JOHN A. MUCKSTADT

Acheson/Laibe Professor
of Business Management and Leadership Studies
School of Operations Research and Industrial Engineering
Cornell University

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Business Address: School of Operations Research & Industrial Engineering
Rhodes Hall
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Ithaca, New York 14853
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Born: September 27, 1940, Rochester, New York

Marital Status: Married, four sons

Education: Ph.D. Industrial Engineering, University of Michigan, 1966
M.A. Mathematics, University of Michigan, 1965
M.S. Industrial Administration, University of Michigan, 1964
A.B. Mathematics, University of Rochester, 1962

Professional Organizations: INFORMS

Honor Societies: Sigma Xi
Alpha Pi Mu

Teaching Interests: Applied Operations Research, Production and Inventory Control, Logistics, Manufacturing Systems Design and Operation, Supply Chain Management, Electronic Commerce.

Research Interests: Design mathematical and computer models for the design and control of large scale integrated manufacturing, inventory, distribution and logistics systems.

Experience:

1974 - Present

Acheson/Laibe Professor of Business Management and Leadership Studies, School of Operations Research and Industrial Engineering (2000-).

Director, School of Operations Research and Industrial Engineering (1987-1996).

Associate Professor (1974-1981) and Professor (1981-2000) at Cornell University in the School of Operations Research and Industrial Engineering.

Visiting Professor, Department of Industrial and Operations Engineering, University of Michigan (1987).

Visiting Professor, Department Toegepaste Economie, Katholieke Universiteit Leuven, Leuven, Belgium (1981-1982).

Co-Director (1981-1983) and Director (1983-1987), Cornell Manufacturing Engineering and Productivity Program.

Professor Invitee, Institute d'Administration et de Gestion, Universite Catholique de Louvain, Louvain-la-Neuve, Belgium (1980), (1987-1988), (1996-1997).

Acting Associate Director, School of Operations Research and Industrial Engineering for the 1977-78 academic year.

Chairman, Graduate Professional Programs Committee, College of Engineering, 1978-1980.

Part-time consultant to many governmental and industrial organizations (including Accenture, Aspen Technology, Avon, Bell Atlantic, General Electric, General Motors, U.S. Navy, Logistics Management Institute, SAS Airlines, Xerox, XELUS, Chicago Pneumatic Tool, General Foods, Aeroquip-Vickers, IBM, Unilever and the RAND Corporation) mainly in the areas of inventory management, production control, supply chain system strategy and operation, manufacturing and logistics system design.

1971 - 1974

Operations Research Analyst for the Deputate of Material Management and Deputate of Acquisition Logistics, Headquarters, Air Force Logistics Command. Designed and implemented mathematical models of the material management logistics environment.

Part-time teaching position at the University of Dayton.

1966 - 1971

Faculty member in the Air Force Institute of Technology. Instructed graduate students in applied operations research courses. Achieved the rank of Associate Professor.

Professional Publications:

"Scheduling in Power Systems." Doctoral Dissertation, College of Engineering, University of Michigan, 1966.

"An Application of Mixed-Integer Programming Duality to Scheduling Thermal Generating Systems." (with Richard C. Wilson) IEEE Transactions, Part III (PAS) December 1968, pp. 1968-1978.

"An Application of Duality Theory to Zero-One Integer Programs Having Convex Objective Functions." AFITSL Technical Report 6-69. Air University, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, 1969.

"A Dual Decomposition Algorithm for Solving Mixed Integer-Continuous Quadratic Programming Problems." AFITSL Technical Report 7-69. Air University, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, 1969.

"An Algorithm for Determining Optimal Stock Levels in a Multi-Echelon Inventory System." Air University, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, 197l.

"A Model for a Multi-Item, Multi-Echelon, Multi-Indenture Inventory System." Management Science, Vol. 20, No. 4, December 1973, pp. 472-481.

"NAVMET: A Four-Echelon Model for Determining the Optimal Quantity and Distribution of Navy Spare Aircraft Engines." Report R-75ll. Naval Weapons Engineering Support Activity, Washington Navy Yard, Washington, D.C., December 1975.

"An Application of Lagrangian Relaxation to Scheduling in Power Generation Systems." (with Sherri Koenig) Operations Research, Vol. 25, No. 3, May-June 1977, pp. 387-403. (An expanded version of this paper is included in a book entitled Studies in Operations Management, edited by A. Hax, North-Holland, Amsterdam, 1978.)

