G. "Anand" Anandalingam

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Education
Harvard University
   Ph. D. (1981): Operations Research with Economics
   S. M. (1977): Operations Research with Economics

Cambridge University, England
   B. A., M. A. (1975): Electrical Sciences

Positions Held
<u>University of Maryland (Robert H. Smith School of Business)</u>
   Ralph J. Tyser Professor of Management Science, 2001 – Present

   Administration
   Dean, July 2007 – June 2013
   Senior Associate Dean and Acting Dean, Smith School of Business, 2007 - 08
   Chair, Dept of Decision and Information Technologies, 2003 – 2007

<u>Imperial College London, U. K. (Imperial College Business School)</u>
   Dean, July 2013 – July 2016 (on leave from Maryland)

<u>University of Pennsylvania (Systems Engineering and the Wharton School of Business)</u>
   National Center Professor of Resource Management and Technology, 1999 – 2001
   Joseph Moore Professor of Systems Engineering, 1996-1999
   Professor, Operations & Information Management (Wharton School), 1996- 2001
   Assistant Professor, 1987-90; Associate Professor, 1990-96.
   Administration
   Chairman, Department of Systems Engineering, January 1997 - 2001
   Director, Ackoff Center for Advanced Systems Approaches, 2000 – 2001
   Director, Executive Masters Program in Technology Management (Joint program
   between Wharton and Engineering), 1990-95.
   Advisory Board, Wharton Emerging Economies Program, 1994-1997.
   Advisory Board, Center for the Advanced Study of India, 1995 – 2001
   Core Faculty: Reginald Jones Center for Management and Strategy, 2000 - 2001

<u>University of Virginia - 1984 to 1987</u>.
   Assistant Professor, Department of Systems Engineering.

<u>Brookhaven National Laboratory – 1981 to 1984</u>.
   Engineer-Economist, Center for Analysis of Energy Systems.

Other Professional Appointments
American Association of Collegiate Schools of Business
 Re-accreditation Committee, 2010-2013
 Several accreditation visiting committees, 2009-2014

Economic Times (Wall Street Journal of India)
 Technology Columnist, August 1999 – December 2006.

Indian Institute of Management (On Leave from Penn), Bangalore, India
 Visiting Professor, July - December 1996.

Pennsylvania State University - College of Business Administration
 Center for Research in Conflict and Negotiation
 Associate Faculty, 1987- 1995.

Indian Institute of Science (Sabbatical from Penn), Bangalore, India
 Visiting Professor, January - August 1993

AT & T Bell Laboratories, Holmdel, NJ
 Summer Faculty, Summer 1990.

Environmental Protection Agency - Policy, Planning & Evaluation
 AAAS Fellow, Summer 1987.

New York University, Dept of Economics, New York, NY
 Research Associate, Sept 1983 - August 1984

Tata Energy Research Institute, New Delhi, India
 Visiting Research Fellow, May- Sept 1983.

Chulalongkorn University, Bangkok, Thailand
Visiting Fellow, December 1983- January 1984.

Advisory Boards
- Harvard Graduate School Alumni Association Council: 2015 – Present
- Zhejiang University Business School, China: 2015 - Present
- American University in Cairo: 2017 – Present
- Imperial College Center for Climate Finance and Investment: 2021 - Present
- Indian Institute of Management, Bangalore: 2016 - 2021
- CDI (Collegiate Directions Inc): 2012-Present
- Science/Business Innovation Board, Europe: 2014-2016
- HERA (Her Equality Rights and Autonomy), London: 2014-16
- TiE-DC (The Indus Entrepreneurs): 2012-13

Honors, Awards and Listings
Ralph J. Tyser Professorship in Management Science, 2001-Present
Allen J. Krowe Award for Teaching Excellence, 2007
National Center Chair of Resource and Technology Management, 1999 –2001
Joseph Moore Chair, 1996-1999.
General Chair of INFORMS Meeting, Fall 1999
AAAS Science and Engineering Fellowship, 1987
Rockefeller Foundation Fellowship, 1983
Gordon McKay Teaching Fellowship, 1977-79
Harvard University Scholarship, 1975-76
British Council Scholarship, 1973-75
Tripos Prize, Cambridge University, 1973-75
Senior Scholarship, Trinity College, Cambridge University, 1974-75
Exhibition, Trinity College, Cambridge University, 1973-74.

Professional Societies
INFORMS (Institute For Operations Research and Management Science), 1980-present
    Nicholson Prize Committee, 1996
    Operations Research Society of America, *Full Member,* 1980-95
    The Institute of Management Science, *Member,* 1980-95.
Institute of Electrical and Electronic Engineers; *Senior Member,*
Operational Research Society of India, L*ife Member.*
Society for Economic Dynamics and Control, *Founding Member,* 1979-1989.

Editorial Boards of Journals
Associate Editor: *Operations Research,* 1995 - 2008
Associate Editor, *Management Science*, 2001-2005
Editorial Advisory Board: *Network and Spatial Economics*, 2000 - 2013
Editorial Board: *Telecommunications Systems,* 1991 - 2007.
Editorial Board: *Computers and Operations Research,* 1990 - 1998
Associate Editor: *Int. Abstracts in Operations Research,* 1985 - 1991.

Conference Organization
- Program Co-Chair: INFORMS Annual Conference, Washington DC, November 2008.
- Program Committee: Manufacturing, Service and Operations Management conference, Washington DC, June 2008
- Chair, Program Committee: Workshop on Information Systems Economics, Montreal, Canada, December 2007
- Program Committee: Workshop on Information Systems Economics, Washington DC, December 2004
- Program Committee: Conference on Information Systems and Technology, Denver, CO, October 2004
- Program Committee: *Seventh INFORMS Telecommunications Conference,* Boca Raton, FL, March 2004
- Program Committee: CIO Forum, College Park, MD, October 2003

- Program Committee, Netcentricity Conference, College Park, MD, April 2003
- Program Committee: *Sixth INFORMS Telecommunications Conference,* Boca Raton, FL, March 2002
- General Chair: *Annual INFORMS Fall Meeting,* Philadelphia, November 1999.
- Program Committee: *Third International Conference on Systems Science and Systems Engineering,* Beijing, China, August 25-28, 1998.
- Program Committee: *Fourth INFORMS Telecommunications Conference,* Boca Raton, FL, March 1998.
- Program Committee: *Joint Wharton-IIMB Workshop on Globalization in India,* Bangalore, India, January 1997.
- Program Committee: *Third ORSA Telecommunications Conference,* Boca Raton, FL, March 1995.
- Co-Chair of Workshop: *Conference on Energy-Environment Nexus: Indian Issues and Global Impacts,* Philadelphia, April 22-23, 1994.
- Organizing Committee: *The Wharton Conference on 'The Service Productivity and Quality Challenge',* Philadelphia, October 23-24, 1992.

