE) Power and Energy Society (PES).
- [4] (Jul. 2015) Conference paper co-authored by Suryanarayanan, student, and collaborators included in the *Best paper session on Power System Modeling and Simulation* at the IEEE PES General Meeting, Denver, Colorado.
- [5] (Apr. 2014) Panel session co-chaired by Suryanarayanan ranked in the Top 10 Sessions (out of 98) at 2014 IEEE PES Transmission and Distribution Conference and Exposition, Chicago, Illinois. (Link last accessed on 11/02/2015)
- [6] (Apr. 2013) Invited panelist, 2013 Austin Electricity Conference, The University of Texas at Austin, Austin, Texas.
- [7] (2012) Journal article co-authored by Suryanarayanan, student, and collaborators featured in SCIENCE DIRECT TOP 25 Hottest Articles (rank 20) in *The Electricity Journal*, Elsevier for the period Oct.–Dec. 2012. (Link last accessed on 11/02/2015)
- [8] (Jul. 2012) IEEE PES T. Burke Hayes Faculty Recognition Award, San Diego, California.
- [9] (Sep. 2011) Invited participant, 2011 NAE United States Frontiers of Engineering (FOE) Symposium, Mountain View, California.

- [10] (2011 – 2012) Resident faculty fellow, School of Global Environmental Sustainability (SoGES), CSU.
- [11] (Oct. 2010) First prize paper, Industrial Automation and Control Committee (IACC), in the 2010 IEEE Industry Applications Society (IAS) Annual Meeting, Houston, Texas.
- [12] (2010) Journal article co-authored by Suryanarayanan, student, and collaborator featured in SCIENCE DIRECT TOP 25 (rank 13) for Oct. 2009–Sep. 2010 in *The Electricity Journal*, Elsevier. (Link last accessed on 11/02/2015)
- [13] (2010) Journal article co-authored by Suryanarayanan, student, and collaborator listed in most cited articles in *The Electricity Journal*, Elsevier. (Link last accessed on 11/02/2015).
- [14] (Jun. 2010) Research featured in National Science Foundation (NSF) Green Revolution video series under ‘Smart Grid. (Link last accessed on 11/02/2015).
- [15] (Jan. 2010) Elected Senior Member, IEEE, Piscataway, New Jersey.
- [16] (Jul. 2009) IEEE PES T. Burke Hayes Faculty Recognition Award, Calgary, Alberta, Canada.
- [17] (May 2004) Fellow, Preparing Future Faculty (PFF), ASU.
- [18] (Oct. 2003) 2nd prize in the Student Paper Contest at the 35th North American Power Symposium, University of Missouri-Rolla, Rolla, Missouri.
- [19] (Jun. 2003) 2nd place in the local IEEE PES Transmission and Distribution Collegiate Paper Contest, ASU.
- [20] (1997) Merit certificate for topping the college in Applied Physics examination conducted by the Madras University during 1996-97 first year examinations for the B.E. degree, Chennai, India.

1.6 Consulting Activities

Sep. 2015 – Oct. 2015

The Implementation GroupTM, Washington, D.C.

Role: External reviewer for a pre-proposal to federal agency’s program on large research center grants.

Aug. 2013 – Sep. 2013

CSUVenturesTM, Fort Collins, Colorado.

Role: Aid in development of course material related to electric power systems topics (grid, generation, transmission, distribution, and economics of electricity) for the advanced graduate course ‘Transportation Electrification’, MECH680A4 (Fall 2013, Colorado State University).

2 Research Activities

2.1 Research Interests

Cyber-physical Social Systems (CPSS) in Electric Power Engineering

Smart Cities Infrastructure

High-performance Computing (HPC) Applications in Electric Power Engineering

Smart Grid, Microgrids, Smart Buildings, and Smart Homes

Grid Integration and Operation of Renewable and Distributed Energy Resources

Algorithms for Energy Management

2.2 Research Grants and Contracts

2.2.1 Externally-funded Projects as PI

Total amount generated: **\$1,284,958**

Suryanarayanan's portion: **\$1,160,425**

- [1] "Survey-based home energy management system for enhanced demand response," National Renewable Energy Laboratory (NREL) and Robert Bosch, LLC (subcontract on Department of Energy (DOE)-Bonneville Power Administration (BPA) FOA 0003274)
Co-PI: Patricia Aloise-Young (CSU)
Period of performance: 1/4/2016–3/31/2018
Amount: **\$247,425**
- [2] "Real time power systems modeling and analysis research," Idaho National Energy Laboratory (INL)
Period of performance: 2/16/15 - 9/30/16 (with 1 year no-cost extension)
Amount: **\$76,165**
- [3] "A flexible cyber-physical test platform for microgrids research: Combining hardware, hardware-in-the-loop, and network-simulator-in-the-loop facets," Alliance for Sustainable Energy, LLC - NREL
Period of performance: 10/1/2014–9/30/2015
Amount: **\$60,000**
- [4] "Development of course (and short course) titled Grid Integration of Wind Energy Systems," Center for Research and Education in Wind, University of Colorado Boulder (CU-B)
Period of performance: 8/1/2014–12/31/2014
Amount: **\$15,000**
- [5] "Development and validation of a distribution feeder model in RTDS hardware-in-the-loop system," Alliance for Sustainable Energy, LLC - NREL
Period of performance: 4/1/2013–3/31/2014
Amount: **\$55,679**

- [6] “Individual joint appointment agreement,” Alliance for Sustainable Energy, LLC - NREL
 Period of performance: 3/25/2013–3/24/2014
 Amount: **\$40,510**
- [7] “ARRA: Interconnection-level analysis and planning: Education and system studies on the Western Electricity Coordinating Council (WECC),” DOE FOA 0000068 (subcontract via ASU)
 Period of performance: 1/1/2010–9/20/2013
 Amount: **\$299,930**
- [8] “CREW: CSU administrative support for site directorship,” CU-B
 Period of performance: 6/1/2010–6/30/2013
 Amount: **\$14,167**
- [9] “Verifiable decision making algorithms for reconfiguration of electric power microgrids,” Innovative Research Award, Joint Institute for Strategic Energy Analysis (JISEA)
 Co-PIs: S. Sankaranarayanan, E. Chang, and D. Grunwald (CU-B)
 Period of performance: 9/10/2010–6/30/2011
 Amount: **\$50,000** (Suryanarayanan’s portion of grant: **\$34,500**)
- [10] “Implications of the Smart Grid Initiative on distribution engineering,” PSERC T&D stem
 Co-PIs: G. T. Heydt (ASU), A. D. Dominguez-Garcia (University of Illinois), and W. Jewell (Wichita State University)
 Period of performance: 7/1/2009–8/31/2011 (at CSM) and 10/1/2011 - 9/30/2012 (at CSU)
 Amount: **\$199,000** (Suryanarayanan’s portion of grant: **\$89,967**)
- [11] “Collaborative research: Customer-driven distribution microgrids - A holistic approach based on real-time dynamic simulations,” National Science Foundation (NSF)
 Period of performance: 01/08/2008–04/30/11 (with 1 year no-cost extension)
 Amount: **\$217,082**
- [12] “Student travel support for the 2008 North American Power Symposium held at Calgary, Canada, September 28–30, 2008,” NSF
 Period of performance: 10/1/2008–2/28/2009
 Amount: **\$10,000**

2.2.2 Externally-funded Projects as Co-PI

Total amount generated: **\$1,545,830**

Suryanarayanan’s portion: **\$280,769**

- [1] “APUP Microgrid assessment work,” Alliance for Sustainable Energy, LLC - NREL
 PI: D. J. Zimmerle (CSU)
 Co-PIs: S. Suryanarayanan and P. M. Young (CSU)
 Period of performance: 9/15/2011–1/2/2012
 Amount: **\$89,807** (Suryanarayanan’s portion of grant: **\$29,969**)
- [2] “CPS-Medium: Cyber-Enabled Efficient Energy Management of Structures (CEEMS),” NSF
 PI: T. L. Vincent (CSM)
 Co-PIs: R. J. Braun, D. P. Mehta, K. L. Moore (CSM), and S. Suryanarayanan
 Period of performance: 9/1/2009–9/30/2011 (at CSM) and 10/1/2011–8/31/2013 (at CSU)
 Amount: **\$1,406,023** (Suryanarayanan’s portion of grant: **\$225,800**)

- [3] “Smart inverters for smart grids,” Xcel Energy Corporation grant through Colorado Renewable Energy Collaboratory (CREC)
PI: M. G. Simões (CSM)
Co-PI: S. Suryanarayanan
Period of performance: **2008–2009**
Amount: **\$50,000** (Suryanarayanan’s portion of grant: **\$25,000**).