"On the Probability Distribution for Inventory Position in Two-Echelon Continuous Review Systems." School of Operations Research and Industrial Engineering Technical Report No. 336. Cornell University, Ithaca, NY, June 1977.

"Analysis of a Two-Echelon Inventory System in Which All Locations Follow Continuous Review (S,s) Policies." School of Operations Research and Industrial Engineering Technical Report No. 337. Cornell University, Ithaca, NY, June 1977.

"An Analysis of a Two-Echelon Inventory System." (with Paul Sasseville) School of Operations Research and Industrial Engineering Technical Report No. 361. Cornell University, Ithaca, NY, September 1977.

"Optimal Policy for Batch Operations: Backup, Checkpointing, Reorganization, and Updating." (with Guy Lohman) ACM Transactions on Data Base Systems, Vol. 2, No. 3, September 1977.

"Some Approximations in Multi-Item, Multi-Echelon Inventory Systems for Recoverable Items." Naval Research Logistics Quarterly, Vol. 25, No. 3, September 1978, pp. 377-393.

"Comments on 'Single Cycle Continuous Review Policies for Arborvescent Production Inventory Systems'." (with H. Singer) Management Science, Vol. 24, No. l6, December 1978, pp. 1766-1768.

"An Analysis of a Single Location Inventory Problem for Two Interchangeable Recoverable Items." (with D. Heath and C. Shilepsky) School of Operations Research and Industrial Engineering Technical Report No. 409, Cornell University, Ithaca, NY, February 1979.

"Coordination of Production Schedules with Shipping Schedules." (with W.L. Maxwell) Multi- Level Production/Inventory Systems: Theory and Practice, edited by L. Schwarz, Studies in the Management Sciences, Vol. l6, North Holland, NY, 1981.

"A Three-Echelon Inventory Model for Recoverable Items." Naval Research Logistics Quarterly, Vol. 26, No. 2, June 1979, pp. 199-221.

"Are Multi-Echelon Inventory Methods Worth Implementing in Systems with Low-Demand Rate Items?" (with L. Joseph Thomas) Management Science, Vol. 26, No. 5, May 1980, pp. 483-494.

"Cost Comparisons of Alternative Methods for Managing Multi-Level Inventory Systems: A Case Study." (with L. Joseph Thomas) Tijdschrift voor Economie en Management, Vol. XXV, No. 1, 1980. (This was an invited paper for a special issue on operations management, and is closely related to the preceding paper co-authored with L.J. Thomas.)

"An Examination of a Two-Echelon Inventory System for Recoverable Items When the Demand Process is Non-Stationary." RAND Corporation, Santa Monica, CA. N-1493-AF, 1980.

"A New Method for Determining Q and r in a Poisson Demand, Constant Procurement Lead-Time Inventory Model." (with M. Isaac) School of Operations Research and Industrial Engineering Technical Report No. 496, Cornell University, Ithaca, NY, March 1981.

"Analysis of an Inventory System with Due Dates." (with C. Shilepsky) School of Operations Research and Industrial Engineering Technical Report No. 505, Cornell University, Ithaca, NY, May 1981.

"An Analysis of Single Item Inventory Systems with Returns." (with M. Isaac) Naval Research Logistics Quarterly, Vol. 28, No. 2, June 1981, pp. 237-254.

"A Model for Planning Production in an N Stage System." (with W. Maxwell) School of Operations Research and Industrial Engineering Technical Report No. 508, Cornell University, Ithaca, NY, June 1981.

"Analysis of Inventory Systems for Substitutable Recoverable Items." (with D. Heath and C. Shilepsky) School of Operations Research and Industrial Engineering Technical Report No. 512, Cornell University, Ithaca, NY, August 1981.

"Economic Delivery Quantities for Capacitated Multi-Stage Production Systems." (with W.L. Maxwell and C.M. Delporte) School of Operations Research and Industrial Engineering Technical Report No. 517, Cornell University, Ithaca, NY, February l982.

"On MRP Lot Sizing." (with J. McClain, W.L. Maxwell, L.J. Thomas, and F.N. Weiss) Management Science, Vol. 28, No. 5, May 1982, pp. 582-584.