Recent Consulting/Executive Programs
- Motorola
- Nextel Communications
- Hughes Network Systems
- SBC Communications
- Eclipse Networks
- American Management Systems
- Security Industries Association
- KPMG
- GE Capital
- Fujitsu
- SmithKline Beecham
- National Institute of Health
- Woodside Travel Trust
- Amtrak
- The World Bank
- A.T. & T.
- MCI Telecommunications Corp.
- Nokia
- Baysoft Private Limited
- US Department of Energy
- US Agency for International Development
- International Science &Technology Inc.
- IDEA Inc.
- United Nations

Invited Talks

1. ***Many talks as dean of the Smith School of Business and Imperial College Business School, too numerous to list***

2. "Provisioning and Pricing Networks Using Auction Mechanisms", INFORMS Annual Meeting, Seattle, November 2007
3. "Procurement Auctions with Supply Constraints", INFORMS Annual Meeting, San Francisco, November 13, 2005
4. "Decomposition Technique to Solve Constrained Auctions", INFORMS Annual Meeting, San Francisco, November 14, 2005 (with A. Pani)
5. "Auctions with Budget Constraints", Johnson School of Business, Cornell University, Ithaca, NY, April 22, 2005
6. "Fighting Information Goods Piracy with Versioning", School of Management, Georgia Institute of Technology, Atlanta, Georgia, April 15, 2005
7. "Technology Trends and the CIO Mindshare", Society of Information Management, Washington DC, April 12, 2005
8. "Combinatorial Auctions for Telecommunications Bandwidth Pricing", INFORMS National Conference, Denver, CO, 26 October 2004.
9. "Revenue Management in Telecommunications", Invited Workshop, INFORMS Conference on Telecommunications, Boca Raton, FL, March 2004
10. "Combinatorial Auction Mechanisms for Telecommunications Network Pricing", Smeal School of Business, Pennsylvania State University, November 17, 2003
11. "Fighting Information Goods Piracy with Versioning", Marshall School of Business, Southern Methodist University, October 31, 2003
12. "Using Vickrey Share Auctions for Allocating Spectrum", INFORMS National meeting, San Jose, CA, November 18, 2002.
13. "Winner Determination in Combinatorial Auctions", Cox School of Business, Southern Methodist University, Dallas, Texas, May 18, 2001
14. "A Model for Auctioning Multiple Services in Telecommunications Networks with Guaranteed Quality of Service", Lucent Bell Labs, Murray Hill, May 11, 2001
15. "Winner Determination in Combinatorial Auctions", McDonough School of Business, Georgetown University, Washington DC, April 27, 2001.
16. "Pricing of Multiple Services in Telecommunications Networks with Quality of Service Guarantees", Conference on "Mathematics of the Internet: e-Auctions and Markets", Institute for Mathematical Analysis, University of Minnesota, Minneapolis, December 3-5, 2000.
17. "Auction Algorithms for Telecommunications Pricing", Electronic Markets Workshop, University of Maryland, September 21, 2000.
18. "Information and Network Economics", Workshop on Network Economics, Operational Research Society of India, August 23, 2000.
19. "Congestion Avoidance in Telecommunication Networks Using Price Discounts," INFORMS Fall Conference, Philadelphia PA, November 8, 1999 (with Neil Keon).
20. *Keynote Speaker*, "Internet Economics", at the Operational Research Society of India Conference on "The Impact of Information Technology on Management Science",

Bangalore, India, July 28, 1999.

21. "Real-Time Pricing in Telecommunications Networks", National Institute of Standards and Technology, Gaithersburg, MD, April 1, 1999.
22. "Pricing of Multiple Services in Telecommunications Networks", Department of Systems Engineering, University of Virginia, Charlottesville, VA, March 5, 1999.
23. "Pricing of Multiple Services in Telecommunications Networks", Robert H. Smith School of Business, University of Maryland, College Park, MD, February 12, 1999
24. "Pricing Infrastructure Services", International Seminar on Financing and Pricing of Urban Infrastructure, New Delhi, India, February 9, 1999.
25. ``Pricing of Multiple Services in Telecommunications Networks", Decision Sciences Department, London Business School, May 22, 1998.
26. 'Design of Telecommunications Networks', Department of Computer, Information and Systems Engineering, San Jose State University, San Jose, CA, May 1, 1998.
27. 'Privatization and Liberalization of Global Telecommunications', *Three Invited Lectures,* Indian Institute of Management, Bangalore, India, October 7-21, 1997.
28. 'The Internet Revolution: Or How Networking Technology is Changing the Way We Work, Live and Play', National Institute of Advanced Studies, India, July 25, 1997.
29. "Pricing Multimedia Services', Workshop on Network Games and Pricing, Columbia University, March 27, 1997.
30. 'Convergence of Computer, Communications and Entertainment' International Conference on Infrastructure Management, Bangalore India, November 26-30, 1996.
31. 'Global Trends in Data Networking', *Churchill Lecture,* Infosys Technologies, Bangalore, India, October 17, 1996.
32. "Design of Large Scale Telecommunications Networks', Helsinki University of Technology, *3-day lectures,* Helsinki, May 27-29, 1996.
33. 'Telecommunications Sector Reform: India in a Global Perspective', Indian National Academy of Engineering, New Delhi, March 30, 1996.
34. "Global Telecommunications: Technology Trends and Industry Initiatives', National University of Singapore, February 29, 1996.
35. "Liberalization and Privatization of Telecommunications', *Special Lecture to Indian Administrative Service Officials,* Indian Institute of Management, Bangalore, February 14 & March 5, 1996.
36. 'Heuristics for Designing Telecommunications Networks', INFORMS Conference on the Interface of Computers and Operations Research, Dallas, January 8, 1996.
37. 'Discrete Bi-Level Programming and the Analysis of Conflict and Cooperation in International Telecommunications Networks', Workshop on Bi-Level Programming, Linkoping, Sweden, November 19-24, 1995.
38. 'Heuristics for Designing Large Scale Telecommunications Networks: Do Sophisticated Models Buy One Anything?" Dept of Systems Engineering, University of Virginia, October 13, 1995.
39. 'New Approaches for Designing Large Scale Telecommunications Networks', A T & T Bell Laboratories, September 19, 1995.
40. 'Design of Survivable International Telecommunications Networks', TIMS 33rd International Conference, Singapore, June 27, 1995.
41. 'The Design of Heterogeneous Telecommunications Networks: To Anneal or Not to Anneal', Dept of Civil Engineering and Operations Research, Princeton University,

