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**EDUCATION:** Ph.D. System Science, 1971, Michigan State University  
M.S. Electrical Engineering, 1968, North Dakota State University  
B.S. Electrical Engineering, 1964, Seoul National University

Ph.D. Thesis: "Optimal Sampled-Data Control of Distributed Parameter Systems"  
Advisor: Robert O. Barr

**PROFESSIONAL EXPERIENCE:**

8/86-Present	The Pennsylvania State University	Professor
9/76-8/86	University of Houston	Associate Professor
Su of 1976	Bonneville Power Administration	Electrical Engineer
9/75-8/76	Oregon State University	Assistant Professor
9/73-8/75	Michigan State University	Assistant Professor
12/71-8/73	Michigan State University	Research Associate
Su of 68,69	Lockheed Ship Building and Construction	Electrical Engineer
5/66-8/67	Han Young Industrial Co.	Electrical Engineer
4/64-4/66	The Army Signal School	Instructor

**RESEARCH INTERESTS:**

Control, operation, and planning of power systems. Power plant modeling and control. Artificial intelligence, intelligent control using neural networks, fuzzy logic, genetic algorithm, and evolutionary computation, and their applications to power systems. Modeling, simulation and control of distributed generation.

**TEACHING EXPERIENCE:**

Power Engineering: Energy conversion, power systems analysis, symmetrical components, power systems control and operation, power system reliability, power plant modeling and control. Control engineering: Control systems, linear systems theory, optimal control theory, robust control, intelligent control, signals and systems, stochastic processes.

**PROFESSIONAL SOCIETY ACTIVITIES:**

Fellow of IEEE  
Editor, *IEEE Transactions on Energy Conversion*  
Associate Editor, *IEEE Transactions on Neural Networks*  
Member, Board of Directors, Intelligent System Application to Power Systems (ISAP)  
Member, Editorial Advisory Board, Journal of Electrical Engineering & Information Science  
Member, Editorial Advisory Board, KIEE International Transactions on Power Engineering  
Vice-Chairman, Technical Committee on Power Plants and Power Systems, International Federation of Automatic Control (IFAC)

Chairman of Technical Program Committee of *International Conference on Intelligent System Application to Power Systems (ISAP' 2005)*, Washington, DC, U.S.A., November 2005.

Editor of *IFAC Symposium on Power Plants and Power Systems Control*, Seoul, Korea, June 2003.

Tutorial Organizer and Lecturer on *Evolutionary Computation Techniques for Power System Optimization*, at the IFAC Symposium on Power Plants and Power Systems Control, Seoul, Korea, June 2003.

Tutorial Organizer and Lecturer on *Modern Heuristic Optimization Techniques with Applications to Power Systems*, at the IEEE Power Engineering Society 2002 Winter Meeting, New York, and 2003 General Meeting, Toronto.

Tutorial Lecturer on *Fuzzy Set Applications in Power Systems*, at the IEEE PES 1997 PICA Conference, PES 2000 Winter & Summer Meetings.

Tutorial Lecturer on *Artificial Neural Networks*, at the IEEE Power Engineering Society Winter & Summer Meetings, 1996 & 1997.

Vice-Chairman of Technical Program Committee of *International Conference on Intelligent System Application to Power Systems (ISAP' 99)*, Rio, Brazil, April.

Chairman of Technical Program Committee of *International Conference on Intelligent System Application to Power Systems (ISAP' 97)*, Seoul, Korea, July 1997.

Member of Technical Program Committee of *International Conference on Intelligent System Application to Power Systems (ISAP' 96)*, Orlando, FL, January 1996.

Chair of the Panel on *R&D Strategies and Programs for Convergence and Innovation in Electrical Engineering and Technology*, International Conference on Electrical Engineering (ICEE), Yongpyong, Korea, July 10-12, 2006.

Chair of the Panel on *Future Development of Power Systems in the 21<sup>st</sup> Century*, International Conference on Electrical Engineering (ICEE), Xi'an, China, July 2001.

Panelist on *Intelligent Optimization Techniques for Economic Operation of Power Systems*, IEEE Power Systems Conference and Exhibition, Atlanta, GA, October 2006.

Panelist on *Energy Issues under Deregulated Electricity Energy Market*, IEEE Power Engineering Society General Meeting, Montreal, Canada, June 2006.

Panelist on *Intelligent Techniques for Power Generation Control*, IEEE Power Engineering Society General Meeting, Montreal, Canada, June 2006.

