

Dr. Ratnesh Kumar

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EDUCATION

Ph.D., Elec. & Comp. Eng., Univ. of Texas at Austin, August 1991 (GPA 4.0/4.0).
M.S., Elec. & Comp. Eng., Univ. of Texas at Austin, August 1989 (GPA 4.0/4.0).
B.Tech., Elec. Eng., Indian Inst. of Tech. Kanpur, India, May 1987 (GPA 10.0/10.0).

ACADEMIC EXPERIENCE

August 2005-Present: Professor, Department of Electrical and Computer Engineering, Iowa State University, Ames, IA.
August 2002-2005: Associate Professor, Department of Electrical and Computer Engineering, Iowa State University, Ames, IA.
July 1997-July 2002: Associate Professor, Department of Electrical and Computer Engineering, University of Kentucky, Lexington, KY.
August 1991-June 1997: Assistant Professor, Department of Electrical Engineering, University of Kentucky, Lexington, KY.
Summers 1992, 1995: Visiting Faculty, Department of Electrical Engineering and Systems Research Center, University of Maryland, College Park, MD.
September 1989-August 1991: Graduate Research Assistant, Department of Electrical and Computer Engineering, University of Texas at Austin.
September 1987-August 1989: Graduate Fellow, Department of Electrical and Computer Engineering, University of Texas at Austin.

INDUSTRIAL AND OTHER NON-ACADEMIC EXPERIENCE

Fall 2008: Visiting Scientist, United Technology Research Center, Hartford, CT.
Summer 2001: Visiting Scientist, Argonne National Laboratory—West, Idaho Falls ID.
Summers 2000, 1999, August 1997-98: Visiting Scientist, Applied Research Laboratory, Pennsylvania State University, State College, PA.
Summer 1996: Visiting Faculty, NASA-Ames, Division of Human and Systems Technology, Moffett Field, California.
June 1987-August 1987: Research Engineer, Research and Development Group, Hindustan Computers Limited, Telecommunication Division, New Delhi, India.

HONORS AND RECOGNITIONS

Program Co-Chair, 2009 International Workshop on Software Cybernetics.
Keynote Speaker, 2008 International Workshop on Software Cybernetics.
General Co-Chair, International Workshop on Discrete Event 2008.
IEEE Fellow, 2007 (“for contributions to discrete event system modeling, control, diagnosis and applications”).
Steering Committee, International Workshop on Software Cybernetics, 2009-Present.
Associate Editor, International Journal on Discrete Event Control Systems, 2009-Present.

Associate Editor, Journal of Discrete Event Dynamical Systems, 2005-2009.

Associate Editor, SIAM Journal on Control and Optimization, 1999-2007.

Associate Editor, IEEE Transactions on Robotics and Automation, 2000-2002.

Associate Editor, IEEE Conf. on Decision and Control, 1996-present.

Associate Editor, American Control Conference, 1996-present.

Argonne National Lab. Summer Faculty Fellowship for the year 2001.

Senior Member, IEEE, 2000.

Applied Research Lab. Sabbatical Faculty Fellowship for the year 1997.

NASA-ASEE Summer Faculty Fellowship Award for the year 1996.

Research Initiation Award for the years 1994-1997, National Science Foundation.

Best Dissertation for the year 1991, Department of Electrical and Computer Engineering, University of Texas at Austin.

Microelectronics and Computer Development Fellowship for the years 1987-89, University of Texas at Austin.

Ratan Swarup Memorial Gold Medal for being the best all rounder student for the year 1987, Indian Institute of Technology Kanpur, India.

Lalit Narain Das Memorial Gold Medal for being the best undergraduate student in Electrical Engineering for the year 1987, Indian Institute of Technology Kanpur, India.

Proficiency Prize for the Best Project Work in Electrical Engineering for the year 1987, Indian Institute of Technology Kanpur, India.

