

RAKESH NAGI

Department of Industrial and Enterprise Systems Engineering
University of Illinois at Urbana-Champaign

1. ACADEMIC POSITIONS

University of Illinois, Urbana-Champaign, Illinois

Department of Industrial and Enterprise Systems Engineering

Department Head: August 2013 – October 2019,

Donald Biggar Willett Professor in Engineering: August 2013 – .

Affiliate Faculty: Computer Science, Electrical and Computer Engineering, Coordinate Science Lab,
Computational Science & Engineering, Discovery Partners Initiative.

University of Illinois, Urbana-Champaign, Illinois

Applied Research Institute

Interim Director: November 2016 – March 2018.

University at Buffalo, The State University of New York at Buffalo, Buffalo, New York

Department of Industrial and Systems Engineering

Chair: June 2006 – July 2012,

Professor: August 2005 – August 2013,

Associate Professor: September 1998 – August 2005,

University at Buffalo Faculty Senate Committee: July 2002 – June 2004,

Director of Graduate Studies: August 1999 – August 2001,

Assistant Professor: September 1993 – August 1998.

University of Maryland, College Park, Maryland

Institute for Systems Research

Research Associate: December 1991 – August 1993.

INRIA-Lorraine, Nancy and Metz, France

Visiting Researcher: summer 1988, 1989, 1990, 1991, 2002.

2. PROFESSIONAL EDUCATION

Doctor of Philosophy in Mechanical Engineering*

University of Maryland, College Park, Maryland 1991

Master of Science in Mechanical Engineering*

University of Maryland, College Park, Maryland 1989

Bachelor of Engineering in Mechanical Engineering

University of Roorkee, Roorkee, India (now IIT-Roorkee) 1987

*Graduate work at the Institute for Systems Research (NSF-ERC) and INRIA-France, with significant ISE emphasis.

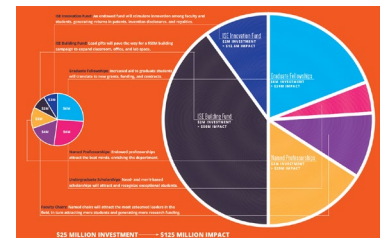
PROFESSIONAL INTERESTS: Big Graphs and Military Operations Research, High-level Information Fusion, Facilities Design, Production Management, Agile Manufacturing.

3. KEY ADMINISTRATIVE ACCOMPLISHMENTS

A. Industrial and Enterprise Systems Engineering, University of Illinois at Urbana-Champaign

1. Rankings and Impact:
 - a. US News Graduate Ranking: Improved 9 positions. 21(2014), 18, (2015), 15 (2016), 15 (2017), 12 (2018), 15 (2019), 14 (2020). ISE has 2 PhD programs, 2 MS programs, 120 grad students.
 - b. US News Undergraduate Rankings: Improved 9 positions. 15 (2014), 13 (2015), NR (2016), 12 (2017), 13 (2018), 14 (2019), 9 (2020), 6 (2021). ISE has 2 undergrad programs, 600 students.
 - c. Financial Engineer Ranking for MS program in Financial Engineering: Improved 4 positions 9 (2015), 6 (2016), 5 (2019). Enrollments around 65 professional graduate students.
2. ISE Strategy, Visioning and Policies:
 - a. Jointly developed ISE Vision and Mission Statements and Values. Formulated strategic plan with goals, actions and metrics for progress.
 - b. Helped create policies for teaching, faculty workload, online instruction revenue sharing, course buyout, etc.
 - c. Revised By-Laws; included the role of specialized faculty.
3. Finance:
 - a. Managed about \$5M in funds annually with strategic budgeting to faculty and staff hiring, graduate and undergraduate programs, marketing and communications, infrastructure, student societies, etc.
 - b. Increased graduate and online programs revenues for department: base \$12,448; \$462,867 (AY16-17); \$888,311 (AY17-18).
 - c. Received matching funding from the college based on instructional laboratories strategic plan
 - d. Received \$250,000 cost match for ISE facility upgrades.
 - e. Conducted expenditure analysis, determined cost drivers and reduced unproductive expenses.
4. Faculty and Staff:
 - a. Hired 17 faculty members including 13 tenured/tenure-track, 1 research, 1 clinical, 2 teaching: 3 (2014), 5 (2015), 2 (2016), 4 (2017), 1 (2018), 2 (2019). Grew faculty size to 27+5 T/TT + Specialized (including attrition and departures). Many promotion cases.
 - b. Focused on faculty diversity: Recruited 5 women faculty; promoted 2 women to full professor.
 - c. Faculty mentoring program: Senior faculty led; outcomes NSF CRII (3), CAREER (4), etc.
 - d. Promoted 6 faculty to full professor; Tenured and promoted 4 faculty to associate professor.
 - e. Hired and managed a large pool of adjuncts, affiliates, clinical and specialized faculty.
 - f. Hired 6 staff members: Marketing and communications coordinator; Operations Manager; Student, Alumni and Corporate Coordinator; Senior Director for Advancement; Admin. Staff (2).
5. Academic Programs:
 - a. Launched a new MSIE concentration in Advanced Analytics, with 6 new innovative courses. Developed corporate partnerships. Created certificate in Advanced Analytics for non-majors.
 - b. Initiated new joint MS in Health Technology with College of Applied Health Sciences.
 - c. Revised PhD qualifying exam and preparatory coursework for excellence.
 - d. Created MSIE online; increased graduate enrollment by 30%.
 - e. Rebranded undergraduate program to Systems Engineering and Design (from General Eng.).

- f. Undertook major curriculum revision for BS in Industrial Engineering (excellent outcomes).
- g. New track options in innovative disciplines like Internet of Things (IoT).
- h. ABET accreditation in 2014. Academic Program Review in 2015.
6. Research Excellence:
 - a. 68% increase in ASEE Reported Research Expenditures. 2015: \$1.7M; ... 2019: \$2.9M.
 - b. Formulated Research And Scholarship Enhancement committee; \$270k funding to faculty
7. Marketing and Communications:
 - a. Branding, new logo, color pallet, identity.
 - b. Annual Reports 2014, 2015, 2016, 2017, 2018, 2019.
 - c. Quarterly E-Newsletter, New website, Social media presence.
 - d. Presence in professional conferences: Banner, Brochures, Branding items.
8. Advancement/Development, Stewardship and Alumni Board Relations:
 - a. Received \$2M in Endowed Chair (Jerry S Dobrovolny).
 - b. Launched a \$25M department naming opportunity.
 - c. Established ISE Engineering Visionary Scholarship Fund.
 - d. Increased the ISE Endowment Book Value by 55% (2013-2016).
 - e. Developed new visioning materials and “Invest in ISE” brochure.
 - f. Executed several funding agreements with donors (confidential).
 - g. Gifts and pledges (\$0.5M AY16-17; \$1.15M AY17-18; >\$1M AY 18-19).
9. Diversity and Inclusion:
 - a. Invited panelist in 2018 Celebration of Diversity-Inclusion in Engineering Graduate Programs, UIUC. <http://publish.illinois.edu/engr-egsac/2018celebration/> (March 26, 2018)
 - b. Panelist “Interviews” for Society of Women Engineers, iFEAT: Illinois Female Engineers in Academia Training, October 21, 2016. <http://ifeat.engineering.illinois.edu/programming/2016-2017-speakers-list/>
 - c. Panelist “Department Head Perspective” for Society of Women Engineers, iFEAT: Illinois Female Engineers in Academia Training, February 9, 2018. <http://ifeat.engineering.illinois.edu/programming/2017-2018-speakers-list/>
 - d. Panel Session with Department Chairs: How to Recruit, Retain, and Support Women and Minority Students in INFORMS Annual Conference 2014. Sponsored by INFORMS and WOMMS (Women in Operations Research/Management Sciences).
10. Innovation and Entrepreneurship:
 - a. Formulated a new student innovation challenge: ISE student went on to win Illinois Innovation Prize (\$20k award).
 - b. Funded and supported MakerGirl <https://makergirl.us>; many student-led ventures; <https://ise.illinois.edu/newsroom/article/haptik-ie-graduate-launches-successful-start> Eventually sold for \$100M.
 - c. Encourage patents and student entrepreneurship; See ISE News for student start-ups [Therapalz](https://therapalz.com)
 - d. Personal: Formulated Enhance Enterprises LLC; won Phase I SBIR from AFRL-Rome.
11. Facilities:
 - a. New Flexible Manufacturing Laboratory for teaching and innovation.
 - b. \$500k improvements in flooring, new elevator, ADA compliance. Campus award for \$10,000 because of energy saving. <https://sustainability.illinois.edu/cool-idea-transportation-building-reinvests-its-energy-savings-award/>



B. Applied Research Institute, University of Illinois at Urbana-Champaign

1. ARI is a leading partner in a \$70M REMADE DoE Institute (prime RIT).
2. Developed 80-page self-study report and conducted a successful five-year external review.
3. Realigned research thrust areas for more productive and efficient functioning.
4. Developed strategic relationships with department of defense and energy laboratories (Sandia, Argonne and Army Research Labs.). Resulted in new \$1M funding for AY17-18.
5. Developed Phase II budgets and secured \$4.5M of funding from College of Engineering and Campus.

C. Industrial Systems Engineering, University at Buffalo, The State University of New York

1. Development Activities

- a. Constituted a new Department Advisory Board in 2011.
- b. Worked with Engineering Development Officer for a named chaired professor, “Praxair Professor of Operations Research,” for Prof. Mark Karwan, \$250,000.
- c. Worked with Engineering Development Officer for a named chaired professorship from United Airlines (the company was in Chapter 11 reorganization so the gift was unsuccessful).
- d. Named graduate fellowship proposal to Raytheon.
- e. Gift from General Mills to support IE projects \$20,000.
- f. Strategic Development of multi-dimensional relationship with Dresser-Rand (2008-2009).

2. Faculty Hiring and Personnel Action

For our small faculty size, I successfully convinced the Dean to invest in the growth of ISE faculty. A number of excellent faculty members were recruited (2006-2012).

- a. 2 (2007); 2 (2008); 2010; 2011; 2 (2012).
- b. 5 of these hires received NSF or NIOSH peer reviewed funding.
- c. Five faculty renewals, H1B support letters and Permanent Residence Petition support.
- d. Two tenure and promotion cases. One full professor case.
- e. Hiring of three staff members.
- f. Developing performance plans and conducting annual appraisals for staff members.
- g. Served as a mentor of a few junior faculty members.
- h. Faculty annual reviews and staff members for performance plans and assessments.

3. Significant Accreditation and Review Activities

- a. National Research Council (NRC) Assessment of Doctoral Programs (2006).
- b. Graduate Programs Review (2007).
- c. ABET Accreditation (2008).

4. New Programs and Significant Improvements

- a. Formulated a new MS Degree Program in “Service Systems Engineering”. First cohort was admitted in 2007. Formulated curriculum and sought degree approval through the University and SUNY system. Staffed courses and organized advisory board. Visited local companies to present the program and solicit internships and guest lecture participation. Formulated an Industrial Advisory Board.

- b. Proposed a Certificate Program in Information Fusion. Encouraged faculty to create two new courses in Level 1 and Level 2/3 Information Fusion. Lockheed Martin was interested in a modular version of this certificate.
 - c. Enhanced course offerings for distance learning.
 - d. Departmental layout reorganization, creation of a new teaching laboratory for undergraduate lab courses and internship activities.
 - e. Expansion of ISE PC laboratory; relocated to bigger space and added new computers.
5. Creative and Routine Chair Activities
- a. New promotional video for ISE (sponsored by CIEADH – IE Department Heads) (http://www.youtube.com/watch?v=ZpPDoLX_9K4) won the **NY Emmy Award**.
 - b. Formulating a new departmental advisory council.
 - c. Open houses, freshman departmental visits, and departmental tours.
 - d. Budget management (State other than personnel services, Research Foundation, UB Foundation, Tuition Scholarship allocations).
 - e. Alumni and Donor communication.
 - f. Hired Editorial Staff and created “VoISE,” Voice of ISE newsletter.
 - g. ISE web site redesign effort and revision of graduate program brochure.
 - h. Active participation in CIEADH (Council of IE Academic Department Heads).
 - i. Co-organizer of IIE Doctoral Colloquium (2008, 2009).

4. PUBLICATIONS IN REFEREED SCIENTIFIC JOURNALS

A. In Print or Accepted

1. Vadrevu, S. and Nagi, R. "A GPU accelerated algorithm for solving the Multi-dimensional Assignment Problem for a Multi-Target Tracking application," accepted to *IEEE Transactions on Automation, Science and Engineering*, May 2022.
2. Sengupta, R., Nagi, R. and Sreenivas, R.S. "Equitable Allocation of Operations and Makespan Minimization for Autonomous Agents," accepted to *IEEE Transactions on Automation, Science and Engineering*, March 2022.
3. Yekkehkhany, A. and Nagi, R. "Risk-Averse Equilibrium for Autonomous Vehicles in Stochastic Congestion Games," accepted to *IEEE Transactions on Intelligent Transportation Systems*, March 2022.
4. Anzoom, R., Nagi, R. and Vogiatzis, C. "A Review of Research in Illicit Supply-Chain Networks and New Directions to Thwart them," *IIE Transactions on Operations Engineering*, Feb. 2022, Vol 54(2), pp. 134-158.
5. Murray, T., Garg, J. and Nagi, R. "Prize-Collecting Multi-Agent Orienteering: Price of Anarchy Bounds and Solution Methods," *IEEE Transactions on Automation, Science and Engineering*, Jan. 2022, Vol. 19(1), pp. 531-544.
6. Ghayoori, A. and Nagi, R. "A Markov Model Examining Intervention Effects on the HIV Prevalence/Incidence amongst the Overall Population," *Socio-Economic Planning Sciences*, 2022, Vol. 79, Article 101123.
7. Yekkehkhany, A., Murray, T. and Nagi, R. "Stochastic Superiority Equilibrium in Game Theory," *Decision Analysis*, June 2021, Vol. 18(2), pp. 153-168.

8. Yekkehkhany, A., Arian, E., Nagi, R., and Shomorony, I. "A Cost-Based Analysis for Risk-Averse Explore-Then-Commit Finite-Time Bandits," *IIEE Transactions on Operations Engineering*, Oct. 2021, Vol. 53(10), pp. 1094-1108.
9. Ghayoori, A. and Nagi, R. "Seed Investment Bounds for Viral Marketing under Generalized Diffusion and Selection Guidance," *IEEE Transactions on Computational Social Systems*, June 2021, Vol. 8(3), pp. 546-556.
10. Murray, T., Garg, J. and Nagi, R. "Limited Trust Equilibria," *European Journal of Operational Research*, Feb. 2021, Vol. 289(1), pp. 364-380.
11. Worden, M., Murray, C.C., Karwan, M.H., Ortiz-Peña, H.J. and Nagi, R. "Sensor Tasking for Unmanned Aerial Vehicles in Disaster Management Missions with Limited Communications Bandwidth," *Computer & Industrial Engineering*, Nov. 2020, Vol. 149, pp. 106754-16.
12. Natu, S., Date, K. and Nagi, R. "GPU-accelerated Lagrangian Heuristic for Multidimensional Assignment Problems with Decomposable Costs," *Parallel Computing*, Sept. 2020, Vol. 97, pp. 102666.
13. Yekkehkhany, A. and Nagi, R. "Blind GB-PANDAS: A Blind Throughput-Optimal Load Balancing Algorithm for Affinity Scheduling," *IEEE/ACM Transactions on Networking*, June 2020, Vol. 28(3), pp. 1199-1212.
14. Thakoor, O., Garg, J. and Nagi, R. "Multi-Agent UAV Routing: A Game Theory Analysis with Tight Price of Anarchy Bounds," *IEEE Transactions on Automation, Science and Engineering*, January 2020, Vol. 17(1), pp. 100-116. **[INFORMS MAS Koopman Prize in 2021.]**
15. Date, K. and Nagi, R. "Level 2 Reformulation Linearization Technique-Based Parallel Algorithms for Solving Large Quadratic Assignment Problems on Graphics Processing Unit Clusters," *INFORMS Journal of Computing*, Fall 2019, Vol. 31(4), pp. 771-789.
16. Tauer, G., Date, K., Nagi, R. and Sudit, M. "An Incremental Graph-Partitioning Algorithm for Entity Resolution," *Information Fusion*, March 2019, Vol. 46, pp. 171-183.
17. Samadi, M., Nagi, R., Semenov, A. and Nikolaev, A. "Seed Activation Scheduling for Influence Maximization in Social Networks," *OMEGA, The International Journal of Management Science*, June 2018, Vol. 77, pp. 96-114.
18. Xia, Y., Batta, R. and Nagi, R. "Controlling a fleet of UAVs to collect uncertain information in a threat environment," *Operations Research*, May-June 2017, Vol. 65(3), pp. 674-692. **[INFORMS MAS Koopman Prize in 2018.]**
19. Farasat, A., Gross, G., Nagi, R. and Nikolaev, A. "Social Network Analysis with Data Fusion," *IEEE Transactions on Computational Social Systems*, June 2016, Vol. 3(2), pp. 88-99.
20. Samadi, M., Nikolaev, A. and Nagi, R. "The Temporal Aspects of Evidence-Based Influence Maximization in Social Networks," *Optimization Methods and Software*, 2017, 32(2), pp. 290-311 (published online, Aug 2016).
21. Khopkar, S., Nagi, R. and Tauer, G. "A Penalty Box Approach for Approximation Betweenness and Closeness Centrality Algorithms," *Social Network Analysis and Mining (SNAM)*, December 2016, 6(1), 1-13.
22. Date, K. and Nagi, R. "A GPU Accelerated Hungarian Algorithm for the Linear Assignment Problem," *Parallel Computing*, September 2016, Vol. 57, pp. 52-72.
23. Samadi, M., Nikolaev, A. and Nagi, R. "A Subjective Evidence Model for Influence Maximization in Social Networks," *OMEGA*, March 2016, Vol. 59, Part B, pp. 263-278.