Panelist on *Multi-agent Systems*, IEEE Power Engineering Society General Meeting, San Francisco, CA, June 2005.

Panelist on *Practical Applications of Intelligent Methods to Energy Conversion and Power Delivery Systems*, IEEE Power Engineering Society Winter Meeting, New York, NY, Jan.29-Feb.2, 1995.

Workshop Speaker on *Architectures for Intelligent Control Systems*, 9th IEEE International Symposium on Intelligent Control, Columbus Ohio, Aug. 16-18, 1994.

Member of International Advisory Committee of *International Conference on Power System Technology (ICPST' 94)*, Beijing, China, Oct. 18-21, 1994, and Coordinator for U.S. Delegates.

Member of International Program Committee of *IFAC International Symposium on Power Systems and Power Plant Control*, Seoul, Korea, August 22-25, 1989.

Coordinator and Co-chairman of NSF Sponsored *U.S.-Korea International Workshop on Expert Systems for Electric Power Systems*, Seoul, Korea, August 16-18, 1989.

Member of IEEE Control Systems Society, Power Engineering Society, Neural Networks Society

#### **SUMMARY OF RESEARCH ACTIVITIES:**

Supervised over 100 graduate students, conducted over 30 sponsored research projects, and published over 400 publications.

## 1. Refereed Journal Articles

1. Lee, K. Y., S. N. Chow and R. O. Barr, "On the Control of Discrete-Time Distributed Parameter Systems," SIAM Journal on Control, Vol. 10, No. 2, pp. 361-376, May 1972.
2. Lee, K. Y. and R. O. Barr, "Sampled-Data Optimization in Distributed Parameter System," IEEE Transactions on Automatic Control, Vol. AC-17, No. 6, pp. 806-809, December 1972.
3. Park, J. G. and K. Y. Lee, "An Inverse Optimal Control Problem and Its Application to the Choice of Performance Index for Economic Stabilization Policy," IEEE Transactions on Systems, Man and Cybernetics, Vol. SMC-5, No. 1, pp. 64-76, January 1975.
4. Lee, K. Y., R. O. Barr, S. H. Gage and A. N. Kharkar, "Formulation of a Mathematical Model for Insect Pest Control - the Cereal Leaf Beetle Problem," Journal of Theoretical Biology, Vol. 59, pp. 33-76, 1976.
5. Tacker, E. C., K. Y. Lee, T. D. Linton and C. W. Sanders, "The University of Houston Electric Energy Systems Control Program," IEEE Transactions on Education, Vol. E-21, No. 3, pp. 197-202, August 1978.
6. Taylor, C. W., K. Y. Lee and D. P. Dave, "Automatic Generation Control Analysis with Governor Deadband Effects," IEEE Transactions on Power Apparatus and Systems, Vol. PAS-98, pp. 2030-2036, Nov./Dec. 1979.
7. Lee, K. Y. and S. A. Hossain, "A Real-Time Predictive Controller for Automatic Voltage Regulation of a Synchronous Generator," Int. Journal of Electrical Power and Energy Systems, Vol. 1, No. 3, pp. 181-186, October 1979.
8. Trefny, F. J. and K. Y. Lee, "Economic Fuel Dispatch," IEEE Transactions on Power Apparatus and Systems, Vol. PAS-100, pp. 3468-3477, July/August 1981.