"Design of Automatic Guided Vehicle Systems." (with W.L. Maxwell) IIE Transactions, Vol. 14, No. 2, June l982, pp. 114-124.

"A Multi-Echelon Model for Indentured Consumable Items." School of Operations Research and Industrial Engineering Technical Report No. 548, Cornell University, Ithaca, NY, July 1982.

"Protective Stocks in Multi-Stage Production Systems." (with M. Lambrecht and R. Luyten) International Journal of Production Research, Vol. 22, No. 6, December l984, pp. 1001-1025.

"Improving Inventory Productivity in Multi-Level Distribution Systems." (with L.J. Thomas) "Productivity and Efficiency in Distribution Systems," (Ed. D. Gautschi) North Holland, NY, 1983.

"Establishing Consistent and Realistic Reorder Intervals in Production-Distribution Systems." (with W.L. Maxwell) Operations Research, Vol. 33, No. 6, November-December l985, pp. 1316-1341.

"The Inventory Cost Effectiveness of Group Technology Production Systems." (with T. Boucher) Annales de Sciences Economiques Appliquees, Vol. 39, No. 1, Universite Catholique de Louvain, 1983.

"A Modelling Framework for Planning and Control of Production in Discrete Parts Manufacturing and Assembly Systems." (with W.L. Maxwell, L.J. Thomas, and J. VanderEecken) Interfaces, Vol. 13, No. 6, December 1983, pp. 92-104.

"The Joint Replenishment Problem with a Powers-of-Two Restriction." (with P. Jackson and W.L. Maxwell), IIE Transactions, Vol. 17, No. 1, March 1985, pp. 25-32.

"Cost Estimating Methods for Evaluating the Conversion from a Functional Manufacturing Layout to Group Technology." (with T. Boucher) IIE Transactions, Vol. l7, No. 3, September 1985, pp. 268-276.

"Planning Component Delivery Intervals in Constrained Assembly Systems." In Axsater, S., C.H. Schneeweiss and E. Silver (Eds.), Multi-Stage Production Planning and Inventory Control, No. 262 in Lecture Notes in Economics and Mathematical Systems, Springer-Verlag, 1986.

"A Distribution System Policy Simulator." (Revised) (with P. Jackson and R. Rushmeier) School of Operations Research and Industrial Engineering Technical Report No. 629, Cornell University, Ithaca, NY, 1988.

"Comment on 'Aggregate Safety Stock Levels and Component Part Commonality.'" (with W. Maxwell, J. McClain, L. Thomas, E. Weiss) Management Science, Vol. 30, No. 6, June l984, pp. 772-773.

"Multi-Item, One-Warehouse, Multi-Retailer Distribution Systems." (with R. Roundy) Management Science, Vol. 33, No. 12, December 1987, pp. 1613-1621.

"COSMOS: Cornell Simulator of Manufacturing Operations." (with P. Jackson, W. Martin, S. Bellantoni and R. Ferstenberg) School of Operations Research and Industrial Engineering Technical Report No. 684, Cornell University, Ithaca, NY, l986.

"Scheduling in Repetitive Manufacturing Environments." (with W. Maxwell, P. Jackson and R. Roundy) School of Operations Research and Industrial Engineering Technical Report No. 692, Cornell University, Ithaca, NY, 1986.

"The COSMOS Scheduler." (with P. Jackson and C. Jones) School of Operations Research and Industrial Engineering Technical Report No. 735, Cornell University, Ithaca, NY, 1987.

"COSMOS: The Cornell Simulator of Manufacturing Operations." (with P. Jackson and C. Jones) School of Operations Research and Industrial Engineering Technical Report No. 752, Cornell University, Ithaca, NY, 1987.

"Establishing Reorder Intervals and Inspection Policies When Production and Inspection Processes are Unreliable." School of Operations Research and Industrial Engineering Technical Report No. 774, Cornell University, Ithaca, NY, 1988.

"Determining Optimal Reorder Intervals in Capacitated Production-Distribution Systems." (with P. Jackson and W.L. Maxwell), Management Science, Vol. 34, No. 8, August 1988, pp. 938-958.)

The Manufacturing System Development Game. (with P. Jackson and J. Jenner) International Business Machines Corporation, Engineering and Manufacturing Technical Education Center, Thornwood, N.Y., 1988.