2.2.3 Externally-funded Projects as Role Other Than PI or Co-PI

- [1] “Support for ECE senior design project on Smart Grid topic: Real-time meter data to metrics,” Schneider Electric, Inc.
Faculty advisor: S. Suryanarayanan
Period of performance: 2014–2015
Amount: **\$4,000**.
- [2] “Support for ECE senior design project on Smart Grid topic: Real-time meter data to metrics,” Schneider Electric, Inc.
Faculty advisor: S. Suryanarayanan
Period of performance: 2013–2014
Amount: **\$4,000**.
- [3] “Two 25 kW Summit DC supplies and one 35kW PVPowered inverter for enhancing the microgrid capabilities of InteGrid at CSU,” in-kind gift from Advanced Energy Inc.
Recipients: S. Suryanarayanan and D. J. Zimmerle (CSU)
Period of performance: 2011
Amount: **\$90,800** (cash equivalent)
- [4] “Energy scavenging un-manned surface vehicles for long range surveillance,” Department of Defense (DoD)-Navy Small STTR - Phase II (subcontract via Custom Manufacturing and Engineering (CME))
PI: D. A. Cartes (FSU)
Participants: S. Suryanarayanan and R. Meeker (FSU)
Period of performance: 2006–2007
Amount: **\$120,000**
- [5] “High fidelity modeling and hardware in the loop (HIL) based controller performance estimation of a 10 MVA ETO based STATCOM for BPA Condon wind farm,” Electric Power Research Institute (EPRI), BPA, Tennessee Valley Authority (TVA), North Carolina State University (NCSU), DOE
PI: M. Steurer (FSU)
Participants: S. Suryanarayanan and P. F. Ribeiro (Calvin College)
Period of performance: 2006–2007
Amount: Approx. **\$200,000**
- [6] “Energy scavenging un-manned surface vehicles for long range surveillance,” Department of Defense (DoD)-Navy Small STTR - Phase I (subcontract via CME)
PI: D. A. Cartes (FSU)
Participants: S. Suryanarayanan and R. Meeker (FSU)
Period of performance: 2006–2007
Amount: Approx. **\$35,000**

2.2.4 Internally-Funded Awards

- [1] “Aggregator-based demand response in Smart Grid using incentive-based pricing: A novel approach for fully deregulating the electric power grid,” CSU Energy Institute Seed Grant
PI: S. Suryanarayanan
Co-PIs: A. A. Maciejewski and H. J. Siegel (CSU)
Period of performance: 5/22/2015–5/30/2016
Amount: **\$25,000**
- [2] “Advanced building sensing and controls,” CSU Office of the Vice President for Research (VPR) Program of Research and Scholarly Excellence (PRSE) disbursement
PI: S. Suryanarayanan
Period of performance: 2012
Amount: **\$12,793**
- [3] Principal Investigator: “Verification of complexity in the design of distributed microgrid islands,” CSU Energy Supercluster Seed Grant
Co-PI: S. Rajopadhye (CSU)
Period of performance: 2011–2012
Amount: **\$25,000**
- [4] Resident faculty fellowship, School of Global Environmental Sustainability (SoGES), CSU
Period of performance: 2011–2012
Amount: **\$5,000**
- [5] “Digital projector for enhancing the learning experience of under-graduate students in engineering,” CSM Technology Fee Proposal Grant
Period of performance: 2009
Amount: **\$2,427**
- [6] “Advanced power quality management of the notional all-electric ship,” US Office of Naval Research (ONR) through Electric Ship Research and Development Consortium (ESRDC)
PI: S. Suryanarayanan
Co-PIs: M. Steurer (FSU), P. F. Ribeiro (Calvin College)
Period of performance: 2006–2007
Amount: approx. **\$135,000**
- [7] “A Real Time (RT) simulation and Hardware In the Loop (HIL) based rationale of the IEEE Std. 1547-2003 for interconnecting distributed resources with electric power systems,” DoE earmark at CAPS-FSU
PI: S. Suryanarayanan
Period of performance: 2005–2006
Amount: **\$50,000**
- [8] “System sensitivities to waveform distortions and improvement of immunity,” DoE earmark at CAPS-FSU
PI: S. Suryanarayanan
Period of performance: 2005–2006
Amount: **\$11,000**

- [9] “Advanced power quality management of the notional all-electric ship,” ONR through ESRDC
PI: M. Steurer (FSU)
Co-PIs: S. Suryanarayanan and P. F. Ribeiro (Calvin College)
Period of performance: 2005–2006
Amount: approximately **\$135,000**

2.3 Publications

Total citations: 1168

h-index: 19

Source: Google ScholarTM (Link last accessed on January 5, 2016)

2.3.1 Journal Articles

(Total: 27)

- [1] T. M. Hansen, R. G. Kadavil, B. Palmintier, S. Suryanarayanan, A. A. Maciejewski, H. J. Siegel, E. K. P. Chong, and E. Hale, “Enabling Smart Grid co-simulation studies,” **accepted for publication**, *IEEE Electrification Magazine*, vol. 4, no. 1, Mar. 2016.
- [2] T. M. Hansen, R. Roche, S. Suryanarayanan, A. A. Maciejewski, and H. J. Siegel, “Heuristic optimization for an aggregator-based resource allocation in the Smart Grid,” *IEEE Transactions on Smart Grid*, vol. 6, no. 4, pp. 1785–1794, Jul. 2015.
- [3] T. M. Hansen, S. Suryanarayanan, A. A. Maciejewski, H. J. Siegel, and A. V. Modali, “A visualization aid for demand response studies in the Smart Grid,” *The Electricity Journal, Elsevier*, vol. 28, no. 3, pp. 100–111, Apr. 2015.
- [4] C. Abbey, D. Cornforth, N. Hatziargyriou, K. Hirose, G. Platt, A. Kwasinski, E. Kyriakides, L. Reyes, and S. Suryanarayanan, “Powering through the storm: Microgrids operation for more efficient disaster recovery,” *IEEE Power and Energy Magazine*, vol. 12, no. 3, pp. 67–76, May 2014.
- [5] M. Mohanpurkar and S. Suryanarayanan, “Regression modeling for accommodating unscheduled flows in electric grids,” *IEEE Transactions on Power Systems*, vol. 29, no. 5, pp. 2569–2570, Sep. 2014.
- [6] A. Zipperer, P. A. Aloise-Young, S. Suryanarayanan, R. Roche, L. Earle, D. Christensen, P. Bauleo, and D. Zimmerle, “Electric energy management in the smart home: Perspectives on enabling technologies and consumer behavior,” invited paper, *Proceedings of the IEEE*, vol. 101, no. 11, pp. 2397–2408, Nov. 2013.
- [7] J. D. Palchak, S. Suryanarayanan, and D. J. Zimmerle, “An artificial neural network in short-term electrical load forecasting of a university campus - A case study,” *Transactions of the ASME, Journal of Energy Resources Technology*, vol. 135, no. 3, pp. 032001-1–032001-6, Sep. 2013.
- [8] M. Mohanpurkar and S. Suryanarayanan, “Accommodating unscheduled flows in electric grids using the analytic ridge regression,” *IEEE Transactions on Power Systems*, vol. 28, no. 3, pp. 3507–3508, Aug. 2013.