9. Lee, K. Y. and M. Belbachir, "A Decentralized Plant Controller for Automatic Generation and Voltage Regulation," J. Electric Power Systems Research, Vol. 5, pp. 41-51, 1982.
10. Meyer, F. J. and K. Y. Lee, "Improved Dynamic Load Model for Power System Stability Studies," IEEE Transactions on Power Apparatus and Systems, Vol. PAS-101, pp. 3303-3309, September 1982.
11. Lee, K. Y. and F. J. Meyer, "Dynamic Power System Load Modeling by Parameter Estimation," J. Electric Power Systems Research, Vol. 7, pp. 231-241, 1984.
12. Lee, K. Y., Y. M. Park and J. L. Ortiz, "Fuel Cost Minimization for Both Real and Reactive Power Dispatches," IEE Proceedings (London), Vol. 131, Pt. C, pp. 85-93, 1984. Park, Y. M. and K. Y. Lee, "Optimal Decentralized Load-Frequency Control," J. Electric Power Systems Research, Vol. 7, pp. 279-288, 1984.
13. Park, Y. M., K. Y. Lee and L.T.O. Youn, "Optimization Technique for Long-Range Generation Expansion Planning Using Maximum Principle and Gaussian Distribution Function," J. Electric Power Systems Research, Vol. 7, pp. 191-200, 1984.
14. Lee, K. Y., Y. M. Park and J. L. Ortiz, "An Optimal Real and Reactive Power Dispatch," J. Electric Power Systems Research, Vol. 7, pp. 201-212, 1984.
15. Lee, K. Y., Y. M. Park and J. L. Ortiz, "A United Approach to Optimal Real and Reactive Power Dispatch," IEEE Transaction on Power Apparatus and Systems, Vol. PAS-104, pp. 1147-1153, May 1985.
16. Park, Y. M., K. Y. Lee and L.T.O. Youn, "New Analytical Approach for Long-Term Generation Expansion Planning Based on Maximum Principle and Gaussian Distribution Function," IEEE Transaction on Power Apparatus and Systems, Vol. PAS-104, pp. 390-398, February 1985.
17. Lee, K. Y., J. L. Ortiz, Y. M. Park and L. G. Pond, "An Optimization Technique for Reactive Power Planning of Subtransmission Network Under Normal Operation," IEEE Transactions on Power Systems, Vol. PWRS-1, pp. 153-159, May 1986.
18. Youn, L.T.O., K. Y. Lee and Y. M. Park, "Optimal Long-Range Generation Expansion Planning for Hydro-Thermal System Based on Analytical Production Costing Model," IEEE Transactions on Power Systems, Vol. PWRS-2, pp. 278-286, May 1987.
19. Shiva, R., K. Y. Lee and J. A. Parker, "Parameter Estimation of Macroeconomic Systems Under Rational Expectations," International Journal of Systems Science, Vol. 18, pp. 1121-1137, 1987.
20. Lee, B. Y., Y. M. Park and K. Y. Lee, "Optimal Generation Planning for Thermal System with Pumped-Storage Based on Analytical Production Costing Model," IEEE Transactions on Power Systems, Vol. PWRS-2, pp. 486-493, May 1987.
21. Lee, K. Y. and S. A. Hossain, "Distributed Systems Approach to the Identification of Flexible Structures", Journal of Guidance, Control and Dynamics, Vol. 10, pp. 540-548,