March 9, 1995.

42. 'Global Communications: Present Status and Future Trends', Computer Society of India, Bangalore, India, August 3, 1993.

43. 'Global Telecommunications Revolution: Challenges for Management Science', Institution of Engineers (India) and the Operational Research Society of India, Bangalore, India, May 5, 1993; *also* at the Rotary Club of India, July 21, 1993.

44. 'A Penalty Method Approach to Alternative Pairwise Comparisons in ISMAUT', EURO XIITIMS XXI Conf, Helsinki, Finland, June 30, 1992 (with C. C. White III).

45. 'Issues in Water Resource Allocation and Pricing Under Uncertainty', EURO XII-TIMS XXI Conference, Helsinki, Finland, June 29-July 1, 1992 (with R. Bhatia and P. Maheshwari).

46. 'Engineer Education Programs and Issues in the Management of Interfaces', Production and Operations Management Society Conference, New York, November 10, 1991.

47. 'Game Theoretic Analysis of International Telecommunications Network Design', Pennsylvania State University, March 29, 1991.

48. 'Multi-Criteria Decision Model for Selection of Hazardous Waste Removal System', presented at the ORSA/TIMS meeting, Philadelphia, PA, October 1990, (with Wen K. Shieh).

49. "Design of Survivable Heterogeneous Networks', presented at the ORSA/TIMS meeting, Philadelphia, PA, October 1990, (with Lloyd Clarke).

50. 'Recent Developments in the Application of Simulated Annealing to Network Facility Location Models', presented at the ORSA/TIMS meeting, Philadelphia, PA, October 1990 (with T. L. Friesz, N. Mehta, K. Nam, and R. L. Tobin).

51. 'Optimal Design of Interconnected Heterogeneous Networks', presented at the ORSA/TIMS meeting, Las Vegas, NV, May 7-9, 1990, with Peter Fetterolf.

52. 'Penalty Function Approaches for Solving Bi-Level and Bi-Linear Programming', presented at the Department of Industrial Engineering, Rutgers University, Piscataway, NJ, November 8, 1989.

53. 'A Hierarchical Risk-Based Methodology for Design of Nuclear Repositories', presented at the Engineering Foundation Conference on Risk-Based Decisionmaking, Santa Barbara, CA, October 15-20, 1989.

54. 'Design of Heterogeneous Networks', presented at the ORSA/TIMS meeting, New York, NY, October 16-18, 1989, (with Peter Fetterolf).

55. 'Optimal Resource Allocation in Distributed Computer Networks', presented at the ORSA/TIMS meeting, New York, NY, October 16-18, 1989 (with Nelson Dorny and Ashok Vernekar).

56. 'Optimal Design of Heterogeneous Data Networks', Department of Operations Research and Applied Statistics, George Mason University, Fairfax, VA, September 29, 1989.

57. 'A Systems Analysis of Demographic Impacts of Power Plant Projects', United Nations regional seminar/workshop on demographic effects of development projects, Havana, Cuba, July 4-14, 1989 (with Judith Zubieta Garcia).

58. 'Combination and Selection of Binary Forecasts', presented at the Ninth International Symposium on Forecasting, Vancouver, British Columbia, Canada, June 18-21, 1989, (with Lian Chen).

59. 'Optimization of Resource Location in Hierarchical Computer Networks', presented at a joint seminar of the Electrical, Computer and Systems Engineering and the Manufacturing Engineering Departments, Boston University, April 6, 1989.
60. 'AI Based Approaches for Solving Bi-Level Mathematical Programs', presented at the ORSA/TIMS meeting, Denver, CO, October 27, 1988.
61. 'Optimization of Resource Location in Hierarchical Computer Networks', Decision Sciences Workshop, The Wharton School, September 28, 1988.
62. 'A Penalty Function Approach for Solving Bi-Level Linear Programming Problems', presented at the ORSA/TIMS meeting, Washington D. C., April 26, 1988, with D. J. White.
63. 'An Expert System for Regulating Hazardous Waste', presented at the Division of Energy, Oak Ridge National Laboratory, Oak Ridge, TN, April 11, 1988.
64. 'Multi-Level Programming and Conflict Resolution in International River Management', presented at College of Business Administration, Pennsylvania State University, University Park, PA, March 21, 1988.
65. 'An Expert System for Screening Industrial Waste', presented at Department of Nuclear Energy, Brookhaven National Laboratory, NY, February 12, 1988.
66. 'A Penalty Function Approach for Bi-Level Linear Programming', at Department of Industrial Engineering, State University of New York at Buffalo, Nov 13, 1987.
67. 'Forecast Combination with Multiple Objectives and Uncertainty', presented at the School of Business Administration, Georgetown University, February 25, 1987.
68. 'Capital Rationing and Factor Substitutability in Manufacturing', presented at the Department of Economics, Boston University, February 25, 1985, with N. Kulatilaka.
69. 'Strategic Planning, Energy Conservation, and Uncertainty', presented at the International Symposium on Mathematical Programming, August 1985, Cambridge, MA.
70. 'Energy Conservation in Asia', presented at the New York Conference of the American Association of Asian Studies, October 1984, Cortland, NY.
71. 'Optimal Timing of Investments Using Dynamic Programming', presented at Bell Communications Research, March 1984.
72. 'Optimal Control of Multi-Sector Economies in the Presence of Large Projects', presented at the Department of Civil Engineering, Princeton University, March 1980.