GRANTS AND CONTRACTS

A. From NSF

1. R. Kumar (PI), S. Birrell, R. Weber, A. Kamal, and A. Kaleita, \$460,949, "Soil Sensors and their Wireless Underground Network for Precision Farming and Environmental Management", Sept. 15 2009-August 31, 2012, NSF.
2. R. Kumar (PI) and C. Zhou, \$300,000, "Model-based Test Generation for Embedded Software with Simulink/Stateflow or Hybrid Automata Models", May 1, 2008-April 30, 2011, NSF.
3. R. Kumar (PI) and S. Jiang, \$360,000, "GOALI: Monitoring and Reconfiguration for Fault-Tolerance of Embedded Control Software with Automotive Applications", June 1, 2008-May 31, 2011, NSF.
4. R. Kumar (PI), A. Kamal, and S. Birrell, \$239,999, "Cyber-Systems: Development of Soil Sensors and their Underground Wireless Network for Fertilization Management to Minimize Environmental Impact", May 1, 2006- April 30, 2010, NSF.
5. R. Kumar (PI), \$210,000, "Nondeterministic Control of Discrete-Event Systems for Language or (Bi)Simulation Equivalence Specifications", Sept. 1, 2004-August 31, 2007, NSF.
6. J. McCalley, R. Kumar (Co-PI), O. Volij, V. Ajjarappu, N. Elia, V. Vittal, \$350,000 "EPNES: Planning Reconfigurable Power System Control for Transmission Enhancement with Cost-Recovery System", Sept. 1, 2003-Aug. 31, 2006, NSF.
7. R. Kumar (Iowa State Univ. PI) and A. Arapostathis (Univ. of Texas PI), \$333,967 "Control of Markov Chains with Qualitative Constraints", Sept. 1, 2002-Aug. 31, 2006, NSF.
8. R. Kumar (PI), \$237,848, "Control and Diagnosis of Discrete-Event Systems with Temporal Logic Specifications", August 16, 2002-August 15, 2006, NSF.
9. R. Kumar (PI), \$168,191, "Modeling, Interface Design, and Verification of Hybrid and Discrete Event Systems", October 1, 1997-Sept. 30, 2001, NSF.

10. R. Kumar (PI), National Science Foundation and Univ. of KY, \$1,900 (\$900 NSF), "Travel support for 1996 IEEE Conf. on Decision and Control, Japan, Dec. 1996.
11. M. Truszczynski, R. A. Finkel, J. N. Griffioen, J. E. Lumpp, R. S. Yavatkar, R. Kumar (Co-PI), L. E. Holloway, \$1,498,765 "CISE Research Infrastructure: A Laboratory for Research in High Performance Distributed Computing", July 15, 1995-June 30, 2001, NSF.
12. R. Kumar (PI), Research Initiation Award \$89,982, "Real-Time Discrete Event Control and its Applications to Automated Manufacturing Systems", August 31, 1994-July 31, 1997, NSF.
13. R. Kumar (PI), National Science Foundation and Univ. of KY, \$1,900 (\$400 NSF), "Travel support for 1994 Workshop on Discrete Event Systems, France", June 1994.

B. From DoD/ARL

1. R. Kumar (Consultant), Air Force Research Lab, \$27,500, "Run Time Assurance", Dec. 1, 2011-March 31, 2012.
2. R. Kumar (PI), Applied Research Laboratory, Penn. State Univ., \$2000, "Travel support for attending IEEE International Symposium for Intelligent Control", Sept. 1998.
3. R. Kumar (PI), Applied Research Laboratory, \$39,000, "Sabbatical Research at Applied Research Laboratory, Penn. State Univ.", August 16, 1997-August 15, 1998.
4. R. Kumar (PI), Office of Naval Research, \$355,609, "Research on Ale's Intelligent Control Architecture", April 1, 2001-March 31, 2005.

