Home

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Laboratory : Manufacturing Systems Laboratory

Education:

- B.S., Electrical Engineering, National Taiwan University, 1973
- M.S., Aeronautics and Astronautics, Massachusetts Institute of Technology, 1977
- Ph.D., Applied Mathematics, Harvard University, 1980

Research Interests:

Information technology and mathematical optimization for problems of strategic importance to the society, including Smart Power Systems – smart grid, auction methods for electricity markets, robust renewable (wind and solar) integration to the grid, electricity load and price forecasting, and micro grid; Smart and Green Buildings and Eco Communities – optimized energy management for buildings and chiller plants, HVAC fault detection and diagnosis, emergency crowd guidance, and eco communities; Intelligent Manufacturing Systems – planning, scheduling, and coordination of design, manufacturing, and service activities; and mathematical optimization of large-scale mixed-integer problems, and decision-making under uncertain, distributed, or antagonistic environments.

Memberships:

- Fellow, Institute of Electrical and Electronics Engineers (IEEE);
- Member, Connecticut Academy of Science and Engineering (CASE);
- Member, Institute for Operations Research and the Management Sciences (INFORMS);
- Member, Sigma Xi;
- Council Member, Connecticut Academy of Science and Engineering (2000-2005);
- IEEE Technical Activities Board Periodicals Committee, Member (2011-2012; 2014-present); and Periodical Development Committee, Member (2012; 2014- present);
- Member, Administrative Committee for IEEE Robotics and Automation Society (1992-1997);
- IEEE Robotics and Automation Society, Senior Advisor for Automation (2012-2013);
- IEEE Robotics and Automation Society, Vice President for Publication Activities (2008-2011);
- IEEE Transactions on Automation Science and Engineering, Editor-in-Chief (2003-2008);
- IEEE Transactions on Robotics and Automation, Technical/Associate Editor (1990-1994), Editor (1995-1999), Editor (1995-1999), Editor-in-Chief (1999-2003);
- Discrete Event Dynamic Systems, Associate Editor (1999-present);
- IIE Transactions on Design and Manufacturing, Associate Editor (1997-2009);
- ACTA Automatica Sinica, Associate Editor (2005-present);
- International Journal of Intelligent Control and Systems, Associate Editor (1995- 2000);
- IEEE Robotics and Automation Magazine, Editor (1996-1999);
- IEEE Transactions on Automatic Control, Associate Editor (1989-1991);
- IEEE Transactions on Haptics, Chair of the Management Committee (2007-2011);
- International Transactions on Systems Science and Applications, Advisory Board (2006-present);
- IEEE Systems Journal, Member of the Editorial Advisory Board (2006-present);
- International Journal of Intelligent Computing and Cybernetics, Member of the advisory board (2007-present);
- IEEE Conference on Automation Science and Engineering, Chair of the Steering Committee (2006-2011) and member of the Steering Committee (2012-present).

Recent Publications (Manufacturing Systems Laboratory):
Archival Technical Journal Publications(Manufacturing Systems Laboratory):

1. B. Luh, W. E. Blankson, Y. Chen, J. H. Yan, G. A. Stern, S. C. Chang, and F. Zhao, "Payment Cost Minimization Auction for the Deregulated Electricity Markets Using Surrogate Optimization," *IEEE Transactions on Power Systems*, Vol. 21, No. 2, May 2006, pp. 568-578.
2. Xu, P. B. Luh, F. B. White, E. Ni, and K. Kasiviswanathan, "Power Portfolio Optimization in Deregulated Electricity Markets with Risk Management," *IEEE Transactions on Power Systems*, Vol. 21, No. 4, November 2006, pp. 1653-1662.
3. Zhang, E. Santos, and P. B. Luh, "A Performance Study on a Multi-Agent E-Scheduling and Coordination Framework for Maintenance Networks," *IEEE Transactions on Systems, Man and Cybernetics*, *Part C: Applications and Reviews*, Vol. 37, No. 1, January 2007, pp. 52-65.
4. Sun, Q. C. Zhao, and P. B. Luh, "On the Surrogate Gradient Algorithm for Lagrangian Relaxation," *Journal of Optimization Theory and Applications*, Vol. 133, No. 3, June 2007, pp. 413-416.
5. Sun, Q. Zhao, and P. B. Luh, "Incremental value iteration for time-aggregated Markov-decision Processes," *IEEE Transactions on Automatic Control*, Vol. 52, No. 11, November 2007, pp. 2177-2182.
6. B. Luh, B. Xiong, and S. C. Chang, "Group Elevator Scheduling with Advance Information for Normal and Emergency Modes," *IEEE Transactions on Automation Science and Engineering*, Vol. 5, No. 2, April 2008, pp. 245-258.
7. H. Yan, G. A. Stern, P. B. Luh, and F. Zhao, "Payment vs. Bid Cost Minimization in ISO Markets," *IEEE Power & Energy Magazine*, Vol. 6, No. 2, March/April 2008, pp. 24-36.
8. Zhao, P. B. Luh, J. H. Yan, G. A. Stern, and S. C. Chang, "Payment Minimization Auction for Deregulated Electricity Markets with Transmission Capacity Constraints," *IEEE Transactions on Power Systems*, Vol. 23, No. 2, May 2008, pp. 532-544.
9. Rong, R. Lahdelma, and P. B. Luh, "Lagrangian Relaxation Based Algorithm for Trigeneration Planning with Storage," *European Journal of Operational Research*, Vol. 188, Issue 1, July 2008, pp. 240-257.
10. Ni, P. B. Luh, and B. Moser, "An Optimization-Based Approach for Design Project Scheduling," *IEEE Transactions on Automation Science and Engineering*, Vol. 5, No. 3, July 2008, pp. 394-406.
11. Sun, Q. C. Zhao, and P. B. Luh, "Optimization of Joint Replacement Policies for Multi-Part Systems by a Rollout Framework," *IEEE Transactions on Automation Science and Engineering*, Vol. 5, No. 4, October 2008, pp. 609-619.