PUBLICATIONS

Books

1. G. Anandalingam and S. Raghavan (editors), *Telecommunications Planning: Innovations in Pricing, Network Design and Management,* Springer (Boston), 2006.
2. G. Anandalingam and Henry C. Lucas, *Beware the Winner's Curse: Victories That Can Sink You and Your Company*, Oxford University Press, October 2004.
3. G. Anandalingam and S. Raghavan (editors), *Telecommunications Network Design and Management,* Kluwer Academic Publishers (Boston) Dec. 2002.

Guest Editorship

1. G. Anandalingam and S. Raghavan (ed.), *Electronic Markets*, Special Issue of **Management Science**, March 2005
2. E. A. Sykes and G. Anandalingam (ed.), *Information and Telecommunications Systems as Infrastructure,* special issue of **Information and Decision Technologies,** North-Holland Press, 1993.
3. G. Anandalingam and T. L. Friesz (ed.), *Hierarchical Optimization,* special issue (vol. 34) of **Annals of Operations Research,** Baltzer Scientific Publishing Company, Basel, Switzerland, 1992.

Refereed Publications

1. S-Y Wu, L. Hitt, P-Y Chen, and G. Anandalingam, "Customized Bundle Pricing for Information Goods: A Nonlinear Mixed Integer Programming Approach" *Management Science*, Vol. 54, No. 3, March 2008, pp 608-622
2. S. Viswanathan and G. Anandalingam, "Pricing Strategies for Information Goods", *Sadhana*, Vol. 30, Parts 2&3, April/June 2005, pp 257-174.
3. N. Keon and G. Anandalingam, "A New Pricing Model for Competitive Telecommunications Services Using Congestion Discounts", *INFORMS Journal on Computing*, Vol. 17, No. 2, pp 248-262, 2005.
4. G. Anandalingam and H. C. Lucas, "The Winner's Curse in High Tech", *IEEE Computer*, Vol. 38, No. 3, pp 96-97, 2005
5. R. H. Kwon, G. Anandalingam and L. H. Ungar, "Endogenous Bidding in Iterative Combinatorial Auctions", *Management Science*, Vol. 51, No. 3, March 2005.
6. G. Anandalingam, R. W. Day and S. Raghavan, "The Landscape of Electronic Markets," *Management Science* , Vol. 51, No. 3, March 2005.
7. S-Y. Wu, P-Y. Chen and G. Anandalingam, "Fighting Information Good Piracy with Versioning", *Proceedings, International Conference on Information Systems*, Seattle, Washington, December 2003.
8. John C. Yi, G. Anandalingam, and L. A. Sorrell, "An Expert System for Physician Detailing Planning", *Expert System with Applications*, Vol. 25, pp 533-544, 2003
9. S-Y. Wu and G. Anandalingam, "Optimal Customized Bundle Pricing for Information Goods", *Proceedings of the Workshop on Information Technology and*

Systems, Barcelona, Spain, December 2002.

10. N. H. Keon and G. Anandalingam, "Optimal Pricing for Multiple Services in Telecommunications Networks Offering Quality of Service Guarantees", *IEEE/ACM Transactions on Networking*, Vol 11, No. 1, February 2003.

11. S-Y. Wu and G. Anandalingam, "Optimal Design of Wireless Ad-Hoc Networks", in G. Anandalingam and S. Raghavan (editors), *Telecommunications Network Design and Management,* Kluwer Academic Publishers, Boston, December 2002.

12. G. Anandalingam and N. Keon, "Auctioning Telecommunications Bandwidth with Guaranteed Quality of Service", in R. Vohra and B. Dietrich, *Mathematics of the Internet: E-Auctions and Markets,* Springer-Verlag, June 2001

13. G. Anandalingam, "Optimization of Telecommunications Networks", in P. Pardalos and M. Resende, *Applied Optimization*, Oxford University Press, 2001.

14. K. Killmer, G. Anandalingam, & S. Malcolm, "Siting Noxious Facilities Under Uncertainty", *European J. of Operational Research, Vol.133,* pp 596-607, 2001

15. B. Rubenstein, G. Anandalingam, and I. Zandi, "Genetic Algorithms Approach to Policy Design for Consequence Minimization", *European Journal of Operational Research*, Vol. 124, No. 1, pp 43-54, 2000.

16. L. J. LeBlanc, A. Shtub and G. Anandalingam, "Formulating and Solving Production Planning Problems", *European Journal of Operational Research,* Vol. 105, August 1998.

17. G. Anandalingam and K. Nam, "Conflict and Cooperation in Designing International Telecommunication Networks", *Journal of the Operational Research Society, Vol.* 48, No. 3, pp 600-611, 1997.

18. L. W. Clarke and G. Anandalingam, "An Integrated System for Designing Minimum Cost Survivable Telecommunications Networks", *IEEE Transactions on Systems, Man, and Cybernetics,* vol. 26, no. 6, pp 856-862, 1996.

19. R. K. Bose and G. Anandalingam, "Sustainable Urban Energy-Environment Management with Multiple Objectives", *Energy, The International.Journal,* vol. 21, no. 4, pp 305-318, 1996.

20. G. Anandalingam, "Telecommunications Sector Reform: India in a Global Perspective", **(Invited),** in *Telecommunications: Technology Alternatives and Policy,* Allied Publishers, New Delhi, 1996.

21. S. Malcolm and G. Anandalingam, "Mathematical Programming in Electric Power Capacity Investment Planning", *Journal of the Indian Institute of Science,* (Invited Refereed Review), vol 75, Jan-Feb, pp 49-68, 1995.