- November-December 1987.
23. Lee, K. Y., J. L. Ortiz, M. A. Mohtadi and Y. M. Park, "Optimal Operation of Large-Scale Power Systems," IEEE Transactions on Power Systems, Vol. 3, pp. 413-420, May 1988.
  24. Kim, K. J., Y. M. Park and K. Y. Lee, "Optimal Long-Term Transmission Expansion Planning Based on Maximum Principle," IEEE Transactions on Power Systems, Vol. 3, pp. 1494-1501, November 1988.
  25. Edwards, R. M., K. Y. Lee and M. A. Schultz, "Optimal Control of Reactor Temperatures Using Reactivity," Transactions of American Nuclear Society, Vol. 61, pp. 287-288, June 1990. Edwards, R. M., K. Y. Lee and M. A. Schultz, "State Feedback Assisted Classical Control: An Incremental Approach to Control Modernization of Existing and Future Nuclear Reactors and Power Plants," Nuclear Technology, Vol. 92, pp. 167-183, November 1990.
  27. Park, J. H., Y. M. Park and K. Y. Lee, "Composite Modeling for Adaptive Short-Term Load Forecasting," IEEE Transactions on Power Systems, Vol. 6, pp. 450-457, May 1991.
  28. Lee, B. H. and K. Y. Lee, "A Study on Voltage Collapse Mechanism in Electric Power Systems," IEEE Transactions on Power Systems, Vol. 6, pp. 966-974, August 1991.
  29. Edwards, R. M., K. Y. Lee and A. Ray, "Multi-Layer Robust control for Operational Safety Improvement," Transactions of the American Nuclear Society, Vol. 63, pp. 402-403, June 1991.
  30. Lee, K. Y., C. C. Ku and R. M. Edwards, "A Neural Network for Adapting Nuclear Power Plant Control for Wide Range Operation," Transactions of the American Nuclear Society, Vol. 63, pp. 114-115, June 1991.
  31. Lee, K. Y., Y. T. Cha and J. H. Park, "Short-Term Load Forecasting Using an Artificial Neural Network," IEEE Transactions on Power Systems, Vol. 7, No. 1, pp. 124-132, February 1992.
  32. Edwards, R. M., K. Y. Lee and A. Ray, "Robust Fault-Accommodating Control of Nuclear Reactors and Power Plants," Nuclear Technology, Vol. 98, pp. 137-148, May 1992.
  33. Edwards, R. M., J. A. Turso, K. Y. Lee, H. E. Garcia and A. Ray, "The Penn State Intelligent Distributed Control Research Laboratory," IEEE Transactions on Energy Conversion, Vol. 7, pp. 478-482, September 1992.
  34. Edwards, R. M., H. E. Garcia and K. Y. Lee, "Experimental Development of Power Reactor Intelligent Control," Transactions of the American Nuclear Society, Vol. 66, pp. 373-374, November 1992.
  35. Ramaswamy, P., R. M. Edwards, and K. Y. Lee, "Wide-Range Nuclear Reactor Temperature Control Using Automatically Tuned Fuzzy Logic Control," Transactions of the American Nuclear Society, Vol. 66, pp. 101-103, November 1992.
  36. Ben-Abdennour, A., R. M. Edwards and K. Y. Lee, "LQG/LTR Robust Control of Nuclear Reactors with Improved Temperature Performance," IEEE Transactions on Nuclear Science, Vol. 39, No. 6, pp. 2286-2295, December 1992.
  37. Ku, C.-C., K. Y. Lee and R. M. Edwards, "Improved Nuclear Reactor Temperature Control Using Diagonal Recurrent Neural Networks," IEEE Transactions on Nuclear Science, Vol. 39, No. 6, pp. 2298-2309, December 1992.
  38. Mangoli, M. K., K. Y. Lee, and Y. M. Park, "Optimal Real and Reactive Power Control Using Linear Programming," Electric Power Systems Research, Vol. 26, pp. 1-10, 1993.
  39. Mangoli, M. K., K. Y. Lee and Y. M. Park, "Optimal Long Term Reactive Power Planning Using Decomposition Techniques," Electric Power Systems Research, Vol. 26, pp. 41-52, 1993.
  40. Lee, B. H. and K. Y. Lee, "Dynamic and Static Voltage Stability Enhancement of Power Systems," IEEE Transactions on Power Systems, Vol. 8, No. 1, pp. 231-238, 1993.
  41. Ben-Abdennour, A., K. Y. Lee and R. M. Edwards, "Multivariable Robust Control of a Power Plant Deaerator," IEEE Transactions on Energy Conversion, Vol. 8, No. 1, pp. 123-129, 1993.
  42. Khaldi, M. R., A. K. Sarkar, K. Y. Lee, and Y. M. Park, "The Modal Performance Measure for Parameter Optimization of Power System Stabilizers," IEEE Transactions on Energy Conversion, Vol. 8, No. 4, pp. 660-666, December 1993.
  43. Ramaswamy, P., R. M. Edwards, and K. Y. Lee, "An Automatic Tuning Method of a Fuzzy Logic Controller for Nuclear Reactors," IEEE Transactions on Nuclear Science, Vol. 40, No. 4, pp. 1253-1262, August 1993.
  44. Park, J. H., Y. S. Kim, I. K. Eom, and K. Y. Lee, "Economic Load Dispatch for Piecewise Quadratic Function Using Hopfield Neural Network," IEEE Transactions on Power Systems, Vol. 8, No. 3, pp. 1030-1038, August 1993.
  45. Wu, Z., V. K. Varadan, V. V. Varadan, and K. Y. Lee, "Design and Development of Smart