12. Zhao, P. B. Luh, J. H. Yan, G. A. Stern, and S. C. Chang, "Bid Cost Minimization vs. Payment Cost Minimization: A Game Theoretic Study of Electricity Auctions," *IEEE Transactions on Power Systems*, Vol. 25, No. 1, February 2010, pp. 181-194.
13. Chen, P. B. Luh, C. Guan, Y. Zhao, L. D. Michel, M. A. Coolbeth, P. B. Friedland and S. J. Rourke, "Short-term Load Forecasting: Similar Day-based Wavelet Neural Networks," *IEEE Transactions on Power Systems*, Vol. 25, No. 1, February 2010, pp. 322-330.
14. Sun, Q. Zhao, and P. B. Luh, "Optimization of Group Elevator Scheduling with Advance Information," *IEEE Transactions on Automation Science and Engineering*, Vol. 7, No. 2, April 2010, pp. 352-363.
15. Sun, P. B. Luh, and Z. O'Neill, "SPC and Kalman Filter-based Fault Detection and Diagnosis for an Air-Cooled Chiller," *Frontiers of Electrical and Electronic Engineering in China*, Vol. 6, No. 3, Sept. 2011, pp. 412-423, DOI: 10.1007/s11460-011-0164-9.
16. Buil, M. A. Piera and P. B. Luh, "Improvement of Lagrangian Relaxation Convergence for Production Scheduling," *IEEE Transactions on Automation Science and Engineering*, Vol. 9, No. 1, January 2012, pp. 137-147, DOI 10.1109/TASE.2011.2168817.
17. Song, P. Willett, S. Zhou, and P. B. Luh, "The MIMO Radar and Jammer Games," *IEEE Transactions on Signal Processing*, Vol. 60, No. 2, February 2012, pp. 687-699.
18. Li, P. B. Luh, L. D. Michel, Q. Zhao and X. Luo, "Corrective Line Switching with Security Constraints for the Base and Contingency Cases," *IEEE Transactions on Power Systems*, Vol. 27, No. 1, February 2012, pp. 125-133.
19. Jin, B. Wang, P. Zhang, P. B. Luh, "Decentralized Online Charging Scheduling for Large Populations of Electric Vehicles: a Cyber-Physical System Approach," *International Journal of Parallel, Emergent and Distributed Systems*, Vol. 28, No. 1, Feb. 2013, DOI:10.1080/17445760.2012.658803 (available online since Feb. 24, 2012).
20. Xiong, H. Zhao, C. Zhang, C. Zheng , P. B. Luh, "Thermoeconomic Operation Optimization of a Coal-fired Power Plant," *Energy*, Vol. 42, Issue 1, June 2012, pp. 486-496, doi:10.1016/j.energy.2012.03.020.
21. Pan, J. Shen, P. B. Luh, "Adaptive General Predictive Control Using Optimally-Scheduled Multiple Models for Parallel-Coursing Utility Units with a Header," *Journal of Dynamic Systems, Measurement and Control*, July 2012, Vol. 134.
22. H. M. Chauhdry and P. B. Luh, "Nested Partitions for Global Optimization in Nonlinear Model Predictive Control," *Control Engineering Practice*, Vol. 20, No. 9, September 2012, pp. 869-881.
23. B. Luh, C. T. Wilkie, S. C. Chang, K. L. Marsh, N. Olderman, "Modeling and Optimization of Building Emergency Evacuation Considering Blocking Effects on Crowd Movement," *IEEE Transactions on Automation Science and Engineering*, Vol. 9, No. 4, Oct. 2012, pp. 687-700, DOI: 10.1109/TASE.2012.2200039.
24. Guan, P. B. Luh, L. D. Michel, Y. Wang, and P. B. Friedland, "Very Short-term Load Forecasting: Wavelet Neural Networks with Data Pre-filtering," *IEEE Transactions on Power Systems*, Vol. 28, No. 1, Feb. 2013, pp. 30-41, DOI: 10.1109/TPWRS.2012.2197639.
25. Tu, P. B. Luh and Q. Zhao, "Opportunistic Lagrangian Relaxation for Joint Replacement Policy," *ACTA Automatica Sinica*, Vol. 39, No. 3, March 2013, pp. 263-271.
26. Sun, P. B. Luh, Q. S. Jia, Z. Jiang, F. Wang and C. Song, "Building Energy Management: Integrated Control of Active and Passive Heating, Cooling, Lighting, Shading and Ventilation Systems," *IEEE Transactions on Automation Science and Engineering*, Vol. 10, No. 3, July 2013, pp. 588-602, DOI: 10.1109/TASE.2012.2205567.
27. Wang, T. Peng, P. B. Luh, P. Gribik, and L. Zhang, "The Subgradient-Simplex Cutting Plane Method for Extended Locational Marginal Prices," *IEEE Transactions on Power Systems*, Vol. 28, No. 3, August 2013, pp. 2758-2767. DOI: 10.1109/TPWRS.2013.2243173.
28. Yan, H. Y. Chen, P. B. Luh, S. Wang, and J. Chang, "Litho Machine Scheduling with Convex Hull Analysis," *IEEE Transactions on Automation Science and Engineering*, Vol. 10, No. 4, October 2013, pp. 928-937. DOI: 10.1109/TASE.2013.2277812.
29. Guan, P. B. Luh, L. D. Michel, and Z. Chi, "Hybrid Kalman Filters for Very Short-term Load Forecasting and Prediction Interval Estimation," *IEEE Transactions on Power Systems*, Vol. 28, No. 4, November 2013, pp. 3806-3817. DOI: 10.1109/TPWRS.2013.2264488.
30. Sun, P. B. Luh, Q. S. Jia, Z.O'Neill and F. Song, "Building Energy Doctors: An SPC and Kalman Filter-based Method for System-Level Fault Detection in HVAC Systems," *IEEE Transactions on Automation Science and Engineering*, Vol. 11, No. 1, January 2014, pp. 215-229. DOI 10.1109/TASE.2012.2226155.
31. B. Luh, Y. Yu, B. Zhang, E. Litvinov, T. Zheng, F. Zhao, J. Zhao and C. Wang, "Grid Integration of Intermittent Wind Generation: a Markovian Approach," *IEEE Transactions on Smart Grid*, Vol. 5, No. 2, March 2014, pp. 732-741. DOI 10.1109/TSG.2013.2268462.
32. Li, P. Zhang, P. B. Luh, W. Li, Z. Bie, C. Serna, and Z. Zhao, "Risk Analysis for Distribution Systems in the Northeast U.S. under Wind Storms," *IEEE Transactions on Power Systems*, Vol. 29, No. 2, March 2014, pp. 889-898. DOI: 10.1109/TPWRS.2013.2286171.
33. C. Zhan, S. C. Chang, P. B. Luh, and H. H. Lieu, "Truthful Auction Mechanism Design for Short-interval Secondary Spectrum Access Market," *IEEE Transactions on Wireless Communications*, Vol. 13, No. 3, March 2014, pp. 1471-1481. DOI: 10.1109/TWC.2014.012314.130766.
34. A. Bragin, P. B. Luh, J. H. Yan, N. Yu and G. A. Stern, "Convergence of the Surrogate Lagrangian Relaxation Method," *Journal of Optimization Theory and Applications*, Vol. 164, Issue 1, 2015, pp. 173-201, DOI: 10.1007/s10957-014-0561-3.
35. Ding, H. Zhang, T. Chen, P. B Luh, "Stair Evacuation Simulation based on Cellular Automata Considering Evacuees' Walk Preferences," Chinese Physics B, Vol. 24, No. 6, June 2015.
36. Mao, Q. Pan, T. Chai, P. B. Luh, "An Effective Subgradient Method for Scheduling a Steelmaking-Continuous Casting Process," *IEEE Transactions on Automation Science and Engineering*, Vol. 12, No. 3, July 2015, pp. 1140-1152, DOI: 10.1109/TASE.2014.2332511.
37. Di Somma, B. Yan, N. Bianco, P. G. Graditi, B. Luh, L. Mongibello, and V. Naso, "Operation Optimization of a Distributed Energy System Considering Energy Costs and Exergy Efficiency," *Energy Conversion and Management*, Vol. 103, October 2015, pp. 739-751, DOI: 10.1016/j.enconman.2015.07.009.
38. Sun, P. B. Luh, Q. S. Jia, B. Yan, "Event-based Optimization within the Lagrangian Relaxation Framework for Energy Savings in HVAC Systems," *IEEE Transactions on Automation Science and Engineering*., Vol. 12, No. 4, October 2015, pp. 1396-1406, DOI: 10.1109/TASE.2015.2455419.
39. Yu, P. B. Luh, E. Litvinov, T. Zheng, J. Zhao and F. Zhao, "Grid Integration of Distributed Wind Generation: Hybrid Markovian and Interval Unit Commitment," *IEEE Transactions on Smart Grid*, early access since June 2015, DOI: 10.1109/TSG.2015.2430851.
40. Wang, P. B. Luh, P. Gribik, T. Peng, and L. Zhang, "Commitment Cost Allocation of Fast-start Units for Approximate Extended Locational Marginal Prices," to appear in *IEEE Transactions on Power Systems*.
41. Di Somma, B. Yan, N. Bianco, P. B. Luh, G. Graditi, L. Mongibello, and V. Naso, "Multi-Objective Operational Optimization of a Distributed Energy System for a Large-Scale Utility Customer," to appear in *Applied Thermal Engineering*.
42. Yan, M. Di Somma, N. Bianco, P. B. Luh, G. Graditi, L. Mongibello, and V. Naso, "Exergy-Based Operation Optimization of a Distributed Energy System through the Energy-Supply Chain," to appear in *Applied Thermal Engineering*.
43. Sun, P. B. Luh, K. W. Cheung, W. Guan, L. D. Michel, S. S. Ventata and M. T. Miller, "An Efficient Approach to Short-Term Load Forecasting at the Distribution Level," to appear in IEEE Transactions on Power Systems.