22. L. W. Clarke and G. Anandalingam, "A Bootstrap Heuristic for Designing Minimum Cost Survivable Networks", *Computers and Operations Research, Vol.* 22, No. 9, 1995, 921-934.

23. V. Mubayi, V. Sailor and G. Anandalingam, "Cost-Benefit Considerations in Regulatory Analysis", *Refereed Report No. NUREG/CD-6349,* Nuclear Regulatory Commission, September 1995, 138 pages.

24. G. Anandalingam, "Simulated Annealing", (Invited), in C. Harris and S. Gass (eds.), *Encyclopedia of Operations Research and Management Science,* Kluwer Academic Publishers, 1995.

25. Susheela Devi, D. P. Sen Gupta and G. Anandalingam, "Optimal Restoration of Power Supply in Large Distribution Systems in Developing Countries", *IEEE*

Transactions in Power Systems, Vol. 10, No. 1, pp 430-438, 1994.

26. Vernekar, G. Anandalingam, and C. N. Dorny, "An Integrated Knowledge-Based System for Communication Network Design", *Information and Decision Technologies,* Vol. 19, pp 595-612, 1994.

27. R. Mathieu, L. Pittard, and G. Anandalingam, "Genetic Algorithm Based Approach to BiLevel Linear Programming", *Recherche Operationelle,* vol. 28, no. 1, pp 1-21, 1994.

28. Scott A. Malcolm and G. Anandalingam, "A Decision Support System for Evaluating NonUtility Investment in Electricity Production", *Refereed Proceedings,* IEEE Conference on Systems, Man, and Cybernetics, San Antonio, Texas, October 2-5, 1994.

29. D. J. White and G. Anandalingam, "A Penalty Function Approach for Solving Bi-Level Linear Programs", *Journal of Global Optimization,* vol. 3, pp 397-419, 1993.

30. G. Anandalingam and C. C. White III, "A Penalty Function Approach to Alternative Pairwise Comparisons in ISMAUT", *IEEE Transactions on Systems, Man, and Cy1oernetics,* vol. 23, no. 1, pp 330-333, 1993.

31. T. L. Friesz, G. Anandalingam, N. J. Mehta, K. Nam, S. Shah, and R. L. Tobin, "The Multi-Objective Equilibrium Network Design Problem Revisited: A Simulated Annealing Approach", *European Journal of Operational Research,* vol. 65, no. 1, pp 44-57, 1993.

32. Peter C. Fetterolf and G. Anandalingam, "A Lagrangean Relaxation Technique for Optimizing the Interconnection of Local Area Networks", *Operations Research,* vol. 40, no. 4, pp 678-688, 1992.

33. G. Anandalingam and T. L. Friesz, "Hierarchical Optimization: An Introduction", *Annals of Operations Research,* vol. 34, pp 1-11, 1992.

34. P. Fetterolf and G. Anandalingam, "Optimal Design of LAN-WAN Internetworks", *Annals of Operations Research,* vol. 36, pp 275-298, 1992.

35. T. L. Friesz, H-J. Cho, N. Mehta, R. Tobin, and G. Anandalingam, "A Simulated Annealing Approach to the Network Design Problem with Variational Inequality Constraints", *Transportation Science,* Vol. 26B, no. 1, pp 18-26, 1992.

36. G. Anandalingam, "Modeling Investment in Energy Recovery from Municipal Solid Waste", *Journal of Environmental Systems,* vol. 21, no. 3, 1991-1992.

37. Peter C. Fetterolf and G. Anandalingam, "Optimizing Interconnection of Local Area Networks: An Approach Using Simulated Annealing", *ORSA Journal on Computing,* Vol. 3, no. 4, pp 275-287, 1991.

38. G. Anandalingam, "Hazwaste: An Expert System for Regulating Hazardous Waste", *Journal of Resource Management and Technology,* vol. 19, no. 2, pp 47-59, 1991.

39. G. Anandalingam and Lian Chen, "Combination and Selection of Binary Forecasts", *IEEE Trans on Systems, Man, and Cybernetics,* vol. 21, no. 4, 1991.

40. G. Anandalingam and V. Apprey, "Multi-Level Programming and Conflict Resolution", *European Journal of Operational Research,* vol. 51, no. 2, pp 223-247, 1991.

41. G. Anandalingam and D. J. White, "A Solution Method for the Linear Static Stackelberg Problem Using Penalty Functions", *IEEE Transactions on Automatic Control,* vol. 35, no. 10, pp 1170-1173, 1990.

42. Vernekar, G. Anandalingam, and C. N. Dorny, "Optimization of Resource Location in Hierarchical Computer Networks", *Computers and Operations Research,* vol. 17, no. 4, pp 375-388**,** 1990.

43. Lian Chen and G. Anandalingam, "Optimal Selection of Forecasts", *Journal of Forecasting,* vol. 9, pp 283-297, 1990.

44. G. Anandalingam, "Energy Conservation in the Industrial Sector", **(**Invited**),** in A. Desai (ed.), *Energy Demand: Analysis, Management and Conservation,* Wiley Eastern, pp 89-117, 1990.

45. Lloyd W. Clarke and G. Anandalingam, "Optimal Design of Survivable LAN-LAN Networks", *Refereed Proceedings,* IEEE Conference on Systems, Man, and Cybernetics, Los Angeles, November 5-7, 1990.

46. G. Anandalingam, "A Multi-Agent Multi-Attribute Approach for Conflict Resolution", *IEEE Transactions on Systems, Man, and Cybernetics,* vol. 19, no. 5, pp 1142-1153, September/October 1989.

47. G. Anandalingam and Lian Chen, "Linear Combination of Forecasts: A General Bayesian Model", *Journal of Forecasting,* vol. 8, no. 6, pp 199-214, 1989.

48. G. Anandalingam and Lian Chen, "Bayesian Forecast Combination and Kalman Filtering", *Int Journal of Systems Science,* vol. 20, no. 8, pp 1499-1507, 1989.

49. G. Anandalingam and C. E. Olson, "A Multi-Stage Multi-Criteria Decision Model for Project Selection", *European Journal of Operational Research,* vol. 43, pp 271-283, 1989.