24. Gross, G.A. and Nagi, R. "Precedence Tree Guided Search for the Efficient Identification of Multiple Situations of Interest – AND/OR Graph Matching," *Information Fusion*, January 2016, Vol. 27, pp. 240-254.
25. Huang, S., Wang, Q., Batta, R. and Nagi, R. "An Integrated Model for Site Selection and Space Determination of Distribution Centers," *Computers and Operations Research*, October 2015, Vol. 62, pp. 169-176.
26. Garcia Llinas, G.A. and Nagi, R. "QoS-based Composition of Services with Complementary Candidates," *IEEE Transactions on Services Computing*, January/Feb 2015, Vol. 8(1), pp. 79-91.
27. Khopkar, S., Nagi, R., Nikolaev, A. and Bhembre, V. "Efficient Algorithms for Incremental All Pairs Shortest Paths, Closeness and Betweenness in Social Network Analysis," *Social Network Analysis and Mining (SNAM)*, December 2014, Vol. 4(1), Article 220.
28. Date, K., Makked, S. and Nagi, R. "Dominance Rules for the Optimal Placement of a Finite-size Facility in an Existing Layout," *Computers & Operations Research*, November 2014, Vol. 51, pp. 182-189.
29. Bednowitz, N., Batta, R. and Nagi, R. "Dispatching and Loitering Policies for Unmanned Aerial Vehicles under Dynamically Arriving Multiple Priority Targets," *Journal of Simulation*, January 2014, Vol. 8(1), pp. 9-24. (Appeared on line, January 2012.)
30. Tauer, G. and Nagi, R. "A Map-Reduce Lagrangian Heuristic for Multidimensional Assignment Problems with Decomposable Costs," *Parallel Computing*, November 2013, Vol. 39(11), pp. 653-668.
31. Xu, J. and Nagi, R. "Identical Parallel Machine Scheduling to Minimize Weighted Makespan and Total Weighted Completion Time: A Column Generation Approach," *International Journal of Production Research*, December 2013, Vol. 51(23-24), pp. 7091-7104.
32. Jenkins, M., Gross, G., Bisantz, A. and Nagi, R. "Towards Context Aware Data Fusion: Modeling and Integration of Situationally Qualified Human Observations into a Fusion Process for Intelligence Analysis," *Information Fusion*, January 2015, Vol. 21, pp. 130-144.
33. Gross, G.A., Nagi, R. and Sambhoos, K. "A Fuzzy Graph Matching Approach in Intelligence Analysis and Maintenance of Continuous Situational Awareness," *Information Fusion*, July 2014, Vol. 18, pp. 43-61.
34. Xu, J. and Nagi, R. "Solving Assembly Scheduling Problems with Tree-structure Precedence Constraints: A Lagrangian Relaxation Approach," *IEEE Transactions on Automation Science and Engineering*, July 2013, Vol. 10(3), pp. 757-771.
35. Tauer, G., Nagi, R. and Sudit, M. "The Graph Association Problem: Mathematical Models and a Lagrangian Heuristic," *Naval Research Logistics*, April 2013, Vol. 60(3), pp. 251-268.
36. Pan, F. and Nagi, R. "Multi-Echelon Supply Chain Network Design in Agile Manufacturing," *OMEGA, The International Journal of Management Science*, December 2013, Vol. 41(6), pp. 969-983. **[ScienceDirect's Top 25 Hottest Articles.]**
37. Mufalli, F., Batta, R. and Nagi, R. "Simultaneous Sensor Selection and Routing of Unmanned Aerial Vehicles for Complex Mission Plans," *Computers & Operations Research*, November 2012, Vol. 39(11), pp. 2787-2799.
38. Mujawar, S., Huang, S. and Nagi, R. "Scheduling to Minimize Stringer Utilization for Continuous Annealing Operations," *OMEGA, The International Journal of Management Science*, August 2012, Vol. 40(4), pp. 437-444.

39. Zhang, M., Batta, R. and Nagi, R., "Designing Manufacturing Facility Layouts to Mitigate Congestion," *IIE Transactions on Design and Manufacturing*, 2011, Vol. 43(10), pp. 689-702. **[IIE Transactions Best paper award from journal issues from July 2011 through June 2012.]**
40. Sambhoos, K., Nagi, R., Sudit, M. and Stotz, A. "Enhancements to High Level Data Fusion using Graph Matching and State Space Search," *Information Fusion*, 2010, Vol. 11(4), pp. 351-364.
41. Pan, F. and Nagi, R. "Robust Supply Chain Formation under Uncertain Demand in Agile Manufacturing," *Computers and Operations Research*, 2010, Vol. 37(4), pp. 668-683. **[ScienceDirect's Top 25 Hottest Articles.] [351 Citations per Google Scholar as of 8/20/2022.]**
42. Shah, P., Gosavi, A. and Nagi, R., "A Machine Learning Approach to Optimize Usage of Recycled Material in a Remanufacturing Environment," *International Journal of Production Research*, 2010, Vol. 48(4), pp. 933–955.
43. Zhang, M., Savas, S., Batta, R. and Nagi, R. "Facility Placement with Sub-Aisle Design in an Existing Layout," *European Journal of Operational Research*, Vol. 197(16), August 2009, pp. 154-165.
44. Sambhoos, K., Koc, B. and Nagi, R. "Extracting Assembly Mating Graphs from CAD Models," *ASME Journal of Computing and Information Science in Engineering*, Vol. 9(3), pp. 034501-1 – 034501-9, 2009.
45. Zhang, M., Batta, R. and Nagi, R., "Modeling of Workflow Congestion and Optimization of Flow Routing in a Manufacturing/Warehouse Facility," *Management Science*, 2009, Vol. 55(2), pp. 267-280.
46. Huang, S., Batta, R. and Nagi, R. "Simultaneous Siting and Sizing of Distribution Centers on a Plane," *Annals of Operations Research*, 2009, Vol. 167, pp. 157-170, (published online June 2008).
47. Sarkar, A., Batta, R. and Nagi, R. "Finding Rectilinear Least Cost Paths in the Presence of Convex Polygonal Congested Regions," *Computers and Operations Research*, 2009, Vol. 36(2), pp. 737 – 754.
48. Sambhoos, K., Nagi, R., Sudit, M. and Rickard, T. "Hierarchical Higher Level Data Fusion using Fuzzy Hamming and Hypercube clustering," *Journal of Advances in Information Fusion*, 2008, Vol. 3(2), pp. 90 – 106.
49. Casas, I., Garrity, R., Mandloi, D., Sunm, M., Weaver, J., Nagi, R. and Batta, R., "A Spatial Decision Support System Combining GIS and OR Tools to Optimize District Boundaries and Bus Routes for a Suburban School District," *OR Insight*, 2008, Vol. 21(2), pp. 3-16.
50. Shetty, V.K., Sudit, M. and Nagi, R. "Priority-based Assignment and Routing of a Fleet of Unmanned Combat Aerial Vehicles," *Computers and Operations Research*, 2008, Vol. 35(6), pp. 1813-1828.
51. Kelachankuttu, H., Batta, R. and Nagi, R. "Contour Line Construction for a New Rectangular Facility in an Existing Layout with Rectangular Departments," *European Journal of Operational Research*, 2007, Vol. 180, pp. 149-162.
52. Sarkar, A., Batta, R. and Nagi, R. "Placing a Finite Size Facility with a Center Objective on a Rectilinear Plane with Barriers," *European Journal of Operational Research*, 2007, Vol. 179, pp. 1160-1176.
53. Ghosh Dastidar, S. and Nagi, R. "Batch Splitting in an Assembly Scheduling Environment," *International Journal of Production Economics*, 2007, Vol. 105, pp. 372-384.
54. Romanowski, C.J., Nagi, R. and Sudit, M. "Data Mining in an Engineering Design Environment: OR Applications from Graph Matching," *Computers & Operations Research*, 2006, Vol. 33(11), pp. 3150-3160.

55. Chauhan, S., Proth, J.-M., Sarmiento, A.-M. and Nagi, R. "Opportunistic Supply Chain Formation from Qualified Partners for a New Market Demand," *Journal of Operations Research Society*, 2006, Vol. 57(9), pp. 1089-1099.
56. Raheja, D., Llinas, J., Nagi, R. and Romanowski, C. "A Data Fusion/Data Mining-Based Architecture for Condition-Based Maintenance," *International Journal of Production Research*, 2006, Vol. 44(14-15), pp. 2869-2887.
57. Guiffrida, A.L. and Nagi, R. "Cost Characterizations of Supply Chain Delivery Performance," *International Journal of Production Economics*, 2006, Vol. 102(1), pp. 22-36.
58. Guiffrida, A.L. and Nagi, R. "Economics of Managerial Neglect in Supply Chain Delivery Performance," *The Engineering Economist*, 2006, Vol. 51(1), pp. 1-17.
59. Huang, S., Batta, R. and Nagi, R. "Distribution Network Design: Selection and Sizing of Congested Connections," *Naval Research Logistics*, 2005, Vol. 52, pp. 701-712.
60. Ghosh Dastidar, S. and Nagi, R., "Scheduling Injection Molding Operations with Multiple Resource Constraints and Sequence Dependent Setup Times and Costs," *Computers & Operations Research*, 2005, Vol. 32(11), pp. 2987-3005.
61. Romanowski, C.J. and Nagi, R., "On Comparing Bills of Materials: A Similarity/Distance Measure for Unordered Trees," *IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans*, 2005, Vol. 35(2), pp. 249-260.
62. Patel, D.J., Batta, R. and Nagi, R. "Clustering Sensors in Wireless *ad hoc* Networks Operating in a Threat Environment," *Operations Research*, 2005, Vol. 53(3), pp. 432-442.
63. Romanowski, C.J. and Nagi, R. "A Data Mining Approach to forming Generic Bills of Materials in support of Variant Design Activities," *ASME Journal of Computing and Information Science in Engineering*, 2004, Vol. 4(4), pp. 316-328.
64. Sarkar, A., Batta, R. and Nagi, R. "Planar Area Location/Layout Problem in the Presence of Generalized Congested Regions with the Rectilinear Distance Metric," *IIE Transactions on Design and Manufacturing*, 2005, Vol. 37(1), pp. 35-50.
65. Wang, A., Koc, B. and Nagi, R. "Complex Assembly Variant Design in Agile Manufacturing. Part I: System Architecture and Assembly Modeling Methodology," *IIE Transactions on Design and Manufacturing*, 2005, Vol. 37(1), pp. 1-16.
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67. Kelkar, A., Koc, B. and Nagi, R., "Geometric Algorithms for Rapidly Reconfigurable Mold Manufacturing of Free-form Objects," *Computer Aided Design*, 2005, Vol. 37(1), pp. 1-16.
68. Huang, S., Batta, R., Klamroth, K. and Nagi, R. "K-Connection Location Problem in a Plane," *Annals of Operations Research*, 2005, Vol. 136(1), pp. 193-209.
69. Sarkar, A., Batta, R. and Nagi, R. "Commentary on 'Facility Location in the Presence of Congested Regions with the Rectilinear Distance Metric'," *Socio-Economic Planning Sciences*, 2004, Vol. 38(4), pp. 291-306.
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71. Nandikonda, P., Batta, R. and Nagi, R. "Locating a 1-Center on a Manhattan Plane with "Arbitrarily" Shaped Barriers," *Annals of Operations Research*, 2003, Vol. 123, pp. 157-172.

72. Huang, S., Batta, R. and Nagi, R. "Capacity Sizing and Selections of Connections in a Facility Layout," *IIE Transactions on Design and Manufacturing*, 2003, Vol. 35(1), pp. 49-59.
73. Savas, S., Batta, R. and Nagi, R. "Finite-Size Facility Placement in the Presence of Barriers to Rectilinear Travel," *Operations Research*, 2002, Vol. 50(6), pp. 1018-1031.
74. Zhou, L. and Nagi, R. "Design of Distributed Information Systems for Agile Manufacturing Virtual Enterprises using CORBA and STEP Standards," *Journal of Manufacturing Systems*, 2002, Vol. 21(1), pp. 14-31.
75. Wang, S.-J., Bhadury, J. and Nagi, R., "Locating a Supply Facility and Input/Output Points in a Layout Problem," *Computers and Operations Research: Special Issue on Location Science*, 2002, Vol. 29(6), pp. 685-699.
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B. Submitted

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5. PATENT

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6. PUBLICATIONS IN CONFERENCE PROCEEDINGS

A. Refereed (Full Paper)

1. Kawtikwar, S., Almasri, M., Hwu, W-M., Nagi, R., and Xiong, J. "Enhanced PARallel Subgraph Enumeration in CUDA," *28th ACM SIGPLAN Annual Symposium on Principles and Practice of Parallel Programming (PPoPP)*, Feb 25 – March 1, 2023, Montreal, Canada (submitted).
2. Almasri, M., Chang, Y.-H., El Hajj, I., Nagi, R., Xiong, J., and Hwu, W-M. "Parallelizing Maximal Clique Enumeration on GPUs," *28th ACM SIGPLAN Annual Symposium on Principles and Practice of Parallel Programming (PPoPP)*, Feb 25 – March 1, 2023, Montreal, Canada (submitted).
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92. Anwar, M.F. and Nagi, R., "Integration of Just-In-Time production and Material Handling in an Assembly Environment," *5th Industrial Engineering Research Conference*, Minneapolis, MN, May 1996, pp. 281-286.
93. Shankar, V. and Nagi, R., "A Flexible Optimization Approach for Multi-resource, Multi-project Planning and Scheduling," *5th Industrial Engineering Research Conference*, Minneapolis, MN, May 1996, pp. 263-267.
94. Iyer, S. and Nagi, R., "Identification and Ranking of Similar Parts in Agile Manufacturing," *4th Industrial Engineering Research Conference*, Nashville, TN, May 1995, pp. 709-718.
95. Gupta, P. and Nagi, R., "Flexible Optimization Framework for Partner Selection in Agile Manufacturing," *4th Industrial Engineering Research Conference*, Nashville, TN, May 1995, pp. 691-700.
96. Iyer, S. and Nagi, R., "Identification of Similar Parts in Agile Manufacturing," *ASME Winter Annual Conference: Concurrent Product Design DE-Vol. 74*, Chicago, November 1994, pp. 87-96.
97. Harhalakis, G., Lin, C.P., Nagi, R. and Proth, J.M., "Hierarchical Decision Making in Computer Integrated Manufacturing Systems," *Rensselaer's Third International Conference on CIM*, Troy, NY, May 20-22 1992.
98. Harhalakis, G., Nagi, R., Proth, J.M. and Vernadat, F., "Design of Manufacturing Systems: A Bottom-up Approach Based on Petri Nets," *Third International Conference on Data and Knowledge Systems for Manufacturing and Engineering*, Lyon-France, March 1992.
99. Harhalakis, G., Nagi, R. and Proth, J.M., "Hierarchical Modeling Approach for Production Planning," *INCOM '92: 7th IFAC Symposium on Information Control Problems in Manufacturing Technology*, Toronto, May 25-28 1992.
100. Harhalakis, G., Minis, I., Nagi, R. and Proth, J.M., "A Comprehensive Group Technology System for Cellular Manufacture," published in *Chapter 70, Production Research: Approaching the 21st Century*, Taylor and Francis Ltd., 1991 and presented in Tenth ICPR, Nottingham, August 1989.
101. Harhalakis, G., Minis, I. and Nagi, R., "Development and Application of a Knowledge Based System for Cellular Manufacturing," *Third International Conference on Expert Systems in Production and Operations Management*, South Carolina, May 1989.

B. Abstract Reviewed (Full Paper)

102. McDaniel, D.M., Kingsbury, T., Hintz, K., Nagi, R., and Llinas, J. "Distributed Data Fusion and Resource Management for Cyberspace and Electromagnetic Activities," *2021 Military Sensing Symposia, National Symposium on Sensor and Data Fusion (NSSDF)*, Virtual, 14-16 Dec. 2021.
103. Gross, G. A, Nagi, R., Duff, D., and Patel, M. "MapReduce All-source Breadth First Search – Implementation and Data Access Tradeoff Analyses," *2014 Military Sensing Symposia, National Symposium on Sensor and Data Fusion (NSSDF)*, Springville, VA, October 2014.
104. Llinas, J., Nagi, R., Duff, D., Patel, M., and Walsh, D. "Framing and Defining New Fusion Strategies and Advanced Analytics for Relation-driven Problem Environments," *2012 Military Sensing Symposia, National Symposium on Sensor and Data Fusion (NSSDF)*, Washington, DC, October 2012.
105. Ortiz-Pena, H., Hirsch, M., Karwan, M., Nagi, R., and Sudit, M. "Measuring the Price of Anarchy via Perspective Optimization of Unmanned Vehicles in ISR Operations," *2012 Military Sensing Symposia, National Symposium on Sensor and Data Fusion (NSSDF)*, Washington, DC, October 2012.
106. Stotz, A., Sudit, M., Nagi, R., Hirsch, M., and Sambhoos, K. "Graph Dissemination for Distributed Enterprises (GraDDE)," *2007 Military Sensing Symposia, National Symposium on Sensor and Data Fusion (NSSDF)*, McLean, VA, June 2007.
107. Nagi, R., "Material Handling Congestion and the Facility Layout Problem," *9th International Material Handling Research Colloquium*, Salt Lake City, UH, June 2006.
108. Zhang, M., Batta, R., and Nagi, R., "Probabilistic Modeling and Alleviation of Congestion in a Facility Layout," *9th International Material Handling Research Colloquium*, Salt Lake City, UH, June 2006.
109. Nagi, R. and Batta, R., "Congestion in Facilities Location and Layout: Deterministic and Stochastic Models," *NSF Design and Manufacturing Grantees Conference*, St. Louis, MO, June 2006.
110. Batta, R. and Nagi, R., "A Strategic Model for Distribution Center Space Sizing and Location," *8th International Material Handling Research Colloquium*, Graz, Austria, June 2004.
111. Heragu, S., Nagi, R., and Norman, B., "Challenges and Research Issues faced by the Manufacturer in a Mass Customization Environment," *7th International Material Handling Research Colloquium*, Portland, Maine, June 2002.
112. Batta, R. and Nagi, R., "Location and sizing of material handling connections in a facility layout," *7th International Material Handling Research Colloquium*, Portland, Maine, June 2002.
113. Raheja, D., Llinas, J., and Nagi, R., "A Data Fusion-Based Architecture for Condition-Based Maintenance," *14th International Congress and Exhibition on Condition Monitoring and Diagnostic Engineering Management*, University of Manchester UK, September 2001 (could not be presented).
114. Huang, S., Batta, R. and Nagi, R., "Optimal location and capacity sizing of connections in a facilities layout," *4th International POMS conference*, Garuja, Brazil, August 2001.
115. Nagi, R., "CAREER: Agile Manufacturing and Information Systems," *NSF Design and Manufacturing Grantees Conference*, Tampa FL, January 2001.
116. Batta, R. and Nagi, R., "Facility Layout (Re)Design Using Planar & Network Location Approaches," *NSF Design and Manufacturing Grantees Conference*, Tampa FL, January 2001.
117. Singh, H. and Nagi, R., "Time-Phased Manufacturing Cell Formation: A Cost Based Approach," *8th Industrial Engineering Research Conference*, Phoenix AZ, May 1999.