Books, Book Chapters, Book Sections & Edited Volumes:

1. Wang, P. B. Luh, S. C. Chang and J. Sun, "Modeling and Optimization of Crowd Guidance for Building Emergency Evacuation," in *Intelligent Robotics and Applications*, Lecture Notes in Computer Science, Springer, October 2008, pp. 1-6,
2. B. Luh, Y. Chen, J. H. Yan, G. A. Stern, W. E. Blankson, and F. Zhao, "Payment Cost Minimization with Demand Bids and Partial Capacity Cost Compensations for Day-Ahead Electricity Auction," in *Economic Market Design and Planning for Electric Power Systems*, eds. L. Mili and J. A. Momoh, Wiley-IEEE Press, 2010, pp. 71-85.
3. L. Marsh, C. T. Wilkie, P. B. Luh, Z. Zhang, T. Gifford, and N. Olderman, "Crowd Guidance in Building Emergencies: Using Virtual Reality Experiments to Confirm Macroscopic Mathematical Modeling of Psychological Variables," in *Pedestrian and Evacuation Dynamics 2012*, U. Weidmann, U. Kirsch, and M. Schreckenberg, Eds., Springer, Berlin, March 2014, pp. 197-212.
4. Gao, T. Chen, P. B. Luh, and H. Zhang, "Simulation of Building Evacuation Considering Information Flow," in *Traffic and Granular Flow' 13*, M. Chraibi, M. Boltes, A. Schadschneider and A. Seyfried, Eds., Springer International, Switzerland, ISBN 978-3-319-10628-1 (print) and 978-3-319-10629-8 (online), 2015, pp. 155-161.

Conference Proceedings & Other Publications:

1. Guan, P. B. Luh, L. D. Michel, Y. Bar-Shalom, and P. B. Friedland,, "Interacting Multiple Model Approach for Very Short-Term Load Forecasting and Confidence Interval Estimation," *Proceedings of the Eighth World Congress on Intelligent Control and Automation*, Jinan, Shandong, China, June 2010.
2. Zhang, P. B. Luh, E. Litvinov, T. Zheng, and F. Zhao, "Achieving Equilibrium and Local Incentive Compatibility for Electricity Markets by Using Redundant Constraints," *Proceedings of the Eighth World Congress on Intelligent Control and Automation*, Jinan, Shandong, China, June 2010.
3. Wang and P. B. Luh, "The Subgradient-Simplex Based Cutting Plane Method to Solve Linear Matrix Inequalities," *Proceedings of the Eighth World Congress on Intelligent Control and Automation*, Jinan, Shandong, China, June 2010.