"Risk Pooling in a Two Period, Two Echelon Inventory Stocking and Allocation Problem." (with P. Jackson) Naval Research Logistics Quarterly Vol. 36, No. 1, February 1989, pp. 1-26.

"An Application of a Hierarchical Modeling Framework to the Computer Maintenance Industry." (with P. McCrink and L. DeNardis) School of Operations Research and Industrial Engineering, Technical Report No. 855, Cornell University, Ithaca, NY, 1989.

"COSMOS: A Framework for a Computer-Aided Logistics System." (with P. Jackson and C. Jones) Journal of Manufacturing and Operations Management Vol. 2, 1989, pp. 222-248.

"Stochastic Analysis of Cyclic Schedules: Algorithms and Examples." (with R. Bowman) School of Operations Research and Industrial Engineering, Technical Report No. 945, Cornell University, Ithaca, NY, 1990.

"The Velocity Manufacturing Company." (with D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 996, Cornell University, Ithaca, NY, 1992.

"The NOVA Manufacturing Company." (with D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1043, Cornell University, Ithaca, NY, 1992.

"Exact Analysis of the No B/C Stock Policy." (with S.A. Carr, A.R. Gullu and P.L. Jackson) School of Operations Research and Industrial Engineering, Technical Report No. 1051, Cornell University, Ithaca, NY, 1993.

"Analysis of Multistage Production Systems." (with R. Roundy) in Graves, S., A.H.G. Rinnooy Kan, and P.H. Zipkin (Eds.), Logistics of Production and Inventory, Handbooks in Operations Research and Management Science, Vol. 4, North Holland, 1993.

"Stochastic Analysis of Cyclic Schedules." (with R. Bowman) Operations Research, Vol. 41, No. 5 (1993) 947-958.

"A Curriculum and Course Materials for Manufacturing System Design." (with P. Jackson and J. Jenner) 1993 ASEE Annual Conference Proceedings.

"Nova Incorporated: A-Case The Rebirth of an International Corporation." (with D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1074, Cornell University, Ithaca, NY, 1993.

"Nova Incorporated: B-Case Operational Analysis of the New Logistics Systems." (with D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1075, Cornell University, Ithaca, NY, 1993.

"Nova Incorporated: D-Case The Experiment" (with D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1076, Cornell University, Ithaca, NY, 1993.

"An Approach to Production Planning and Scheduling in Cyclically Scheduled Manufacturing Systems." (with A.G. Loerch) International Journal of Production Research Vol. 32, No. 4, 1994, pp. 851-871.

"Instructor's Notes for Llenroc Plastics: Market Driven Integration of Manufacturing and Distribution Systems." (with P. Jackson) School of Operations Research and Industrial Engineering, Technical Report No. 1081, Cornell University, Ithaca, NY, 1994.

"Nova Incorporated: Case C Results of a Worldwide Market Research Study." (with D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1084, Cornell University, Ithaca, NY, 1994.

"Nova Inc.: Case E - Two Opportunities." (with D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1100, Cornell University, Ithaca, NY, 1994.

"Analyzing Multifacility Inventory Systems." (with J. Pereira and R. Roundy) School of Operations Research and Industrial Engineering, Technical Report No. 1107, Cornell University, Ithaca, NY, 1994.

"Optimization-Based Scheduling for the Stochastic Lot Scheduling Problem." (with C. Sox) School of Operations Research and Industrial Engineering, Technical Report No. 1113, Cornell University, Ithaca, NY, 1994 (submitted to IIE Transactions).

"On the Computation of Queue Length Probabilities in a Two-Priority Class M/G/1 Queue." (with R. Gullu and P. Jackson) School of Operations Research and Industrial Engineering, Technical Report No. 1138, Cornell University, Ithaca, NY, 1995.

"Llenroc Plastics Europe." (with P. Jackson, Ch. Delporte, and P. Semal) School of Operations Research and Industrial Engineering, Technical Report No. 1141A, Cornell University, Ithaca, NY, 1995.

"Llenroc Plastics Europe: Teaching Notes." (with P. Jackson, Ch. Delporte, and P. Semal) School of Operations Research and Industrial Engineering, Technical Report No. 1141C, Cornell University, Ithaca, NY, 1995.

"A Comparison of Alternative Kanban Control Mechanisms: Part I. Background and Structural Results." (with S. Tayur) IIE Transactions 27 (1995) 140-150.