118. Romanowski, C.J. and Nagi, R., "Improving Preventive Maintenance Scheduling using Data Mining Techniques," *8th Industrial Engineering Research Conference*, Phoenix AZ, May 1999.
119. Panikacherry, B.N. and Nagi, R., "An Integrated Framework For Distributed Scheduling And Logistics Management In Agile Manufacturing," *8th Industrial Engineering Research Conference*, Phoenix AZ, May 1999.
120. Venkatesan, B. and Nagi, R., "An IT-OR Approach to Project Management in an Agile Manufacturing Environment," *8th Industrial Engineering Research Conference*, Phoenix AZ, May 1999.
121. Bang, C. and Nagi, R., "An Integrated Framework for Process Planning and Shop Floor Scheduling in Agile Cellular Manufacturing," *8th Industrial Engineering Research Conference*, Phoenix AZ, May 1999.
122. Kazan, O., Nagi, R. and Rump, C., "New Lot-Sizing Formulations for Less Nervous Production Schedules," *8th Industrial Engineering Research Conference*, Phoenix AZ, May 1999.
123. Nagi, R., "Agile Manufacturing Information Systems for Enterprise Integration," *NSF Design and Manufacturing Grantees Conference*, Los Angeles, CA, January 1999.
124. Batta, R. and Nagi, R., "Facility Layout (Re)Design Using Planar & Network Location Approaches," *NSF Design and Manufacturing Grantees Conference*, Los Angeles, CA, January 1999.
125. Venkatesan, B. and Nagi, R., "Decision Support System for Logistical and Assembly Analysis of Rapidly Reconfigurable Complex Assemblies in an Agile Manufacturing Environment," *Rensselaer's International Conference on Agile, Intelligent, and Computer-Integrated Manufacturing*, Troy, NY, October 1998.
126. Romanowski, C.R. and Nagi, R., "Data Mining Techniques for Preventive Maintenance in Agile Manufacturing," *Rensselaer's International Conference on Agile, Intelligent, and Computer-Integrated Manufacturing*, Troy, NY, October 1998.
127. Anwar, M.F. and Nagi, R., "Integrated Scheduling and Logistics in an Assembly Environment," *Rensselaer's International Conference on Agile, Intelligent, and Computer-Integrated Manufacturing*, Troy, NY, October 1998.
128. Sriram, S.R. and Nagi, R., "A Hierarchical and Dynamic Distribution System for Agile Manufacturing based on Distributed Object Technology," *Rensselaer's International Conference on Agile, Intelligent, and Computer-Integrated Manufacturing*, Troy, NY, October 1998.
129. Batta, R. and Nagi, R., "Facility Layout (Re)Design Using Planar and Mixed Planar/Network Location Approaches," *1998 International Colloquium on Material Handling Research*, Phoenix, AZ, June 1998.
130. Subramanian, L. and Nagi, R., "Workflow Management in Agile Manufacturing Information Systems," *7th Industrial Engineering Research Conference*, Alberta Canada, May 1998.
131. Sriram, S.R. and Nagi, R., "An Information Technology-Based Dynamic Distribution System for Agile Manufacturing," *7th Industrial Engineering Research Conference*, Alberta Canada, May 1998.
132. Sarmiento, A.-M. and Nagi, R., "Partnership Selection for Virtual Enterprises from Organizational Webs," *7th Industrial Engineering Research Conference*, Alberta Canada, May 1998.
133. Savas, S., Batta, R. and Nagi, R., "A Mixed Planar/Network Approach to Facility Layout," *7th Industrial Engineering Research Conference*, Alberta Canada, May 1998.
134. Fico, R. and Nagi, R., "An Economic Driven Time-Phased Hybrid Cellular Manufacturing Design Approach," *7th Industrial Engineering Research Conference*, Alberta Canada, May 1998.

135. Nagi, R., "Agile Manufacturing Information Systems for Enterprise Integration," *NSF Design and Manufacturing Grantees Conference*, Monterrey, Mexico, January 1998.
136. Sarmiento, A.-M. and Nagi, R., "Analysis of a Two-Level Integrated Production-Distribution System," *1996 Conference on Agile and Intelligent Manufacturing Systems*, Troy, NY, Oct. 1996.
137. Song, L. and Nagi, R., "A Virtual Information System for Agile Manufacturing Enterprises," *1996 Conference on Agile and Intelligent Manufacturing Systems*, Troy, NY, October 1996.
138. Taylor, D.G. and Nagi, R., "Agile Manufacturing in Material Handling and Logistics: Implications and a Research Agenda," *1996 International Colloquium on Material Handling Research*, Vught, The Netherlands, June 1996, pp. 9-13.
139. Batta, R. and Nagi, R., "Classification and Elimination of Material Handling Estimation Errors," *1996 International Colloquium on Material Handling Research*, Vught, The Netherlands, June 1996, pp. 435-455.
140. Candadai, A., Herrmann, J.W., Minis, I. and Nagi, R., "Variant Design Critiquing for Agile Manufacturing," *NSF Design and Manufacturing Grantees Conference*, San Diego, January 1995.
141. Ioannou, G., Minis, I., Nagi, R. and Proth, J.-M., "Design of Material Handling Flow Paths," *NSF Design and Manufacturing Grantees Conference*, Boston, January 1994.

7. BOOK CHAPTERS & EDITED PROCEEDINGS

A. Book Chapters

1. M.J. Hirsch, H. Ortiz-Pena, R. Nagi, A. Stotz, and M. Sudit, "On the optimization of information workflow," Dynamics of Information Systems: Mathematical Foundations, A. Sorokin, R. Murphey, M. Thai, and P.M. Pardalos (eds.), Springer, vol. 20, pp. 43 – 65, 2012.
2. Pfeiffer, B., Batta, R., Klamroth, K. and Nagi, R. "Probabilistic Modeling for UAV Path Planning in the Presence of Threat Zones," Handbook of Military Industrial Engineering, Editors: Adedeji Badiru and Marlin Thomas, CRC Press, Taylor and Francis Group, 2009.
3. Romanowski, C.J. and Nagi, R., "A Data Mining-based Engineering Design Support System: A Research Agenda," Data Mining for Design and Manufacturing: Methods and Applications, Editor: D. Braha, Kluwer Academic Publishers, 2001, pp. 161-178.
4. Romanowski, C.J. and Nagi, R., "Analyzing Maintenance Data Using Data Mining Methods," Data Mining for Design and Manufacturing: Methods and Applications, Editor: D. Braha, Kluwer Academic Publishers, 2001, pp. 235-254.
5. Nagi, R. and Proth, J.M., "Production Management Architecture," The Industrial Electronics Handbook, Editor in Chief: D. Irwin, pp. 653-662, CRC Press LLC, Florida, 1997. ISBN 0-8493-8343-9.
6. Nagi, R. and Proth, J.M., "Hierarchical Production Management," Modern Manufacturing: Information Control and Technology, Editors: M. Zaremba and B.P. Prasad, pp. 132- 172, Springer-Verlag London, 1994. ISBN 0-387-19890-3.

B Edited Proceedings

1. Lin, L. and Nagi, R., Proceedings of the 2006 IIE Research Conference, 400 peer-reviewed papers.

8. OTHER ARTICLES PUBLISHED

1. Nagi, R., "The hybrid cell layout helps speed cycle-time reduction," *Business First of Buffalo*, November 14, 1994, p. 18.
2. Nagi, R., "Don't rest on your technical laurels; think cycle-time planning," *Business First of Buffalo*, November 7, 1994, p. 31.

9. PRESENTATIONS AT PROFESSIONAL MEETINGS AND CONFERENCES

1. Mahajan, M. and Nagi, R. "Determining Optimal Channel Permutation for 2:4 Fine Grained Structured Sparsity," presentation in the *2022 INFORMS Computing Society Conference*, Tampa FL, January 23-25, 2022.
2. Date, K. and Nagi, R. "Recent Advances in Solving the Quadratic Assignment Problem using Graphics Processing Unit Clusters on the Blue Waters Supercomputer," invited presentation in the *INFORMS 2018 Annual Conference*, Phoenix AZ, November 2018.
3. Date, K. and Nagi, R. "Dominance Results for the M Finite-size Facility Placement Problem," invited presentation in the *INFORMS 2018 Annual Conference*, Phoenix AZ, November 2018.
4. Date, K. and Nagi, R. "Solving the Quadratic Assignment Problem using Graphics Processing Unit Clusters on the Blue Waters Supercomputer," presentation in the *INFORMS 2017 Annual Conference*, Huston TX, October 2017.
5. Khopkar, S., Nikolaev, A. and Nagi, R. "Explaining the Emergence of Power Laws in Online Social Networks," presentation in the *INFORMS 2017 Annual Conference*, Huston TX, October 2017.
6. Anandan, A., Date, K. and Nagi, R. "Placement of M Finite-size Rectangular Facilities in an Existing Layout: Lower Bounds and Dominance Results," presentation in the *INFORMS 2017 Annual Conference*, Huston TX, October 2017.
7. Llinas, J. and Nagi, R. "Tutorial: Advances in Hard and Soft Data Fusion," *2016 Military Sensing Symposia, National Symposium on Sensor and Data Fusion (NSSDF)*, Gaithersburg, MD, June 2016.
8. Couche, M., Karwan, M. and Nagi, R. "The Spectrum of Anarchy: Algorithmic Game Theory in UAV Routing," presentation in the *INFORMS 2015 Annual Conference*, Philadelphia PA, November 2015.
9. Samadi, M., Nikolaev, A. and Nagi, R. "Seed Selection Scheduling for Long-term Campaign Planning on Large Social Networks," presentation in the *INFORMS 2015 Annual Conference*, Philadelphia PA, November 2015.
10. Date, K. and Nagi, R. "Accelerating the Hungarian Algorithm Using Graphics Processing Units," *ISERC 2015 Conference*, Nashville, TN, May-June 2015.
11. Date, K. and Nagi, R. "A GPU Accelerated Sub-gradient Lagrangian Search for the Quadratic Assignment Problem," presentation in the *INFORMS 2014 Annual Conference*, San Francisco CA, November 2014.
12. Tursun, U.D. and Nagi, R. "Stochastic Random Projection Algorithm for Stochastic Network Design Problem," presentation in the *INFORMS 2014 Annual Conference*, San Francisco CA, November 2014.
13. Xia, Y., Batta, R. and Nagi, R. "Dynamic Search Time Allocation Problem in a Complete Graph," presentation in the *INFORMS 2014 Annual Conference*, San Francisco CA, November 2014.
14. Khopkar, S., Nagi, R. and Nikolaev, A. "Understanding the Emergence of Power Laws in Empirical Data," presentation in the *INFORMS 2014 Annual Conference*, San Francisco CA, November 2014.

15. Samadi, M., Nagi, R. and Nikolaev, A. " A Subjective Evidence Model for Influence Maximization in Social Networks," presentation in the *INFORMS 2014 Annual Conference*, San Francisco CA, November 2014.
16. Date, K. and Nagi, R. "Construction of Efficient Set for the Optimal Placement of a Finite-size Rectangular Facility in an Existing Layout," *ISERC 2014 Conference*, Montreal, Canada, June 2014.
17. Xia, Y., Batta, R. and Nagi, R. "Design and analysis of decentralized and cooperative search-time-allocation strategies," *ISERC 2014 Conference*, Montreal, Canada, June 2014.
18. Tursun, U.D. and Nagi, R. "Stochastic Mixed Integer Convex Minimization Algorithm for Robust Production-Distribution Systems," *ISERC 2014 Conference*, Montreal, Canada, June 2014.
19. Ortiz-Pena, H., Hirsch, M., Karwan, M., Nagi, R. and Sudit, M., "Improving Border Security by Coordinating Resources using Multi-Perspective Optimization," *ISERC 2013 Conference*, San Juan, Puerto Rico, May 2013.
20. Ogaard, K., Roy, H., Kase, S., Nagi, R., Sambhoos, K. and Sudit, M. "Discovering Patterns in Social Networks with Graph Matching Algorithms," *2013 International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction (SBP 2013)*, Washington, DC, April 2013.
21. Llinas, J. and Nagi, R. "Tutorial: Challenges and Approaches to Hard-Soft Information Fusion," *2012 Military Sensing Symposia, National Symposium on Sensor and Data Fusion (NSSDF)*, Washington, DC, October 2012.
22. Date, K. and Nagi, R., "Placement of two finite size facilities in a layout with existing facilities with rectilinear travel," presented in the *ISERC 2012 Conference*, Orlando FL, May 2012.
23. Hirsch, M., Nagi, R., Ortiz-Pena, H., Stotz, A. and Sudit, M., "Information Workflow Optimization: Theory and Heuristics," presented in the *ISERC 2012 Conference*, Orlando FL, May 2012.
24. Garcia Llinas, G.A., Nagi, R. and Sudit, M., "Design of Robust Interdependent Infrastructures with a Limited Budget," presented in the *ISERC 2012 Conference*, Orlando FL, May 2012.
25. Xu, J. and Nagi, R., "Solving Assembly Scheduling Problems Using Lagrangian Relaxation," presentation in the *INFORMS Fall 2011 Conference*, Charlotte NC, November 2011.
26. Hirsch, M., Nagi, R., Ortiz-Pena, H, Stotz, A. and Sudit, M., "On the Optimization of Information Workflows," presentation in the *INFORMS Fall 2011 Conference*, Charlotte NC, November 2011.
27. McMaster, D., Nagi, R. and Sambhoos, K. "Temporal Issues in Soft Data Processing and Graph Matching," *17th Industrial Engineering Research Conference*, Reno, NV, May 2011.
28. Song, Y. and Nagi, R. "New Formulations and Branching Algorithms for the Open Vehicle Routing Problem," *17th Industrial Engineering Research Conference*, Reno, NV, May 2011.
29. Nagi, R., Llinas Garcia, G.A. and Sudit, M. "New Solution Approach to the Discrete Network Design Problem (DNDP)," *17th Industrial Engineering Research Conference*, Reno, NV, May 2011.
30. Xu, J. and Nagi, R., "Parallel Machine Scheduling to Minimize Weighted Completion Time and Total Completion Time," presentation in the *INFORMS Fall 2010 Conference*, Austin TX, November 2010.
31. Mufalli, F., Batta, R. and Nagi, R., "Simultaneous Sensor Selection and Routing of Unmanned Aerial Vehicles for Complex Mission Plans," presentation in the *INFORMS Fall 2010 Conference*, Austin TX, November 2010.
32. Xu, J. and Nagi, R. "A Crew Balancing Model for Freight Railroad," *16th Industrial Engineering Research Conference*, Cancun MX, June 2010.

33. Temel, M., Batta, R. and Nagi, R., "Integrated Analysis of Order Picking and Sorting Operations in a Rectangular Warehouse," presentation in the *INFORMS Fall 2009 Conference*, San Diego CA, October 2009.
34. Behar, J., Koc, B. and Nagi, R., "A Cross Functional Framework For Marketing, Production, And Design Coordination," presentation in the *INFORMS Fall 2009 Conference*, San Diego CA, October 2009.
35. Bednowitz, N., Batta, R. and Nagi, R., "Determining Optimal Loiter Paths for UAVs," presentation in the *INFORMS Fall 2009 Conference*, San Diego CA, October 2009.
36. Mufalli, F., Batta, R. and Nagi, R., "Simultaneous Sensor Selection and Routing of Unmanned Aerial Vehicles," presentation in the *CORS-INFORMS International Conference*, Toronto Canada, June 2009.
37. Bednowitz, N., Batta, R. and Nagi, R., "Priority Spatial Queues: Study of Target and Unmanned Aerial Vehicle Initiated Dispatch Rules," presentation in the *CORS-INFORMS International Conference*, Toronto Canada, June 2009.
38. Pan, F. and Nagi, R., "Multi-echelon Supply Chain Network Design Problem," presentation in the *INFORMS Fall 2008 Conference*, Washington DC, October 2008.
39. McConky, K., Kuhl, M., Nagi, R., Sudit M. and Zhang, Y., "Sensor Management in Cyber Security," invited (Practice cluster: OR, Simulation, and Information Fusion Applied to Cyber Security) presentation in the *INFORMS Fall 2008 Conference*, Washington DC, October 2008.
40. Sudit, M., Nagi, R. and Stotz, A., "Tradeoff between Speed and Quality in the Information Fusion Process for Cyber Security," invited (OR, Simulation, and Information Fusion Applied to Cyber Security) presentation in the *INFORMS Fall 2008 Conference*, Washington DC, October 2008.
41. Hirsch, M., Nagi, R. and Sudit, D., "An Optimization Framework for Resource Management and Course of Action Analysis," invited (sponsored by Military Application Society) presentation in the *INFORMS Fall 2008 Conference*, Washington DC, October 2008.
42. Zhang, M., Batta, R. and Nagi, R., "Designing a Manufacturing Facility to Mitigate Congestion," invited (sponsored by Facilities Design) presentation in the *Industrial Engineering Research Conference*, Vancouver BC, May 2008.
43. Nagi, R., Mishra, S., Lawless, W., Llinas, J. and Mufalli, F., "Complexity Measures and Congestion Issues in Wireless Sensor Networks," invited (sponsored by Telecommunications cluster) presentation in the *INFORMS Fall 2007 Conference*, Seattle WA, November 2007.
44. Nagi, R., Shetty, V. and Sudit, M., "Priority-based Assignment and Routing of a Fleet of Unmanned Combat Aerial Vehicles," invited (sponsored by Transportation Science & Logistics cluster) presentation in the *INFORMS Fall 2007 Conference*, Seattle WA, November 2007.
45. Nagi, R., Batta, R. and Zhang, M., "A New Facility Layout Model with Congestion and Rerouting," invited (sponsored by Transportation Science & Logistics cluster) presentation in the *INFORMS Fall 2007 Conference*, Seattle WA, November 2007.
46. Temel, M., Batta, R. and Nagi, R., "Analysis of Order Picking and Sorting Wave Structure," presentation in the *INFORMS Fall 2007 Conference*, Seattle WA, November 2007.
47. Casas, I., Nagi, R., Mandloi, D., Batta, R. and Garrity, R., "Optimizing School District Lines and Bus Routes Using GIS: The Case of Sweet Home School," invited (sponsored by Location Analysis cluster) presentation in the *INFORMS Fall 2007 Conference*, Seattle WA, November 2007.

48. Romanowski, C.J. and Nagi, R., "A Data Mining Methodology for Product Design Support," invited (sponsored by Computing Society/Data Mining cluster) presentation in the *INFORMS Fall 2006 Conference*, Pittsburgh PA, November 2006.
49. Zhang, M., Batta, R. and Nagi, R., "Facility Relay layout to Alleviate Congestion," invited (sponsored by Transportation Science & Logistics cluster) presentation in the *INFORMS Fall 2006 Conference*, Pittsburgh PA, November 2006.
50. Temel, M., Batta, R. and Nagi, R., "Order Batching and Throughput Models Considering Picker Congestion," invited (sponsored by Transportation Science & Logistics cluster) presentation in the *INFORMS Fall 2006 Conference*, Pittsburgh PA, November 2006.
51. Holender, M., Nagi, R. and Sudit, M., "Conceptual Spaces as a Framework for Situational Assessment," invited (sponsored by Military Applications cluster) presentation in the *INFORMS Fall 2006 Conference*, Pittsburgh PA, November 2006.
52. Samboos, K., Nagi, R. and Sudit, M., "High Level Data Fusion Using Graph Matching and State Space Search," invited (sponsored by Military Applications cluster) presentation in the *INFORMS Fall 2006 Conference*, Pittsburgh PA, November 2006.
53. Sudit, M., Nagi, R. and Stotz, A., "Optimizing the Amount and Type of Information at Each Level of Decision-Making," invited (sponsored by Military Applications cluster) presentation in the *INFORMS Fall 2006 Conference*, Pittsburgh PA, November 2006.
54. Nagi, R. and Batta, R., "Tutorial: Unifying Facility Restricted Location and Layout Theory," invited (sponsored by Location Analysis cluster) tutorial presentation in the *INFORMS Fall 2006 Conference*, Pittsburgh PA, November 2006.
55. Sudit, M., Nagi, R., Delvecchio, J. and Stotz, A., "Graph Structures in Situational Awareness and Information Fusion," invited presentation in the *Third Annual Integrated Sensing & Decision Support Workshop*, Lexington MA, April 2006.
56. Singh, T. and Nagi, R., "Innovative Fusion Capabilities," invited presentation by National Technology Alliance in the *GeoInt 2005 Symposium*, San Antonio, TX, November 2005.
57. Zhang, M., Batta, R. and Nagi, R., "Alleviate Congestion in a Facility Layout: Reroute Flows, Relocate Departments or a Combination of Both?," invited (sponsored by Location Analysis cluster) presentation in the *INFORMS Fall 2005 Conference*, San Francisco CA, November 2005.
58. Yates, J. and Nagi, R., "Modeling Urban Operations for Data Fusion and OR Applications," presentation in (Sensor and Search Problems for Military Applications Session of) the *INFORMS Fall 2005 Conference*, San Francisco CA, November 2005.
59. Joshi, A., Batta, R. and Nagi, R., "Enemy Track Based Threat Evaluation for Military Sensor/Fusion Networks," presentation in the *INFORMS Fall 2005 Conference*, San Francisco CA, November 2005.
60. Holender, M., Nagi, R., Stotz, A. and Sudit, M., "Information Fusion Engine for Real-time Decision Making (INFERD) – Level 2 Measures and Issues," presentation in the *INFORMS Fall 2005 Conference*, San Francisco CA, November 2005.
61. Llinas, J., Hall, D. and Nagi, R. "Challenges and Approaches to Designing Data Fusion Processes in Services-Based Architectures," Four-hour tutorial presented in the *8th International Conference on Information Fusion*, Philadelphia, PA, July 2005.
62. Sarkar, A., Batta, R. and Nagi, R., "Finding Rectilinear Least Cost Paths with Convex Polygonal Congested Regions," invited (sponsored by Location Analysis cluster) presentation in the *INFORMS Fall 2004 Conference*, Denver CO, October 2004.