C. From DoE/ANL

1. R. Kumar (PI), Argonne National Laboratory, \$25,000, "Diagnosis of Repeatable Faults in Discrete Event Systems" July 1, 2001-Sept. 30, 2001.
2. J. C. Yingling, J. Sottile, and R. Kumar (Co-PI), Dept. of Energy KY/EPSCoR, \$108,104 "Supporting Technologies for Effective Use of On-line Analyzers in Control of Coal Quality", Sept. 1, 1996-August 31, 1999.

D. From NASA

1. R. Kumar (PI), NASA-ASEE Summer Faculty Fellowship, \$12,229, June 10, 1996-August 16, 1996.

E. From Industry

1. R. Kumar (PI), \$87,600, "Linear Hybrid System Verification Tool", Jan. 1, 2009-Dec. 31, 2010, General Motors.
2. R. Kumar (PI), \$74,241, "Remote Diagnosis of Machines", Jan. 1, 2008-Dec. 31, 2008, Mag-natech Inc..

F. From ISU

1. R. Kumar (PI) and A. Kamal, \$5000 "Wireless Soil Sensor Network", Spring 2009.
2. R. Kumar (PI) and A. Kamal, \$7,500 "Wireless Soil Sensor Network", Spring 2008.
3. R. Kumar (PI) and A. Kamal, \$5,000 "Wireless Soil Sensor Network", Summer 2007.
4. R. Kumar (PI), Iowa State Univ., \$1500, "Foreign Travel Grant", April 2007.
5. R. Kumar (PI) and A. Kamal, \$8,000 "Wireless Soil Sensor Network", Spring 2007.
6. S. Birrell, R. Kumar (Co-PI), A. Kamal, ICUBE, \$7,000 "Development of In-situ Soil Sensor Network for Temporal and Spatial monitoring of Agriculture Fields", Spring 2004.
7. R. Kumar (PI), Iowa State Univ., \$555, "Foreign Travel Grant", April 2003.

8. R. Kumar (PI), Iowa State Univ., SEA Fund, \$1,500, "Travel support for PVS Workshop at NASA-Langley", April 2003.
9. R. Kumar (PI), Iowa State University, \$150,000, "New Faculty Start-Up Grant", Aug. 16, 2002-Aug. 15, 2005.

G. From UKY

1. R. Kumar (PI), Univ. of KY, \$750, "Travel support for 1998 Workshop on Discrete Event Systems, Italy", August 1998.
2. R. Kumar (PI), Center for Manufacturing Systems, Univ. of KY, \$13,200, "Optimization of Lexmark's Electronic Assembly Line", July 1, 1996-June 30, 1997.
3. R. Kumar (PI), Univ. of KY Research Committee Grant, \$4,980, "Optimization Problems in Automated Electronic Card Projection Lines", July 1, 1995-June 30, 1996.
4. R. Kumar (PI), Center for Mfg. Systems, Univ. of KY, \$6,000, "Assembly Time Optimization in Printed Circuit Board Assembly", Jan. 1, 1994-Dec. 31, 1994.
5. R. Kumar (PI), Univ. of KY, \$550, "Travel support for 1993 IEEE Conf. on Decision & Control, San Antonio", Dec. 1993.
6. R. Kumar (PI), Center for Mfg. Systems, Univ. of KY, \$18,000 "Optimizing Sequencing Techniques for Pick-and-Place Robots", July 1, 1993-Dec. 31, 1994.
7. R. Kumar (PI), Univ. of KY, \$1,200, "Travel support for 1993 American Control Conf., San Francisco", June 1993.
8. R. Kumar (PI), Center for Mfg. Systems, Univ. of KY, \$6,000, "Efficient Techniques for Surface Mount Technology", Jan. 1, 1993-Dec. 31, 1993.
9. R. Kumar (PI), Center for Mfg. Systems, Univ. of KY, \$11,400, "Modeling and Control of Discrete Event Systems", July 1, 1992-June 30, 1993.
10. R. Kumar (PI), Univ. of KY, \$800, "Travel support for 1991 IEEE Conf. on Decision and Control, England", Dec. 1991.
11. R. Kumar (PI), Univ. of KY, \$42,000, "New Faculty Start-up Fund", August 1991.