- Acoustic Absorber Using Piezoelectric Sensors and Actuators and State-Space Control," Journal of Wave-Material Interaction, Vol. 9, No. 3, pp. 53-67, July 1994.
46. Ramaswamy, P., R. M. Edwards and K. Y. Lee, "Validating Real-time Implementations of Diagonal Recurrent Neural Network and Fuzzy Logic Controllers," Trans. Amer. Nucl. Soc., Vol. 71, pp. 364-365, November 1994.
  47. Ku, C. C. and K. Y. Lee, "Diagonal Recurrent Neural Network for Dynamic Systems Control," IEEE Transactions on Neural Networks, Vol. 6, pp. 144-156, January 1995.
  48. Park, Y. M., U. C. Moon, and K. Y. Lee, "A Self-Organizing Fuzzy Logic Controller for Dynamic Systems Using Fuzzy Auto-Regressive Moving Average (FARMA) Model," IEEE Transactions on Fuzzy Systems, Vol. 3, No. 1, pp. 75-82, February 1995.
  49. Wu, Z., K. Varadan, V. V. Varadan, and K. Y. Lee, "Active Absorption of Acoustic Wave Using State-Space Model and Optimal Control Theory," Journal of Acoustic Society of America, Vol. 97, No. 2, pp. 1078-1087, February 1995.
  50. Wu, Z., V. K. Varadan, V. V. Varadan, and K. Y. Lee, "A State-Space Modeling of One-Dimensional Active Noise Control Systems," Transactions of the ASME, Journal of Vibration and Acoustics, Vol. 117, No. 2, pp. 220-225, April 1995.
  51. Lee, K. Y., X. Bai, and Y. M. Park, "Optimization Method for Reactive Power Planning Using a Genetic Algorithm," IEEE Transactions on Power Systems, Vol. 10, No. 4, pp. 1843-1850, November 1995.
  52. Dimeo, R. and K. Y. Lee, "Boiler-Turbine Control System Design Using a Genetic Algorithm," IEEE Transactions on Energy Conversion, Vol. 10, No. 4, pp. 752-759, December 1995.
  53. Ben-Abdennour, A. and K. Y. Lee, "A Decentralized Controller Design for a Power Plant Using Robust Local Controllers and Functional mapping," IEEE Transactions on Energy Conversion, Vol. 11, No. 2, pp. 394-400, June 1996.
  54. Ben-Abdennour, A. and K. Y. Lee, "An Autonomous Control system for Boiler-Turbine Units," IEEE Transactions on Energy Conversion, Vol. 11, No. 2, pp. 401-406, June 1996.
  55. Park, Y. M., M. S. Choi, J. W. Lee, B. H. Kim, and K. Y. Lee, "An Auxiliary LQG/LTR Robust Controller Design for Cogeneration Plants," IEEE Transactions on Energy Conversion, Vol. 11, No. 2, pp. 407-413, June 1996.
  56. Park, Y. M., M. S. Choi, and K. Y. Lee, "A Neural Network-Based Power System Stabilizer Using Power Flow Characteristics," IEEE Transactions on Energy Conversion, Vol. 11, No. 2, pp. 442-448, June 1996.
  57. Park, Y. M., U. C. Moon, and K. Y. Lee, "A Self-Organizing Power System Stabilizer Using Fuzzy Auto-Regressive Moving Average (FARMA) Model," IEEE Transactions on Energy Conversion, Vol. 11, No. 2, pp. 442-448, June 1996.
  58. Park, Y. M., M. S. Choi, and K. Y. Lee, "An Optimal Tracking Neuro-Controller for Nonlinear Dynamic Systems," IEEE Transactions on Neural Networks, Vol. 7, No. 5, pp. 1099-1110, September 1996.
  59. Zhao, Y., R. M. Edwards, and K. Y. Lee, "Hybrid Feedforward and Feedback Controller Design for Nuclear Steam Generators over Wide Range Operation Using Genetic Algorithm," IEEE Transactions on Energy Conversion, Vol. 12, No. 1, pp. 100-106, March 1997.
  60. Lukas, M. D., H. Ghezelayagh, and K. Y. Lee, "An Interactive Distributed Simulator for Commercial Power Plant" IEEE Transaction on Energy Conversion, Vol. 12, No. 3, pp. 259-265, September 1997.
  61. Park, Y. M., G.-W. Kim, H.-S. Choi, and K. Y. Lee, "A New Algorithm for Kohonen Layer Learning with Application to Power System Stability Analysis", IEEE Transactions on Systems, Man, and Cybernetics, Vol. 27, No. 6, pp. 1030-1033, December 1997.
  62. Lee, K. Y., "Author's Reply and Revision for Time-Varying Weights," IEEE Transactions on Neural Networks, Vol. 8, No. 3, pp. 813-814, May 1997.
  63. Lee, K. Y. and F. F. Yang, "Optimal Reactive Power Planning Using Evolutionary Algorithms: A Comparative Study for Evolutionary Programming, Evolutionary Strategy, Genetic Algorithm, and Linear Programming," IEEE Transactions on Power Systems, Vol. 13, No. 1, pp. 101-108, February 1998.
  64. Choi, M.-S., Y.-M. Park, and K. Y. Lee, "A Wide Ranging Operation Power System Stabilizer Design with Neural Networks using Power Flow Characteristics," Engineering Intelligent Systems, Vol. 6, No. 1, pp. 57-63, March 1996.
  65. Lee, K. Y., A. Sode-Yome, and H. H. Park, "Adaptive Hopfield Neural Networks for Economic Load Dispatch," IEEE Transactions on Power Systems, Vol. 13, No. 2, pp. 519-526, May 1998.
  66. Batzel, T. D. and K. Y. Lee, "Commutation Torque Ripple Minimization for Permanent