63. Huang, S., Batta, R. and Nagi, R., "Integrated Location and Sizing of Distribution Centers on a Plane," invited (sponsored by Transportation Science & Logistics cluster) presentation in the *INFORMS Fall 2004 Conference*, Denver CO, October 2004.
64. Romanowski, C., Nagi, R. and Sudit, M., "Data Mining in an Engineering Design Environment: OR Applications from Graph Matching," presentation in (Data Mining session of) the *INFORMS Fall 2004 Conference*, Denver CO, October 2004.
65. Batta, R. and Nagi, R., "Dynamic Sensor Network Topology Management in Network Centric Warfare," presentation in (Military Applications session of) the *INFORMS Fall 2004 Conference*, Denver CO, October 2004.
66. Mujawar, S., Huang, S., Patel, D. and Nagi, R., "Scheduling to Minimize Stringer Utilization in Metal Industries," presentation in the *13th Industrial Engineering Research Conference*, Houston TX, May 2004.
67. Romanowski, C.J. and Nagi, R., "Adaptive data mining in a variant design support system," invited (Computer Information Systems) presentation in the *13th Industrial Engineering Research Conference*, Houston TX, May 2004.
68. Kelachankuttu, H., Batta, R. and Nagi, R., "Contour line construction for a new rectangular facility in an existing layout with rectangular departments," invited (Facility Planning and Design) presentation in the *13th Industrial Engineering Research Conference*, Houston TX, May 2004.
69. Huang, S., Batta, R. and Nagi, R., "Selection and Space Requirement for Congested Connections," invited (sponsored by Location Analysis cluster) presentation in the *INFORMS Fall 2003 Conference*, Atlanta GA, October 2003.
70. Joshi, A. and Nagi, R., "Reactive Scheduling in Workflow Management Systems: A Branch-and-Price Approach," invited (sponsored by Manufacturing, Services and Operations Management cluster) presentation in the *INFORMS Fall 2003 Conference*, Atlanta GA, October 2003.
71. Sarkar, A., Batta, R. and Nagi, R., "Planar Facility Location and Placement in the Presence of Generalized Congested Regions," invited (sponsored by Location Analysis cluster) presentation in the *INFORMS Fall 2003 Conference*, Atlanta GA, October 2003.
72. Huang, S., Batta, R. and Nagi, R., "Selection and Sizing of Congested Connections for a Transportation Network," invited presentation in the *EURO/INFORMS Joint International Meeting*, Istanbul Turkey, July 2003.
73. Patel, D., Batta, R. and Nagi, R., "Cluster Head (Re)Assignment in Ad Hoc Sensor Networks to Maximize Coverage," presentation in the *INFORMS Fall 2002 Conference*, San Jose CA, November 2002.
74. Huang, S., Batta, R. and Nagi, R., "Planar Location of K Capacitated Connections," invited (sponsored by Location Analysis cluster) presentation in the *INFORMS Fall 2002 Conference*, San Jose CA, November 2002.
75. Sarkar, A., Batta, R. and Nagi, R., "Facility Location in the Presence of Congested Regions," invited (sponsored by Facilities Planning and Design/Manufacturing Systems cluster) presentation in the *INFORMS Fall 2002 Conference*, San Jose CA, November 2002.
76. Huang, S., Batta, R. and Nagi, R., "K-Connection Location Problem," *ISOLDE – International Symposium on Location Decisions*, Fredrickton/St. Andrews, NB Canada, June 2002.
77. Huang, S., Batta, R. and Nagi, R., "The Connection Location and Sizing Problem in a Facility Layout," *11th Industrial Engineering Research Conference*, Orlando FL, May 2002.

78. Huang, S., Batta, R. and Nagi, R., "The Connection Location Problem," invited (sponsored by SOLA) presentation in the *INFORMS Fall 2001 Conference*, Miami Beach, November 2001.
79. Bang, C. and Nagi, R., "An Object Oriented Information Modeling for Selecting Machines and Tools In an Agile Manufacturing Environment," *10th Industrial Engineering Research Conference*, Dallas TX, May 2001.
80. Savas, S., Batta, R. and Nagi, R., "A Spatially-Unified Modeling Perspective to Problems in Facilities Design," *10th Industrial Engineering Research Conference*, Dallas TX, May 2001.
81. Anwar, M.F. and Nagi, R., "Lagrangean Relaxation Based Solution Approach for Integrated Material Handling System and Workcenter Scheduling," *10th Industrial Engineering Research Conference*, Dallas TX, May 2001.
82. Anwar, M.F., Batta, R. and Nagi, R., "Improved Integrated Scheduling & Logistics in an Assembly Environment using Concepts from Column Generation," invited presentation in the *INFORMS Fall 2000 Conference*, San Antonio, November 2000.
83. Sarmiento, A.-M. and Nagi, R., "A Simulation Study of Manufacturing Supply Chains Cost under Demand Variations," presented in the *INFORMS Fall 2000 Conference*, San Antonio, November 2000.
84. Nandikonda, P., Batta, R. and Nagi, R., "The 1-Center Placement Problem on the Manhattan Plane with Barrier," invited (sponsored by SOLA) presentation in the *INFORMS Fall 2000 Conference*, San Antonio, November 2000.
85. Sarmiento, A.-M. and Nagi, R., "A Modified Benders Approach as Lower Bound for Manufacturing Supply Chains Cost," presented in the *INFORMS Fall 2000 Conference*, San Antonio, November 2000.
86. Savas, S., Batta, R. and Nagi, R., "Placement of New Facilities under a Mixed Planar/Network Representation of Facility Layout," invited presentation in the *INFORMS Fall 2000 Conference*, San Antonio, November 2000.
87. Nagi, R., "Information Technology in Manufacturing Enterprises: Research Directions," invited panelist to IIE Manufacturing Division Panel Discussion, *IE Research Conference*, Cleveland, May 2000 (Moderator: Prabhu, V.; Other Panelists: Sounder Kumara and David Wu).
88. Nandikonda, P., Batta, R. and Nagi, R., "The Weighted 1-Center Problem with Arbitrary Shaped Barriers," presented in the *INFORMS Spring 2000 Conference*, Salt Lake City, May 2000.
89. Wang, S.-J., Bhadury, J. and Nagi, R., "Locating Input/Output Points Optimally in a Layout Problem," presented in the *INFORMS Fall 1999 Conference*, Philadelphia, November 1999.
90. Anwar, M.F. and Nagi, R., "A Column Generation Approach for Integrated Scheduling and Logistics of Assemblies," invited presentation in the *INFORMS Fall 1999 Conference*, Philadelphia, November 1999.
91. Batta, R. and Nagi, R., "A Finite-Size Barrier Location Approach to Facility Design," invited presentation in the *ISOLDE VIII Conference*, Coimbra, Portugal, June 1999.
92. Mehere, M., Bhadury, J. and Nagi, R., "Integrated Distribution System Design with Warehouse Location & Logistics," presented in the *INFORMS Spring 1999 Conference*, Cincinnati, May 1999.
93. Kazan, O., Nagi, R. and Rump, C., "New Lot-Sizing Formulations for Less Nervous Production Schedules," presented in the *INFORMS Spring 1999 Conference*, Cincinnati, May 1999.
94. Singh, H. and Nagi, R., "Cost Justified Cellular Manufacturing (Re)Design," presented in the *INFORMS Spring 1999 Conference*, Cincinnati, May 1999.

95. Savas, S., Batta, R. and Nagi, R., "Planar and Network Location Approaches in Facility Layout," invited presentation in the *INFORMS Spring 1999 Conference*, Cincinnati, May 1999.
96. Sarmiento, A.-M. and Nagi, R., "An analytical tool to support the selection of partners from Organizational Webs in Agile Manufacturing," presented in the *INFORMS Spring 1999 Conference*, Cincinnati, May 1999.
97. Sarmiento, A.-M. and Nagi, R., "Neural Network-based batch scheduling for an integrated agile production-distribution system," invited presentation in the *INFORMS Fall 1998 Conference*, Seattle, WA, October 1998.
98. Ng, S.-L., Lin, L. and Nagi, R., "Concurrent Design of Transfer Molded Components Using World-Wide-Web Technology," presented in the *7th Industrial Engineering Research Conference*, Alberta Canada, May 1998.
99. Anwar, M.F. and Nagi, R., "Integrated Scheduling of AGVs and Workcenters with the Consideration of Conflict Free Routing," invited presentation in the *INFORMS Spring 1998 Conference*, Montreal Canada, April 1998.
100. Nagi, R., "Directions in Agile Manufacturing and Material Handling Research," discussion group summary presented in the *1996 International Colloquium on Material Handling Research*, Vught, The Netherlands, June 1996.
101. Batta, R. and Nagi, R., "Classification and Elimination of Errors in Plant Layout," presented in *5th Industrial Engineering Research Conference*, Minneapolis, MN, May, 1996.
102. "Hierarchical Production Management Systems," Poster Session at the Annual Research Review Conference of Systems Research Center, May 1989.
103. "Selection and Layout of Work-centers in a Job-shop," Poster Session at the Annual Research Review Conference of Systems Research Center, May 1988.

10. INVITED PRESENTATIONS AT UNIVERSITIES AND INDUSTRIES

1. Keynote in International Conference on Data Analytics in Public Procurement and Supply Chain (ICDAPS) June 2022, National Institute of Industrial Engineering (NITIE), Mumbai.
2. "Multi-Agent UAV Routing for Information Collection: Price of Decentralization," Department of Industrial and Systems Engineering, University of Oklahoma, March 2021.
3. "Limited-Trust Equilibrium and Social Network Games," Department of Engineering Management, Information, and Systems, Southern Methodist University, January 2021.
4. "A GPU Accelerated Dual-Ascent Algorithm for the Multi-dimensional Assignment Problem in a Multi-Target Tracking Application," Department of Aerospace Engineering, Texas A&M University, October 2020.
5. "Information Fusion and Inference with Hard - Soft Data: The Graph Association and Matching Problems," Department of Industrial and Systems Engineering, NC State University, January 2020.
6. "Theoretical and Computational Advances in Finite-size Facility Placement and Assignment Problems," Department of Industrial, Manufacturing & Systems Engineering, Texas Tech University, January 2020.
7. "Information Fusion and Inference with Hard - Soft Data: The Graph Association and Matching Problems," Department of Industrial & Management Systems Engineering, University of South Florida, November 2019.

8. "Information Fusion and Inference with Hard - Soft Data: The Graph Association and Matching Problems," Graduate Program in Operations Research & Industrial Engineering, The University of Texas at Austin, February 2017.
9. "Information Fusion and Inference with Hard and Soft Data: The Graph Association Problem," School of Computing, Informatics, and Decision Systems, Arizona State Univ., November 2015.
10. "Information Fusion and Inference with Hard and Soft Data: The Graph Association Problem," Department of Industrial and Systems Engineering, Univ. of Wisconsin-Madison, October 2015.
11. "Unmanned Aerial Vehicle Fleet Routing: Centralized and Decentralized Approaches," Aerospace Engineering, University of Illinois Urbana-Champaign, September 2015.
12. "Information Fusion and Intelligence Analysis with Hard and Soft Data: Industrial and Systems Engineering Challenges and Opportunities," Department of Integrated Systems Engineering, Ohio State University, August 2014.
13. "[Big Data] Motivation and Big Graph Challenges," Big Data Research Workshop by Computational Science and Engineering, University of Illinois Urbana-Champaign, May 2014.
14. "Fusion of Hard and Soft Information and The Graph Association Problem," Computational Science and Engineering, University of Illinois Urbana-Champaign, February 2014.
15. "Simultaneous Sensor Selection and Routing of Unmanned Aerial Vehicles for Complex Mission Plans," Department of Industrial and Systems Engineering, Texas A&M, September 2010.
16. "Facility Layout and Flow Routing to Mitigate Workflow Congestion," Department of Industrial Engineering, University of Pittsburgh, October 2008.
17. "Rectangular Facility Location and A Potpourri of GIS Applications in Defense Information Fusion," IGERT Colloquium NCGIA (National Center on Geographic Information Analysis), University of Buffalo, April 2006.
18. "Strategic Capacity Planning with Fixed and Mobile Facilities," Department of Management Science and Systems, University of Buffalo, April 2005.
19. "Optimized Production Scheduling," APICS, Buffalo Chapter, February 2004.
20. "Facility Master Planning and Information Driven Logistics," Department of Industrial and Systems Engineering, Auburn University, January 2003.
21. "Plant Layout and Industrial Ergonomics," The Center for Industrial Effectiveness, University at Buffalo, Fall 2002 Seminar Series, November 2002 (with Victor Paquet).
22. "Mass Customization in Agile Manufacturing: Variant Design Support for Mechanical Assemblies," Department of Industrial Engineering, University at Buffalo, October 2002.
23. "Location and Sizing of Material Transfer Connections in a Distribution Environment," Ecole Nationale d'Ingenieurs de Metz, University of Metz, France, June 2002.
24. "Variant Design Support for Complex Mechanical Assemblies," Department of Industrial & Manufacturing Engineering, Penn State University, October 2001.
25. "Production Scheduling of Assembled Products," Department of Industrial Engineering, University at Buffalo, September 2000.
26. "A Workflow Management System for Agile Enterprises," Information Systems Department, Indian Tobacco Company (ITC), Calcutta, India, March 2000.
27. "Research Topics in Agile Manufacturing," Faculty of Engineering, Dayalbagh Educational Institute, Agra, India, January 2000.

28. "Research Topics in Agile Manufacturing," Department of Mechanical Engineering, Indian Institute of Technology, Delhi, India, January 2000.
29. "An Object Hierarchy Scheme for Modeling Complex Assemblies," Department of Computer Sciences and Engineering, University of Buffalo, March 1999.
30. "A Workflow Management Information System for Agile Manufacturing," Department of Management Science and Systems, University of Buffalo, April 1998.
31. "Integrated Lot-sizing, Scheduling and Material Handling for Just-In-Time Production of Assembled Products," Faculty of Management, University of Toronto, March 1998.
32. "Lean Thinking and Just-In-Time Manufacturing," American Society for Quality (ASQ) Section 30 Annual Conference, Grand Island, NY, November 1997.
33. "A Just-In-Time Production Methodology for Assembled Products," Indian Institute of Management (IIM), Calcutta, India, January 1996.
34. "Group Technology: An object world-view for design/manufacturing standardization," Praxair, Inc., Tonawanda, NY, October 1995; co-speaker Li Lin.
35. "Just-In-Time Production of Large Assemblies," Center for Robotics and Manufacturing Systems & Dept. of Mechanical Engineering, University of Kentucky, Lexington, January 1995.
36. "Agile Manufacturing," Graduate Research Group for Integrated Design Engineering & Dept. of Mechanical and Aerospace Engineering, State University of New York at Buffalo, December 1994.
37. "The Group Technology Philosophy," Women CEO Manufacturers Group, Buffalo, August 1994.
38. "Design and Operation of Production Systems and Production Management Systems," Dept. of Mechanical Engineering, University of Minnesota, June 1992.
39. "An Approach to Design and Operation of Hierarchical Production Management Systems," INRIA, France, January 1990.
40. "An Industrial Application of the Group Technology Algorithm," INRIA, France, June 1988.
41. "Group Technology - The Manufacturing View and Algorithms," ARBED of Luxembourg, July 1988.

11. RESEARCH GRANT SUPPORT

A. Funded

1. "Geospatial Variability of Illicit Opioid Use and Disparities in Treatment Resources," CHAD Pilot Grant UIUC, \$30,000, PI H. Kang, co-PIs R. Nagi, J. Deisner, and C. Vogiatzis (25% share), (August 2022 – July 2023). One student TB supported in ISE.
2. "SLO-Aware Scheduling for Multi-Tenant Machine Learning including Workflows with Seamless Interoperability across Stacks," [IBM-Illinois Discovery Accelerator Institute](#), \$603,831, PIs R. Nagi and I. Gupta (50% share), (August 2021 – July 2023). Two students supported.
3. "Improvement of Infrastructure Service Burden Metric for Microgrid Placement," *Sandia National Labs*, \$148,410, PI R. Nagi, (January 2021 – December 2021). One student supported.
4. "Center for Autonomous Construction, Agriculture and Manufacturing at Scale (CEACAMS)," *Discovery Partners Initiative*, \$125,000, co-PI R. Nagi (PI Norris), (September 2020 – 2021).
5. "Developing GCoE Center for Autonomous Manufacturing At Scale (AMAS)," *Grainger College of Engineering Strategic Research Initiative Phase I*, \$75,000, PI R. Nagi (co-PI Norris), (May 2020 – May 2021).