4. Wang P. B. Luh, P. Gribik, L. Zhang and T. Peng, "The Subgradient-Simplex Based Cutting Plane Method for Convex Hull Pricing," *Proceedings of the IEEE Power and Energy Society 2010 General Meeting*, Minneapolis, Minnesota, July 2010.
5. Guan, P. B. Luh, L. D. Michel, M. A. Coolbeth, and P. B. Friedland, "Hybrid Kalman Algorithms for Very Short-term Load Forecasting and Confidence Interval Estimation," *Proceedings of the IEEE Power and Energy Society 2010 General Meeting*, Minneapolis, Minnesota, July 2010.
6. Han, P. B. Luh, J. H. Yan and G. A. Stern, "Payment Cost Minimization with Transmission Capacity Constraints and Losses Using the Objective Switching Method," *Proceedings of the IEEE Power and Energy Society 2010 General Meeting*, Minneapolis, Minnesota, July 2010.
7. B. Luh, L. D. Michel, P. Friedland, C. Guan, and Y. Wang, "Load Forecasting and Demand Response," *Proceedings of the IEEE Power and Energy Society 2010 General Meeting*, Minneapolis Minnesota, July 2010.
8. Sun, P. B. Luh, Q. S. Jia, Z. Jiang, F. Wang, and C. Song, "An Integrated Control of Shading Blinds, Natural Ventilation, and HVAC Systems for Energy Saving and Human Comfort," *Proceedings of the 2010 IEEE Conference on Automation Science and Engineering*, Toronto, Canada, August 2010, pp. 7-14.
9. Sun, T. Chai, and P. B. Luh, "Scheduling of Steel-making and Continuous Casting System Using the Surrogate Subgradient Algorithm for Lagrangian Relaxation," *Proceedings of the 2010 IEEE Conference on Automation Science and Engineering*, Toronto, Canada, August 2010, pp. 885-890.
10. M. Hsu, J. L. Chen; J. Chang, S. C. Chiou, J. H. Ho, S. C. Chang, L. Sun, and P. B. Luh, "Design of Standard Modeling Process for Tool Sequencing Optimization under Given Robot Control Logics: A PVD Case," 2010 International Symposium on Semiconductor Manufacturing (ISSM), Oct. 2010, Tokyo, Japan.
11. T. Kao, S. C. Chang, P. B. Luh, S. Wang, H. Chuang, J. Chang, "Effective WIP Flow Estimation for Daily Fab Production Target Setting with Consideration of Variability," 2010 International Symposium on Semiconductor Manufacturing (ISSM), Oct. 2010, Tokyo, Japan.
12. Wang, F. Wang, J. Chang, J. Y. Chang, S. C. Chang, P. Wang, P. B. Luh, Y. T. Kao, S. C. Zhan, "Optimal Wet-furnace Machine Allocation for Daily Fab Production," 2010 International Symposium on Semiconductor Manufacturing (ISSM), Oct. 2010, Tokyo, Japan.
13. B. Luh, P. Wang, V. Kant, K. L. Marsh, "Crowd Fluid Dynamics under Stress of Emergency Egress," 2011 NSF CMMI Engineering Research and Innovation Conference, Atlanta, Georgia, January 2011.
14. P. Ghosh and P. B. Luh, "Analysis and Simulation of Payment Cost Minimization and Bid Cost Minimization with Strategic Bidders," *Proceedings of the 2011 IEEE PES Power Systems Conference and Exhibition*, Phoenix, Arizona, March, 2011.
15. Guan, P. B. Luh, and W. Cao, "Short-term Wind Generation Forecasting and Confidence Interval Estimation Based on Neural Networks Trained by Extended Kalman Particle Filter," *Proceedings of the World Congress on Intelligent Control and Automation*, Taipei, Taiwan, June 2011.
16. Sun, P. B. Luh, S. C. Chiou, S. C. Chang, J. H. Ho, H. Y. Chen, J. L. Chen, J. Chang and S. Hsu, "Efficient Dual-armed Cluster Tool Performance via Branch and Cut Optimization Algorithm," *Proceedings of the World Congress on Intelligent Control and Automation*, Taipei, Taiwan, June 2011.
17. A. Bragin, X. Han, P. B. Luh, and J. H. Yan, "Payment Cost Minimization Using Lagrangian Relaxation and Modified Surrogate Optimization Approach," *Proceedings of the IEEE Power and Energy Society 2011 General Meeting*, Detroit, Michigan, July 2011.
18. Guan, P. B. Luh, W. Cao, L. D. Michel, and K. Cheung, "Dual-tree M-band Wavelet Transform and Composite Very Short-term Load Forecasting," *Proceedings of the IEEE Power and Energy Society 2011 General Meeting*, Detroit, Michigan, July 2011.
19. Han, P. B. Luh, J. H. Yan, and G. A. Stern, "Energy and Spinning Reserve Payment Cost Co-Optimization," *Proceedings of the IEEE Power and Energy Society 2011 General Meeting*, Detroit, Michigan, July 2011.
20. Zhang, P. B. Luh, E. Litvinov, T. Zheng, F. Zhao, J. Zhao and C. Wang, "Electricity Auctions with Intermittent Wind Generation," *Proceedings of the IEEE Power and Energy Society 2011 General Meeting*, Detroit, Michigan, July 2011.
21. T. Kao, S. C. Zhan, S. C. Chang, J. H. Ho, P. Wang, P. B. Luh, S. Wang, F. Wang and J. Chang, "Near-Optimal Furnace Tool Allocation with Batching and Waiting Time Constraints," *Proceedings of the 2011 IEEE Conference on Automation Science and Engineering*, Trieste, Italy, August 2011, pp. 108-113.
22. Yan, H. Y. Chen, P. B. Luh, S. Wang, J. Chang, "Optimization-Based Litho Machine Scheduling with Multiple Reticles and Setups," *Proceedings of the 2011 IEEE Conference on Automation Science and Engineering*, Trieste, Italy, August 2011, pp. 114-119.
23. Sun, P. B. Luh, Z. O'Neill, and F. Song, "Building Energy Doctors: SPC and Kalman Filter-based Fault Detection," *Proceedings of the 2011 IEEE Conference on Automation Science and Engineering*, Trieste, Italy, August 2011, pp. 333-340.
24. Gao, P. B. Luh, H. Zhang, N. Wu and L. Qiao, "Fire Evacuation Model with Confidence Intervals," *Proceedings of the 2011 IEEE Conference on Automation Science and Engineering*, Trieste, Italy, August 2011, pp. 731-736.
25. Sun, W. Liu, P. B. Luh, T. Chai, and B. Zheng, "An Effective Approach for the Scheduling of Steel-making and Continuous Casting System with Stochastic Processing Requirements," Preprints of the 18th IFAC World Congress, Milano, Italy, August/September 2011.
26. Song, P. Willett, S. Zhou, and P. B. Luh "The Power Game between a MIMO Radar and Jammer," *Proceedings of the 2012 IEEE International Conference on Acoustics, Speech, and Signal Processing*, Kyoto, Japan, March 2012.
27. Ding, T. Chen, P. B. Luh, and H. Zhang, "High-rise Building Elevator Control and Optimization during Evacuation," Information Systems for Crisis Response and Management and the 5th International Conference on Emergency Management, Vancouver, Canada, April 2012.
28. L. Marsh, C. T. Wilkie, P. B. Luh, Z. Zhang, T. Gifford, and N. Olderman, "Crowd Guidance in Building Emergencies: Using Virtual Reality Experiments to Macroscopic Mathematical Modeling of Psychological Variables," 6th International Conference on Pedestrian and Evacuation Dynamics – PED 2012, Zurich, Switzerland, June 2012.
29. A. Bragin, P. B. Luh, and J. H. Yan, "An Efficient Surrogate Optimization Method for Solving Linear Mixed-Integer Problems with Cross-Coupling Constraints," *Proceedings of the Tenth World Congress on Intelligent Control and Automation*, Beijing, China, July 2012.
30. A. Bragin, P. B. Luh, J. H. Yan, N. Yu, X. Han and G. A. Stern, "An Efficient Surrogate Subgradient Method within Lagrangian Relaxation for the Payment Cost Minimization Problem," *Proceedings of the IEEE Power and Energy Society 2012 General Meeting*, San Diego, California, July 2012, pp. 4055-4060.
31. Yu, P. B. Luh, E. Litvinov, T. Zheng, F. Zhao, J. Zhao, "Unit Commitment with Intermittent Wind Generation via Markovian Analysis with Transmission Capacity Constraints," *Proceedings of the IEEE Power and Energy Society 2012 General Meeting*, San Diego, California, July 2012.
32. Wang, P. B. Luh, P. Gribik, L. Zhang, T. Peng, "A Study of Commitment Cost in Approximate Extended Locational Marginal Prices," *Proceedings of the IEEE Power and Energy Society 2012 General Meeting*, San Diego, California, July 2012.
33. Han, P. B. Luh, M. A. Bragin, J. H. Yan, N. Yu, and G. A. Stern, "Solving Payment Costs Co-optimization Problems," *Proceedings of the IEEE Power and Energy Society 2012 General Meeting*, San Diego, California, July 2012.
34. Yan, H. Y. Chen, P. B. Luh, S. Wang, J. Chang, "Optimization-based Litho Machine Scheduling with Load Balancing and Reticle Expiration," *Proceedings of the 2012 IEEE Conference on Automation Science and Engineering*, Seoul, Korea, August 2012.
35. C. Zhan, S. C. Chang, P. B. Luh, H. H. Lieu, "Truthful Auction Mechanism Design for Short-interval Secondary Spectrum Access Market," Proceedings of the 12th International Conference on ITS (Intelligent Transportation Systems) Telecommunications, Taipei, Taiwan, Nov. 2012, pp. 165-170.
36. Wang, P. B. Luh, and N. Navid, "Requirement Design for a Reliable and Efficient Ramp Capability Product," *Proceedings of the IEEE Power and Energy Society 2013 General Meeting*, Vancouver, Canada, July 2013.
37. A. Bragin, P. B. Luh, J. H. Yan, N. Yu and G. A. Stern, "Efficient Surrogate Optimization for Payment Cost Co-Optimization with Transmission Capacity Constraints," *Proceedings of the IEEE Power and Energy Society 2013 General Meeting*, Vancouver, Canada, July 2013. In the Best Paper session.
38. Yu, P. B. Luh, E. Litvinov, T. Zheng, F. Zhao and J. Zhao, "Markov-Based Stochastic Unit Commitment Considering Wind Power Forecasts," *Proceedings of the IEEE Power and Energy Society 2013 General Meeting*, Vancouver, Canada, July 2013. In the Best Paper session.
39. Sun, P. B. Luh, L. D. Michel, S. Corbo, K. W. Cheung, W. Guan and K. Chung, "An Efficient Approach for Short-Term Substation Load Forecasting," *Proceedings of the IEEE Power and Energy Society 2013 General Meeting*, Vancouver, Canada, July 2013. In the Best Paper session.
40. Li and P. B. Luh, "A Decentralized Framework of Unit Commitment for Future Power Markets," *Proceedings of the IEEE Power and Energy Society 2013 General Meeting*, Vancouver, Canada, July 2013.
41. Guan, K. Chung, K. W. Cheung, X. Sun, L. D. Michel, S. Corbo and P. B. Luh, "Advanced Load Forecast with Hierarchical Forecasting Capability," *Proceedings of the IEEE Power and Energy Society 2013 General Meeting*, Vancouver, Canada, July 2013.
42. Yan, P. B. Luh, B. Sun, C. Song, C. Dong, Z. Gan and L. D. Michel, "Energy-efficient Management of Eco-communities," *Proceedings of the 2013 IEEE Conference on Automation Science and Engineering*, Madison, Wisconsin, August 2013.
43. Yan, P. B. Luh, and B. Sun, "Fault Detection of Cooling Coils based on Unscented Kalman Filters and Statistical Process Control," *Proceedings of the 2013 IEEE Conference on Automation Science and Engineering*, Madison, Wisconsin, August 2013.
44. Sun, P. B. Luh, Q.S. Jia, and B. Yan, "Event-based Optimization with Non-stationary Uncertainties to Save Energy Costs of HVAC Systems in Buildings," *Proceedings of the 2013 IEEE Conference on Automation Science and Engineering*, Madison, Wisconsin, August 2013.