50. G. Anandalingam, "Simulated Annealing and Resource Location in Computer Networks", *Refereed Proceedings,* Winter Simulation Conference, Washington D. C., December 1989.

51. G. Anandalingam, R. Mathieu, L. Pittard, and N. Sinha, "Artificial Intelligence Based Approaches for Hierarchical Optimization Problems", in R. Sharda et al. (eds.), *Impact of Recent Computer Advances on Operations Research,* North-Holland, New York, 1989, *refereed.*

52. G. Anandalingam and M. Westfall, "Selection of Hazardous Waste Disposal Alternatives Using Multi-Attribute Utility Theory and Fuzzy Set Analysis", *Journal of Environmental Systems,* vol. 18, no. 1, pp 69-85, 1988-89.

53. G. Anandalingam, "A Mathematical Programming Model of Decentralized Multi-Level Systems", *Journal of the Operational Research Society,* vol. 39, no. 11, pp 1021-1033, 1988.

54. F. Rezayat and G. Anandalingam, "Using Instrumental Variables for Selecting the Order of ARMA Models", *Communications in Statistics: Theory and Methods,* vol. A17, no. 9, pp 3029-3065, 1988.

55. G. Anandalingam and F. Rezayat, "Selecting the Order of ARMA Models: An Approach Based on Econometric Analysis", C. H. Chen (ed.) *Applied Time Series Analysis,* World Scientific Publishing Co., 1988, *refereed.*

56. G. Anandalingam, "Asymmetric Players and Bargaining for Profit Shares in Natural Resource Development", *Management Science,* vol. 33, no. 8, pp 1048-1057, August 1987.

57. G. Anandalingam, A Stochastic Programming Process Model for Investment Planning", *Computers and Operations Research,* vol. 14, no. 6, pp 521-536, 1987.

58. G. Anandalingam, "A Multi-objective Decision Theoretic Approach to Analyzing Acid Rain Policy Choice", *European Journal of Operational Research,* vol. 29, no. 3, pp 336-352, 1987.

59. G. Anandalingam, "Stackelberg Games and Multi-Sectoral Economic Planning", *IEEE Transactions on Systems, Man, and Cybernetics,* vol. 17, no. 4, pp 670-676, 1987.

60. G. Anandalingam, K. Chatterjee, and J. Gangolly, "Information, Incentives, and Decentralized Decisionmaking in a Bayesian Framework", *Journal of the Operational Research Society,* vol. 38, no. 6, pp 499-508, 1987.

61. G. Anandalingam, "Process Modelling Under Uncertainty: Simulation Analysis of Indian Steel", *Journal of the Operational Research Society,* vol. 38, no. 2, pp 115-125, 1987.

62. G. Anandalingam and N. Kulatilaka, "Decomposing Production Efficiency into Technical, Allocative, and Structural Components", *Journal of the Royal Statistical Society,* series A, vol. 150, part 2, pp 143-151, 1987

63. G. Anandalingam and M. Westfall, "Hazardous Waste Generation and Disposal: Policy Options for Developing Countries", Invited**,** *Natural Resources Forum,* vol. 11, no. 1, pp 37-47, 1987.

64. G. Anandalingam, "REGWASTE: An Expert System for Regulating Hazardous Wastes", *Refereed Proceedings,* IEEE Conference on Systems, Man, and Cybernetics, Washington, D. C., October 20-23, 1987.

65. G. Anandalingam, "Multiattribute Decision Theory and Energy Systems Analysis", **(Invited Review),** *Proceedings,* Convention of Energy Division of the American Society of Civil Engineers, Atlantic City, April 1987.

66. Saka, G. Anandalingam, and N. J. Garber, "Traffic Signal Timing Using Simulation Optimization", *Refereed Proceedings,* Winter Simulation Conference, Washington DC, December 1986.

67. D. E. Brown and G. Anandalingam, "An Expert System for Design of Flexible Manufacturing Systems", *Refereed Proceedings,* IEEE conference on Systems, Man, and Cybernetics, Atlanta, GA, October 1986.

68. G. Anandalingam, "Incentive Compatibility and Mixed Economy Planning", *Journal of Economic Dynamics and Control,* vol. 10, nos. 1/2, pp 9-13, June 1986 (lightly refereed).

69. G. Anandalingam and D. Bhattacharya, "Process Modelling and Industrial Energy Use in Developing Countries", *Omega: The International Journal of Management Science,* vol. 13, no. 4, pp 295-306, 1985.

70. G. Anandalingam, "Energy Conservation in the Industrial Sector of Developing Countries", Invited, *Energy Policy,* vol. 13, no. 4, pp 335-339, August 1985.

71. G. Anandalingam, "Government Policy and Industrial Investment in Cogeneration", *Energy Economics,* vol. 7, no. 2, pp 117-126, April 1985.

72. G. Anandalingam, "An Analysis of Information and Incentives in Bi-Level Programming", *Refereed Proceedings,* IEEE conference on Systems, Man, and Cybernetics, Tucson, Arizona, November 1985.

73. G. Anandalingam, J. Lee, V. Mubayi, and P. M. Meier, "Decision Making Under Uncertainty in Thailand's Energy Sector", in W. F. Thompson (ed.), *World Energy Markets,* Westview Press, Boulder, CO, 1985, *refereed.*

74. G. Anandalingam, "The Economics of Energy Conservation in Developing Countries and Analysis of Investment Incentives", invited, *Natural Resources Forum,* vol. 8, no. 4, pp 327-341, October 1984.
75. G. Anandalingam, "Project Impact Analysis as an Optimal Control Problem", *Journal of Economic Dynamics and Control,* vol. 6, no. 3, pp 207-237, November 1983.
76. G. Anandalingam, "Planning Studies with an Optimal Control Multisectoral Dynamic Economic Model", *Journal of Policy Modeling,* vol. 5, no.2,pp 179-205, June 1983.
77. G. Anandalingam, "Models for Optimal Crop Planning Under Uncertainty", *Asian Economies,* pp 18-38, September 1982.