H. Proposals Submitted (Pending)

1. R. Kumar (PI) and A. Pinto (Co-PI), NSF, \$336,518, "GOALI: Correct-by-Construction and Optimized Network Synthesis for Distributed Cyberphysical Applications", August 16, 2012-August 15, 2015.
2. B. Narasimhan (PI), M. K. Misra, R. Kumar (Co-PI), S. Mallapragada, M. Nilsen-Hamilton, and J. Shinar, NSF-ERC, \$18,500,000, "The Nanoscale Sensors for Advanced Food Safety Enhancement", Aug. 15 2012-Aug. 14 2017.

PUBLICATIONS (* denotes student, + denotes collaborator)

A. Book

1. R. Kumar and V. K. Garg⁺, *Modeling and Control of Logical Discrete Event Systems*. Kluwer Academic Publishers. 1995.

B. Journal Articles Published/Accepted

1. S. Xu*, R. Kumar, and A. Pinto⁺, "Correct-by-Construction and Optimal Network Synthesis for Distributed Control/Embedded Systems", *IEEE Transactions on Automation Science and Engineering*, Accepted (July 2011).

2. S. Takai⁺ and R. Kumar, "Distributed Prognosis of Discrete Event Systems under Bounded-Delay Communications", *IEEE Transactions on Automatic Control*, Accepted (May 2011).
3. C. Zhou⁺ and R. Kumar, "Finite Bisimulation of Reactive Untimed Infinite State Systems Modeled as Automata with Variables", Accepted (April 2011).
4. H. Sahota*, R. Kumar and A. Kamal⁺, "A Wireless Sensor Network for Precision Agriculture and its Performance", *Wireless Communications and Mobile Computing*, pages 1628-1645, volume 11, number 12, 2011.
5. C. Zhou⁺, and R. Kumar, "Bisimilarity Enforcement for Discrete Event Systems using Deterministic Control", *IEEE Transactions on Automatic Control*, pages 2986-2991, volume 56, number 12, 2011.
6. L. Ouedraogo*, R. Kumar, R. Malik* and K. Akesson*, "Nonblocking and Safe Control of Systems modeled as Extended Finite Automata", *IEEE Transactions on Automation Science and Engineering*, pages 560-569, volume 8, number 3, 2011.
7. S. Takai⁺ and R. Kumar, "Inference-based Decentralized Prognosis in Discrete Event Systems", *IEEE Transactions on Automatic Control*, pages 165-171, volume 56, number 1, 2011.
8. S. Bhattacharyya*, R. Kumar and Z. Huang*, "A Discrete Event Systems Approach to Network Fault Management: Detection and Diagnosis of Faults", *Asian Journal of Control*, pages 1-14, volume 13, number 4, 2011.
9. C. Zhou⁺ and R. Kumar, "Semantic Translation of Simulink Diagrams to Input/Output Extended Finite Automata", *Journal of Discrete Event Dynamical Systems*, DOI 10.1007/s10626-010-0096-1, Dec. 2010.
10. S. Xu*, S. Jiang⁺, and R. Kumar, "Diagnosis of Dense-time Systems Using Digital Clocks", *IEEE Transactions on Automation Science and Engineering*, pages 870-878, volume 7, number 4, 2010.
11. S. Xu* and R. Kumar, "Real-Time Supervisory Control of Discrete Event Systems using Digital Clocks", *IEEE Transactions on Automatic Control*, pages 2003-2013, volume 55, number 9, 2010.
12. S. Takai⁺ and R. Kumar, "Synthesis of Over-Approximating Inference-based Decentralized Supervisors for Discrete Event Systems", *IEEE Transactions on Automatic Control*, Accepted, (August 2009).ges 1881-1887, volume 55, number 8, 2010.
13. S.-P. Hsu⁺, A. Arapostathis⁺ and R. Kumar, "On Controlled Markov Chains with Optimality Requirement and Safety Constraint", *International Journal on Innovative Computing, Information and Control*, pages 2497-2511, volume 6, number 6, 2010.
14. S. Jiang⁺, R. Kumar, S. Takai⁺, and W. Qiu⁺, "Decentralized Control of Discrete Event Systems with Multiple Local Specifications", *IEEE Transactions on Automation Science and Engineering*, pages 512-522, volume 7, number 3, 2010.
15. L. Jin*, R. Kumar, and N. Elia⁺, "Reachability analysis based transient stability design in power system", *International Journal of Electrical Power and Energy Systems*, pages 782-787, volume 32, 2010.
16. L. Jin*, R. Kumar, and N. Elia⁺, "Model Predictive Control based Power System Protection Schemes", *IEEE Transactions on Power Systems*, pages 988-998, volume 25, number 2, 2010.
17. S. Takai⁺ and R. Kumar, "Decentralized Diagnosis for Nonfailures of Discrete Event Systems Using Inference-based Ambiguity Management", *IEEE Transactions on Systems, Man, and Cybernetics—Part A*, pages 406-412, volume 40, number 2, 2010.
18. R. Kumar and S. Takai⁺, "Decentralized Prognosis of Failures in Discrete Event Systems", *IEEE Transactions on Automatic Control*, pages 48-59, volume 55, no. 1, 2010.
19. R. Kumar and S. Takai⁺, "Inference-based Ambiguity Management in Decentralized Decision-Making: Decentralized Diagnosis of Discrete Event Systems", *IEEE Transactions on Automation Science and Engineering*, pages 479-491, volume 6, number 3, July 2009.