45. Ding, P. B. Luh, H. Zhang and T. Chen, "Emergency Evacuation Simulation in Staircases Considering Evacuees' Physical and Psychological Status," *Proceedings of the 2013 IEEE Conference on Automation Science and Engineering*, Madison, Wisconsin, August 2013.
46. Gao, P. B. Luh, H. Zhang and T. Chen, "A Modified Social Force Model Considering Relative Velocity of Pedestrians," *Proceedings of the 2013 IEEE Conference on Automation Science and Engineering*, Madison, Wisconsin, August 2013.
47. Ding, T. Chen, H. Zhang, P. B Luh, "Stair Evacuation Simulation based on Cellular Automata Model Considering Social Forces," Traffic and Granular Flow, Forschungszentrum Jülich, Germany, Sept. 2013.
48. M. Park, S. Y. Park, P. Zhang, P. B. Luh, M. Rakotomavo, and C. Serna, "Comparative Life Cycle Cost Analysis of Hardening Options for Critical Loads," Proceedings of the IEEE Power Energy Society Conference on Innovative Smart Grid Technological, Washington, D.C., Feb. 2014.
49. Gao, T. Chen, P. B. Luh and H. Zhang, "Experimental Study on Pedestrians' Collision Avoidance," *Proceedings of the Eleventh World Congress on Intelligent Control and Automation*, Shenyang, China, July 2014, pp. 2659-2663.
50. Ding, T. Chen, P. B. Luh and H. Zhang, "Optimization of Elevator Evacuation Considering Potential Over-Crowding," *Proceedings of the Eleventh World Congress on Intelligent Control and Automation*, Shenyang, China, July 2014, pp. 2664-2668.
51. Lu, P. B. Luh, K. L. Marsh, T. Gifford and A. Tucker, "Guidance Optimization of Building Evacuation Considering Psychological Features in Route Choice," *Proceedings of the Eleventh World Congress on Intelligent Control and Automation*, Shenyang, China, July 2014, pp. 2669-2674.
52. Di Somma, B. Yan, P. B. Luh, M. A. Bragin, N. Bianco, G. Graditi, L. Mongibello and V. Naso, "Exergy-efficient Management of Energy Districts," *Proceedings of the Eleventh World Congress on Intelligent Control and Automation*, Shenyang, China, July 2014, pp. 2675-2680.
53. Wang, P. B. Luh, and N. Navid, "Ramp Requirement Design for Reliable and Efficient Integration of Renewable Energy," *Proceedings of the IEEE Power and Energy Society 2014 General Meeting*, Washington DC, July 2014.
54. A. Bragin, P. B. Luh, J. H. Yan and G. A. Stern, "Surrogate Lagrangian Relaxation and Branch-and-cut for Unit Commitment with Combined Cycle Units," *Proceedings of the IEEE Power and Energy Society 2014 General Meeting*, Washington DC, July 2014. In the Best Paper session.
55. Yu, P. B. Luh, E. Litvinov, T. Zheng, J. Zhao and F. Zhao, "Markov-based Stochastic Multi-period Market Settlement with Wind Uncertainties," *Proceedings of the IEEE Power and Energy Society 2014 General Meeting*, Washington DC, July 2014.
56. Sun, P. B. Luh, K. W. Cheung and W. Guan, "Forecasting Real-time Net Interchange of Electric Power," *Proceedings of the IEEE Power and Energy Society 2014 General Meeting*, Washington DC, July 2014.
57. Yan, P. B. Luh, M. A. Bragin, C. Song, C. Dong, and Z. Gan, "Energy-efficient Building Clusters," *Proceedings of the 2014 IEEE Conference on Automation Science and Engineering*, Taipei, Taiwan, August 2014.
58. Yan, P. B. Luh, and K. R. Pattipati, "Fault Diagnosis Framework for Air Handling Units based on the Integration of Dependency Matrices and PCA," *Proceedings of the 2014 IEEE Conference on Automation Science and Engineering*, Taipei, Taiwan, August 2014.
59. Ding, H. Zhang, T Chen, P. B. Luh, "Evacuees' Behaviors of Using Elevators during Evacuation based on Experiments," the Conference in Pedestrian and Evacuation Dynamics, Nootdorp, the Netherlands, October 2014 (PED2014).
60. Di Somma, B. Yan, N. Bianco, P. B. Luh, G. Graditi, L. Mongibello, and V. Naso, "Multi-Objective Operational Optimization of a Distributed Energy System for a Large-Scale Utility Customer," ASME-ATI-UIT 2015 Conference on Thermal Energy Systems: Production, Storage, Utilization and the Environment, May 2015, Napoli, Italy.
61. Yan, M. Di Somma, N. Bianco, P. B. Luh, G. Graditi, L. Mongibello, and V. Naso, "Exergy-Based Operation Optimization of a Distributed Energy System through the Energy-Supply Chain," ASME-ATI-UIT 2015 Conference on Thermal Energy Systems: Production, Storage, Utilization and the Environment, May 2015, Napoli, Italy.
62. Di Somma, B. Yan, N. Bianco, P. B. Luh, G. Graditi, L. Mongibello, and V. Naso, "Energy Quality Management of a Distributed Energy System through Multi-Objective Optimization," the 5th International Conference on Clean Electrical Power, June 2015, Taormina, Italy.
63. Di Somma, B. Yan, N. Bianco, P. B. Luh, G. Graditi, L. Mongibello, and V. Naso, "Influence of Energy Quality Management on CO_2 Emissions in Operation Optimization of a Distributed Energy System," the 5th International Conference on Clean Electrical Power, June 2015, Taormina, Italy.
64. A. Bragin, P. B. Luh, J. H. Yan and G. A. Stern, "Novel Exploitation of Convex Hull Invariance for Solving Unit Commitment by Using Surrogate Lagrangian Relaxation and Branch-and-cut," to appear in *Proceedings of the IEEE Power and Energy Society 2015 General Meeting*, Denver, Colorado, July 2015.
65. Yu, P. B. Luh, E. Litvinov, T. Zheng, J. Zhao and F. Zhao, "Transmission Contingency-Constrained Unit Commitment with Uncertain Wind Generation via Interval Optimization," to appear in *Proceedings of the IEEE Power and Energy Society 2015 General Meeting*, Denver, Colorado, July 2015. In the Best Paper session.
66. Sun, P. B. Luh, K. W. Cheung and W. Guan, "Probabilistic Forecasting of Dynamic Line Rating for Over-head Transmission Lines," to appear in *Proceedings of the IEEE Power and Energy Society 2015 General Meeting*, Denver, Colorado, July 2015.
67. Yan, P. B. Luh, and K. R. Pattipati, "A Fault Diagnosis Method for HVAC Air Handling Units Considering Fault Propagation," *Proceedings of the 2015 IEEE Conference on Automation Science and Engineering*, Gothenburg, Sweden, August 2015, pp. 961-966. Finalist for the Best Student Paper.
68. A. Farhan, K. R. Pattipati, B. Wang, and P. B. Luh, "Predicting Individual Thermal Comfort Using Machine Learning Algorithms," *Proceedings of the 2015 IEEE Conference on Automation Science and Engineering*, Gothenburg, Sweden, August 2015, pp. 708-713.