- [9] P. Zhao, S. Suryanarayanan and M. G. Simões, “An energy management system for building structures using a multi-agent decision-making control methodology,” *IEEE Transactions on Industry Applications*, vol. 49, no. 1, pp. 322–330, Feb. 2013.
- [10] R. Roche, L. Idoumghar, S. Suryanarayanan, M. Daggag, C-A. Solacolu, and A. Miraoui, “A flexible and efficient multi-agent gas turbine power plant energy management system with economic and environmental constraints,” *Applied Energy, Elsevier*, vol. 101, pp. 644–654, Jan. 2013.
- [11] H. E. Brown, S. Suryanarayanan, S. A. Natarajan, and S. Rajopadhye, “Improving reliability of islanded distribution systems with distributed renewable energy resources,” *IEEE Transactions on Smart Grid*, vol. 3, no. 4, pp. 2028–2038, Dec. 2012.
- [12] M. Panwar, G. P. Duggan, R. Griffin (*deceased*), S. Suryanarayanan, D. J. Zimmerle, M. Pool, and S. Brunner, “Dispatch in microgrids: Lessons from the Fort Collins renewable and distributed systems integration demonstration project,” *The Electricity Journal, Elsevier*, vol. 25, no. 8, pp. 71–83, Oct. 2012. (See Awards and Honors [7]).
- [13] M. G. Simões, R. Roche, E. Kyriakides, S. Suryanarayanan, B. Blunier (*deceased*), K. McBee, P. Nguyen, P. F. Ribeiro, and A. Miraoui, “A comparison of smart grid technologies and progresses in Europe and the USA,” *IEEE Transactions on Industry Applications*, vol. 48, no. 4, pp. 1154–1162, Aug. 2012.
- [14] R. Carnieletto, D. I. Brandão, S. Suryanarayanan, M. G. Simões, and F. A. Farret, “Smart Grid Initiative: A multifunctional single-phase voltage source inverter,” *IEEE Industry Applications Magazine*, vol. 17, no. 5, pp. 27–35, Oct. 2011.
- [15] H. E. Brown, S. Suryanarayanan, and G. T. Heydt, “Some characteristics of emerging distribution systems under the Smart Grid Initiative,” *The Electricity Journal, Elsevier*, vol. 23, no. 5, pp. 64–75, Jun. 2010. (See Awards and Honors [12] and [13]).
- [16] Z. Ding, S. Srivastava, D. A. Cartes, and S. Suryanarayanan, “Dynamic simulation based analysis of a new load shedding scheme for a notional destroyer class shipboard power system,” *IEEE Transactions on Industry Applications*, vol. 45, no. 3, pp. 1166–1174, Jun. 2009.
- [17] N. Senroy, S. Suryanarayanan, M. Steurer, and S. L. Woodruff, “Adaptive transfer function estimation of a notional high-temperature superconducting ship propulsion motor,” *IEEE Transactions on Industry Applications*, vol. 45, no. 2, pp. 651–658, Apr. 2009.
- [18] S. Suryanarayanan, G. T. Heydt, R. Ayyanar, J. D. Blevins, and S. W. Anderson, “Simulation based considerations in placement of capacitors near a dynamic voltage restorer,” *Simulation Modelling Practice and Theory, Elsevier*, vol. 16, no. 9, pp. 1430–1437, Oct. 2008.
- [19] S. Suryanarayanan and G. T. Heydt, “Modification to contribution factor formula for unscheduled flows,” *IEEE Transactions on Power Systems*, vol. 23, no. 2, pp. 809–810, May 2008.
- [20] N. Senroy, S. Suryanarayanan, and P. F. Ribeiro, “An improved Hilbert-Huang method for analysis of time-varying waveforms in power quality,” *IEEE Transactions on Power Systems*, vol. 22, no. 4, pp. 1843–1850, Nov. 2007.
- [21] N. Nimpitiwan, G. T. Heydt, R. Ayyanar, and S. Suryanarayanan, “Fault current contributions from synchronous machine and inverter based distributed generators,” *IEEE Transactions on Power Delivery*, vol. 22, no. 1, pp. 634–641, Jan. 2007.

- [22] E. Kyriakides, S. Suryanarayanan, and G. T. Heydt, "State estimation in power engineering using the Huber robust regression technique," *IEEE Transactions on Power Systems*, vol. 20, no. 2, pp. 1183–1184, May 2005.
- [23] S. Suryanarayanan, D. C. Montgomery, and G. T. Heydt, "Considerations for implementing tag schedules in transmission circuits," *IEEE Transactions on Power Systems*, vol. 20, no. 1, pp. 523–524, Feb. 2005.
- [24] S. Suryanarayanan, G. T. Heydt, R. G. Farmer, and S. Chakka, "An estimation technique to assign contribution factors for loop flows in an interconnected power system," *Electric Power Components and Systems*, vol. 32, no. 8, pp. 813–826, 2004.
- [25] S. Suryanarayanan, G. Heydt, R. Farmer, and S. Chakka, "Estimation of unscheduled flow and contribution factors based on L_p norms," *IEEE Transactions on Power Systems*, vol. 19, no. 2, pp. 1245–1246, May 2004.
- [26] S. Suryanarayanan and E. Kyriakides, "An on-line portal for collaborative learning and teaching for power engineering education," *IEEE Transactions on Power Systems*, vol. 19, no. 1, pp. 73–80, Feb. 2004.
- [27] K. A. Nigim, S. Suryanarayanan, R. Gorur, and R. G. Farmer, "The application of analytical hierarchy process to analyze the impact of hidden failures in special protection schemes," *Electric Power Systems Research*, vol. 67, no. 3, pp. 191–196, Dec. 2003.

2.3.2 Manuscripts Under Preparation, Review, or Revision

(Total: 6)

- [1] M. Panwar, S. Suryanarayanan, and Z. Hovsapien, "A multi-criteria decision analysis-based approach for dispatch of electric microgrids," under review, 2015.
- [2] T. Hansen, E. K. P. Chong, S. Suryanarayanan, A. A. Maciejewski, and H. J. Siegel, "A partially observable Markov decision process approach to residential home energy management," under revision, 2015.
- [3] R. Kadavil, T. M. Hansen, S. Suryanarayanan, "An algorithmic approach for creating diverse stochastic feeder datasets for power systems co-simulations," under review, 2015.
- [4] T. A. Alaqeel and S. Suryanarayanan, "Ex ante cost-benefit analysis for optimal deregulation of electricity markets," under revision, 2015.
- [5] A. Nelson, S. Chakraborty, D. Wang, P. Singh, Q. Cui, L. Yang, S. Suryanarayanan, "Cyber-physical test platform for microgrids: Combining hardware, hardware-in-the-loop, and network-in-the-loop," under review, 2015.
- [6] R. Liu, M. Mohanpurkar, M. Panwar, Z. Hovsapien, A. Srivastava, and S. Suryanarayanan, "Role of linear prediction in geographically distributed real time simulations," under preparation, 2015.