- Magnet Synchronous Machines with Hall Effect Position Feedback,” IEEE Transactions on Energy Conversion, Vol. 13, No. 3, pp. 257-262, September 1998.
67. Park, Y. M., J. H. Lee, S. H. Hyun, and K. Y. Lee, “A Synchronous Generator Stabilizer based on Universal Model,” Electric Power & Energy Systems, Vol. 20, pp. 435-442, 1998.
  68. Crow, M. L., C. Singh, K. Olejniczak, K. Tomsovic, R. Christie, A. Pahwa, and K. Y. Lee, “Integrating Research into a Power Engineering Curriculum,” IEEE Transactions on Power Systems, Vol. 14, No. 2, pp. 404-441, May 1999.
  69. Moon, U.-C., Y.-M. Park, and K. Y. Lee, “A Development of Power System Stabilizer With Fuzzy Auto-Regressive Moving average Model,” Fuzzy Set and Systems, Vol. 102, pp. 95-101, 1999.
  70. Lee, K. Y., R. M. Edwards, and T. Hiyama, “Combined Research and Curriculum Development for Power Plant Intelligent Control,” IEEE Trans. on Energy Conversion, Vol. 14, No. 3, pp. 817-823, September 1999.
  71. Lukas, M. D., K. Y. Lee, and H. Ghezeli-Ayagh, “Development of a Stack Simulation Model for Control Study on Direct Reforming Molten Carbonate Fuel Cell Power Plant”, IEEE Trans. on Energy Conversion, Vol. 14, No. 4, pp. 1651-1657, November 1999.
  72. Park, J.-B., Y.-M. Park, J.-R. Won, and K. Y. Lee, “Economic Dispatch Solutions Using an Improved Genetic Algorithm based on the Multi-Stage Method and Directional Crossover,” Engineering Intelligent Systems, Vol. 7, No. 4, pp. 219-225, December 1999.
  73. Ghezeliyagh, H. and K. Y. Lee, “Neuro-Fuzzy Identifier of a Boiler System,” Engineering Intelligent Systems, Vol. 7, No. 4, pp. 227-231, December 1999.
  74. Nam, H. K., Y. K. Kim, K. S. Shim, and K. Y. Lee, “A New Eigen-Sensitivity Theory of Augmented Matrix and Its Applications to Power System Stability Analysis,” IEEE Transactions on Power Systems, Vol. 15, No. 1, pp. 363-369, February 2000.
  75. Lee, K. Y., M. Perakis, D. R. Sevcik, N. I. Santoso, G. K. Lausterer, and T. Samad, “Intelligent Distributed Simulation and Control of Power Plant,” IEEE Transactions on Energy Conversion, Vol. 15, No. 1, pp. 116-123, March 2000.
  76. Park, Y. M., J. H. Lee, S. H. Hyun, and K. Y. Lee, “Design of a Power System Stabilizer Using a Universal Model-Based Controller,” Engineering Intelligent Systems, Vol. 8, No. 1, pp. 31-38, March 2000.
  77. Batzel, T. D. and K. Y. Lee, “Rotor Angle Estimation for Permanent Magnet Synchronous Machines with Hall Effect Position Sensors using Neural Networks,” Engineering Intelligent Systems, Vol. 8, No. 1, pp. 59-66, March 2000.
  78. Lee, K. Y., F. M. Nuroglu, and A. Sode-Yome, “Real Power Optimization with Load flow Using Adaptive Hopfield Neural Network,” Engineering Intelligent Systems, Vol. 8, No. 1, pp. 53-58, March 2000.
  79. Park, J.-B., Y.-M. Park, J.-R. Won, and K. Y. Lee, “An Improved Genetic Algorithm for Generation Expansion Planning,” IEEE Transactions on Power Systems, Vol. 15, No. 3, pp. 916-922, August 2000.
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  81. Garduno-Ramirez R. and K. Y. Lee, “Wide-Range Operation of a Power Unit via Feedforward Fuzzy Control,” IEEE Transactions on Energy Conversion, Vol. 15, No. 4, pp. 421-426, December 2000.
  82. Garduno-Ramirez R. and K. Y. Lee, “Multiobjective Optimal Power Plant Operation Through Coordinate Control with Pressure Set Point Scheduling,” IEEE Transactions on Energy Conversion, Vol. 16, No. 2, pp. 115-122, June 2001.
  83. Lukas, M. D., K. Y. Lee, and H. Ghezeli-Ayagh, “An Explicit Dynamic Model for Direct Reforming Carbonate Fuel Cell Stack”, IEEE Trans. on Energy Conversion, Vol. 16, No. 3, pp. 289-295, September 2001.
  84. Garduno-Ramirez, R. and K. Y. Lee, “A Multiobjective-Optimal Neuro-Fuzzy Extension to Power Plant Coordinated Control,” Transactions of the Institute of Measurement and Control, Vol. 24, No. 2, pp. 159-192, 2002.
  85. Lukas, M.D., K.Y. Lee, H. Ghezeli-Ayagh, “Modeling and Cycling Control of Carbonate Fuel Cell Power Plants,” Control Engineering Practice, Vol. 10, pp. 197-206, 2002.
  86. Jeon, Y.-J., J.-C. Kim, J.-O. Kim, J.-R. Shin, and K. Y. Lee, “An Efficient Simulated Annealing Algorithm for Network Reconfiguration in Large-Scale Distribution Systems,” IEEE Trans. on Power Delivery, Vol. 17, No. 4, pp. 1070-1078, October 2002.