Active Research Projects:

1. "Load Forecasting at the Distribution Level in the Face of Distributed Energy Resources," Alstom Grid/Department of Energy, $120,000, 8/11 – 6/14, KFS# 5259830.
2. "Short-Term Load Forecasting in the Era of Smart Grid," Alstom Grid Inc., $354,598, 9/10-8/15, FRS# 6354480.
3. "Simultaneous Optimal Auction and Unit Commitment for Deregulated Electricity Markets," Southern California Edison, $553,149, 5/03 – 12/15, KFS# 6314230.
4. "Building Emergency Evacuation: Innovative Modeling and Optimization," National Science Foundation CMMI-1000495, $498,504, 6/10/-12/15, with Peter Luh as the PI and K. Marsh as the Co-PI, KFS# 5603720 and 5603730.
5. "Efficient and Robust Electricity Markets with Intermittent Renewable Generation," National Science Foundation ECCS-1028870, $359,786, 8/10/-7/15, KRS# 5604750 and 5604760.
6. "Electricity Auctions with Intermittent Generation," ISO-New England, $373,226, 8/08-8/16, KFS#
7. "CyberSEES, Type 2: Fault Detection, Diagnosis and Prognosis of HVAC systems," National Science Foundation CCF-1331850, $1,030,000, 10/13 – 09/16, with Krishna Pattipati as the PI and Peter B. Luh, Bing Wang, Robert Gao and George Kuchel as the Co-PIs, KFS# 5611940.
8. "High Levels of Renewable Generation: Markovian and Interval-based Unit Commitment," ABB, $80,000, 7/1/2014-9/30/2015, KFS# 6365120.
9. "Intelligence at the Edge: Enabling Highly Resilient and Efficient Microgrids through Ultra-Fast Programmable Networks," National Science Foundation, $298,978, 7/14/-6/16, with Bing Wang as the PI and Peng Zhang and Peter B. Luh as the Co-PIs, KFS#.
10. "Assessment of the GridLink Technology," Pareto Energy, $369,856, with Peter Luh as the PI, Peng Zhang, Sung Yeul Park, Ali Bazzi, and Yang Cao as the co-PI, 8/14-8/15, KFS# 6365240.
11. "Supervisory Control Synthesis for Energy Efficient BIS Chiller Plants," United Technologies Corporation, $202,500, 1/15-12/15, with Shalabh Gupta as the PI, and Ali Bazzi, Peter B. Luh, George Bollas, and Ashwin Dani as the Co-PIs, KFS#.
12. "Rural Communities Energy Assurance Program," USDA/CCAT, $24,000.00, with Peng Zhang and the PI, Sung Yeul Park, Ali Bazzi, Yang Cao and Peter B. Luh as the Co-PI, 2/15-9/15, KFS #.
13. "Contingency-Constrained Unit Commitment with High Penetration of Intermittent Renewables," National Science Foundation ECCS-1509666, $360,000, 8/1/15-7/31/18, KFS# 5624000 and 5624010.
14. "Evacuating with Others Virtually," National Science Foundation CMMI-1463520, $619,947, 6/15/-5/18, with Peter Luh as the PI and Hart Blanton as the Co-PI, KFS# 5625900 and KFS# 5625910.
15. "A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for MILP Problems in Electricity Markets," MISO, $20,000, 8/15-1/16, KFS# 6367770.
16. "A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for MILP Problems in Electricity Markets," Alstom Grid, $20,000, 8/15-1/16, KFS#.