2.3.3 Refereed Conference Proceedings

(Total: 47)

- [1] S. Suryanarayanan, M. A. Devadass, and T. M. Hansen, "A load scheduling algorithm for the Smart Home using customer preferences and real time residential prices," In: Proc. *9th International Federation of Automatic Control (IFAC) Symposium on Control of Power and Energy Systems (CPES)*, New Delhi, India, vol. 48, no. 30, pp.126–131, Dec. 2015.
- [2] M. Mohanpurkar, D. Zimmerle, and S. Suryanarayanan, "An algorithmic approach to detecting closed loops in a power systems network," In: Proc. *47th North American Power Symposium (NAPS)*, Charlotte, North Carolina, 6 pp., Oct. 2015.
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2.3.5 Book Chapters

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2.3.6 Patents

(Total: 1)

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2.3.7 Non-refereed Publications

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3 Educational Activities

3.1 Ph.D. Dissertation Completed at CSU

As primary advisor

<i>Name</i>	<i>Date</i>	<i>Dissertation Title</i>
Manish U. Mohanpurkar	Dec. 2013	“Computation of Loop Flows in Electric Grids with High Wind. Energy Penetration” Journal articles [5], [8], Conference proceedings [2], [10], Research book contributions [1], Non-refereed article [7] 3 rd prize in the <i>Graduate Student Poster Contest</i> at IEEE PES GM, San Diego, California, 2012

As research supervisor

Timothy M. Hansen	Aug. 2015	“Resource Allocation Optimization in the Smart Grid and High-Performance Computing” (Primary advisors: A. A. Maciejewski and H. J. Siegel, CSU) Journal articles [2], [3], [1] Manuscripts under review [2], Conference proceedings [1], [3], [4], [14], Research book contributions [1], Non-refereed article [3] Recipient of Sustainability Leadership Fellowship at CSU, 2014 .
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3.2 Ph.D. Dissertation Completed at Other Institutions

At University of Technology of Belfort-Montbeliard (UTBM), France

Robin Roche	Dec. 2012	“Algorithmes et Architectures Multi-Agents pour la Gestion de l’Énergie dans les Réseaux Électriques Intelligents Application aux Centrales à Turbines à Gaz et à l’Effacement Diffus Résidentiel” (Co-supervisor: A. Miraoui, UTBM) Journal articles [2], [6], [10], [13] Conference proceedings [4], [14], [15], Research book contributions [1].
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3.3 M.S. Thesis Supervision Completed at CSU

<i>Name</i>	<i>Date</i>	<i>Thesis Title</i>
Pawan Singh	Dec. 2015	“Real Time Modeling and Simulation of Distribution Feeder and Distributed Resources” Conference proceedings article under review [5] Non-refereed article [1].

Mayank Panwar	Dec. 2012	“Reliability Quantification and Visualization for Electric Microgrids” Journal article [12], Conference proceedings [11], Non-referred article [2].
Sudarshan A. Natarajan	May 2012	“Some Aspects of the Computational Complexity in the Design of Islanded Microgrids, Design and Analysis of Blackstart Sequences for a Notional Microgrid” (Co-supervisor: S. Rajopadhye, CSU) Journal article [11], Conference proceedings [15], Non-refereed article [6].
Joseph D. Palchak	May 2012	“Energy Management of a University Campus Utilizing Short-term Load Forecasting with an Artificial Neural Network” (Co-supervisor: T. H. Bradley, CSU) Journal article [7], Conference proceedings [16].

3.4 M.S. Thesis Supervision Completed at CSM

Julieta Giráldez	May 2011	“Planning Distribution System Resource Islands Considering Reliability, Cost and the Impact of Penetration of Plug-in Hybrid Electric Vehicles” (Co-supervisor: M. G. Simões, CSM) Conference proceedings [12], [18], Non-refereed article [9].
Peng Zhao	Aug. 2010	“A Cyber Physical System Enabled Efficient Building Energy Management System Through a Multi-agent Decision Making Control Methodology” (Co-supervisor: M. G. Simões, CSM) Journal article [9], Conference proceedings [19], [20].
Josune M. Armas	May 2010	“A Customer Driven Energy Management System for a Distributed Energy Resource Installation Incorporating Local Energy Storage and a Photovoltaic Source” Non-refereed article [16] 3 rd prize in the <i>Graduate Student Poster Contest</i> at IEEE PES T&D Expo, New Orleans, Louisiana, 2010.

Hilary E. Brown	May 2010	“ Implications of the Smart Grid Initiative on Distribution System Engineering: Improving Reliability of Islanded Distribution Systems with Distributed Generation Sources” Journal article [11], [15], Conference proceedings [24], [25], Non-refereed article [10].
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3.5 M.S. and Ph.D. Students Currently Being Supervised

Mayank Panwar	(Ph.D., ECE) Journal articles under review [1], Journal articles under preparation [6], Conference proceedings [5], [8] Non-refereed article [2].
Turki Alaqeel	(Ph.D., ECE) Conference proceedings [6].
Fathalla Eldali	(Ph.D., ECE)
Julieta Giráldez	(Ph.D., Systems Engineering)
Robert J. Baker	(Ph.D., Systems Engineering)
Rahul G.Kadavil	(M.S., ECE) Journal articles [1], Conference proceedings article under review [3].
Sulaiman Almohaimeed	(M.S., ECE)

3.6 Courses Developed at CSU

<i>Course number</i>	<i>Course title</i>	<i>Term offered</i>	<i>Average instructor score</i>
ECE 508	<i>Introduction to Power System Markets</i>	Fall 2010–2013, 2015	9.34/10
ECE 565	<i>Electric Power Engineering</i>	Spring 2013–2016	8.97/10
ECE 566	<i>Grid Integration of Wind Energy Conversion Systems</i>	Fall 2014	9.33/10
ECE 623	<i>Electric Power Quality</i>	Spring 2012, 2014	9.06/10

3.7 Courses Developed at CSM

<i>Course number</i>	<i>Course title</i>	<i>Term offered</i>
EGGN 580	<i>Electric Power Quality</i>	Spring 2008, 2010
EGGN 587	<i>Introduction to Power Systems Market Operations</i>	Fall 2008, 2009

3.8 Courses 'In Charge Of' at CSM

EGGN 487	<i>Design of Advanced Energy Systems and Laboratory</i>	Spring 2009, 2010
EGGN 504/604	<i>Energy Systems Seminar</i>	Fall 2008

3.9 Undergraduate and Non-Thesis Student Projects at CSU

ECE 401/402	<i>Home Energy Management System</i> (6 cr.), Fall 2015/Spring 2016. Daniel Daneshka, James Kimborough, and Cory Smith
ECE 695	<i>Independent Study</i> (3 cr.), Spring 2015. Arun V. Modali
ECE 695	<i>Independent Study</i> (3 cr.), Spring 2015. Marvin A. Devadass
HONR 499	<i>Smart meters: The Link Between the Smart Grid and the Smart Home, Honors thesis</i> (3 cr.), Spring 2015. Olivia L. Trinko
ECE 401/402	<i>Office Productivity Pedal</i> (6 cr.), Fall 2014/Spring 2015. Jake Gardner and Kyle Murphy
ECE 401/402	<i>Meter Data to Metrics</i> (6 cr.), Fall 2014/Spring 2015. Brian Brigandi, Mark Joseph, Jonathan Sisk, and Oivia Trinko
ECE 695	<i>Independent Study</i> (3 cr.), Fall 2014. Sumeet D. Vartak
ECE 401/402	<i>Meter Data to Metrics</i> (6 cr.), Fall 2013/Spring 2014. Keaton Anderson, Chad Brotherton, and James Elderidge
ECE 597	<i>Group Study in Systems Engineering</i> (3 cr.), Fall 2013. Cody F. Terkhorn
ECE 695	<i>Independent Study</i> (3 cr.), Summer 2013. Ajith J. Deivanayagam
ECE 495	<i>Independent Study</i> (3 cr.), Summer 2013. Eric Karcher

- ECE 401/402 *Meter Data to Metrics* (6 cr.), Fall 2013/Spring 2014.
Basheer Akbari, Omar Sayeid, and James Spaulding
- ECE 395/495 *Independent Study* (3/5 cr.), Summer/Fall 2012.
Adriano Abrantes
- ECE 597 *Group Study in Systems Engineering* (3 cr.), Spring 2011.
Nicholas Powers

3.10 Undergraduate Research Interns at CSU

- 2014: Daniel D. Daneshka, CSU
Recipient of CSU Dept. of ECE Undergraduate Research Award (2014)
- 2012: Monalisa Elkady, CSU

3.11 Undergraduate Research Interns at CSM

- 2008: Charles A. Larkin, CSM
Recipient of IEEE PES T. Burke Hayes Student Paper Award (2009)