Non Refereed Publications

1. G. Anandalingam, Monthly Technology/Economics Columns, Economic *Times* (Wall Street Journal of India), August 1999 to December 2006.
2. G. Anandalingam, "Telecom Regulation and Technology", *Economic Times,* 12 September 1996.
3. G. Anandalingam and D. Ahuja, "Solid Waste Management in Developing Countries: An Overview", *Journal of Resource Management and Technology,* vol. 21, no. 1, 1993.
4. G. Anandalingam, R. Bhatia, and R. Cestti, "Policy Implications of Inter-sectoral Linkages in Water Resources Management" *World Bank Technical Paper Series,* October 1992.
5. D. Ollapally and G. Anandalingam, Book Review, of S. Mehrotra, India and the Soviet Union: Trade and Technology Transfer, Cambridge University Press, *South Asia Bulletin,* vol. 12, no. 2, pp 108-111, 1992.
6. D. Ollapally and G. Anandalingam, "The Politics of Language in Sri Lanka: The Tamil Federal Party agitates for greater language rights", in *Great Events of History: Human Rights,* Salem Press, Pasadena, CA, 1992.
7. G. Anandalingam, "Optimal Design of Computer Communication Network for Distributed Industries", *Proceedings,* Fifth Advanced Technology Conference, US Postal Service, Washington D. C., November 5-7, 1990.
8. G. Anandalingam, "Combining Expert Opinion for Risk-Based Decisionmaking in Nuclear Repository Pre-Closure", in Y. Y. Haimes and E. Stakhiv (Eds.) *Risk-Based Decisionmaking in Engineering,* ASCE Publications, New York, 1990.
9. G. Anandalingam, "On the Value of Information for Acid Rain Policy Modeling", *Proceedings,* North American conference of the International Association of Energy Economists, Boston, MA, November 1986.
10. G. Anandalingam and V. Mubayi, "An Approach to the Analysis of Optimal Investment in Oil Exploration and Development Under Uncertainty", in Kydes, A. S. and D. M. Geraghty (eds.), *Energy Markets in the Longer Term: Planning Under Uncertainty,* Westview Press, Boulder, Colorado, 1985.
11. G. Anandalingam, "The Economics of Industrial Energy Conservation in Developing Countries", in R. Pachauri (ed.), *Global Energy Interactions,* Riverdale Company

and Allied Publishers, Baltimore, January 1994.

12. G. Anandalingam, "Modeling the Impact of Tax Credits for Investment in Energy Recovery from Municipal Solid Waste", *Proceedings.* Fourteenth Annual Pittsburgh Conference on Modeling and Simulation, April 21-23, 1983**.**

13. G. Anandalingam, "Policy Incentives for Industrial Energy Conservation", *Energy Management,* vol. 7, no. 4, pp 317-329, 1983.

Grants: Principal Investigator

National Science Foundation, Rapid Response Electronic Markets for Time-Sensitive Goods, 2002-2007, $2.0 million (co-PIs: L. Ausubel, M. Ball, H. Lucas, and V. Subrahmanium)

Dell Computer Corporation, Gift to Center for Electronic Markets and Enterprises*,* 2003-2004, $100,000.

General Motors Foundation, Anheuser-Busch Foundation, Analog Devices: Ackoff Center for Advanced Systems Approaches, $750,000

Sloan Foundation: Multi-Media Asynchronous Programs, 2000-2002, $270,000, co-Principal Investigator (PI: Dwight Jaggard)

National Science Foundation: Pre-recorded Video Over Packet Switched Networks, 1997-2000, $232,000, co-PI: Keith W. Ross.

Carnegie Bosch Institute: Limits on the International Division of Labor, 1998-99, $75,000, co-Principal Investigator (PI: Bruce Kogut, Wharton School).

ARPA and National Science Foundation: A Program for Manufacturing Management in Support of the Technology Reinvestment Program, 1995-1999, $600,000, co-PI: Joel Adler.

Institute of International Education: A Training Course on Bid Solicitation, Project Appraisal and Negotiation, Through the Wharton Emerging Economies Program, 1995, $59,500

Ford Foundation: Center for the Advanced Study of India, 1993-1996, School of Arts and Sciences, $500,000, Senior Investigator (PI: Francine Frankel, Political Science).

Institute for International Education: Training Course in Energy Planning and Policy, School of Fine Arts, 1993-1994, $263,000 per year, Senior Investigator (PI: Roger Raufer, Energy Management & Policy).

American Telephone & Telegraph: Computer Facilities in the Telecommunications Network Laboratory, 1993, $27,500, co-PI: Keith W. Ross.

National Science Foundation: Design of Survivable Heterogeneous Data Networks, 1992-1995, $313,338.

Baltimore Gas & Electric: Systems Evaluation of Small Cogeneration and Storage Systems, 1992, $33,500.

Ben Franklin Technology Center: Center for Solid Waste Systems and Technology, $150,000, 1992, Senior Investigator (PI: Iraj Zandi, Systems).

Ben Franklin Technology Center and Roy F. Weston Inc.: Process Modeling and Life Cycle Analysis, (Through the Center for Solid Waste Systems and Technology), 1991-93, $20,000

National Consortium for Educational Access: Faculty Mentor Program for Lloyd W. Clarke, 1989-92, $3,000

American Telephone & Telegraph: Workstations and Terminals for the Telecommunications Networks Laboratory, 1991, $21,000, co-PI: K. W. Ross and C. N. Dorny.

University Research Foundation: Computational Equipment for Environmental Systems Research, 1991, $7,500.

American Telephone & Telegraph: Performance Modeling and Planning of Heterogeneous Data Networks, University of Pennsylvania Project No. 5-23691, 1988-91, $450,000 (with K. W. Ross and M. E1 Zarki).

Public Policy Initiative Fund, University of Pennsylvania: Power Plant Siting to Reduce Environmental Impact, University of Pennsylvania Project No. 3-71021, 1989, $4,000.

Unisys Corporation: Computer-Aided Definition and Design of Networks, University of Pennsylvania Project No. 5-24535/5-20896, 1987-89, $225,000 (with C. N. Dorny).