Professional Activities:

1. The Eighth International Conference on Control and Automation, International Program Committee, Xiamen, China, June 2010;
2. International Workshop on Discrete Event Systems (WODES), International Program Committee, Berlin, Germany, August 2010;
3. The 2010 IEEE International Conference on Automation and Logistics, Program Committee, Hong Kong and Macau, China, August 2010;
4. 2010 IEEE/RSJ International Conference on Intelligent Robots and Systems, Program Committee, Taipei, Taiwan, October 2010;

5. 2010 International Conference on Intelligent Robot and Applications, International Advisory Committee, Shanghai, November 2010;
6. 2011 IEEE International Conference on Robotics and Automation, Workshop and Tutorial Committee, Co-Chair, Automation Forum, Chair, Shanghai, China, May 2011;
7. 2011 World Congress on Intelligent Control and Automation, Advisory Committee, June 2011, Taipei, Taiwan;
8. 2011 IEEE Conference on Automation Science and Engineering, Chair of the Steering Committee, Trieste, Italy, August 2011;
9. International Conference on Intelligent Robotics and Applications, International Advisory Committee, Aachen, Germany, December 2011;
10. IEEE International Conference on Information and Automation, International Advisory Committee, Shenyang, China, June 2012;
11. 2012 World Congress on Intelligent Control and Automation, Co-Chair, Tutorial and Workshop Committee; member of the International Program Committee; Panelist of the Future Robotics and Automation Plenary Panel, and member of the Award Committee; July 2012, Beijing, China;
12. 2012 IEEE Conference on Automation Science and Engineering, Steering Committee, Seoul, Korea, August 2012;
13. 12th International Conference on Control, Automation, Robotics and Vision (ICARCV), International Advisory Committee, Guangzhou, China, Dec. 2012;
14. 2013 IEEE International Conference on Robotics and Automation, Finance co-Chair, Chair of the Best Automation Paper Award Committee, member of the Senior Program Committee, Karlsruhe, Germany, May 2013;
15. 2013 IEEE Conference on Automation Science and Engineering, Steering Committee, Madison, Wisconsin, August 2013;
16. 2014 World Congress on Intelligent Control and Automation, member of the International Program Committee, member of Regional Chairs, member of the Award Committee, panelist of the panel on ""New Trends and Innovation in Automation Science and Technology" and workshop presenter on "How to Publish Papers in International Journals"; June/July 2014, Shenyang, China;
17. 2014 IEEE International Conference on Information and Automation, member of the Program Committee; July 2014, Hailar, Hulun Buir, Inner Mongolia, China;
18. 2014 IEEE Conference on Automation Science and Engineering, Steering Committee and Chair of the Best Conference Paper Award Committee, Taipei, Taiwan, August 2014;
19. 13th International Conference on Control, Automation, Robotics and Vision (ICARCV), International Advisory Committee, Best Paper Committee, Plenary Panelist – "Smart Buildings," Singapore, Dec. 2014;
20. The 27th Chinese Control and Decision Conference (CCDC), Distinguished Lecturer, "A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for Mixed-Integer Optimization Problems," Qingdao, China, May 24, 2015;
21. 2015 IEEE International Conference on Information and Automation, member of the Program Committee; Lijiang, Yunnan, China, August 2015;
22. 2015 IEEE Conference on Automation Science and Engineering, Steering Committee and Member of the Award Committee, Gothenburg, Sweden, August 2015;
23. International Conference on Complex Systems Engineering, Publicity Chair, Storrs, CT, November 2015;
24. 13th International Workshop on Discrete Event Systems (WODES 2016), International Program Committee, Xi'an, China, May 2016;
25. 2016 World Congress on Intelligent Control and Automation, member of the International Program Committee, June 2016, Guilin, China;

Listed in:

Listed in *Who's Who in Engineering*;

Listed in *Who's Who in Science and Engineering*;

Listed in *Who's Who in the East*;

Listed in *Who's Who in American Education*;

Listed in *Who's Who in America Science and Engineering*;

Listed in *Who's Who in the World*;

SIGMA XI, Member.

Invited Talks

1. United Technologies Research Center-China, "Modeling and Optimization of Building Emergency Evacuation," July 2010.
2. Huazhong University of Science and Technology, Wuhan, China, "Smart Building Smart Grid and HVAC Fault Detection/Diagnosis," May 23, 2011.
3. Beihang University, Beijing, China, "Smart Building Smart Grid and How to Conduct High Impact Research," June 1, 2011.
4. Beihang University, Beijing, China, "How to Publish Papers in International Journals," June 1, 2011.
5. University of Illinois at Urbana-Champaign, Department of Industrial and Enterprise Systems Engineering (ISE), "Building Energy Management: Integrated Control of Active and Passive Heating, Cooling, Lighting, Shading and Ventilation Systems," October 13, 2011.
6. Universita` degli Studi di Napoli Federico II, Dipartimento di Informatica e Sistemistica, Napoli, Italy, "Building Energy Doctors: SPC and Kalman Filter-based Fault Detection," November 23, 2011.
7. Southeast University, School of Automation, "Grid Integration of Intermittent Wind Generation: A Markovian Approach," June 18 2012.
8. Institute of Automation, Chinese Academy of Sciences, "Crowd Guidance in Building Emergencies: Mathematical Modeling and Optimization and Virtual Reality Experiments." June 2012.
9. RoSEC (Robotics-Specialized Education Consortium) International Summer Workshop, "Building Energy Management: Integrated Control of Heating, Cooling, Lighting, Shading and Ventilation Systems," August 24, 2012, Seoul, Korea.
10. of Mechanical and Industrial Engineering, University of Toronto, Distinguished Seminar, "Building Energy Management: Integrated Control of Heating, Cooling, Lighting, Shading and Ventilation Systems," March 8, 2013, Toronto, Canada.
11. Tsinghua University, Department of Automation, Beijing, China, "Smart Buildings," May 28, 2013.
12. North China Electric Power University, Department of Control and Computer Engineering, Beijing, China, "How to Publish Papers in International Journals," June 3, 2013.
13. North China Electric Power University, Department of Control and Computer Engineering, Beijing, China, "Grid Integration of Intermittent Wind Generation: A Markovian Approach," June 3, 2013.
14. Southeast University, School of Automation, "Smart Buildings," June 5, 2013.
15. Workshop on High-rise Building Emergency Evacuation, "Crowd Guidance in Building Emergencies: Mathematical Modeling, Optimization and Virtual Reality Experiments," Shanghai, China, June 7, 2013.
16. Shengyang Institute of Automation, Chinese Academy of Sciences, "From Manufacturing Scheduling to Supply Chain Coordination," June 9, 2013.
17. Federal Energy Regulatory Commission Conference – Increasing Real-Time and Day-Ahead Market Efficiency through Improved Software, "Stochastic Unit Commitment with Intermittent Distributed Wind Generation via Markovian Analysis and Optimization," June 2013, Washington D.C.
18. Federal Energy Regulatory Commission Conference – Increasing Real-Time and Day-Ahead Market Efficiency through Improved Software, "A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for MIP Problems in Power Systems," June 2013, Washington D.C.
19. Department of Electrical Engineering, National Taiwan University, "Stochastic Unit Commitment with Intermittent Distributed Wind Generation via Markovian Analysis and Optimization," November 27, 2013.
20. Department of Electrical Engineering, National Taiwan University, "A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for MIP Problems in Power Systems," November 27, 2013.
21. Institute of Systems Science, Academia Sinica, Beijing, "A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for MIP Problems in Power Systems," May 21, 2014.
22. Tsinghua University, Department of Automation, Beijing, China, "Stochastic Unit Commitment with Intermittent Distributed Wind Generation," May 26, 2014.
23. Beihang University, Beijing, China, "How to Publish Papers in International Journals," May 29, 2014.
24. Beihang University, Beijing, China, "Event-based Optimization within the Lagrangian Relaxation Framework for Energy Savings in HVAC Systems," May 29, 2014.