3.12 Postdoctoral Researchers, Other Scholars, and Visitors at CSU

- Jul. 2013: Robin Roche, UTBM, France
- Aug.–Nov. 2012: Petr Kad'ůrek, Eindhoven University of Technology (TU/e), The Netherlands
- Summer 2012: Hussein Valdiviezo Sogbi, Universidad Autónoma de Yucatán, *CONACYT Mexico Scholar*
- Summer 2012: Mario E. P. Bojorquez, Universidad Autónoma de Yucatán, *CONACYT Mexico Scholar*, co-supervisor with D. J. Zimmerle (CSU)
- Feb.–Dec. 2012: Feel-Soon Kang, Hanbat National University, Republic of Korea
- Feb.–May. 2012: Robin Roche, UTBM, France
- Jan.–Dec. 2012: Adriano Abrantes, University of São Paulo, Brazil, co-supervisor with D. Zimmerle (CSU)

3.13 Postdoctoral Researchers, Other Scholars, and Visitors at CSM

- Apr.–Dec. 2009: Danilo I. Brandão, Universidade Estadual Paulista, Brazil, co-supervisor with M. G. Simões (CSM)
- Jul. 2008–Apr. 2009: Renata Carnieletto, Universidade Federal de Santa Maria, Brazil, co-supervisor with M. G. Simões (CSM)

4 Professional Activities

4.1 Invited Lectures

- [1] L'Institut de Recherche sur les Transports, l'Energie et la Société (IRTES), Université de UTBM, France, Jun. 18, 2015 (Research and education in the Rockies: An introduction to Colorado State University).
- [2] IRTES, UTBM, France, June 17, 2015 (Grid integration of wind energy conversion systems: A primer).
- [3] *Keynote address* at 1st International Workshop on Next Generation of Modularity Approaches for Multiple Dimensions of Sustainability (Sustainability15) at the 14th International Conference on Modularity (Modularity15), CSU, Mar. 17, 2015, (A sustainability-based approach to resource allocation in the Smart Grid).
- [4] IEEE Upper Monongahela Section and Lane Department of Computer Science and Electrical Engineering, West Virginia University, Oct. 17 2014 (An aggregator-based resource allocation technique for demand response in the Smart Grid).
- [5] Department of Electrical and Computer Engineering, Case Western Reserve University, Oct. 16 2014 (An aggregator-based resource allocation technique for demand response in the Smart Grid).
- [6] Department of Electrical and Computer Engineering, University of Wyoming, Nov. 16 2013 (The Fort Collins renewable and distributed systems integration demonstration project and some notes on cyber-enabled energy savings in a university campus).
- [7] *Theme address* at IEEE International Conference on Computer Communication and Informatics (ICCCI), Coimbatore, India, Jan. 4 2013 (Smart Grid - A domain for cyber-physical systems)
- [8] NREL-CSU workshop on Increasing the value of microgrids through focused RD&D, CSU, Oct. 4, 2012 (Enabling technologies for studying microgrids).
- [9] Smart Grid - Seminário de redes inteligentes, Unioeste-Parque Tecnológico de Itaipu, Brazil, Apr. 27, 2012 (Engaging the active customer in the emerging Smart Grid).
- [10] *Keynote address* at Smart Grid - Seminário de redes inteligentes, Unioeste-Parque Tecnológico de Itaipu, Brazil, Apr. 26, 2012 (The Fort Collins renewable and distributed systems integration demonstration project and some notes on cyber-enabled energy savings in a university campus).
- [11] KIOS Center for Research on Intelligent Systems and Networks, University of Cyprus (UCy), Nicosia, Mar. 13, 2012 (Enhanced energy management in the Smart Grid using cyber-physical systems).
- [12] *Inaugural seminar* of the IEEE PES Students Chapter and Department of Electrical and Computer Engineering, UCy, Nicosia, Mar. 14, 2012 (Is the US electric grid ready for massive PHEV penetration?).
- [13] Department of Electrical and Computer Engineering, Iowa State University, Feb. 28, 2012 (Cyber-physical systems for energy management in the Smart Grid).
- [14] Woodward Breakfast and Learn Series, Woodward Governor Inc., Oct. 27, 2011 (Modeling and simulation aspects of the research on Smart Grid).

- [15] Power Systems Engineering Research Center (PSERC) Webinar, Sep. 27, 2011 (Impact of plug-in hybrid electric vehicles with vehicle-to-grid capabilities on islanded distribution systems).
- [16] Applied Physics - Electrical and Information Engineering Department, Ecole Normale Supérieure de Cachan (ENS Cachan), France, Jul. 4, 2011 (The impact of PHEVs on the design and reliability of distributed island resources).
- [17] Systems and Transport Lab (SET), UTBM, France, Jun. 30, 2011 (The impact of PHEVs on the design and reliability of distributed island resources).
- [18] Inventer la Distribution Electric de l'Avenir, Institut National Polytechnique de Grenoble (INPGrenoble), France, Jun. 29, 2011 (The impact of PHEVs on the design and reliability of distributed island resources).
- [19] Fakultät IV - Elektrotechnik und Informatik, Technische Universität-Berlin, Germany, Jun. 27, 2011 (The impact of PHEVs on the design and reliability of distributed island resources).
- [20] Joint Institute for Strategic Energy Analysis (JISEA), NREL, Dec. 14, 2010 (Modeling and simulation aspects of topological design of distributed resource islands).
- [21] Department of Computer Science, CU-B, Jul. 19, 2010 (Realizing the Smart Grid through smart interfaces, microgrids, and active distribution networks).
- [22] Alcatel Lucent - Bell Labs Webinar, Jun. 2, 2010 (Microgrids A path to achieving the Smart Grid?).
- [23] Department of Electrical and Computer Engineering, Michigan State University, Jan. 21, 2010 (A guided-decision making technique for scheduling a customer-driven residential distributed energy resource system).
- [24] Department of Electrical and Computer Engineering, CSU, Dec. 7, 2009 (Using the analytic hierarchy process for making decisions - A tutorial).
- [25] School of Electrical, Computer, and Energy Engineering, ASU, Nov. 20, 2009 (A guided-decision making technique for scheduling a customer-driven residential distributed energy resource system).
- [26] Departamento de Engenharia Elétrica, Universidade Federal de Santa Catarina, Florianópolis, Brazil, Nov. 11, 2009 (Some common lessons on grid modernization between the US and Brazil).
- [27] Department of Electrical and Computer Engineering, CSU, Nov. 2, 2009 (Realizing the Smart Grid through smart interfaces, microgrids, and active distribution networks).
- [28] Electrical Engineering Department, Indian Institute of Technology-Madras (IIT-M), India, May 12, 2009 (The Smart Grid initiative and customer-driven electric power microgrids).
- [29] Humphrey Fellows Program, CSM, Feb. 23, 2009 (The US electric grid infrastructure: Current status and future trends).
- [30] Department of Electrical and Computer Engineering, University of Colorado-Denver, Jan. 29, 2009 (Enabling the Smart Grid initiative through customer-driven microgrids).
- [31] PSERC Industry Advisory Board, Texas A & M University (TAMU), Dec. 4, 2008 (Implications of the Smart Grid Initiative on distribution engineering).