"A Comparison of Alternative Kanban Control Mechanisms: Part II. Experimental Results." (with S. Tayur) IIE Transactions 27 (1995) 151-161.

"Production Control of Cyclic Schedules with Demand and Process Variability." (with R.A. Bowman) Production and Operations Management 4, 2 (1995) 145-162.

"A Hierarchical Approach for Metal Parts Fabrication." (with E. Iakovou and K. Malik) International Journal of Production Research 33, 5 (1995) 1257-1274.

"Experiential Learning in Manufacturing System Design." (with P. Jackson) Technology Management 1, 5 (1995) 196-199.

“The Economics of Sharing Inventories.” School of Operations Research and Industrial Engineering, Technical Report No. 1175, Cornell University, Ithaca, NY, 1996.

"Multi-item, Multi-period Production Planning with Uncertain Demand." (with C. Sox) IIE Transactions 28 (1996) 891-900.

“A Paradigm Lost.” School of Operations Research and Industrial Engineering, Technical Report No. 1180, Cornell University, Ithaca, NY, 1997.

"The Velocity Manufacturing Company - Two Years Later." (with D. Murray and D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1192, Cornell University, Ithaca, NY, 1997.

“Velocity Inc.: Case B Results of the Market Research Study.” (with D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1195, Cornell University, Ithaca, NY, 1997.

“Llenroc Plastics: Teaching Notes.” (with P. Jackson and K. Bourland) School of Operations Research and Industrial Engineering, Technical Report No. 1198, Cornell University, Ithaca, NY, 1997.

"Llenroc Plastics: A Case Study in Manufacturing and Distribution Systems Integration." (with P.L. Jackson) School of Operations Research and Industrial Engineering, Technical Report No. 1211, Cornell University, Ithaca, NY, 1998.

“A Review of the Stochastic Lot Scheduling Problem.” (with C.R. Sox, P.L. Jackson, and A. Bowman) International Journal of Production Economics 62, 3 (1999) 181-200.

“Determining and Allocating Capacity-Driven Safety Stock in Multi-Item, Multi-Echelon Systems.” (with E. Chan and J. Rappold) School of Operations Research and Industrial Engineering, Technical Report No. 1231, Cornell University, Ithaca, NY, 1999.

"Analytic Methods for Estimating Labor Requirements at a Parts Distribution Center." (with E. Chan) School of Operations Research and Industrial Engineering, Technical Report No. 1232, Cornell University, Ithaca, NY, 1999.

"Velocity Manufacturing Company Supplier Partnership Proposal." (with D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1239, Cornell University, Ithaca, NY, 1999.

"Llenroc Electronics." (with D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1240, Cornell University, Ithaca, NY, 1999.

"The Effects of Load Smoothing on Inventory Levels in a Capacitated Production and Inventory System." (with E.Chan) School of Operations Research and Industrial Engineering, Technical Report No. 1251, Cornell University, Ithaca, NY, 1999.

"Maintenance Support for the Reusable Launch Vehicle Program: Determining and Evaluating Spare Stock Levels for Recoverable Parts." (with K. Caggiano) School of Operations Research and Industrial Engineering, Technical Report No. 1269, Cornell University, Ithaca, NY, 2000.

"Maintenance Support for the Reusable Launch Vehicle Program: the RLV Repair Cycle Simulator." (with P.L. Jackson, K.E. Caggiano, and D.J. Oenning) School of Operations Research and Industrial Engineering, Technical Report No. 1270, Cornell University, Ithaca, NY, 2000.

"Analysis of Ordering Patterns in Serial Supply Chains." School of Operations Research and Industrial Engineering, Technical Report No. 1277, Cornell University, Ithaca, NY, 2000.

"Heuristic Computation of Periodic-Review Base Stock Inventory Policies." (with R. Roundy) Management Science 46 (2000), 104-109.

"A Computationally Efficient Approach for Determining Inventory Levels in a Capacitated Multi-Echelon Production-Distribution System." (with J.A. Rappold) Naval Research Logistics 47 (2000), 377-398.

"Some Analytic Results for a Periodic Review Lost Sales Problem." (with G. Janakiraman) School of Operations Research and Industrial Engineering, Technical Report No. 1283, Cornell University, Ithaca, NY, 2001. (Submitted to Operations Research.)