20. C. Zhou* and R. Kumar, "Computation of Diagnosable Fault-Occurrence Indices for Systems with Repeatable-Faults", *IEEE Transactions on Automatic Control*, pages 1477-1489, volume 54, number 7, July 2009.
21. H. Liu*, L. Jin*, J. McCalley⁺, R. Kumar, V. Ajjarapu⁺ and N. Elia⁺, "Planning Reconfigurable Reactive Control for Voltage Stability Limited Power Systems", *IEEE Transactions on Power Systems*, pages 1029-1038, volume 24, number 2, 2009.
22. W. Qiu*, Q. Wen*, and R. Kumar, "Decentralized Diagnosis of Event-Driven Systems for Safely Reacting to Failures", *IEEE Transactions on Automation Science and Engineering*, page 362-366, volume 6, number 2, 2009.
23. W. Qiu*, R. Kumar, and V. Chandra⁺, "Decentralized Control of Discrete Event Systems Using Prioritized Composition with Exclusion", *IEEE Transactions on Automatic Control*, pages 2425-2430, volume 53, number 10, 2008.
24. J. Huang*, and R. Kumar, "Directed Control of Discrete Event Systems for Safety and Non-blocking", *IEEE Transactions on Automation Science and Engineering*, pages 620-629, volume 5, number 4, 2008.
25. Q. Wen*, R. Kumar, J. Huang*, and H. Liu*, "A Framework for Fault-Tolerant Control of Discrete Event Systems", *IEEE Transactions on Automatic Control*, pages 1839-1849, volume 53, number 9, 2008.
26. J. Huang* and R. Kumar, "Optimal Nonblocking Directed Control of Discrete Event Systems", *IEEE Transactions on Automatic Control*, pages 1592-1603, volume 53, number 7, 2008.
27. W. Qiu* and R. Kumar, "Distributed Diagnosis Under Bounded-Delay Communication of Immediately Forwarded Local Observations", *IEEE Transactions on System, Man, and Cybernetics, Part A*, pages 628-643, volume 38, number 3, 2008.
28. S. Takai⁺ and R. Kumar, "Synthesis of Inference-based Decentralized Control for Discrete Event Systems", *IEEE Transactions on Automatic Control*, pages 522-534, volume 53, number 2, 2008.
29. C. Zhou* and R. Kumar, "Prioritized Synchronization under Mask for Interaction/Control of Partially Observed Discrete Event Systems", *IEEE Transactions on Automation Science and Engineering*, pages 101-112, volume 5, number 1, 2008.
30. R. Kumar and S. Takai⁺, "Inference-based Ambiguity Management in Decentralized Decision-Making: Decentralized Control of Discrete Event Systems", *IEEE Transactions on Automatic Control*, pages 1783-1794, volume 52, number 10, 2007.
31. C. Zhou* and R. Kumar, "Bisimilarity Control of Partially Observed Deterministic Discrete Event Systems", *IEEE Transactions on Automatic Control*, pages 1642-1653, volume 52, number 9, Sept. 2007.
32. J. Huang*, and R. Kumar, "An Optimal Directed Control Framework for Discrete Event Systems", *IEEE Transactions on Systems, Man, and Cybernetics—Part A*, pages 780-791, volume 37, number 5, Sept. 2007.
33. C. Zhou* and R. Kumar, "Control of Nondeterministic Discrete Event Systems for Simulation Equivalence", *IEEE Transactions on Automation Science and Engineering*, pages 340-349, volume 4, number 3, July 2007.
34. C. Zhou* and R. Kumar, "A Small Model Theorem for Bisimilarity Control Under Partial Observation", *IEEE Transactions on Automated Science and Engineering*, pages 93-97, volume 4, number 1, 2007.
35. W. Qiu*, R. Kumar, and S. Jiang⁺ "Decidability of Distributed Diagnosis under Unbounded-Delay Communication", *IEEE Transactions on Automatic Control*, pages 114-117, volume 52, number 1, 2007.