87. Moon, U.-C and K. Y. Lee, "A Boiler-Turbine System Control Using a Fuzzy Auto-Regressive Moving Average (FARMA) Model," IEEE Trans. on Energy Conversion, Vol. 18, No. 1, pp.142-148, March 2003.
  88. Batzel, T. D. and K. Y. Lee, "An Approach to Sensorless Operation of the Permanent-Magnet Synchronous Motor Using Diagonally Recurrent Neural Networks," IEEE Trans. on Energy Conversion, Vol. 18, No. 1, pp. 100-106, March 2003.
  89. Moon, U.-C and K. Y. Lee, "Hybrid Algorithm with Fuzzy System and Conventional PI Control for the Temperature Control of TV Glass Furnace," IEEE Transactions on Control Systems Technology, Vol. 11, No. 4, pp. 548-554, July 2003.
  90. Farsangi, M. M., Y. H. Song, and K. Y. Lee, "Choice of FACTS Device Control Inputs for Damping Inter-Area Oscillations", IEEE Transactions on Power Systems, Vol. 19, No. 2, pp. 1135-1143, May 2004.
  91. Huang, Z., R. M. Edwards, and K. Y. Lee, "Fuzzy-Adapted Recursive Sliding-Mode Controller Design For A Nuclear Power Plant Control", IEEE Transactions on Nuclear Science, Vol. 51, No. 1, pp. 256-266, February 2004.
  92. H. S. Ko, K. Y. Lee, and H. C. Kim, "An Intelligent based LQR controller design to power system stabilization", Electrical Power System Research, vol. 71, Issue 1, pp.1-9, 2004.
  93. Liu, C., R. Yokoyama, Kaoru Koyanagi, and K. Y. Lee, "PSS Design for Damping of Inter-area Power Oscillations by Co-herency-based Equivalent Model", International Journal of Electrical Power & Energy Systems, Vol. 26, No. 7, pp. 535-544, 2004.
  94. Ishimaru, M. R. Yokoyama, O. M. Neto, and K. Y. Lee, "Allocation and Design of Power System Stabilizers for Mitigating Low-Frequency Oscillations in the Eastern Interconnected Power System in Japan," International Journal of Electric Power & Energy Systems, Vol. 26, No. 8, pp. 607-618, 2004.
  95. Park, J.-B., K.-S. Lee, J.-R. Shin, and K. Y. Lee, "A Particle Swarm Optimization for Economic Dispatch with Non-Smooth Cost Functions," IEEE Transactions on Power Systems, Vol. 20, No. 1, pp. 34-42, February 2005.
  96. Lee, B. H. and K. Y. Lee, "An Application of S-Model Learning Automata for Multi-Objective Optimal Operation of Power Systems," IEE Proceedings - Generation, Transmission and Distribution, Vol. 152, No. 2, pp. 295-300, March 2005.
  97. Shaffer R. A., R. M. Edwards, and K. Y. Lee, "Design and Validation of Robust and Autonomous Control for Nuclear Reactors," Nuclear Engineering and Technology, Vol. 37, No. 2, pp. 139-150, April 2005.
  98. Kim G. W. and K. Y. Lee, "Coordination Control of ULTC Transformer and STATCOM Based on an Artificial Neural Network," IEEE Transactions on Power Systems, Vol.20, No. 2, pp. 580-586, May 2005.
  99. Ghezelayagh, H. and K. Y. Lee, "Application of Self-Organized Neuro-Fuzzy Identifier in Intelligent Predictive Control of a Power Plant," Engineering Intelligent Systems, Vol. 13, No. 2, pp. 113-118, June 2005.
  100. Vlachogiannis J. G., N. D. Hatziargyriou, and K.Y. Lee, "Ant Colony System Based Algorithm for Constrained Load Flow Problem," IEEE Transactions on Power Systems, Vol. 20, No. 3, pp. 1241-1249, August 2005.
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  2. Batzel, T. D. and K. Y. Lee, "Electric Propulsion with Sensorless Permanent Magnet Synchronous Motor: Implementation and Performance", accepted for publication in IEEE Transactions in Energy Conversion.
  3. Vlachogiannis J. G. and K.Y. Lee, "A Comparative Study on Particle Swarm Optimization for Optimal Steady-State Performance of Power Systems," accepted for publication in IEEE Transactions on Power Systems.
5. Revision submitted for publication
1. Shin, J.-R., B.-S. Kim, J.-B. Park, and K. Y. Lee, "A New Optimal Routing Algorithm for Loss Minimization and Voltage Stability Improvement in Radial Power Systems" revision submitted to IEEE Transactions on Power Systems.