"A Combinatorial Multi-Indenture, Multi-Item Inventory Model for NASA's Reusable Launch Vehicle Program." (with K. Caggiano) School of Operations Research and Industrial Engineering, Technical Report No. 1284, Cornell University, Ithaca, NY, 2001. (Submitted to Operations Research.)

"NOVA Incorporated: F-case Two Years Later." (with D. Murray, J. Rappold, and D. Severance) School of Operations Research and Industrial Engineering, Technical Report No. 1285, Cornell University, Ithaca, NY, 2001.

"Guidelines for Collaborative Supply Chain System Design and Operation." (with D. Murray, J. Rappold, and D. Collins) Information Systems Frontiers 3 (2001), 427-453.

"Base Stock Levels in Capacitated Multi-Item, Multi-Echelon Systems with Stochastic, Non-Stationary, Cyclic Demand." (with D.H. Murray and J.A. Rappold) School of Operations

Research and Industrial Engineering, Technical Report No. 1305, Cornell University, Ithaca, NY, 2001.

"Capacitated Production Planning and Inventory Control When Demand is Unpredictable for Most Items: The No B/C Strategy." (with D.H. Murray and J.A. Rappold) School of Operations Research and Industrial Engineering, Technical Report No. 1306, Cornell University, Ithaca, NY, 2001.

"A Multi-Echelon, Multi-Item Inventory Model for Service Parts Management with Generalized Service Level Constraints." (with K.E. Caggiano, P.L. Jackson and J.A. Rappold) School of Operations Research and Industrial Engineering, Technical Report No. 1307, Cornell University, Ithaca, NY, 2001.

"A Model for Inventory Allocation and Repair in a Two-Echelon Network with Emergency Shipments." (with K.E. Caggiano) School of Operations Research and Industrial Engineering, Technical Report No. 1308, Cornell University, Ithaca, NY, 2001.

"A Simple Algorithm for Part Stocking to Satisfy Pooled Customer Service Requirements at Minimum Cost." (with K.E. Caggiano, P.L. Jackson and J.A. Rappold) School of Operations Research and Industrial Engineering, Technical Report No. 1309, Cornell University, Ithaca, NY, 2001.

"Optimal Stocking in Reparable Parts Networks with Repair Capacity and Inventory Pooling." (with K.E. Caggiano, P.L. Jackson and J.A. Rappold) School of Operations Research and Industrial Engineering, Technical Report No. 1310, Cornell University, Ithaca, NY, 2001.

"Periodic Review Inventory Control in Distribution systems: A Note on Linear Purchase and Transfer Costs." (with G. Janakiraman) School of Operations Research and Industrial Engineering, Technical Report No. 1319, Cornell University, Ithaca, NY, 2001.

"Extending the 'Single Unit – Single Customer' Approach to Capacitated Systems." (with G. Janakiraman) School of Operations Research and Industrial Engineering, Technical Report No. 1360, Cornell University, Ithaca, NY, 2003.

"Optimality of Multi-Tier Base-Stock Policies for a Class of Capacitated Serial Systems." (with G. Janakiraman) School of Operations Research and Industrial Engineering, Technical Report No. 1361, Cornell University, Ithaca, NY, 2003.

Other Professional Experiences:

Recipient of Outstanding Graduate Student Award at the University of Michigan Engineering Honors Convocation, 1964.

Recipient of National Science Foundation Grant for Study in Operations Research for the summer of 1970.

Recipient of the Outstanding Faculty Member Award for both 1970 and 1971 while at the Air Force Institute of Technology.

Officer in the College of On Line Decision Systems of the Institute of Management Sciences (1970-1976) .

Recipient of grant from the Naval Weapons Engineering Support Activity in l975 for study of spare aircraft engine requirements.

Recipient of Office of Naval Research Grant for 1975-1980 for study of inventory management problems in military logistics systems.

Recipient of Air Force Office of Scientific Research and Air Force Logistics Command grants in 1978-1980 for study of inventory management problems for Interchangeable Recoverable Items.

Recipient of National Science Foundation Grant for 1980-1988 for the development of logistics models of automatic factory design and operation.

Recipient of IBM Grant for 1986-1990 for the development of educational materials for teaching manufacturing logistics concepts.