36. C. Zhou*, R. Kumar, and S. Jiang⁺, "Control of Nondeterministic Discrete Event Systems for Bisimulation Equivalence", *IEEE Transactions on Automatic Control*, pages 754-765, volume 51, number 5, 2006.
37. S. Jiang* and R. Kumar, "Supervisory Control of Discrete Event Systems with CTL* Temporal Logic Specifications", *SIAM Journal on Control and Optimization*, pages 2079-2103, volume 44, number 6, 2006.
38. S. Jiang* and R. Kumar, "Diagnosis of Repeated Failures for Discrete Event Systems with Linear-Time Temporal Logic Specifications", *IEEE Transactions on Automation Science and Engineering*, pages 47-59, 3(1), 2006.
39. W. Qiu* and R. Kumar, "Decentralized failure diagnosis of discrete event systems", *IEEE Transactions on Systems, Man & Cybernetics—Part A*, pages 384-395, volume 36, number 2, 2006.
40. A. Arapostathis⁺, R. Kumar, and S.-P. Hsu⁺, "Control of Markov Chains with Safety Bounds", *IEEE Transactions on Automation Science and Engineering*, pages 333-343, 2(2), 2005.
41. S. Takai,⁺ R. Kumar, and T. Ushio⁺, "Characterization of Co-observable Languages and Formulae for their Super/Sub-Languages", *IEEE Transactions on Automatic Control*, pages 434-447, 50(4), 2005.
42. R. Kumar, S. Takai⁺, M. Fabian⁺, and T. Ushio⁺, "Mutually & Globally Nonblocking Supervision with Application to Switching Control", *Automatica*, pages 1299-1312, volume 41, 2005.
43. R. Kumar, S. Jiang⁺, C. Zhou*, and W. Qiu*, "Polynomial synthesis of supervisor for partially observed discrete event systems by allowing nondeterminism in control", *IEEE Transactions on Automatic Control*, pages 463-475, volume 50, number 4, 2005.
44. R. Kumar and V. K. Garg⁺, "On Computation of State Avoidance Control for Infinite State Systems in Assignment Program Model". *IEEE Transactions on Automation Science and Engineering*, pages 87-91, Volume 2, number 2, 2005.
45. S. Jiang* and R. Kumar, "Failure Diagnosis of Discrete Event Systems with Linear-time Temporal Logic Fault Specifications", *IEEE Transactions on Automatic Control*, pages 934-945, volume 49, number 6, 2004.
46. F. Balduzzi⁺ and R. Kumar, "Hybrid Automata Model of Manufacturing Systems and its Optimal Control Subject to Logical Constraints", *International Journal of Hybrid Systems*, pages 61-80, volume 3, number 1, 2003.
47. R. Kumar and Z. Luo*. "Optimizing the Operation Sequence of a Chip Placement Machine using TSP Model". *IEEE Transactions on Electronics Packaging Manufacturing*, pages 14-21, volume 26, number 1, 2003.
48. A. Arapostathis⁺, R. Kumar, and S. Tangirala⁺, "Controlled Markov Chains with Safety Upper Bounds", *IEEE Transactions on Automatic Control*, pages 1230-1234, volume 48, number 7, 2003.
49. V. Chandra*, Z. Huang*, W. Qiu*, and R. Kumar, "Prioritized Composition with Exclusion and Generation for the Interaction and Control of Discrete Event Systems", *Mathematical and Computer Modeling of Dynamical Systems*, pages 255-280, volume 9, number 3, 2003.
50. Z. Huang*, V. Chandra*, S. Jiang*, and R. Kumar, "Modeling Discrete Event Systems with Faults using a Rules Based Modeling Formalism", *Mathematical and Computer Modeling of Dynamical Systems*, pages 233-254, volume 9, number 3, 2003.
51. S. Jiang*, R. Kumar, and H. E. Garcia⁺, "Diagnosis of Repeated/Intermittent Failures in Discrete Event Systems", *IEEE Transactions on Robotics and Automation*, pages 310-323, volume 19, number 2, April 2003.
52. S. Jiang*, R. Kumar, and H. E. Garcia,⁺ "Optimal Sensor Selection for Discrete Event Systems with Partial Observation", *IEEE Transactions on Automatic Control*, pages 369-381, volume 48, number 3, March 2003.