### **RESEARCH PROJECTS (last 10 years)**

1. "International Conference on Power System Technology (ICPST '94), Beijing, China," NSF, October 1994-September 1995, Amount: \$10,000, PI. Project ECS-9424319. (100%)
2. "Research and Curriculum Development for Power Plant Intelligent Distributed Control," NSF, September 1992-August 1996, Amount: \$390,000 plus matching fund, PI Project EID-9212132. (60%)
3. "Experimental Development of Power Reactor Intelligent Control," NSF/EPRI, January 1993-November 1997, Amount: \$300,000, Co-PI, Project ECS-9216504/RP8030-04. (50%)
4. "Intelligent Distributed Control for Power Plants and Power Systems," NSF, February 1993-February 1997, Amount: \$36,000, PI, Project INT-922303. (100%)
5. "Power Systems Control," Kaiser Aluminum/H. S. Yang, September 1994-August 1996, Amount: \$21,000, PI. (100%)
6. "Intelligent Control and Dynamic Simulation of Carbonate Fuel Cell Power Plant as Distributed Generation Systems," NSF SBIR/Fuel Cell Engineering, January 1996 - February 1997, Amount: \$21,000, PI. (100%)
7. "Optimal Reactive Power Planning," Allegheny Power System, August 1987 - December 1999, Amount: \$120,000, PI. (100%)
8. "Development of Power System Intelligent Distributed Control", NSF, July 1997-June 2000, Amount: \$170,000, PI, Project INT-9605028. (100%)
9. "Free-Model Based Intelligent control of Power Plants and Power Systems," NSF, January 1998 - December 2001, Amount: \$237,000, PI, Project ECS-9705105. (100%)
10. "Development of a Dynamic Simulation Model for a Ship Service Fuel Cell Power Plant," Energy Research Corporation and U.S. Navy, January 1999-August 2002, Amount: \$75,000, PI, Contract N00167-97-C-0080. (100%)
11. "Intelligent Monitoring System with High Temperature Distributed Fiberoptic Sensor for Power Plant Combustion Processes", DOE, January 2002 – September 2006, Amount: \$200,000, PI, (40%)

12. "Neural Network Supervisor Development for Hybrid Fuel Cell/Gas Turbine System," DOE STTR/FuelCell Energy, Inc. Phase II, September 2004 – June 2006, Amount: \$70,000, PI, DOE Grant No. DE-FG02-02ER86140 (100%)
13. "Development of System-Type Neural Network Architectures for Distributed Parameter Systems Using Algebraic Decomposition," NSF, September 2006 – August 9, Amount: \$240,000 plus \$74,321 matching, PI (100%)
14. "Design of Main Steam Temperature and Pressure Control System for Super Critical Boiler System." Doosan Heavy Industries and Construction Company, January 2006 – June 2006, Amount: \$60,000, PI (100%)

### **RESEARCH PROPOSALS PENDING**

15. "Multi-agent Intelligent Control for the AREVA HTR," submitted to DOE, Amount: \$600,000, Co-PI (50%)
16. "Design of Main Steam Temperature and Pressure Control System for Ultra Super Critical Boiler System." submitted to Doosan Heavy Industries and Construction Company, Amount: \$200,000, PI (100%)