25. Department of Electrical Engineering, National Taiwan University, “Event-based Optimization within the Lagrangian Relaxation Framework for Energy Savings in HVAC Systems,” June 16, 2014.
26. Dipartimento di Ingegneria Industriale, Università degli Studi Federico II, Napoli, Italy, “A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for MIP Problems in Power Systems,” January 13, 2015.
27. Dipartimento di Ingegneria Industriale, Università degli Studi Federico II, Napoli, Italy, “Building Energy Management: Integrated Control of Heating, Cooling, Lighting, Shading and Ventilation Systems,” January 15, 2015.
28. Department of Systems Engineering & Operations Research, George Mason University, “A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for Mixed-Integer Optimization Problems,” April 3, 2015.
29. The 2015 Tsinghua-Leuven Bilateral Workshop on Game-Theoretic based Optimization Technique in Large Scale Networked Systems with Applications to Smart Grids, Tsinghua University, Department of Automation, Beijing, China, “Exergy-Based Operation Optimization of a Distributed Energy System through the Energy-Supply Chain,” May 21, 2015.
30. Center of Automation, Northeastern University, Shenyang, Liaoning, China, “Computational Methods for Optimization,” June 1 and 2, 2015.
31. North China Electric Power University, Department of Control and Computer Engineering, Beijing, China, “A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for Mixed-Integer Optimization Problems,” June 3, 2015.
32. Beijing University of Civil Engineering and Architecture, Department of Automation, Beijing, China, “Exergy-Based Operation Optimization of a Distributed Energy System through the Energy-Supply Chain,” June 3, 2015.
33. Tsinghua University, Department of Automation, Beijing, China, “A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for Mixed-Integer Optimization Problems,” June 4, 2015.
34. Workshop on Energy Management for Large-scale Smart Systems, IEEE Conference on Automation Science and Engineering, Gothenburg, Sweden, “A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for Mixed-Integer Optimization Problems,” August 24, 2015.
35. Workshop on Smart Buildings – Modeling, Simulation, Optimization, and Testbeds, IEEE Conference on Automation Science and Engineering, Gothenburg, Sweden, “Exergy-Based Operation Optimization of a Distributed Energy System through the Energy-Supply Chain,” August 24, 2015.
36. Royal Institute of Technology, Optimization and Systems Theory, Stockholm, Sweden, “A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for Mixed-Integer Optimization Problems,” August 31, 2015.
37. Department of Electrical Engineering, National Taiwan University, “Exergy-Based Operation Optimization of a Distributed Energy System through the Energy-Supply Chain,” Sept. 23, 2015.
38. Institute of Industrial Engineering, National Taiwan University, “A Synergistic Combination of Surrogate Lagrangian Relaxation and Branch-and-Cut for Mixed-Integer Optimization Problems,” October 7, 2015.
39. Department of Mechanical Engineering, National ChungCheng University, “Exergy-Based Operation Optimization of a Distributed Energy System through the Energy-Supply Chain,” October 14, 2015.

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Administrators: Add Event

ECE Events

There are no events planned at this time.

Engineering Events

No Events Currently Planned

Education:

- B.S., Electrical Engineering, National Taiwan University, 1973
- M.S., Aeronautics and Astronautics, Massachusetts Institute of Technology, 1977
- Ph.D., Applied Mathematics, Harvard University, 1980

Research Interests:

Information technology and mathematical optimization for problems of strategic importance to the society, including Smart Power Systems – smart grid, auction methods for electricity markets, robust renewable (wind and solar) integration to the grid, electricity load and price forecasting, and micro grid; Smart and Green Buildings and Eco Communities – optimized energy management for buildings and chiller plants, HVAC fault detection and diagnosis, emergency crowd guidance, and eco communities; Intelligent Manufacturing Systems – planning, scheduling, and coordination of design, manufacturing, and service activities; and mathematical optimization of large-scale mixed-integer problems, and decision-making under uncertain, distributed, or antagonistic environments.

Memberships:

- Fellow, Institute of Electrical and Electronics Engineers (IEEE);
- Member, Connecticut Academy of Science and Engineering (CASE);
- Member, Institute for Operations Research and the Management Sciences (INFORMS);
- Member, Sigma Xi;
- Council Member, Connecticut Academy of Science and Engineering (2000-2005);
- IEEE Technical Activities Board Periodicals Committee, Member (2011-2012; 2014-present); and Periodical Development Committee, Member (2012; 2014- present);
- Member, Administrative Committee for IEEE Robotics and Automation Society (1992-1997);
- IEEE Robotics and Automation Society, Senior Advisor for Automation (2012-2013);
- IEEE Robotics and Automation Society, Vice President for Publication Activities (2008-2011);
- IEEE Transactions on Automation Science and Engineering, Editor-in-Chief (2003-2008);
- IEEE Transactions on Robotics and Automation, Technical/Associate Editor (1990-1994), Editor (1995-1999), Editor (1995-1999), Editor-in-Chief (1999-2003);
- Discrete Event Dynamic Systems, Associate Editor (1999-present);
- IIE Transactions on Design and Manufacturing, Associate Editor (1997-2009);
- ACTA Automatica Sinica, Associate Editor (2005-present);
- International Journal of Intelligent Control and Systems, Associate Editor (1995- 2000);
- IEEE Robotics and Automation Magazine, Editor (1996-1999);
- IEEE Transactions on Automatic Control, Associate Editor (1989-1991);
- IEEE Transactions on Haptics, Chair of the Management Committee (2007-2011);
- International Transactions on Systems Science and Applications, Advisory Board (2006-present);
- IEEE Systems Journal, Member of the Editorial Advisory Board (2006-present);
- International Journal of Intelligent Computing and Cybernetics, Member of the advisory board (2007-present);

- IEEE Conference on Automation Science and Engineering, Chair of the Steering Committee (2006-2011) and member of the Steering Committee (2012-present).