53. V. Chandra*, Z. Huang*, and R. Kumar, "Automated Control Synthesis for an Assembly Line using Discrete Event System Control Theory", *IEEE Transactions on Systems, Man, and Cybernetics—Part C*, pages 284-289, volume 33, number 2, 2003.
54. S. Jiang* and R. Kumar. "Supervisory Control of Nondeterministic Discrete Event Systems with Driven Events via Masked Prioritized Synchronization", *IEEE Transactions on Automatic Control*, pages 1438-1449, volume 47, number 9, 2002.
55. V. Chandra* and R. Kumar, "A Event Occurrence Rules based Compact Modeling Formalism for a Class of Discrete Event Systems", *Mathematical and Computer Modeling of Dynamical Systems*, pages 49-73, volume 8, number 1, 2002.
56. V. Chandra* and R. Kumar, "A Discrete Event Systems Modeling Formalism Based on Event Occurrence Rules and Precedences", *IEEE Transactions on Robotics and Automation*, pages 785-794, volume 16, number 6, December 2001.
57. S. Jiang*, Z. Huang*, V. Chandra*, and R. Kumar, "A Polynomial Algorithm for Testing Diagnosability of Discrete Event Systems", *IEEE Transactions on Automatic Control*, pages 1318-1321, volume 46, no. 8, 2001.
58. R. Kumar and V. K. Garg⁺. "Control of Stochastic Discrete Event Systems Modeled by Probabilistic Languages". *IEEE Transactions on Automatic Control*, volume 46, number 4, pages 593-606, April 2001.
59. R. Kumar and J. A. Stover⁺. "A Behavior-Based Intelligent Control Architecture with Application to Coordination of Underwater Vehicles". *IEEE Transactions on Systems, Man, and Cybernetics—Part A: Systems and Humans*, pages 767-784, volume 30, number 6, Nov. 2000.
60. R. Kumar and M. Heymann⁺. "Masked Prioritized Synchronization for Interaction and Control of Discrete Event Systems". *IEEE Transactions on Automatic Control*, pages 1970-1982, volume 45, number 11, Nov. 2000.
61. S. Jiang* and R. Kumar. "Decentralized Control of Discrete Event Systems with Specializations to Local Control and Concurrent Systems", *IEEE Transactions on Systems, Man, and Cybernetics—Part B: Cybernetics*, pages 653-660, volume 30, number 5, Oct. 2000.
62. M. Fabian⁺ and R. Kumar. "Mutually Nonblocking Supervisory Control of Discrete Event Systems". *Automatica*, pages 1863-1869, volume 36, 2000.
63. M. A. Shayman⁺ and R. Kumar. "Process Objects and Masked Composition: An Object Oriented Approach for Modeling and Control of Discrete Event Systems". *IEEE Transactions on Automatic Control*, pages 1864-1869, volume 44, number 10, October 1999.
64. R. Ganguli*, J. C. Yingling⁺, J. Sottile⁺, and R. Kumar, "Optimal control of coal segregation using on-line analyzers". *Mining Engineering*, pages 41-47, volume 51, number 4, 1999.
65. V. K. Garg⁺, R. Kumar, and S. I. Marcus⁺. "Probabilistic Language Framework for Stochastic Discrete Event Systems". *IEEE Transactions on Automatic Control*, pages 280-293, volume 44, number 2, 1999.
66. Z. Luo*, R. Kumar, J. Sottile⁺, and J. Yingling⁺. "An MILP Formulation for Load-Side Demand Control". *Electric Machines and Power Systems*, pages 935-949, volume 26, number 9, Nov. 1998.
67. R. Kumar, H. M. Cheung*, and S. I. Marcus⁺. "Extension based Limited Lookahead Supervision of Discrete Event Systems". *Automatica*, pages 1327-1344, volume 34, number 11, 1998.
68. R. Kumar and M. A. Shayman⁺. "Formulae relating Controllability, Observability and Co-Observability". *Automatica*, pages 211-215, volume 34, number 2, March 1998.
69. R. Kumar and M. A. Shayman⁺. "Centralized and Decentralized Supervisory Control of Nondeterministic Systems Under Partial Observation". *SIAM Journal of Control and Optimization*, pages 363-383, volume 35, number 2, March 1997.