- [32] Distributed Energy Integration Group, NREL, Oct. 14, 2008 (Enabling the Smart Grid initiative through customer-driven microgrids).
- [33] School of Electrical Engineering and Computer Science, University of Central Florida, Apr. 12, 2007 (Voltage deviation analysis of an existing wind farm using high fidelity real time digital simulations).
- [34] The Klipsch School of Electrical Engineering, New Mexico State University, Apr. 2, 2007 (Voltage deviation analysis of an existing wind farm using high fidelity real time digital simulations).
- [35] School of Engineering, University of Vermont (UVM), Mar. 23, 2007 (Systems and policy perspectives of the impact of interconnecting distributed generation (DG)).
- [36] School of Engineering, UVM, Mar. 22, 2007 (Educating engineers in a liberal arts environment).
- [37] Center for Advanced Power Systems, FSU, Mar. 13, 2007 (Toward an emerging frontier in reliable electric power systems).
- [38] Department of Electrical and Computer Engineering, FSU, Mar. 12, 2007 (Impact of interconnecting distributed generation to electric distribution systems).
- [39] Division of Engineering, CSM, Feb. 20, 2007 (Impact of interconnecting distributed generation to electric distribution systems).
- [40] Department of Electrical and Computer Engineering, TAMU, Apr. 12, 2006 (A state estimation technique based accommodation of unscheduled power flows).
- [41] Department of Electrical and Computer Engineering, Tennessee Technological University, Apr. 3, 2006 (A state estimation technique based accommodation of unscheduled power flows).
- [42] Department of Electrical and Computer Engineering, FSU, Sep. 5, 2005 (Practical considerations for installing Dynamic Voltage Restorers (DVRs)).
- [43] Department of Electrical and Computer Engineering, Kansas State University, Apr. 1, 2005 (Modeling the largest installed DVR).
- [44] CAPS, FSU, Dec. 3, 2004 (Modeling the largest installed DVR).
- [45] Electric Power and Propulsion Systems Lab, GE Corporate Research and Development Center, Aug. 5, 2004 (Accommodating unscheduled flows in the electric power markets).
- [46] Engineering Science and Technology Division, Oak Ridge National Laboratory, Jun. 16, 2004 (Accommodation of loop flows in competitive electric power systems).
- [47] Department of Electrical and Computer Engineering, The University of Tennessee-Knoxville, Jun. 15, 2004 (Accommodation of loop flows in competitive electric power systems).
- [48] Power Computer Applications Division, Nexant, Inc., May 17, 2004 (Loop flows in competitive electric power systems).
- [49] Areva T&D Corporation, May 5, 2004 (State estimation techniques to accommodate loop flows in electric power systems).
- [50] *Luncheon speaker*, IEEE PES Phoenix Chapter, Mar. 11, 2004 (Equitable accommodation of unscheduled flows among GENCOs in deregulated electricity markets).

- [51] Electrical Engineering Department, IIT-M, India, Jan. 20, 2004 (Accommodation of loop flows in competitive electric power systems).

4.2 Other Seminars

- [1] Energy Systems Integration Research Challenges 102, International Institute for Energy Systems Integration (IIESI), Aug. 5, 2015 (Cyber physical social systems: Modelling of consumer assets and behavior in an integrated energy system).
- [2] Brown bag lunch speaker, NREL, Dec. 19, 2013 (Cyber-physical systems for energy managements in the Smart Grid).
- [3] Florida Public Services Commission, Nov. 13, 2007 (A study of the IEEE 1547-2003 for interconnecting distributed generation to electric power systems).
- [4] OE, US DOE, Mar. 26, 2007 (Simulation based perspectives for facilitating adoption of new technologies in the electricity grid).
- [5] IEEE P1662 Workgroup, IEEE IAS Petroleum and Chemical Industry Conference, Sep. 10, 2006 (Power quality of the all-electric ship).
- [6] Seminar for attendees from Sandia National Laboratory, University of West Florida, University of North Florida, and FSU, Oct. 14, 2005 (An IEEE 1547 based real-time controller concept demonstration for interconnection of DGs).
- [7] Salt River Project, Oct. 2004–Feb. 2005, (Analysis, modeling, and simulation of Dynamic Voltage Restorers (DVRs) installed in power distribution circuits - Parts 1–IV).
- [8] Department of Industrial Engineering, ASU, Oct. 30, 2003 (An explanation of the dataset in the unscheduled flow problem in wide-area interconnected power systems with emphasis on linear modeling).
- [9] Department of Electrical Engineering, ASU, Sep. 23, 2000 (A state estimation technique based design of a conceptual market tool for accommodating loop flow).
- [10] Department of Electrical Engineering, ASU, Sep. 10, 2003 (Equal incremental cost rule with constraints).
- [11] Department of Electrical Engineering, ASU, May 1, 2003 (Theory and applications of Kalman and Wiener filters).
- [12] Department of Electrical Engineering, ASU, Mar. 2, 2002 (Loop flows in interconnected power systems).
- [13] Department of Electrical Engineering, ASU, May 2001 (Hidden failures in Special Protection Schemes in the WSCC system).
- [14] Department of Electrical Engineering, ASU, Dec 2000 (Extended Transient Mid-term Stability Program - An overview).

4.3 Editorial Activities

2016

Guest co-editor, special section on *Innovative Research Concepts for Power Delivery Engineering*, IEEE Transactions on Power Delivery

2014–present

Editor, IEEE Power Engineering Letters (Power Delivery Section)

May 2012–present

Editor, IEEE Transactions on Power Delivery

2010–present

Member, Editorial Board, Electric Power Components & Systems, Taylor and Francis

Apr. 2008–Jul. 2010

Editor, International Journal of Renewable Energy Technology (IJRET), InderScience

Sep. 2009–Mar. 2011

Area editor (power systems), Simulation Modelling Practice and Theory (SIMPAT), International Journal of the Federation of European Simulation Societies (EUROSIM), Elsevier

4.4 Conference Committees and Chair Positions

- [1] Organizer and co-chair of Panel Session on “Modeling and simulating the end-user in CPS-based power systems analyses,” *IEEE PES General Meeting*, Boston, Massachusetts, Jul. 2016.
- [2] Co-chair of Panel Session on “Very innovative research concepts in electric power engineering,” *IEEE PES General Meeting*, Boston, Massachusetts, Jul. 2016.
- [3] Co-chair of Panel Session on “Transmission Planning in the Perspective of Renewable Integration: Education and Research Initiatives,” *IEEE PES General Meeting*, Denver, Colorado, Jul. 2015.
- [4] Chair of Paper Session on “Computational Methods in Power System–I,” *47th North American Power Symposium*, Charlotte, North Carolina, Oct. 2015.
- [5] Member of the Local Organizing Committee, *IEEE PES General Meeting*, Denver, Colorado, Jul. 2015.
- [6] Organizer and Chair of Panel Session on “Collaborative Centers on Renewable Energy at Colorado Universities,” *IEEE PES General Meeting*, Denver, Colorado, Jul. 2015.
- [7] Co-chair of Panel Session on “Transmission Planning in the Perspective of Renewable Integration: Education and Research Initiatives,” *IEEE PES General Meeting*, Denver, Colorado, Jul. 2015.
- [8] Member of the International Advisory Committee, *IEEE PowerTech Conference*, Eindhoven, The Netherlands, Jun. 2015.
- [9] Chair of Paper Session on “Demand Side Management and Demand Response,” *2015 IEEE PES PowerTech*, Eindhoven, The Netherlands, Jun. 2015.
- [10] Program Committee Member *1st International Conference on Embedded Systems for Energy-Efficient Buildings (BuildSys 2014)*, Memphis, Tennessee, Nov. 2014.