6. "Autonomous Multi-Platform Sensor Scheduling," *Sandia National Labs*, \$75,000, PI R. Nagi, (October 2019 – September 2020). One student supported.
7. "Mission Planning and Optimization with Multiple Robotic Agents for Engineer Operations in the Deployed Environment," *CERL/ERDC US Army*, \$1,246,322, PI R. Nagi (co-PI Sreenivas and Norris), (May 2019 – December 2022).
8. "Accelerated Algorithms for Multi-Sensor Data Association for Multi-Target Tracking," *Sandia National Labs*, \$65,000, PI R. Nagi, (October 2018 – September 2019). One student supported.
9. "Sandia – Applied Research Institute Alliance," *Sandia National Labs*, \$121,766, PI J. Yedetore, co-PI H. Filippini and R. Nagi, (April 2017 – August 2017).
10. "CELA: Creative Experiential Learning Advisor," *IBM-C3SR*, \$241,462, Faculty Investigator R. Nagi (my share), (Sept. 2016 – Sept. 2021). One student to be supported.
11. "Adaptive Decentralized Resource Optimization," *Office of Naval Research (ONR) 14-010*, \$673,102, PI A. Nedich, co-PI A. Olshevsky and R. Nagi, (Feb 2016 – Jan 2019).
12. "Hard-Soft Data Fusion MURI - Technology Transition," *Army Research Labs (via CUBRC, Inc.)*, \$95,000, PI Rakesh Nagi, (August 2014 – May 2015); One student supported.
13. "ICES: Small: Discovering Fundamental Structural and Behavioral Laws of Social Networks," *National Science Foundation*, CCF, Interface between Computer Science and Economics & Social Sciences (ICES) program, \$100,000, PI Alexander Nikolaev, co-PI Rakesh Nagi, (September 2012 – August 2013); Two students supported.
14. "Facility Layout," *Trek, Inc., Medina, NY* with SPIR/TCIE; \$30,049 (May 2012 – July 2012); PI R. Nagi. Two students supported.
15. "Control of Anarchical and Ordered Systems (CAOS): Mathematical Programming Approaches for Measuring Decentralized and Centralized Network Operations," *Office of Naval Research (ONR) 11-001*, CUBRC/UB \$977,418, PI R. Nagi, co-PI Mark Karwan, R. Batta, M. Sudit (CUBRC PI), (July 2012 – June 2015).
16. "Facility Layout Redesign," *HDM Hydraulics, LLC, Tonawanda, NY* with SPIR/TCIE; \$61,280 (June 2011 – July 2011); PI R. Nagi, co-PI Alex Nikolaev. Two students supported.
17. "Dynamic Graph Analytic Framework (DyGrAF)," *Air Force Research Labs – Rome, NY (AFRL)*, CUBRC; BAA-10-03-RIKA (FA8750-11-C-0214); \$725,000 (May 2011 – May 2014), PI Mr. William A. Tagliaferri, other CUBRC personnel; consultant R. Nagi.
18. "Knowledge Discovery and Dissemination (KDD)," *USAF via CUBRC*, UB share \$2,127,565, (October 2010 – December 2014); PI R. Nagi. One Post-doc, 6 grad, 3 undergrad students supported.
19. "Improving Efficiency in Bindery Operations," *Worldcolor, Depew, NY* with SPIR/TCIE; \$26,780 (Feb 2010 – May 2010); co-PI R. Nagi, co-PI Victor Paquet. Two students supported.
20. "Dynamic Social Network Analysis," *Army Research Labs – Adelphi, MD (ARL)*, CUBRC/UB \$90,243, \$41,808 (UB share) (Jan 2010 – August 2010); PI R. Nagi.
21. "Dirty Graph Matching," *Army Research Labs – Adelphi, MD (ARL)*, CUBRC/UB \$124,974, (Jan 2010 – August 2010). PIs Jim Llinas and Mike Moskal, co-PI R. Nagi.
22. "Unified Research on Network-based Hard/Soft Information Fusion," *US Army Research Office*, PI Nagi (1/2011 – 2/2015) James Llinas (6/2009 to 12/2010), co-PI Ann Bisantz, Moises Sudit; \$6,250,000 (June 2009 – July 2014), sub-contractors Penn State, Tennessee State, Iona College.
23. "Discovery Phase: Variable Tunable Design for Compressor," *Dresser-Rand, Co., Olean, NY* with TCIE, co-PI Tom Miller; \$9,333 (January 2009); PI R. Nagi.

24. "Graph and Network Objects for Model Elicitation (GNOME)," *Air Force Research Labs - Rome (AFRL)*, CUBRC/UB \$66,463 (August 2008 – August 2009), \$87,642 (Aug. 2009 – Aug. 2010) UB-PI R. Nagi.
25. "Optimization Planning and Tactical Intelligent Management of Aerial Sensors (OPTIMAS)," *Office of Naval Research (ONR) 07-008*, CUBRC/UB \$1,171,247, PI Mark Karwan, co-PI R. Batta, J. Crassidis, R. Nagi, M. Sudit, T. Jasinski, C. Barsalou, (L3Com sub contractor, P. Deignan) (February 2008 – January 2011).
26. "Intelligence Exchange: IntelEx," *Office of Naval Research (ONR) 07-021*, CUBRC \$1,345,264, PI A. Stotz, co-PI R. Nagi, M. Sudit, (Raytheon sub contractor) (February 2008 – January 2009).
27. "Raytheon Information Fusion Support," *Raytheon, St. Petersburg FL*. CUBRC \$180,000 (pending supplement), PI A. Stotz, co-PI R. Nagi, M. Sudit (January 2008 – September 2008).
28. "National Center for Multisource Information Fusion," *Air Force Research Laboratories, Rome* with Penn State University, RIT and CUBRC; \$934,000 (June 2007 – July 2008); Manager Michael Moskal, co-PIs R. Nagi, M. Sudit, J. Llinas and S. Shapiro. One student supported.
29. "Model Integrity and Discovery Suite (MInDS)," *Office of Naval Research (ONR) 06-010*, CUBRC \$903,578, PI Moises Sudit, co-PI R. Nagi, (DAC and SNC sub-contractors) (March 2007 – March 2010).
30. "Information Fusion to Support Maritime Domain Awareness," *Raytheon, St. Petersburg FL*. CUBRC \$130,000 (plus \$40,000 supplement), PI A. Stotz, co-PI M. Sudit, R. Nagi (January 2007 – December 2007).
31. "Supply Chain Optimization," *Stollberg, Inc.*, Niagara Falls, NY with SPIR/TCIE; \$51,561 (November 2006 – July 2007); PI R. Nagi. One student supported.
32. "Facility Layout Redesign," *Flame Control Coatings, LLC*, Niagara Falls, NY with SPIR/TCIE; \$39,877 (August 2006 – Dec 2006); PI R. Nagi. One student supported.
33. "National Center for Multisource Information Fusion," *Air Force Research Laboratories, Rome* with Penn State University, RIT and CUBRC; \$890,000 (June 2006 – July 2007); Manager Michael Moskal, co-PIs R. Nagi, M. Sudit, J. Llinas and S. Shapiro. One student supported.
34. "Investigation of Means of Mitigating Congestion in Complex, Distributed Network Systems by Optimization Means and Information Theoretic Procedures," *Air Force Research Laboratories, Wright-Patterson AFB* with Paine College GA and CUBRC (\$62,000); \$125,000 (July 2006 – September 2007); co-PIs R. Nagi and James Llinas. One student supported.
35. "Graph Theory and Information Fusion," *Lockheed-Martin Corp (Orincon Division)*. University at Buffalo/CUBRC \$50,000, PI M. Sudit, co-PI R. Nagi (January 2006 – December 2006); One student supported.
36. "Hierarchical High Level Information Fusion Technologies (H²LIFT)," *Office of Naval Research (ONR) 05-013*, \$448,410, PI M. Sudit, co-PIs R. Nagi, J. Crassidis, A. Crassidis (RIT), G. Fugde (L3Com) (FY 2006 – FY 2007), May 2006. One student supported.
37. "Redistricting and School Bus Route Optimization for Sweet Home School District: A GIS Approach," *Sweet Home School District*; \$10,095 (May 2006 – December 2006); PI Irene Casas, co-PI R. Nagi, R. Batta, May 2006. One student supported.
38. "Warehouse Layout Study," *Curbell Inc., Orchard Park, NY* with SPIR/TCIE; \$16,923 (Jan 2006 – May 2006); co-PIs R. Nagi, R. Batta. One student supported.
39. "Manufacturing Layout Study," *Curbell Inc., Orchard Park, NY* with SPIR/TCIE; \$16,923 (Jan 2006 – May 2006); co-PIs R. Nagi, R. Batta. One student supported.

40. "Conceptual Spaces and Graph Matching for High Level Fusion," *Lockheed-Martin Corp.* University at Buffalo/CUBRC \$80,000, PI M. Sudit, co-PI R. Nagi (January 2006 – December 2006); One student supported.
41. "Improving Oscillating Slitter Productivity," *Gibraltar Metals, Buffalo, NY* with SPIR/TCIE; \$11,908 (July 2005 – November 2005); co-PIs R. Nagi, A. Gosavi. Two students supported.
42. "Office Layout Optimization," *LP Ciminelli, Buffalo, NY* with SPIR/TCIE; \$19,299 (July 2005 – November 2005) PI R. Nagi; One students supported.
43. "Information Fusion Technology Development in Support of a Sensor Fusion Prototype," *Massachusetts Institute of Technology-Lincoln Laboratories*, \$250,023, PI R. Nagi, co-PI Moises Sudit, James Llinas, and Stuart Shapiro, (May 2005 – December 2005); One post-doc and two students supported.
44. "Graph Theory and Information Fusion," *Lockheed Martin IS&S Supply Chain Management Systems and Solutions Business Unit/Orincon*, \$100,000, co-PI R. Nagi, with PIs James Llinas and Moises Sudit, (December 2004 – December 2005); One student supported.
45. "Algorithmic and Methodological Research in Information Fusion for Army Objective Force Applications," *Army Research Laboratories, Adelphi MD*, \$235,000, co-PI R. Nagi, with PIs James Llinas and Moises Sudit, (February 2004 – February 2005); One student supported.
46. "Innovative Fusion Capabilities: Tracking, Networking, and Visualization," *NIMA/Rosettex Technology and Ventures Group*, \$553,564, co-PI R. Nagi, with PI T. Singh (MAE) and six other SEAS faculty, (February 2004 – August 2005); Two students supported jointly with Rajan Batta.
47. "Strategic Operations Assessment and Layout Optimization," *Tx Rx Systems, Angola, NY* with SPIR/TCIE; \$14,020 (January 2004 – July 2004) PI R. Nagi; One students supported.
48. "Innovative Fusion Capabilities: Tracking, Networking, and Visualization," *NIMA/Rosettex Technology and Ventures Group*, \$512,112, co-PI R. Nagi with PI T. Singh (MAE) and six other SEAS faculty, (August 2003 – February 2004); Two students supported jointly with Rajan Batta.
49. "Congestion in Facilities Location and Layout: Deterministic and Stochastic Models," *National Science Foundation*, DMII, Manufacturing Execution Systems program, \$200,000, co-PI Rajan Batta, (June 2003 – May 2006); Two students supported per year.
50. "Scheduling to Minimize Stringer Utilization," *Outokumpu American Brass, Buffalo, NY* with SPIR/TCIE; \$32,381 (March 2003 – August 2003) PI R. Nagi; Two students supported.
51. "Facilities Consolidation and Redesign," *Markar Architectural Products, Lancaster, NY* with TCIE; \$19,820 (Sept. 2002 – Dec. 2002) PI R. Nagi; Two students supported.
52. "Product Flow Analyses and Facilities Redesign," *Bethlehem Steel, Lackawana, NY* with SPIR/TCIE; \$26,943 (Feb. 2002 – June 2002) PI R. Nagi; Two students supported.
53. "Network Formulations for Distributed Mobile Fusion," *Boeing Co., St. Louis, MO*; \$47,825 (May 2001 – Dec. 2001); co-PI J. Llinas, R. Nagi and R. Batta; Two students supported.
54. "Operations Analysis and Plant Layout/Facilities Redesign Studies," *Ferro Electronics Materials, Niagara Falls, NY*; \$9,943 (Feb. 2001 – March 2001); co-PI Rajan Batta; One student supported.
55. "E-Business Initiatives at GE," *GE Transportation Systems, Erie, PA*; \$11,988 (August 2000 – January 2001) PI R. Nagi; One students supported.
56. "Knowledge Acquisition and Scheduling System Design," *Carborundum Corporation, Amherst, NY* with SPIR/TCIE; \$88,299 (July 2000 – May 2001) PI R. Nagi; Three students supported.
57. "Production Operational Assessment," *Gaymar Industries, Orchard Park, NY* with SPIR/TCIE; \$11,549 (July 2000); co-PIs R. Nagi, Victor Paquet.

58. Matching grant for "Design and Implementation of a Knowledge-Based Agile Manufacturing Information System," (see item 77) *National Science Foundation*, \$25,000 (August 2000 - July 2001). One student supported.
59. International supplement "Facility Layout (Re)Design Using Planar and Network Location Approaches," (see item 68) *National Science Foundation*, DMII Operations Research and Production Systems program, \$14,000, (June 2000 - December 2000); co-Principal Investigator Rajan Batta.
60. REU supplement "Aisle Capacity Modeling in Layout Analysis," (see item 68) *National Science Foundation*, DMII Operations Research and Production Systems program, \$10,000, (June 1999 - May 2000); co-Principal Investigator Rajan Batta. Two undergraduate students supported.
61. "Data Fusion Concepts and Novel Algorithms for Condition-Based Maintenance," *Applied Research Laboratory Penn State University, State College, PA* subcontract from MURI; \$35,000 (May – December 1999); co-Principal Investigator James Llinas; One student supported.
62. "Operational Analysis and Facility Redesign Studies," *Republic Drug Company, Buffalo, NY* with SPIR/TCIE; \$13,534 (May – July 1999); Two students supported.
63. Matching grant for "Design and Implementation of a Knowledge-Based Agile Manufacturing Information System," (see item 77) *National Science Foundation*, \$24,700 (August 1999 - July 2000). One student supported.
64. "Operational Analysis and Facility Design Studies," *Imaging and Sensing Technology, Horseheads, NY* with SPIR/TCIE; \$17,042 (October – December 1998); Two students supported.
65. "Operational Assessment: Facility Layout and Process Flow," *Milward Alloys Inc., Lockport, NY* with SPIR/TCIE; \$10,239 (August – September 1998); One students supported.
66. "Time Studies, Process Flow and Inventory Control," *McKenica Corp., Buffalo, NY* with SPIR/TCIE; \$15,671 (July – August 1998); Two students supported.
67. "Facility Design and Automation," *A Lunt Design Inc., Orchard Park, NY* with SPIR/TCIE; \$6,518 (April -May 1998); One student supported.
68. Matching grant for "Design and Implementation of a Knowledge-Based Agile Manufacturing Information System," (see item 77) *National Science Foundation*, \$25,000 (August 1998 - July 1999). One student supported.
69. "Facility Layout (Re)Design Using Planar and Network Location Approaches," *National Science Foundation*, DMII Operations Research and Production Systems program, \$265,507, (June 1998 - May 2001); co-Principal Investigator Rajan Batta (PI). Two students supported per year.
70. "Facility Design Simulation Studies," *Graphic Controls Corp., Buffalo, NY* with SPIR/TCIE; \$21,070 (February-March 1998); co-PI Rajan Batta. Four students supported.
71. "Facility Layout for High-bay Assembly and Sheet-Metal Areas," *Gemcor Inc., West Seneca, NY* through TCIE; \$6,057 (August 1997). One student supported in summer.
72. "Pinpoint Enhancement Product Development," *Integral Information Systems, Amherst, NY* through SPIR; \$10,152 (July 1997 - April 1998). One student supported for one year.
73. "Layout and Productivity Improvements at AVX Corporation," *AVX Corp., Myrtle Beach, SC* through TCIE; \$4,409 (June 1997); co-PI L. Lin.
74. Matching grant for "Design and Implementation of a Knowledge-Based Agile Manufacturing Information System," (see item 77) *National Science Foundation*, \$11,866 (August 1997 - July 1998). One student to be supported.
75. "Briquetting Productivity and Automation Enhancement," *Manitoba Corp., Lancaster, NY* through SPIR; \$5,128 (December 1996 - January 1997). One student supported for one winter month.

76. "Cold-box and Component Classification Scheme," *Praxair, Inc., Tonawanda, NY*, \$14,971 (June 1996 - August 1996); co-PI L. Lin. Two students supported in summer.
77. "Facility Layout under Cyclical Demand," *Gemcor Inc., Buffalo, NY* through TCIE; \$8,636 with 50% credit to Industrial Engineering (June 1996 - July 1996). One student supported in summer.
78. "Design and Implementation of a Knowledge-Based Agile Manufacturing Information System," Faculty Early Career Development Program Award, *National Science Foundation*, Division of Design, Manufacture and Industrial Innovation, \$210,000 (plus \$10,000 from the Office of VP for Research as equipment challenge grant) (July 1996 - June 2000). Two graduate students supported per year.
79. "Assessment of Layout Design for Praxair's New Turbine Assembly Facility," *Praxair, Inc.*; \$1,040, co-Principal Investigator L. Lin (October 1995).
80. "Fuzzy Framework for Multi-Resource Multi-Project Management," RDF fund, *SUNY at Buffalo*, Department of Industrial Engineering; \$2,250 (November 1994 - September 1995). One graduate student supported.
81. "Tool Room Layout Assessment at American Axle," *American Axle and Manufacturing, Tonawanda, NY* through TCIE; \$8,548 (August 1994); co-PI with R. Batta and L. Lin.
82. "Preliminary Facility Assessment at Buffalo Weaving and Belting," *Buffalo Weaving and Belting, Buffalo, NY* through TCIE; \$1,080 (July 1994).
83. "Operational Assessment at Premier Image," *Premier Image, Buffalo, NY* through TCIE; \$1,095 (March 1994).
84. "Plant Layout at R.D. Murray," *R.D. Murray Fire Apparatus, Hamburg, NY* through TCIE; \$2,738 (January 1994).
85. "Optimal Selection of Partners in Agile Manufacturing," *US Army Tank-Automotive Command* Research Contract to University of Maryland; co-Principal Investigator with Harhalakis, G. and I. Minis (PI); Subcontract from University of Maryland, \$68,199 of total \$562,216 for 2 years (August 1993 - September 1995). Two graduate students supported.

B. Small-Business Innovative Research (through Enhance Enterprises LLC, sole member Nagi)

1. Phase 1 SBIR "Automated Identification and Semi-Automated Resolution of Conflicting, Inconsistent, Suspicious and Deceptive Information," PI Geoff Gross, co-PI R. Nagi, \$136,686 *AFRL Rome*, July 2013 - Mar 2014.

C. Previous Grant Support at University of Maryland

2. "Radio-Communications for Manufacturing Systems," Investigator, \$45,000 project funded by *Westinghouse Corporation*, Jan - Dec 1991 (PIs Drs. G. Harhalakis and T. Ephremides).
3. "Optimal Facility Design and Cycle Time Reduction for Antenna Assembly," Investigator, \$137,175 project funded by *Westinghouse Corporation* and MIPS, (Phase I: August 1991 - July 1992) (PIs Drs. G. Harhalakis and I. Minis).
4. "Optimal Facility Design and Cycle Time Reduction for Antenna Assembly," Investigator, \$143,015 project funded by *Westinghouse Corporation* and MIPS, (Phase II: August 1992 - July 1993) (PIs Drs. G. Harhalakis and I. Minis).