Hewlett Foundation (Through Center for Research in Conflict and Negotiation, Pennsylvania State University): Stackelberg Games and Multi-Level Programming, 1988-89, University of Pennsylvania Project No. 5-20641, $2,550.

US Environmental Protection Agency (Through the American Association for the Advancement of Science), Computer-Based Tools for Decision-Making in Environmental Policy, Fellowship, 1987, $12,000.

Martin Marietta Energy Systems Inc. (Oak Ridge National laboratory): Methodology for Electricity Supply System Planning Under Imprecise Information and Uncertainty, University of Virginia Project No. 5-32846, 1986-87, $15,000.

Institutional Research Award, University of Virginia: Studies in Multi-Level Mathematical Programming, University of Virginia Project No. 1-89255, 1985- 86, $25,187.

Resources For the Future: Production Efficiency, Rationing and Measurement Error in Industrial Factor Demand Models, University of Virginia Project No. 5-37002, 1985-86, $21,000, NOTE only 5 awarded out of 246 applicants

Rockefeller Foundation: Industrial Energy Conservation in Developing Countries, Brookhaven National Laboratory Project No. 9505, 1983-84, $64,000, NOTE only 9 awarded out of approximately 100 applicants.

U.S. Department of Energy: Economic Analysis of Investment Tax Credits, Brookhaven National Laboratory Project No. 5333, 1981-82, $120,000 (with S. P. A. Brown).

Ph.D.s Produced and Titles after Ph.D.

1. Abhishek Pani: Models for Budget Constrained Auctions: An Application to Sponsored Search, PhD December 2010 (Director, Efficient Frontier Inc., CA)
2. Shin-Yi Wu: Market Design in eMarketplaces: Pricing of Information Goods and Services, PhD December 2003 (Assistant Professor, Nanyang Technological University)
3. Roy Kwon: Approximate Mechanisms & Algorithms for Combinatorial Auctions, PhD August 2002 (Assistant Professor, University of Toronto)
4. John Yi, "A Systems Approach to Physician-Detailing Planning", December 2001 (Senior Research Analyst, Johnson and Johnson)
5. Neil Keon: Pricing of Multiple Services in Telecommunications Networks, Ph.D., May 2000 (Assistant Professor, Southern Methodist University).
6. Kimberly Killmer: A Multi-Objective Bi-Level Programming Approach to Policy Evaluation and Development, Ph. D., May 1999 (Assistant Professor, Rutgers).
7. Bonnie Rubenstein: A Systems Approach to Policy Planning, Ph.D., May 1998, jointly with Iraj Zandi (Assistant Professor, Georgetown University).
8. Scott Malcolm: Uncertainty and Environment in Power Systems Planning Ph. D., August 1996 (Assistant Professor, University of Delaware)
9. Frances Lee: Design of Large Scale Survivable Internetworks, Ph.D., December 1995, (Senior Analyst, Morgan Stanley Investment Bank).
10. Kimberly Battle: Capacity Assessment in Dynamic Networks with Multi Commodity Flows, Ph. D., December 1995, (Assistant Professor, University of Witwatersrand, Johannesburg, South Africa).
11. Keesung Nam: The Design of International Telecommunications Networks: Models and Solutions, Ph. D., December 1994, (Member of Technical Staff, A.T.& T Bell Laboratories).
12. Thomas Ansah: Cooperation in Resource Management: An Analysis of Hydroelectric Use in West Africa, Ph.D., City and Regional Planning, University of Pennsylvania, August 1993, (Senior Manager, Volta River Authority, Ghana).
13. Lloyd W. Clarke: The Design of Survivable Telecommunications Networks, Ph. D., May 1992, (Assistant Professor, Georgia Institute of Technology).
14. Tomer Goodovitch: A Mathematical Programming Model of The Market for Civil Aviation, Ph. D., May 1991, (Assistant Professor, Tel Aviv University, Israel).
15. Nihal Mehta: A Dynamical Systems Perspective for Mathematical Programming, August 1990, jointly with Terry L. Friesz, (Consultant, American Airlines Decision Technologies).
16. Peter Fetterolf: Design of Heterogeneous Data Networks, Ph. D., May 1990, (Assistant Professor, Boston University).
17. Judith Zubieta Garcia: A Power Plant Location Model to Minimize Environmental Impacts, Ph. D. University of Pennsylvania, Wharton School of Management, August 1989, (Assistant Professor, United Autonomous University of Mexico).
18. Lian Chen: Optimal Selection and Combination of Forecasts, Ph. D., University of Virginia, October 1988, (Senior Systems Engineer, Southwest Florida River

Authority).

19. Victor Apprey: Multi-Agent Mathematical Programming With Application to Conflict Resolution, Ph. D., University of Virginia, August 1987, (Assistant Professor, Hampton University).

20. Anthony Saka: Traffic Signal Timing at Isolated Intersections: A Simulation Optimization Approach, Ph. D., University of Virginia, May 1987 with N. I. Garber, Civil Engineering, (Senior Analyst, Department of Transportation, State of Virginia).

21. Fahimeh Rezayat: Selection of the Order of ARMA Models: A Small Sample Technique, Ph. D., University of Virginia, September 1986, (Assistant Professor, University of Nevada, Las Vegas).

Teaching and Training (Selected Courses)

Executive Courses

Operations Management
Project Management in Dynamic Environments
Data Analysis and Decision Modeling
Competitive Landscape in Telecommunications
Competitive Landscape in Information Technology
Scenario Planning and Technology Strategy
Value Creation through Information Technology
Fundamentals of the Net
Global Operations Management
Telecommunications Strategy
Internet and Electronic Commerce
Enterprise Networking
Systems Analysis
Bid Solicitation, Project Evaluation & Negotiation
Project Planning and Management
Project Finance
Managerial Economics
Technology and Public Policy

Graduate and Undergraduate Courses

Technology and Society
Operations Management
Project Management
Introduction to Business
Decision Modeling with Spreadsheets
Network Economics
Telecommunications and Competitive Strategy
Networking: Theory and Fundamentals
Optimization Theory
Non-Traditional Optimization
Multi- Criteria Decision-Making
Game Theory, Mathematical Economics, and Optimization