- [11] Chair of Paper Session on “Modeling and Simulation–II,” *46th North American Power Symposium*, Pullman, Washington, Sep. 2014.
- [12] Organizer and Co-chair of Panel Session on “Transmission Planning in the Perspective of Renewable Integration: Education and Research Initiatives,” *IEEE PES Transmission and Distribution Conference and Exposition*, Chicago, Illinois, Apr. 2014.
- [13] Chair of Paper Session on “Frequency Control,” *45th North American Power Symposium*, Manhattan, Kansas, Sep. 2013.
- [14] Organizer and Co-chair of Panel Session on “Grid Integration of Energy Efficient Buildings,” *IEEE PES General Meeting*, Vancouver, British Columbia, Canada, Jul. 2013.
- [15] Member of the Technical Program Committee, *5th IEEE Green Technologies Conference*, Denver, Colorado, Apr. 2013.
- [16] Chair of Paper Session on “Smart Grid Studies,” *IEEE PES International Conference on Power Systems Technology (POWERCON)*, Auckland, New Zealand, Oct. 2012.
- [17] Chair of Paper Session on “Industrial Electronics in Smart Grids,” *38th IEEE Industrial Electronics Society Conference (IECON)*, Montréal, Quebec, Canada, Oct. 2012.
- [18] Organizer and Chair of Panel Session on “Campus Microgrids: Design, Operation, and Utility Relationships,” *IEEE PES General Meeting*, San Diego, California, Jul. 2012.
- [19] Member of the Technical Program Committee, *16th International Conference on Intelligent System Applications to Power Systems (ISAP)*, Hersonissos, Greece, Sep. 2011.
- [20] Chair of the Americas Session, *Jeju Symposium on Microgrids*, Jeju Island, Republic of Korea, May 2011.
- [21] Member of the International Advisory Board, *International Conference on Renewable Energy (ICRE 2011)*, Jaipur, India, Jan. 2011
- [22] Member of the Americas Committee, *International Microgrids Symposium*, 2011–2015.
- [23] Member of the Local Organizing Committee, *International Microgrids Symposium*, Vancouver, British Columbia, Canada, 2010.
- [24] Member of the Symposium Steering Committee, *International Microgrids Symposium*, 2010–2015.
- [25] Member of the Local Organizing Committee, *International Microgrids Symposium*, San Diego, California, 2009.
- [26] Co-chair of Panel Session on “Enabling Technologies for the Customer-driven Microgrid,” *IEEE PES General Meeting*, Calgary, Alberta, Canada, Jul. 2009.
- [27] Member of the Program Committee, *NSF-NITRD-NIST-NSA Workshop on New Research Directions for Future Cyber-physical Energy Systems*, Baltimore, Maryland, Jun. 2009.
- [28] Chair of Paper Session on “Economic Dispatch,” *40th North American Power Symposium*, Calgary, Alberta, Canada, Sep. 2008.
- [29] Chair of Paper Session on “Power System Stability: Modeling and Analysis,” *39th North American Power Symposium*, Las Cruces, New Mexico, Oct. 2007.

- [30] Member of the Technical Committee, *IEEE Electric Ship Technology Symposium (ESTS)*, Arlington, Virginia, May 2007.
- [31] Chair of Paper Session on “Diagnostics for Distribution Systems,” *IEEE PES Power Systems Conference and Exposition (PSCE)*, Atlanta, Georgia, Nov. 2006.
- [32] Organizer and Co-chair of Panel Session on “A Road Map to the Future of Power Engineering Research, Education, and Career,” *IEEE PES General Meeting*, Montréal, Quebec, Canada, Jun. 2006.
- [33] Co-chair of Paper Session on “Neural and Agent Control Technologies,” *34th North American Power Symposium*, Tempe, Arizona, Oct. 2002.

4.5 Panelist Function

(Total: 19)

- Venue: *IEEE PES General Meeting*, Vancouver, British Columbia, Canada, Jul. 23, 2013.
- Panel Session: Impact of Plug-in Hybrid Electric Vehicles (PHEV) on Distribution Systems
- Invited Talk: The Impact of PHEVs with V2G Capabilities on Distribution Systems
- Venue: *IEEE PES General Meeting*, Vancouver, British Columbia, Canada, Jul. 22, 2013.
- Panel Session: Research and Education in Cyber Physical Systems for Power and Energy Systems
- Invited Talk: Applications of Multi-agent Systems (MAS) for Energy Management in the Smart Grid: A Cyber-physical Systems Approach
- Venue: *Austin Electricity Conference*, Austin, Texas, Apr. 18, 2013.
- Panel Session: Demand Response in Capacity and Electricity Markets: What Role Should it Play?
- Invited Talk: Cyber-physical Infrastructure Requirements and Implications for Demand Response
- Venue: *IEEE PES Innovative Smart Grid Technologies (ISGT) Europe Conference*, Berlin, Germany, Oct. 16, 2012.
- Panel Session: What is the Horizon Ahead of Smart-Grids?
- Invited Talk: An Example of a Cyber-physical Systems Application in the Smart Grid
- Venue: *38th IEEE Industrial Electronics Conference (IECON)*, Montréal, Quebec, Canada, Oct. 26, 2012.
- Panel Session: Microgrids: Building Blocks of the Smart Grid
- Invited Talk: The Fort Collins Renewable and Distributed Systems Integration Project in Colorado
- Venue: Eindhoven University of Technology (TU/e), Jun. 24, 2011.
- Seminar: Future Intelligent Electrical Systems: Smart Grid Issues and Development
- Invited Talk: The Smart Grid developments in the US and the Impact of PHEVs on the Design and Reliability of Distributed Island Resources
- Venue: *IEEE/IAS International Conference on Industry Applications (Induscon)*, São Paulo, Brazil, Nov. 9, 2010.
- Panel Session: Emerging Technologies
- Invited Talk: Incorporating Customer Preferences in the Emerging Smart Grid
- Venue: *Center for Advanced Power Systems (CAPS) 10th Anniversary Celebration and Next-generation Integrated Power Systems (NGIPS) Workshop* Tallahassee, Florida, Oct. 15, 2010.
- Panel Session: Distributed Generation

- Invited Talk: Integration and Coordination in Complex Systems
 Venue: *US-Korea Conference on Science, Technology and Entrepreneurship (UKC 2010)*, Seattle, WA, Aug. 14, 2010.
- Panel Session: New Scientific Foundations and Engineering Technologies for CPS
 Invited Talk: Cyber-physical Systems Application: A Case for the Smart Grid
 Venue: *IEEE PES General Meeting*, Minneapolis, Minnesota, Jul. 27, 2010.
- Panel Session: Hybrid Renewable Energy Systems and Their Management as Independent Microgrids
 Invited Talk: A Framework for Energy Management in Customer-driven Microgrids
 Venue: *Vancouver 2010 Symposium on Microgrids*, Vancouver, British Columbia, Canada, Jul. 21, 2010.
- Panel Session: Americas 2 Session
 Talk: Customer-driven Microgrids and Enabling Technologies
 Venue: *Intelligent Systems Applications in Power (ISAP) Conference*, Curitiba, Brazil, Nov. 12, 2009.
- Panel Session: Contributions of Intelligent Systems on Smart Grids
 Invited Talk: Some Common Lessons on Grid Modernization Between the US and Brazil
 Venue: *IEEE PES General Meeting*, Minneapolis, Minnesota, Jul. 28, 2009.
- Panel Session: Enabling Technologies for the Customer-Driven Microgrid
 Talk: Enabling Technologies for the Customer-Driven Microgrid
 Venue: *IEEE PES General Meeting*, Tampa, Florida, Jun. 25, 2007.
- Panel Session: Modeling and Analysis of AC/DC Distribution Systems
 Invited Talk: Considerations in Simulation of a Notional All-electric Ship AC/DC Conversion System
 Venue: *IEEE PES General Meeting*, Tampa, Florida, Jun. 25, 2007.
- Panel Session: Power Quality Issues on Existing Wind Farms
 Talk: Voltage Sensitivity to Capacitor Switching on an Existing Fixed Speed Induction Generator Wind Farm
 Venue: *IEEE PES General Meeting*, Tampa, Florida, Jun. 25, 2007.
- Panel Session: Electricity grid infrastructure Research - Current and Future Developments
 Talk: Research Perspectives on High-fidelity Modeling, Simulation and Hardware-in-the-loop for Electric Grid Infrastructure Hardening
 Venue: *IEEE PES Power Systems Conference and Exposition (PSCE)*, Atlanta, Georgia, Oct. 31, 2006.
- Panel Session: Probabilistic Aspects and Flexible Thresholds of Waveform Distortions
 Talk: Advanced Methods Applied to Time-Varying Waveform Distortions
 Venue: *IEEE PES General Meeting*, Tampa, Florida, Jun. 16, 2006.
- Panel Session: Application of High-Speed Computation to Power Problems
 Invited Talk: Experiences with the Simulation of a Notional All-electric Ship Integrated Power System on a Large-scale High-speed Electromagnetic Transients Simulator
 Venue: *IEEE PES General Meeting*, Tampa, Florida, Jun. 15, 2006.
- Panel Session: Modeling and Simulation Perspectives on Connecting Distributed Energy Resources with the Electric Power Grid: DG-1
 Talk: A Real-time Controller Concept Demonstration for Distributed Generation Interconnection