Recipient of AT&T Grant for 1987-1988 for the research in material logistics.

Recipient of New York State Science and Technology Foundation Grant (1986-1987) for the development of COSMOS.

Recipient of IBM Grant for 1986-1987 to study material logistics issues related to chip and module production.

Recipient of General Foods Grant for 1986-1988 to develop COSMOS.

Recipient of IBM Grant for 1989-1990 for development of COSMOS.

Recipient of AT&T Grant for 1989-1990 for development of teaching materials related to manufacturing logistics.

Recipient of NSF Grant for 1989-1992 for study of material logistics issues in semiconductor manufacturing.

Recipient of AT&T Grant for 1990-1991 for enhancement of education in manufacturing systems design and management.

Recipient of AT&T Grant for 1991-1992 to provide computing equipment for studying semiconductor fabrication logistics problems.

Recipient of AT&T Grant for 1992-1993 for enhancement of education in total quality management.

Recipient of NSF Grant for 1991-present -- Synthesis Coalition -- for development of course in manufacturing systems design and control.

Recipient of AT&T Grant for 1993-1994 for enhancement of education in total quality management.

Recipient of NSF Grant for 1993-1996 for development of educational materials for quick response component supply.

Recipient of Sloan Foundation Grant for 1993-1996 for dissemination of educational materials related to the design and operation of manufacturing systems.

Recipient of AT&T Grant for 1994-1995 for enhancement of education in total quality management.

Recipient of AT&T Grant for 1995-1996 for multimedia instruction for manufacturing systems.

Recipient of Aeroquip Corporation Grant for 1995-1997 for studying production and inventory planning models.

Recipient of GM Grant for 1996-present for studying service parts problems.

Recipient of NASA Grant for 2000-present for studying spare parts requirements and logistics system design issues for NASA's Reusable Launch Vehicle Program.

Recipient of Aspen Technology Grant for 2000-present for the development of supply chain course materials.

Recipient of Aspen Technology Grant for 2000-present for developing stochastic models for the control of inventories in large-scale supply chain.

Recipient of NSF Grant for 2000-present for studying scalable enterprise systems.

Associate Editor of Management Science (1976-1977).

Associate Editor of Naval Research Logistics (1978-present).

Associate Editor of Operations Research Letters (1981-2002).

Associate Editor of Interfaces (1981-1983).

Area Editor for IIE Transactions (1985-1987).

Associate Editor of Manufacturing and Operations Management (1988-1996).

Editorial Board of International Journal of Production Economics (1995-present).

Associate Editor of Manufacturing and Service Operations Management (2003-present).

Officer in the US Air Force Reserve (1974-1983).

Selected Outstanding US Air Force Reserve Officer, Air Force Logistics Command in 1981.

Chairman Lanchester Prize Committee for 1985 Award.

Director of "Managing Next Generation of Manufacturing Technology Program" at Cornell (1985-2000).

Recipient of Dean's Prize for Innovative Teaching (1987).

Recipient of Distinguished Alumni Award, Rackham Graduate School, University of Michigan, 1988.

Recipient of EDUCOM/NCRIPTAL Higher Education Award for "The Manufacturing System Development Game," a Distinguished Curriculum Innovation in Engineering, 1990.

Recipient of the Silver Medal Award at the New Media INVISION 1994 Multimedia Awards ceremony given for the development and dissemination of material for a course on manufacturing system design and operation called "The Velocity Manufacturing Corporation" multimedia case.

Recipient of OR&IE Master of Engineering 1995 Outstanding Teaching Award.

Recipient of American Institute of Industrial Engineers 1995 Outstanding Teaching Award.

Recipient of Dean's Prize for Innovative Teaching (1995, 1999).

Recipient of 1998 IIE Transactions Award for Outstanding Paper on Scheduling and Logistics entitled "Multi-item, Multi-period Production Planning with Uncertain Demand." (with C. Sox).

Recipient of OR&IE Master of Engineering 2000 Outstanding Teaching Award.

Recipient of the University of Michigan’s College of Engineering Outstanding Alumni Award, October 2000.

Recipient of OR&IE Master of Engineering 2002 Outstanding Teaching Award.

Recipient of American Institute of Industrial Engineers 2002 Outstanding Teaching Award.

Recipient of American Institute of Industrial Engineers 2003 Outstanding Teaching Award.