12. EQUIPMENT GRANT SUPPORT

A. Funded

1. "GPU-accelerated Sinkhorn Algorithm for Quadratic Assignment Problems: 2 x GPUs A100 80GB and 8 x Deep Learning Institute Course Credits," Equipment gift by *NVIDIA*, \$36,000 (est), March 2022.
2. "Drones for Mission Planning with Multiple Robotic Agents for Engineer Operations in the Deployed Environment," Equipment gift by *CERL, US Army*, \$57,116, November 2021.
3. "Mobile Robots for Swarm Surveillance Research," *DURIP* award funded by *Army Research Office*, \$294,138; co-PI with Jason Corso (PI), Murat Demirbas, Raymond Fu, and Venkat Krovi, June 2011.
4. Software grant, Visual Manufacturing from *Lilly Software Associates, Inc.* and JSR Applications Group, Hampton, NH, price valued at \$24,700 (April 1999) with L. Lin.
5. "Establishment of a Virtual Reality-Based Synthetic Environment for Research and Interactive Design and Manufacturing," equipment proposal funded by *National Science Foundation CISE University Research Instrumentation Program*, \$129,464 (\$86,714 NSF + \$42,750 UB cost sharing); co-Principal Investigator with T. Kesavadas (PI), C. Bloebaum and R. Acharya, November 1997.
6. "Development of Manufacturing Automation Program," Instrumentation and Laboratory Improvement proposal funded by the *Society of Manufacturing Engineers*, \$40,000 for 1 year; co-Principal Investigator with T. Kesavadas (PI), L. Lin and R. Mayne (September 1997).
7. Software grant, ST-Developer from *STEPTools, Inc.*, Rensselaer Technology Park, Troy, NY, academic price valued at \$4,380 (January 1997).
8. "Continuous Development of Manufacturing Engineering Program," Instrumentation and Laboratory Improvement proposal funded by the *Society of Manufacturing Engineers*, \$42,275 for 1 year; co-Principal Investigator with L. Lin (PI) (June 1995).
9. "Acquisition of High Performance Parallel Computer for School of Engineering and Applied Sciences," equipment grant from the Office of the Provost, *SUNY at Buffalo*, \$228,000; co-Principal Investigator with nineteen assistant professors of the SEAS; member organizational committee of five PIs (1994).

13. EDUCATION AND OTHER GRANT SUPPORT

A. Funded

1. Blue Waters Petascale Computing Facility Node Hours Awarded: IE 535 Big Graphs and Social Networks 25k hours, September 2020.
2. Blue Waters Petascale Computing Facility Node Hours Awarded: IE 535 Big Graphs and Social Networks 25k hours, October 2018.
3. Blue Waters (i) Parallel Algorithms for Solving Graph Assignment Problems 85k node hours, 2017; (ii) Parallel Algorithms for Solving Large Assignment Problems 210k node hours, 2017; (iii) GPU-Based Parallel Computing Methods for Solving Large Scale Assignment Problems 30k node hours, 2014.
4. Public Service "Industrial Engineering Support," *Graphic Controls Corp., Buffalo, NY* with SPIR/TCIE; \$4,570 (July-December 1998). One student supported in summer of 1998.
5. Riefler award, Dean's office, SEAS, *SUNY at Buffalo*, \$950 (May 1997).

6. "Virtual Tour of Facilities Design using Multimedia," faculty grant program for developing instructional modules using Authorware, Instructional Technology Services, ASCIT, *SUNY*, software valued at \$400 (June 1996).
7. "MS Office for Agile Manufacturing Lectures," faculty grant program for developing teaching tools, Instructional Technology Services, ASCIT, *SUNY*, software \$400 + \$435 hardware (October 1995).
8. "Graduate Group for Integrated Design Engineering," graduate group grant from the Graduate school/Office of the Provost, *SUNY at Buffalo*, \$2,500; co-chair with C. Bloebaum (September 1995 - August 1996).
9. Riefler award, Dean's office, SEAS, *SUNY at Buffalo*, \$650 (June 1995 - September 1995).
10. Term Faculty development award program, *New York State/United University Professions*, professional development and quality of working life committee: "Research in Production Systems and Dissemination Plan," \$340 (July 1994 - June 1995).
11. "Graduate Group for Integrated Design Engineering," graduate group grant from the Graduate school/Office of the Provost, *SUNY at Buffalo*, \$2,800; co-chair with C. Bloebaum (July 1994 - June 1995).
12. Term Faculty development award program, *New York State/United University Professions*, professional development and quality of working life committee and the department of Industrial Engineering *SUNY at Buffalo*: "Research in Production Systems and Dissemination Plan," \$200 + \$250 (October 1993 - June 1994).

14. TEACHING AND GRADUATE STUDENT SUPERVISION

Formal Courses Taught:

Graduate:

1. UIUC-IE 533, Big Graphs and Social Networks (4 credit hours), Fall 2020 (18 students), Fall 2019 (online 1 student), Fall 2018 (14).
2. UB-IE 505, Production Planning and Control, (3 credit hours), Fall 2011 (26 students), 2010 (40), 2009 (35), 2008 (46), 2007 (34), 2006 (34), 2005 (28), 2004 (42), 2003 (33), 2002 (48), 2001 (44), 2000 (39), 1998 (21), 1997 (33), 1996 (27), 1995 (33), 1994 (27), 1993 (52).
3. UB-IE 504, Facilities Design, (3 credit hours), Spring 2013 (54 students), 2012 (40), 2006 (20), 1999 (8), 1997 (15), 1996 (11), 1995 (6).
4. UB-IE 620, Agile Manufacturing, (3 credit hours), Fall 1999 (4 students), 1997 (7), 1995 (offered as IE 500, 11 students).
5. UB-IE 500, Special Topics - Logistics and Supply-Chain Management, (3 credit hours), Fall 1996 (7 students).
6. UB-IE 684, Networks, Routing and Logistics, (3 credit hours), Fall 2004, (5 students), 2002 (6), 2001 (offered as IE 680, 7 students).
7. UB-IE 661, Scheduling Theory, (3 credit hours), Fall 2005 (3 students), 2003 (5).
8. UB-IE 670, Big Data Operations Research, (3 credit hours), Spring 2013 (4 students).

Undergraduate:

1. UIUC-SE 261, Business Side of Engineering, (1-2 credit hours), Spring 2021 (70 students), Fall 2021, Fall 2022 (120).
2. UIUC-IE 430, Economic Foundations of Quality, (3 credit hours), Fall 2016 (90), 2015 (84 students).

3. UIUC-GE 390, General Engineering Seminar, (0-1 credit hours), Fall 2014 (50 students).
4. UB-IE 327, Facilities Design, (3 credit hours), Spring 2012 (23 students), 1998 (36), 1997 (35), 1996 (32), 1995 (35), 1994 (45).
5. UB-IE 320, Engineering Economy, (3 credit hours), Spring 2011 (118 students), 2010 (120), 2009 (118), 2008 (120), 2007 (116), 2005 (117), 2004 (84), 2003 (63), 2002 (51), 2001 (43), 1994 (62); Summer 2005 (20), 2004 (23), 2003 (8), 2002 (20).
6. UB-IE 400, Independent Study on Healthcare Management and Information System, (3 credit hours). Spring 2005 (4 students).
7. UB-IE 496, Industrial Internship, (3 credit hours), Spring 2011 (30 students).

Independent Studies:

Spring 2001 (3 GR), 1998 (2 GR), Summer 1997 (1 UG), Fall 1996 (1 GR), Summer 1996 (2 GR), Fall 1995 (1 GR), Spring 1995 (2 UG, 1 GR), Fall 1994 (1 Undergraduate), Spring 1994 (2 Graduate).

New Graduate Courses Developed:

1. UB-IE 620, Agile Manufacturing (1995).
2. UB-IE 500, Special Topics - Logistics and Supply-Chain Management (1996).
3. UB-IE 684, Networks, Routing and Logistics (2001).
4. UB-IE 661, Scheduling Theory (2003).
5. UB-IE 670, Special Topics: Big Data Operations Research (2013).
6. UIUC-IE 533, Big Graphs and Social Networks (2017).

A. Doctoral Students Graduated

1. Liugen Song; graduated 7/96. Dissertation title: "Design and Implementation of an Agile Manufacturing Information System for Virtual Manufacturing." Starting position: Computer System Administration and Development, Chase Manhattan Bank, NJ.
2. Muhammad F. Anwar; graduated 9/00. Dissertation title: "Integrated Transportation System and Workcenter Scheduling." Starting position: Assistant Professor, University of Memphis, TN.
3. Selçuk Savas; graduated 9/00. Dissertation title: "A Spatial Modeling Perspective to Problems in Facilities Layout," (co-advised with Rajan Batta). Starting position: Assistant Professor, Koç University, Istanbul, Turkey.
4. Ana Maria Sarmiento; graduated 1/01. Dissertation title: "An Integrated Production-Logistics Approach to Partner-Chain Design in Agile Manufacturing." *Recipient of the 1998 Doctoral Dissertation Proposal Award of Society of Logistics Engineers/International Society of Logistics.* Starting Position: Manager I2 Technologies, Dallas TX.
5. Aihu Wang; graduated 11/01. Dissertation title: "Variant Design of Complex Assemblies in Agile Manufacturing." Starting position: Faculty at School of Business Administration, South China University of Technology, Guangzhou, China.
6. Luis Sanchez; graduated 7/02. Dissertation title: "Location, Sizing and Production Allocation with Fixed and Mobile Manufacturing Facilities" Starting position: Professor and Director of Engineering and Science Department, ITESM Leon Campus, Mexico.
7. Chaewon Bang; graduated 1/03. Dissertation title: "A Hybrid Integrated Approach for Process Planning and Shop-Floor Scheduling in Agile Manufacturing." Starting position: General Manager of CIM, Hyundai Information Technology, Co., Ltd., Seoul, S. Korea.

8. Carol Romanowski; graduated 4/04. Dissertation title: "A Data Mining-based Engineering Design Support System." *Recipient of the 1999 Department of Energy (DOE) Doctoral Fellowship (for three years)*. Currently: Professor, College of Computing and Information Sciences, Rochester Institute of Technology, NY.
9. Simin Huang; graduated 6/04. Dissertation title: "The Connection Location and Sizing Problem: Models, Methods and Applications to Supply Chain Design." (co-advised with Rajan Batta). Currently: Professor, Department of Industrial Engineering, Tsinghua University China.
10. Avijit Sarkar; graduated 8/04. Dissertation title: "Finite-Size Facility Placement in the Presence of Generalized Congested Regions." (co-advised with Rajan Batta). Currently: Professor, School of Business, University of Redlands, CA.
11. Alfred Guiffrida; graduated 5/05. Dissertation title: "Cost Characterizations of Supply Chain Delivery Performance." Currently: Associate Professor, Business School, Kent State University, OH.
12. Abhay Joshi; graduated 1/06. Dissertation title: "Optimization Approaches to Network Topology Design For Dynamic Distributed Wireless Sensing in a Hostile Environment." (co-advised with Rajan Batta). Position: Business Analyst, Curbell Inc., Orchard Park NY.
13. Kedar Sambhoos; graduated 12/06. Dissertation title: "Graph Matching Applications in Homeland Defense." (co-advised with Moises Sudit). Currently: Dassault Systemes, Boston MA.
14. Satyaki Ghosh Dastidar; graduated 1/07. Dissertation title: "Discounting, Pricing and Ordering Policies for the US Automotive Dealerships." Currently: Risk Analyst, JP Morgan Chase, Columbus OH.
15. Min Zhang; graduated 11/07. Dissertation title: "Designing the Layout and Routing for a Manufacturing Facility to Mitigate Workflow Congestion." (co-advised with Rajan Batta). Currently: Operations Research Analyst, Avis Budget Group, Inc.
16. Michael Holender; graduated 6/08. Dissertation title: "Conceptual Spaces as a Modeling System for Information Fusion." (co-advised with Moises Sudit). Currently: Raytheon, MA.
17. Feng Pan; graduated 12/09. Dissertation title: "Opportunistic Supply Chain Design in Agile Manufacturing: Models and Heuristics." Currently: Supply Chain Consultant, Terra Technologies, Schaumburg IL.
18. Jingyang Xu; graduated 9/10. Dissertation title: "Complex Scheduling Problems in Manufacturing and Railroad Industries." Currently: Facebook, CA.
19. Frank Muffali; graduated 3/11. Dissertation title: "Simultaneous Sensor Selection and Routing of Unmanned Aerial Vehicle for Complex Mission Plans." (co-advised with Rajan Batta). Currently: Praxair, North Tonawanda, NY.
20. Gregory Tauer; graduated 9/12. Dissertation title: "Data Association on Large Quantities of Complex Data." (co-advised with Moises Sudit.) Currently: CUBRC, NY.
21. Katie McConky; graduated 12/12. Dissertation title: "Applications of Location Similarity Measures and Conceptual Spaces to Event Coreference and Classification." (co-advised with Moises Sudit.) Currently: Assistant Professor, Rochester Institute of Technology, Rochester NY.
22. Ying Zhang; graduated 1/13. Dissertation title: "Model Elicitation in Nation-Building Simulation: Analytic Network Process for Ranking Decisions and Petri Nets for Robust Optimization." (co-advised with Moises Sudit.) Currently: Supply Chain Consultant, Terra Technologies, Norwalk, CT.
23. Guisselle Adriana Garcia Llinas; graduated 5/13. Dissertation title: "Optimizing Investments in Interdependent Infrastructures." (co-advised with Moises Sudit.) Currently: Assistant Professor, Universidad del Norte, Columbia.

24. Geoff Gross; graduated 5/13. Dissertation title: "Graph Analytic Techniques in Uncertain Environments: Graph Matching and Link Analysis." Currently: Scientist and Modus Operandi, Melbourne FL.
25. Yan Xia; graduated 6/15. Dissertation title: "Routing and Time Allocation Problems in Designing Automatic Control of Unmanned Aerial Vehicles for Information Collection." (co-advised with Rajan Batta.) Currently: Amazon.com.
26. Ketan Date; graduated 10/16 (UIUC). Dissertation title: "Theoretical and Computational Advances in Finite-size Facility Placement and Assignment Problems." Currently: Post doc ISE@UIUC.
27. Sushant Khopkar; graduated 1/17 (UB). Dissertation title: "Computational Advances in Data Analytics with Social Networks." (co-advised with Alexander Nikolaev.) Currently: Applied Research Scientist, Llama Soft, Ann Arbor, MI.
28. Ali Yekkehkhany; graduated 6/20 (ECE/UIUC). Dissertation title: "Risk-Averse Multi-Armed Bandits and Game Theory." Placement: Post-doc at UC Berkley.
29. Arash Ghayoori; graduated 7/20 (UIUC). Dissertation title: "Budget Allocation and Optimal Use of Resources in Four Different Contexts: Data Centers, Viral Marketing, Recommendation Systems, and the Fight with the HIV Epidemic." Placement: Data Scientist, Huawei Research, Vancouver BC.
30. Tim Murray; graduated 12/20 (UIUC). Dissertation title: "Modeling Trustworthy Behavior and Limiting the Impact of Selfishness." (co-advised with Jugal Garg.) Placement: Target Analytics.

B. Doctoral Students under Supervision

31. Samhita Vadrevu; expected graduation 12/22 (UIUC). Tentative dissertation title: "Exact solutions to large-scale linear programming relaxations coming from higher order reformulations of integer programs."
32. Jungeun Shin; expected graduation 6/23 (UIUC). Tentative dissertation title: "Cloud Native Workflow Scheduling." (co-advised with Lavanya Marla.)
33. Rashid Anzoom; expected graduation 9/23 (UIUC). Tentative dissertation title: "Illicit Supply Chains." (co-advised with Chrysafis Vogiatzis.)
34. Samiran Kawtikwar; expected graduation 9/24 (UIUC). Tentative dissertation title: "Accelerated Discrete Optimization."
35. Alan Pusong Li; expected graduation 9/25 (ECE/UIUC). Tentative dissertation title: "Self-supervised learning." (co-advised with Kris Hauser.)
36. Nowsheen Sharmili; expected graduation 9/25 (UIUC). Tentative dissertation title: "Reverse Supply Chains in Rechargeable Battery Recycling." (co-advised with Pingfeng Wang.)
37. Vivek Rajopanth; expected graduation 9/25 (UIUC). Tentative dissertation title: "Limited Branching and AI in Scheduling Problems."

C. Master's Student Graduated (with Thesis)

1. Shekhar Iyer; graduated 4/95. Thesis title: "Identification and Ranking of Similar Parts in Agile Manufacturing." Placed at I2 Technologies, Dallas, TX. Currently CEO of ArangoDB, CA.
2. Pramod Gupta; graduated 5/95. Thesis title: "Flexible Optimization Framework for Partner Selection in Agile Manufacturing." Placed at Delphi Harrison Thermal Systems, Lockport, NY.
3. Muhammad F. Anwar; graduated 8/95. Thesis title: "Just-In-Time Production of Complex Assemblies with Finite Set-up Costs." Continued as PhD student at UB/ISE.

4. Vallish Shankar; graduated 7/96. Thesis title: "A Flexible Optimization Approach to Multi-Resource, Multi-Project Planning and Scheduling." Placed at Coopers and Lybrand, Chicago, IL.
5. Mangesh Bhandarkar; graduated 6/97. Thesis title: "Satisfying Data needs in Agile Manufacturing through Translation and Feature Extraction into STEP Product Models." Placed at Netfish Technologies, Santa Clara, CA.
6. Vishwanathan Ramabhata; graduated 7/97. Thesis title: "An Object Hierarchy Scheme for Complex Assemblies to aid Information Retrieval and Work Process Database Integration," (co-advised with Li Lin). Placed as Senior Consulting Engineer at Aspect Corp., Nashua, NH.
7. Shun L. Ng; graduated 7/97. Thesis title: "A Web-Centric System for Concurrent Engineering of Transfer Molded Components;" (co-advised with Li Lin).
8. Matthew Kane; graduated 8/97. Thesis title: "Integrated Material Flowpath and Layout in Facilities Design." Placed as Plant Engineer, Dunlop Tire Corp., Buffalo, NY.
9. Sumiathangi Sriram; graduated 8/98. Thesis title: "A Hierarchical and Dynamic Distribution System for Agile Manufacturing based on Distributed Object Technology." Placed at I2 Technologies, Dallas, TX.
10. Milind Mehere; graduated 8/98. Thesis title: "Integrated Distribution System Design with Warehouse Location and Logistics." (co-advised with Joyendu Bhadury). Placed at I2 Technologies, Cambridge, MA.
11. Siddharth Batra; graduated 8/98. Thesis title: "Integrating Order Picking and Sortation in Warehouse Distribution Systems." Placed at 3Com, Santa Clara, CA.
12. Ya-Ming Shiue; graduated 11/98. Thesis title: "A Decision Support Tool for Selecting and Sequencing Regularly Visited Customers in Courier Routing." (co-advised with Christopher Rump). Placed at Xerox, Rochester, NY.
13. Osman Kazan; graduated 12/98. Thesis title: "New Lot-Sizing Formulations for Less Nervous Production Schedules." (co-advised with Christopher Rump). Placed at Dopkins and Co., Buffalo, NY.
14. Lopamudhara Subramanian; graduated 12/98. Thesis title: "A Workflow Management System for Agile Manufacturing Enterprises." Placed as Implementation Engineer at SDRC, Long Island, NY.
15. Kristen Wen; graduated 1/99. Thesis title: "Unit Cost Reduction through a Dynamic Staffing System for Unreliable Transfer Lines." Placed as Manufacturing Engineer at GM Powertrain, Tonawanda, NY.
16. Carol Romanowski; graduated 1/99. Thesis title: "Setting Preventive Maintenance Schedules and Alarms Using Data Mining Techniques." Continued as PhD student at UB/ISE.
17. Harshvardhan Singh; graduated 6/99. Thesis title: "Time-Phased Manufacturing Cell Formation: A Cost Based Approach." Placed at I2 Technologies, Parsippany, NJ.
18. Balaji Venkatesan; graduated 6/99. Thesis title: "An IT-OR Approach to Project Management in an Agile Manufacturing Environment." Placed at I2 Technologies, Cambridge, MA.
19. Alfred Guiffrida; graduated 8/99. Thesis title: "A Cost-Based Model for Evaluating Vendor Delivery Performance." Continued as Ph.D. student at UB/ISE.
20. Parag Kulkarni; graduated 8/99. Thesis title: "Effect of batch move size on Just-In-Time production of Multi-level Assemblies." Placed at Microstrategy, Vienna, VA.
21. Amol Adgaonkar; graduated 10/99. Thesis title: "Multiperiod Newsvendor Model with Forecast Update;" (co-advised with Ram Akella). Placed at I2 Technologies, Dallas, TX.