4.6 Professional Society Activities

- Organization: IEEE
Activity: Student Member, 2000–2004
Member, 2004–2010
Senior Member, 2010–present
- Organization: IEEE Power and Energy Society (PES)
Activity: Member, 2003–present
Member of Power System Analysis, Computing and Economics Committee (PSACE), 2005–present
Member of Transmission and Distribution Committee (T&D), 2006–present
Editor, *IEEE Transactions on Power Delivery*, 2012–present
Editor, *IEEE Power Engineering Letters (Power Delivery Section)*, 2014–present
- Organization: IEEE PES Power and Energy Education Committee (PEEC)
Activity: Member, 2005–present
Secretary, 2014–2016
Vice-chair, 2016–present
- Organization: IEEE PES PEEC Student Meeting Activities Subcommittee
Activity: Member, 2005–2013
Secretary, 2007–2009
Vice-chair, 2009–2011
Chair, 2011–2013
- Organization: IEEE Industry Application Society
Activity: Member, 2010–present
- Organization: IEEE CSU Student Branch
Activity: Faculty Advisor, Jan. 2013–present
- Organization: IEEE Tallahassee Area Section
Activity: Vice-chair, 2005–2006
Secretary, 2007
- Organization: International Association of Science and Technology for Development (IASTED),
Activity: Member, 2005

4.7 Referee/Reviewer Activities

Journals:

IEEE Transactions on Power Systems
IEEE Transactions on Power Delivery
IEEE Transactions on Smart Grid
IEEE Transactions on Sustainable Energy
IEEE Transactions on Energy Conversion
IEEE Power Engineering Letters
IEEE Transactions on Industry Applications
IEEE Transactions on Communication
Taylor and Francis Electric Power Components and Systems
Elsevier Simulation Modelling Practice and Theory
Elsevier International Journal of Electrical Power and Energy Systems
International Journal of Energy Technology and Policy (IJETP) Special Issue on: Reactive Compensation for Wind Farms
International Journal of Global Energy Issues (IJGEI) Special Issue on: Distributed Generation
IJGEI Special Issue on: Renewable Energy and Distributed Generation Systems

Conferences:

9th International Federation of Automatic Control (IFAC) Symposium on Control of Power and Energy Systems (CPES), New Delhi, India, December 2015
47th North American Power Symposium, University of North Carolina at Charlotte, Charlotte, NC, October 2015
1st ACM International Conference on Embedded Systems For Energy-Efficient Buildings, Memphis, TN, 2014
IEEE PES General Meeting, 2007–present
IEEE PES 16th International Conference on Intelligent System Applications to Power Systems, September 2011
IEEE PES Transmission and Distribution Conference and Exposition (2010, 2012)
IEEE Power Systems Conference and Exposition (PSCE), Seattle, WA, March 2009
39th North American Power Symposium, New Mexico State University, Las Cruces, NM, October 2007
4th Annual International Conference of Electrical Engineering / Electronics, Computer, Telecommunications and Information Technology (ECTI) Association, Thailand, May 2007
17th IASTED International Conference on Modeling and Simulation, Montreal, Canada, May 2006
12th IEEE Mediterranean Electrotechnical Conference (MELECON 04), Dubrovnik, Croatia, May 2004

External Evaluator for Dissertations:

Siksha 'O' Anusandhan University, Bhubaneswar, India, 2015

Funding Agencies:

The National Science Foundation, Electrical and Communications Systems, since 2008
The National Science Foundation, (ad-hoc reviewer for) Division of Engineering Education and Centers, Engineering Research Center (ERC), 2010
Power Systems Engineering Research Center (PSERC), since 2008

Natural Sciences and Engineering Research Council of Canada (NSERC), 2010
University of Cyprus, Internal Research Grant Scheme, 2012

5 University Committee/Administrative Activities

5.1 Departmental Committee Activities at CSU

- Committee: Graduate Committee
Activity: Member, Feb. 2015–present
- Committee: Curriculum Committee
Activity: Member, Feb. 2015–present
- Committee: Power and Electric Energy Area
Activity: Member, Aug. 2010–present.
- Committee: Promotion and Tenure Committee
Activity: Member, Aug. 2014–present.

5.2 Extra-departmental Committee Activities at CSU

- Committee: University Committee on Scholarship, Research, and Graduate Education (CoSRGE)
Activity: Member (Elected), Jul. 2013–Jun. 2016
Faculty Marshall at The Spring 2014 Graduate School Commencement
- Committee: Information Science and Technology Center (ISTeC) Research Advisory Committee
Activity: Member, Feb. 2011–present
Member, Distinguished Lecture Committee, 2013–present
Chair, Smart Grid Research Retreat, Apr. 2012
Member, Doctoral Student Scholar Award Committee, 2011–2014
- Committee: Engineering Associate Dean for Academic and Student Affairs Search Committee
Activity: Member, Fall 2015
- Committee: Center for Research and Education in Wind (CREW)
Activity: Site Director, Oct. 2010–Oct. 2014
Convener, Seminar Series, Spring 2011–Spring 2013
- Committee: College of Engineering Dean's Advisory Board Meeting on Energy
Activity: Participant, Apr. 2011
- Committee: Smart Grid Integration Laboratory
Activity: Member, Aug. 2011–May 2013

5.3 Departmental Committee Activities at CSM

- Committee: Faculty Search Committee
Activity: Member, Oct. 2009–Mar. 2010

5.4 Extra-departmental Committee Activities at CSM

- Committee: University Graduate Council
Activity: Member, Aug. 2008–Jul. 2010

6 Other Information

6.1 Biographical Lists

2010

Listed in *Marquis Who's Who in America*.

6.2 Other Activities

Apr. 2015

Participant, *Faculty workshop on "Reforming Electric Energy Systems Curriculum,"* Washington, D.C., Apr. 9–10, 2015.

Feb. 2014

Participant, *Faculty workshop on "Electric Energy Systems Curriculum,* Napa, California, Feb. 7–8, 2014.

Feb. 2013

Participant, *Faculty workshop on "Electric Energy Systems Curriculum for Sustainability,* Napa, California, Feb. 8–9, 2013.

Feb. 2012

Participant, *Faculty workshop on "Electric Energy Systems Curriculum for Sustainability,* Napa, California, Feb. 3–5, 2012.

2011–2013

Organizer/coordinator, *Smart Grid Area Students Research Interest Group seminars,* Department of Electrical and Computer Engineering, CSU.

May 2012

Participant, *From the Building to the Grid: An Energy Revolution and Modeling Challenge Workshop,* University College Dublin and NREL, Golden, Colorado.

2011

Participant, *P1547 Working Group for Drafting IEEE Standard 1547.4-2011, IEEE Guide for Design, Operation, and Integration of Distributed Resource Island Systems with Electric Power Systems.*

2011

Participant, *Operations, monitoring, and control topic area of the IEEE Computer Society Smart Grid Vision Project (SGVP).*

Oct. 2008

Participant, *"NREL Energy Systems Infrastructure Facility External Shareholders Workshop,"* Golden, Colorado, Oct. 9, 2008.

May 2008

Participant, *"Industry - university workshop on power engineering needs for the wind industry,"* Broomfield, Colorado, May 7–8, 2008.

2006–2007

Participant, *IEEE P1662 Guide for the Design and Application of Power Electronics in Electrical Power Systems on Marine Ships.*

2005–2007

Participant, *IEEE Standard 45 - IEEE Recommended Practice for Electric Installations on Shipboard.*