22. Liangyu Zhou; graduated 12/99. Thesis title: "Design of Distributed Information Systems for Virtual Enterprises using CORBA." Placed in a software company, Columbus, OH.
23. Amol Amritkar; graduated 12/99. Thesis title: "Impact of Heijunka (Level Scheduling) on Internal Supply Chain Management in JIT Manufacturing Environment." Placed at I2 Technologies, Dallas, TX.
24. Pavankumar Nandikonda; graduated 9/00. Thesis title: "1-Center Facility Placement in a Rectilinear Plane with Barriers;" (co-advised with Rajan Batta). Placed at See-Commerce Technologies, Palo Alto, CA.
25. Dhruv Raheja; graduated 1/01. Thesis title: "A Data Fusion-Based Architecture for Condition-Based Maintenance." (co-advised with James Llinas). Placed at ArborText, MA.
26. Rahul Bhatia; graduated 1/01. Thesis title: "Reactive Scheduling in Workflow Management Systems using Column Generation." Placed at I2 Technologies, Dallas, TX.
27. Sanjay Ramanujan; graduated 1/01. Thesis title: "Decision Support System for Integrated Assembly Plan Generation and Task Scheduling." Placed at ILOG, Mountainview, CA.
28. Sushant Bhadange; graduated 1/01. Thesis title: "Disassembly Sequence Generation based on Mating Graph and Access Directions." Placed as Product Development Engineer at Reveo, Inc., Hawthorne, NY.
29. Ashwin Warriar; graduated 8/01. Thesis title: "A Decision Support Tool for the Inventory Allocation and Vehicle Routing Problem." Placed at SCT Corp. (supply-chain consulting), Philadelphia, PA.
30. Avijit Sarkar; graduated 5/02. Thesis title: "Study of Rectilinear Least Cost Travel (Path and Entry/Exit) Through Convex Polygonal Congested Regions." (co-advised with Rajan Batta). Continued as PhD student at UB/ISE.
31. Dipeshkumar Patel; graduated 12/02. Thesis title: "Clustering Sensors in Wireless *ad hoc* Networks using a Dynamic Expected Coverage Model." (co-advised with Rajan Batta). Entrepreneur at Dipesh Engineering Works, Mumbai India.
32. Hari Kelachankuttu; graduated 5/03. Thesis title: "Contour Line Construction for a New Rectangular Facility in an Existing Layout with Rectangular Departments." (co-advised with Rajan Batta). Placed at a Cable manufacturer in Pune, India.
33. Nishant Mishra; graduated 8/03. Thesis title: "Capacity and Non-steady state Generalizations to the Dynamic MEXCLP model for Distributed Sensing Networks." (co-advised with Rajan Batta). Continued as PhD student in London Business School.
34. Abhay Joshi; graduated 8/03. Thesis title: "Reactive Scheduling in Workflow Management Systems: A Branch-and-Price Approach." Continued as PhD student at UB/ISE.
35. Satyaki Ghoshdastidar; graduated 8/03. Thesis title: "Hierarchical Production Scheduling of Parallel Machines in the presence of Multiple Tooling and Resource Constraints and Sequence-Dependent Setup Times: Applications in Injection Molding Operations." Continued as PhD student at UB/ISE.
36. Sachin Mujawar; graduated 8/04. Thesis title: "Scheduling to Minimize Stringer Utilization for Continuous Annealing Operations." Placed as Research Engineer at FM Global, Boston/Norwood, MA.
37. Bhaveshkumar Joshi; graduated 8/04. Thesis title: "Portable Dynamic Message Signs (PDMS) Implementation to Improve Work Zone Safety." (co-advised with Stuart Chen). *Recipient of the Intelligent Transportation System (ITS)-NY Best Student Paper Competition, June 2004.*
38. Vinay Bendre; graduated 8/04. Thesis title: "Capacitated Quadratic Assignment Problem: Models, Algorithms and Applications." Placed as Logistics Analyst at CHEP, FL.

39. Ramkumar Iyer; graduated 8/04. Thesis title: "Location, Sizing and Production Allocation Problem: A Column Generation Approach." Placed as a Supply-chain Engineer, Continental Airlines, Jersey City, NJ.
40. Kedar Sambhoos; graduated 8/04. Thesis title: "Precedence relationships in assembly mating graphs." (co-advised with Bahattin Koc). Continued as PhD at University at Buffalo.
41. Esra Cosar; graduated 7/05. Thesis title: "Performance Evaluation of a Mathematical Programming-based Clustering Algorithm for a Wireless *Ad Hoc* Networks Operating in a Threat Environment." (co-advised with Rajan Batta). Placed as Operations Research Analyst at ZS Associates, New York, NY.
42. Purvin Shah; graduated 8/05. Thesis title: "Optimizing Usage of Recycled Materials in a Remanufacturing Environment." (co-advised with Abhijit Gosavi). Placed as Industrial Engineer, Depew, NY.
43. Parikshit Nukala; graduated 5/06. Thesis title: "Open Source Workflow Management System with a Task Scheduling Tool." Placed as Project Controls Engineer II, Bechtel Corporation, Cerritos, CA.
44. Ozgur M. Araz; graduated 9/06. Thesis title: "Incorporating Weather Systems in Cooperative UAV (Unmanned Aerial Vehicle) Search: A Probabilistic Approach." PhD student at ASU.
45. Amanda J. Burger; graduated 12/06. Thesis title: "Managing Processes using the Process Window Monitor: An Alternative Human Centered Statistical Process Control Tool." Placed as Manufacturing Engineer, Northrop Grumman Corporation Amherst Systems, Amherst, NY.
46. Ming-Liang Fang; graduated 5/07. Thesis title: "Dynamic Pricing in Continuous Time with Cancellation and Refund Policies." Placed as Operations Research Engineer, AIM Engineering, Seattle, WA.
47. Younggi Song; graduated 12/07. Thesis title: "Inventory Reduction by Converting Make-to-Stock parts to Make-to-Order." Continued as PhD student at UB/ISE.
48. Chinmay R. Abhayankar; graduated 12/07. Thesis title: "Location, Capacity Expansion and Production Planning in Pharmaceutical Industry under Stochastic Demand." Placed as Analytic Science – Scientist I, Fair Isaac Corporation.
49. Frank Muffali; graduated 1/08. Thesis title: "Complexity Measures and Congestion Issues in Wireless Sensor Networks." Continued as PhD student at UB/ISE.
50. Akhil Mishra; graduated 9/08. Thesis title: "Workflow Pattern Mining using E-mail Communications." Placed as Intel Corporation, Arizona.
51. Parthiban Thayalan; graduated 9/08. Thesis title: "Comparative Study of Item Storage Policies, Vehicle Routing Strategies and Warehouse Layouts Under Congestion." Placed as Operations Research Engineer, ADecTec-Applied Decision Technologies, Inc., Atlanta, GA.
52. Mingguo Zhu; graduated 9/09. Project title: "Positioning Decoupling Points Among Bills of Materials' Components."
53. Noah Bednowitz; graduated 9/10. Thesis title: "Dispatching and Loitering Policies for Unmanned Aerial Vehicles under Dynamically Arriving Multiple Priority Targets." (co-advised with Rajan Batta.) Placed at L3Com, Greenville TX.
54. Varsha Deshmukh; graduated 9/10. Thesis title: "Order Batching in a Warehouse Based on Garcia Proth Method."
55. Sushant Khopkar; graduated 9/10. Thesis title: "Incremental Algorithms for Centrality Metric Calculations in Social Network Analysis." Continued as PhD student at UB/ISE.

56. Ketan Date; graduated 4/12. Thesis title: "Placement of Two Finite-Size Facilities in an Existing Layout with the Rectilinear Distance Metric." Continued as PhD student at UIUC/ISE.
57. Yan Xia; graduated 5/12. Thesis title: "Influence of positive order fulfillment time in batch production system." Continued as PhD student at UB/ISE.
58. Harish Narasingaraj; graduated 5/16. Thesis title: "Optimizing smoothing parameters for the Triple Exponential Forecasting Model." Placed at InfoSys and Terra Technologies, Schaumburg IL.
59. Varsha Kaushik; graduated 5/17. Thesis title: "GPU Accelerated Hungarian Algorithm for Traveling Salesman Problem."
60. Sharathram Ganesh; graduated 9/17. Thesis title: "Mixed Integer Linear Programming Approach for Solving Assembly Scheduling Problems."
61. Shardul Natu; graduated 2/18. Thesis title: "GPU-based Lagrangian Heuristic for Multidimensional Assignment Problems with Decomposable Costs." Placed at FactSet, Norwalk, CT.
62. Olivia Reynen; graduated 5/20. Thesis title: "GPU-Accelerated Algorithms for the Resource Constrained Assignment Problem." Placed at Wayfair, Boston MA.
63. Vibhor Dodeja (ECE); graduated 5/21. Thesis title: "High Performance DFS-based Subgraph Enumeration on GPUs." (co-advised with Wen-mei Hwu.) Placed at NVIDIA, Santa Clara, CA.
64. Raunak Sengupta; graduated 8/21. Thesis title: "Fair Allocation of Operations and Makespan Minimization For Multiple Robotic Agents." (co-advised with RS Sreenivas.) Continued as PhD student at UIUC/ISE.
65. Jakub Lewandowski; graduated 8/21. Thesis title: "A Decision Support System for Earthmoving Production Estimates and Equipment Allocation." (co-advised with Bob Norris.) Placed at Julian Electric Inc. as Product Engineer.
66. Emily Moog (ECE); graduated 12/21. Thesis title: "Effect of Trip Chaining on Microgrid Placement and Communities' Infrastructure Service Access Burden." Placed at Sandia National Labs, NM.
67. Samiran Kawtikwar; graduated 7/22. Thesis title: "Enhancements in High Performance Subgraph Enumeration on Graphics Processors." (co-advised with Wen-mei Hwu.) Continued for PhD.
68. Mohit Mahajan; graduated 7/22. Thesis title: "GPU-Accelerated Transportation Simplex Algorithm." Placed at Shopify.

D. Master's Students under Supervision

69. Vanshika Gupta; expected graduation 5/23. Thesis title: "Fair Allocation in Chores and Goods." (co-advised with Jugal Garg.)
70. Arkadiy (Archie) Gertsman; expected graduation 5/23. Thesis title: "Graph Neural Networks in Scheduling."
71. Karan Singh Kochar; expected graduation 5/23. Thesis title: "Mixed-mode Drone Delivery."
72. Hem Vaidya; expected graduation 12/22. Thesis title: "New Parallel Algorithms for the Linear Assignment Problem." Placed at Discover Financial Services, Riverwoods, IL.
73. Aaron Williams; expected graduation TBD. Thesis title: "Routing and Information Sharing Strategies for a Fleet of UAVs." (co-advised with Alex Olshevsky.)

E. Master of Engineering Students Graduated (with Project)

1. Christopher Massing; Graduated 9/10. Project title: "Quality and Cycle Time Improvement in Web Conversion of 40mm Product." Currently Process Engineering Manager, Techni-Met, Hartford, CT.
2. Ankush Kaul; Graduated 5/06. Project title: "Improving Supplier Quality at Praxair." (co-advised with Alfred Guiffrida). Currently Engineering, Praxair Inc., Tonawanda, NY.

F. Undergraduate Research Students

1. Shilin Xia; Fall 2017. Research title: "*M* facility placement problem and Quadratic Assignment Problem (QAP) research."
2. Yirou Li; Fall 2016. Research title: "Optimal placement of finite-sized facilities in a layout."
3. Georgia Cruz; Appointed Spring and Fall 2012. Research title: "Data Association and Ground Truthing."
4. Oyinkansola Akintan; Appointed Spring 2011. Research title: "Web Services Selection for end-to-end QoS."
5. David Myers; Appointed Spring 2008. Research title: "Markov Chain Models in Stability Operations." (co-advised with Moises Sudit and Abhijit Gosavi).
6. David Myers and John Coles; Appointed Fall 2007. Research title: "Nation building simulation." (co-advised with Moises Sudit).
7. John Coles; Appointed Spring 2007. NSF/REU student, research title: "Warehouse Simulation Software Programming." (co-advised with Rajan Batta).
8. Lisa Murawski; Appointed Spring 2004. NSF/REU student, research title: "Congestion and Time Dependent Shortest Paths." (co-advised with Rajan Batta).
9. Stephanie Schinzing and Karriane Paolo; Appointed Spring 2000. NSF/REU student, research title: "Comparison of Academic and Commercial Facility Layout Programs and their Application in Industry." (co-advised with Rajan Batta).

15. GRADUATE COMMITTEE ASSIGNMENTS

A. Doctoral Dissertation

1. Hossein Nick Zinat Matin; Dissertation title: "Asymptotic Analysis of Optimal Leader-Follower Dynamics in Autonomous Vehicles." (Chair: Richard Sowers). Prelim May 5, 2020.
2. Ehsan Salimi; Dissertation title: "On the Properties of Right-Closed Sets and their Application to Liveness Enforcement (via Supervisory Control) in Petri Nets." (Chair: RS Sreenivas). Prelim November 18, 2014. Final Exam June 22, 2015.
3. Hector J. Ortiz-Pena; graduated 12/14. Dissertation title: "The Effects of Decentralization and Trust on the Optimization of Information Gathering Activities for Cooperative Autonomous Vehicles." (Co-Chairs: Mark Karwan and Moises Sudit).
4. Gina Galindo; graduated 01/13. Dissertation title: "Prepositioning Supplies in Preparation for a Foreseen Hurricane." (Chair: Rajan Batta).
5. Yidong Zhang; graduated 01/12. Dissertation title: "Long Term CO₂ Sequestration System Modeling." (Chair: Mark Karwan).
6. Ibrahim Ozbolat; graduated 01/11. Dissertation title: "Tissue Engineering." (Chair: Bahattin Koc).

7. Chase C. Murray; graduated 6/10. Dissertation title: "Dynamic Reassignment and Rerouting in Cooperative Airborne Operations." (Chair: Mark Karwan).
8. Adam Stotz; graduated 11/08. Dissertation title: "Bridging Human and Computer Fusion Processes and Advancements in Graph Matching for Information Fusion." (Chair: Moises Sudit).
9. Thyagarajan, Karthik; graduated 8/07. Dissertation title: "Modeling Distribution Issues in the Industrial Gas Business;" (Chair: Mark Karwan).
10. Jha, Pratik; graduated 5/07. Dissertation title: "Air Traffic Controller's Performance in Advanced Air Traffic Management Concept;" (Chair: Amy Bisantz).
11. Zhao, Hongxia; graduated 12/06. Dissertation title: "Branch and Cut for Single Machine Scheduling;" (Chair: Ismael DeFarias).
12. Karhaman, Aykut; graduated 6/06. Dissertation title: "Cargo Systems;" (A-exam: February 2006; Chair: Abhijit Gosavi).
13. Voit, John; graduated 5/06. Dissertation title: "Organizational Learning;" (A-exam: April 2003; Chair: Colin Drury).
14. Neelakantan, Jayasankar; graduated 9/05. Dissertation title: "Strategies for Clearance Markdown Optimization for Retail Goods;" (A-exam: Feb 2004; Co-chairs: Abhijit Gosavi and Rajan Batta).
15. Ma, Maggie; graduated 9/04. Dissertation title: "Human Factors in Data Mining Process: A Function Allocation Perspective;" (A-exam: April 2003; Chair: Colin Drury).
16. Hong, Seungkweon; graduated 9/02. Dissertation title: "Human Performance in Visual Search for Multiple Targets;" (A-exam: July 2001; Chair: Colin Drury).
17. Chen, Shi-Jie; graduated 9/99. Dissertation title: "Project Task Coordination and Team Organization in Concurrent Engineering;" (A-exam: August 1998; Chair: Li Lin).
18. Ping Xie; graduated 11/97. Dissertation title: "A Hierarchical Capacity Planning and Production Control System;" (A-exam: April 1996; Chair: Li Lin).
19. Wesley S. Changchien; graduated 5/96. Dissertation title: "Concurrent Product Life-Cycle Design Framework;" (A-exam: February 1995; Chair: Li Lin).
20. Jia-Jiunn Lo; graduated 5/95. Dissertation title: "Real-Time and Feedback Control of Flexible Manufacturing Systems;" (A-exam: March 1995; Chair: Li Lin).

B. Doctoral Dissertation Outside Reader

1. Hua-wei Chi; graduation 6/96. Dissertation title: "Mixed Variable Optimization Methods for Complex Engineering System Design;" (Chair: C.L. Bloebaum, Mechanical and Aerospace Engineering, SUNY Buffalo).
2. Kevin Hulme. graduation 1/00 "Development of a Framework for the Solution of Simulation-based Coupled Design Problems in Multidisciplinary Design Optimization;" (Chair: C.L. Bloebaum, Mechanical and Aerospace Engineering, SUNY Buffalo).
3. Fu Yonghui; 9/02. "A Coordination Approach for Inventory Alignment in Decentralized Supply Chains;" (Chair: Rajesh Piplani, School of Mechanical and Production Engineering, Nanyang Technical University, Singapore).
4. Cyril Duron; 11/02. "Ordenancement en temps réel des activités des radar;" (Chair: Jean-Marie Proth, D.Sc. in Mathématiques, Informatique, Mécanique, University de Metz, France).
5. Linda Lianfeng Zhang; 11/02. "Process Platform-based Production Configuration for Mass Customization;" (Chair: Roger Xin, Nanyang University, Singapore).

C. Master's Thesis

1. Ling-Feng Tung; graduated 12/94. Thesis title: "Multiple-objective Scheduling for the Hierarchical Control of Flexible Manufacturing Cells;" (Chair: Dr. Li Lin).
2. Manish Shah; graduated 1/95. Thesis title: "An MRP-driven AGV Control System with Object-Oriented Implementation;" (Chair: Dr. Li Lin).
3. Chih-Wei Hu; graduated 5/97. Thesis title: "A Linear Programming Approach to the Problem of Minimizing Expected Economic Loss;" (Chair: Dr. Wayne Bialas).
4. Kun Hur Chen; graduated 6/97. Thesis title: "A Graphical User Interface for Concurrent Engineering Design of Mechanical Parts;" (Chair: Dr. Li Lin).
5. Michael J. Halter; graduated 4/98. Thesis title: "Factors that Influence Nurses' Decisions to use or not use Patient Transfer Equipment and Job Factors Related to Back Pain among Nursing Personnel;" (Chair: Dr. Colin Drury).
6. Puah Sen Ann; 4/01. Thesis title: "Production Planning in Semiconductor Industry Using Simulation: Simplification Strategies;" Master of Engineering, School of Mechanical and Production Engineering, Nanyang Technical University, Singapore.
7. Urmil Desai; graduated 12/03. Thesis title: "A Neural Network Approach to Automated Grouping of 3D CAD Models using Feature Signatures;" (Chair: Dr. T. Kesavadas, MAE Department).
8. Aditya Kelkar; graduated 12/03. Thesis title: "Geometric Analysis and Planning of Hybrid Manufacturing Systems using Re-configurable Molding and Multi-Axis Machining;" (Chair: Dr. Bahattin Koc).
9. Vijay K. Shetty; graduated 5/04. Thesis title: "A Framework for Priority-Based Assignment and Routing of a Fleet of Unmanned Combat Aerial Vehicles;" (Chair: Dr. Moises Sudit).
10. Srinivas Sundaragopal; graduated 3/05. Thesis title: "A Neural Network Guided Clustering Algorithm for Unsupervised Micro-Array Data Analysis;" (Chair: Dr. Abani Patra, MAE dept.).
11. Vamsi Tangirala; graduated 8/05. Thesis title: "3D parameterization and Bridge Information Modeling of slab on girder bridges;" (Chair: Dr. Stuart Chen, Civil Eng dept.).

D. Indirect Supervision at University of Maryland

1. Anshu Mehra (Ph.D. student at University of Maryland advised by Drs. I. Minis and J.M. Proth): "Temporal Aggregation and Decomposition Schemes in Hierarchical Production Management Systems," graduated July 1995.
2. Ashutosh Agrawal and Thomas Lu (M.S. students at University of Maryland advised by Drs. G. Harhalakis and I. Minis): "Optimization of Lead-times for Westinghouse MRP and Shop Floor Control Systems," graduated 1993.
3. George Ioannou (Ph.D. student at University of Maryland advised by Drs. G. Harhalakis and I. Minis): "Plant Design," graduated September 1995. Starting Position at Virginia Tech.

16. ADMINISTRATIVE ACTIVITIES AND UNIVERSITY SERVICE

Doctoral Dissertation Award Committee, Coordinated Science Laboratory (2022-).
Awards Committee, Grainger College of Engineering (2021-).
Promotion and Tenure Committee, Grainger College of Engineering (2018-2020).
Institute for Genomic Biology Director Evaluation Committee (2016).
Chair, Committee for the Evaluation of a Department Head (2015).

Search Committee, UIUC GEBI Big Data (2013-2016).
 Steering Committee, Health Care Engineering Systems Center Director (2013-2019).
 Search Committee, Health Care Engineering Systems Center Director (2013-2014).
 Search Committee, UIUC College of Engineering Executive Associate Dean (2013).
 Head, Department of Industrial and Enterprise Systems Engineering, UIUC (2013-2019).
 Chair, Department of Industrial and Systems Engineering, UB (2006-2012).
 Search Committee, Life Cycle Team Leader, UB/RF Sponsored Projects Services (2009).
 Search Committee, Director, UB Immigration Services (2007).
 University at Buffalo Faculty Senate Committee (2002-2004).
 Review Panel for IRCAF (Interdisciplinary Research and Creative Activities Fund) proposals (2004).
 SEAS Grievance Panel for Graduate Affairs (2002).
 Director of Graduate Studies (1999-2001).
 Committee Member, ABET review (2001-2002).
 Graduate seminar coordinator (1998-1999).
 Chair, production systems faculty search committee (1996-1997).
 Graduate Admissions and Affairs committee (1996-1998, 2001-2003).
 Graduate Awards committee (1996-1998).
 Comprehensive Exam Administrator (1993-1998).
 M.S. Comprehensive Oral Exam committee (1996-1998, 2000-2003).
 Computer Laboratory faculty manager (1993-1999).
 Co-Director, Intelligent Manufacturing Systems Laboratory (1996-).
 Faculty Advisor, Society of Manufacturing Engineers (1996-).
 Faculty Advisor, Tau Beta Pi (1997-1999).
 Production Planning and Control review committee (1993-1994).
 SEAS mini-super computer steering committee (1994-1996).
 SEAS computer advisory and advocacy committee (1996-1998).
 SEAS information technology needs committee (1997-1998).
 Departmental space evaluation committee (1994).
 Co-Chair Graduate Research Group in Integrated Design Engineering (1994-1996).
 Graduate Research Group in Applied Artificial Intelligence in Engineering (1994-1995).

17. SERVICE ACTIVITIES FOR SCIENTIFIC JOURNALS AND CONFERENCES

A. Editorial Board of Scientific Journals

1. INFORMS, Editor in Chief of a Journal Review Committee (2022).
2. Editorial Board, International Journal of Production Research (IJPR) 2015 -.
3. Associate Editor, International Journal of Production Research (IJPR) 2012 - 2015.
4. Associate Editor, IIE Transactions, 2022 (1), 2021(1), 2017 (1), 2016, 2007 (2), 2009, 2010-2011 (2), 2012 (1), 2013-14 (1).
5. International Journal of Agility, by International Society for Agile Manufacturing, 1997.

B. Program Committees and Session Chair

1. International Program Committee, IFAC-MIM 2022 Conference, Nantes, France, 2022.
2. Technical Co-Chair, International Conference on Information Fusion, Ottawa, Canada, 2019.
3. International Scientific Committee, International Conference on Industrial Engineering and Systems Management, Saarbrücken Germany, 2017.

4. Manufacturing and Design Track Chair, IE Research Conference, 2010.
5. Session Chair (Organized “Retail Facility Design” session in Facilities Logistics), IE Research Conference, 2009.
6. Session Chair (Organized “Optimization in Military Applications: Resource Management and Course of Action” session in Military Applications), INFORMS Conference, 2008.
7. Manufacturing Systems Track co-chair, IE Research Conference, 2007.
8. Program Committee (*Proceedings co-editor*), IE Research Conference, 2006.
9. Session Chair (Organized “Recent Advances in Location Analysis and New Applications” session in Location Analysis), INFORMS Conference, 2007.
10. Session Chair (Organized “OR in Information Fusion” session in Military Applications, and Tutorial in Location Analysis), INFORMS Conference, 2006.
11. Program Committee (Organized Manufacturing Systems Tracks) and Session Chair, IE Research Conference, 2004.
12. Session Chair, IE Research Conference, 1999.
13. Session Chair, IE Research Conference, 1998.
14. Session Chair, IE Research Conference, 1996.
15. Scientific Committee, IEEE Industrial Electronic Society/INRIA, Conference on Emerging Technologies and Factory Automation, 1995.

C. Prestigious Review Activities for Agencies

1. INFORMS, Koopman Prize Awards Committee, August 2022.
2. National Science Foundation, Panel Review, March 2022.
3. KAIST, Assessment Panel for the Global Opinion on Semi-Centennial of KAIST, November 2020.
4. DARPA, Red Team reviewer INSIGHT Program, November 2014.
5. National Science Foundation, Ad hoc reviewer CMII/Design Program, September 2009.
6. National Science Foundation, Panel Review for CMII/MES Program, October 2007.
7. US Department of State for Science Centers, August 2002.
8. National Science Foundation, Panel Review for DMII Division, May 2002, June 2004.
9. National Science Foundation, Evaluator Engineering Research Center site, May 2001, 2003, 2004.

D. Review Activities for Journals, Conferences and Professional Societies

1. Wiley Encyclopedia of Operations Research and Management Science (2009).
2. IEEE Transactions on Industrial Informatics (2009).
3. International Journal of Industrial and Systems Engineering (2009).
4. Information Fusion Journal (Elsevier) (2009).
5. IIE Transactions, 1992, 1995, 1997(2), 1998 (2), 1999, 2000, 2001 (2), 2002, 2003 (3), 2004 (2), 2005, 2009.
6. Journal of Manufacturing Systems, 2003.
7. European Journal of Operational Research, 1997, 1998(2), 2001, 2005, 2008.
8. IEEE Transactions on Robotics and Automation, 1997 (2), 1998, 2001.
9. IEEE Transactions on Automation Science and Engineering, 2004, 2016.
10. International Journal of Flexible Manufacturing Systems, 1996, 2001.
11. International Journal of Computer Integrated Manufacturing, 2005.

12. International Journal of Production Economics, 2005.
13. Computers & Operations Research, 1997, 2005.
14. Computers & Industrial Engineering, 2002, 2004.
15. International Journal of Production Research, 1997, 1998.
16. Production Planning and Control, 1998.
17. ASME Transactions, Journal of Mechanical Design, 1998.
18. ASME Transactions, Journal of Computing and Information Science in Engineering (JCISE), 2005.
19. ASME, 1993, 1994.
20. Applied Ergonomics, 1999.
21. IE Research Conference, 1995, 1996, 1997.
22. ORSA Journal on Computing, 1994.
23. Annals of Operations Research, 1995, 1996, 1997.
24. IEEE CDC, 1995.
25. IEEE Control System Society, 1993.
26. IEEE Robotics and Automation Conference, 1995.
27. IEE, Workshop on Discrete Event Systems (WODES), 1996.
28. IEEE Transactions on Automatic Control, special mini-issue on Modeling and Analysis of Multidimensional Queuery Systems," July 1990.
29. Chapter for Edited Book: Group Technology & Cellular Manufacturing 1996.

E. Review Activities for Publishers

1. Prentice Hall, Upper Saddle River, NJ, Facilities Design text by Sunderesh Heragu.

18. PROFESSIONAL AND INDUSTRIAL ACTIVITIES

A. Leadership Activities in Professional Societies

Council of Fellows, Institute of Industrial and Systems Engineers, Scribe (2019), President-Elect (2020), President (2021) and Past-President (2022-current).

Co-Chair, Technical Program Committee, International Society of Information Fusion (2019).

Chair, Committee for Development of IE Recruitment Video, funded by Council of Industrial Engineering Academic Department Heads (CIEADH), *Industrial Engineers Make A Difference*, won the **2011 NY Emmy Award** in Informational/Instructional: Feature/Segment.

Elected Member, College-Industry Council on Material Handling Education (CICMHE), Material Handling Industry of America (MHIA) (2004-2007).

Chair Communications (and newsletter editor) Manufacturing Division of Institute of Industrial Engineers (1998-1999).

Continuing Education Program Review Committee of Institute of Industrial Engineers (1998-1999).

B. Professional and Honor Societies

Fellow, Institute of Industrial Engineers.

Member, American Society for Engineering Education.

Member, American Association for the Advancement of Science.

Member, INFORMS, Institute For the Operations Research and the Management Sciences

Member, ISIF (International Society for Information Fusion) and IEEE

Senior Member, IEEE.

Affiliate Member (and past Faculty Advisor) Society of Manufacturing Engineers.

Phi Kappa Phi; Tau Beta Pi; Omega Rho

Research specialist in The Center for Industrial Effectiveness

C. Industrial Consultancies

1. "Multi-INT ID Fusion," STRResearch (2017).
2. "Pattern of Life," Modus Operandi (2015-2016).
3. "Red Team Reviewer for DARPA," DARPA (October 2013).
4. CUBRC, Cheektowaga NY (2013).
5. "Facility Layout," *Trek, Inc., Medina, NY* (May 2012).
6. "Facility Layout Redesign," *HDM Hydraulics, LLC, Tonawanda, NY* (June 2011).
7. "Improving Efficiency in Bindery Operations," *Worldcolor, Depew, NY* (Feb 2010).
8. "Variable Tunable Design for Compressor," *Dresser-Rand, Co., Olean, NY* (January 2009).
9. "Supply Chain Optimization," *Stollberg, Inc., Niagara Falls, NY* (November 2006 – July 2007).
10. "Facility Layout Redesign," *Flame Control Coatings, LLC, Niagara Falls, NY* (August 2006 – Dec 2006).
11. "Manufacturing and Warehouse Layout Study," *Curbell Inc., Orchard Park, NY* (Jan 2006 – May 2006).
12. "Improving Oscillating Slitter Productivity," *Gibraltar Metals, Buffalo, NY* (July 2005 – November 2005).
13. "Office Layout Optimization," *LP Ciminelli, Buffalo, NY* (July 2005 – November 2005).
14. "Graphs and Optimization for Level 2/3 Fusion," *Lockheed Martin, NY*; December 2004 – December 2005.
15. "Strategic Operations Assessment and Layout Optimization," *Tx Rx Systems, Angola, NY*; January 2004 – July 2004.
16. "Scheduling to Minimize Stringer Utilization," *Outokumpu American Brass, Buffalo, NY*; March 2003 – August 2003.
17. "Facilities Consolidation and Redesign," *Markar Architectural Products, Lancaster, NY*; Sept. 2002 – Dec. 2002.
18. "Product Flow Analyses and Facilities Redesign," *Bethlehem Steel, Lackawana, NY*; Feb. 2002 – June 2002.
19. "Operations Analysis and Plant Layout/Facilities Redesign Studies," *Ferro Electronics Materials, Niagara Falls, NY*; February 2001 – March 2001.
20. "Knowledge Acquisition and Scheduling System Design," *Carborundum Corporation, Amherst, NY*; July 2000 – May 2001.
21. "Production Operational Assessment," *Gaymar Industries, Orchard Park, NY*; July 2000.
22. "Recommendations for Operational and Facility Design Improvements," *National Wire and Metal, Jamestown, NY*; May 2000.
23. "Operational Analysis and Facility Redesign Studies," *Republic Drug Company, Buffalo, NY*; May – July 1999.
24. "Operational Analysis and Facility Design Studies," *Imaging and Sensing Technology, Horseheads, NY*; Oct – Dec 1998.
25. "Operational Assessment: Facility Layout and Process Flow," *Milward Alloys Inc., Lockport, NY*; Aug – Sept 1998.
26. "Time Studies, Process Flow and Inventory Control," *McKenica Corp., Buffalo, NY*; July – August 1998.
27. "Facility Design and Automation," *A Lunt Design Inc., Orchard Park, NY*; April 1998.
28. "Facility Design Simulation Studies," *Graphic Controls Corp., Buffalo, NY*, February 1998.
29. "Facility Layout for High-bay Assembly and Sheet-Metal Areas," *Gemcor Inc., West Seneca, NY*, August 1997.
30. "Pinpoint Enhancement Product Development," *Integral Information Systems, Amherst, NY*, July 1997 - April 1998.
31. "Layout and Productivity Improvements at AVX Corporation," *AVX Corp., Myrtle Beach, SC*, June 1997.
32. "Layout Critique at Smith McDonald Corp," *Smith McDonald Corp., Cheektowaga, NY* June 1997.
33. "Briquetting Productivity and Automation Enhancement," *Manitoba Corp., Lancaster, NY*, December 1996.

34. "Facility Layout under Cyclical Demand," *Gemcor Inc., Buffalo, NY*, June 1996.
35. "Assessment of Layout Design for Praxair's New Turbine Assembly Facility," *Praxair, Inc., Tonawanda, NY*; co-consultant L. Lin, October 1995.
36. "Tool Room Layout Assessment at American Axle," *American Axle and Manufacturing, Tonawanda, NY*; co-consultants R. Batta and L. Lin, August 1994.
37. "Preliminary Facility Assessment at Buffalo Weaving and Belting," *Buffalo Weaving & Belting, Buffalo, NY*, July 1994.
38. "Operational Assessment at Premier Image," *Premier Image, Buffalo, NY*, March 1994.
39. "Plant Layout at R.D. Murray," *R.D. Murray Fire Apparatus, Hamburg, NY*, January 1994.
40. "Operation Scheduling and Worker Assignment in a Coat Assembly Line," *Maryland Clothing Co. Baltimore, MD*, and University of MD's Technology Extension Service (TES), Nov. 1992.
41. "Scheduling in a Mail Facility for Improved Performance," *Westinghouse (MSTC), Baltimore, MD*, September 1991.
42. "Group Technology Based Layout for a particular Mail Facility," *Westinghouse (MSTC), Baltimore, MD*, May 1991.

19. OTHER SERVICE ACTIVITIES

"Comments on Material Handling, Flow, Layout and Automation," American Coasters, Sanborn, NY November 2001.

"Strategic Comments on Layout," Sealing Devices., Cheektowaga, NY September 2000.

Hosted one undergraduate student (Ntare Karytani) in summer of 1997 for NSF-SUNY Alliance for Minority Program (AMP).

"Layout Critique at Smith McDonald Corp," Smith McDonald Corp., Cheektowaga, NY June 1997.

Invited Panelist at International Students as Job Applicants' Workshop, April 18, 1997.

Volunteered at SME booth at Walden Galleria during Engineer's Week, February 1997.

Hosted one high-school student through BEAM in the summer of 1995.

20. HONORS AND AWARDS

1. IISE David F. Baker Distinguished Research Award (2022). Recognizes outstanding research in the ISE profession. It is given for a *career of accomplishments that broadly benefited practitioners, organizations, or other researchers* rather than for a single activity or application.
2. INFORMS Koopman Award from Military Application Society (2021).
3. DARPA Graph Challenge (Sparse Deep Neural Network), Champion (2020).
4. INFORMS Koopman Award from Military Application Society (2018).
5. DARPA Graph Challenge, Honorable Mention (2017, 2019), Finalist (2018), Innovation Award (2018, 2019, 2021).
6. IIE Transactions on Design and Manufacturing, Best paper award from journal issues from July 2011 through June 2012 (2013).
7. Fellow of IIE, the Institute of Industrial Engineers (2010). In recognition of outstanding leadership in the profession, and significant and recognized contributions to Industrial Engineering.
8. Sustained Achievement Award (2009). In Recognition of Outstanding Achievements in Scholarly Activity, University at Buffalo.
9. Promising Inventor Award, SUNY/RF (2004). Awarded to 97 faculty across SUNY for submitting invention disclosures.
10. Business First of Buffalo's 40 under 40 award (2004).

11. International Who's Who of Professionals (2004).
12. Who's Who in America (2002).
13. IIE's Outstanding Young Industrial Engineer Award in Academia (1999).
14. SME's Milton C. Shaw Outstanding Young Manufacturing Engineer Award (1999).
15. Invited participant (one of 78 young engineers between ages of 30-45 nationwide) to National Academy of Engineering's Fifth Annual Symposium on Frontiers of Engineering (1999).
16. National Science Foundation's CAREER Award (1996).
17. University at Buffalo, Riefler Award (1995, 1997).
18. University of Maryland, Systems Research Center's Outstanding Systems Engineering Graduate Student Award (1991).
19. University of Maryland, Systems Research Center Graduate Fellowship (1989, 1990, 1991).
20. University of Maryland, Graduate School Fellowship (1989).
21. University of Roorkee Merit Prize for overall first rank in Mechanical Engineering (1987).
22. University of Roorkee Scholarship for all four years of undergraduate study (1983-87).
23. Silver medal for obtaining highest marks in Machine Design group in B.E. (1987).
24. Silver medal for obtaining highest marks in Applied Thermo-Science group in B.E. (1987).