70. R. Kumar, S. Nelvagal*, and S. I. Marcus⁺. "A Discrete Event Systems Approach for Protocol Conversion". *Journal of Discrete Event Dynamical Systems: Theory and Applications*, pages 295-315, volume 7, number 3, June 1997.
71. R. Kumar and M. A. Shayman⁺. "Non-blocking Supervisory Control of Nondeterministic Systems via Prioritized Synchronization". *IEEE Transactions on Automatic Control*, pages 1160-1175, volume 41, number 8, August 1996.
72. R. Kumar, V. K. Garg⁺, and S. I. Marcus⁺. "Corrections to "Finite Buffer Realization of Input-Output Discrete Event Systems"". *IEEE Transactions on Automatic Control*, pages 625-627, volume 41, number 4, April 1996.
73. R. Kumar and L. E. Holloway⁺. "Supervisory Control of Petri Nets with Regular Specification Languages". *IEEE Transactions on Automatic Control*, pages 245-249, volume 41, number 2, February 1996.
74. R. Kumar and V. K. Garg⁺. "Extremal Solutions of Inequalities over Lattices with Applications to Supervisory Control". *Theoretical Computer Science*, pages 67-92, volume 148, November 1995.
75. R. Kumar, V. K. Garg⁺, and S. I. Marcus⁺. "Finite Buffer Realization of Input-Output Discrete Event Systems". *IEEE Transactions on Automatic Control*, pages 1042-1053, volume 40, number 6, June 1995.
76. R. Kumar and V. K. Garg⁺. "Optimal Supervisory Control of Discrete Event Dynamical Systems". *SIAM Journal of Control and Optimization*, pages 419-439, volume 33, number 2, March 1995.
77. M. A. Shayman⁺ and R. Kumar. "Supervisory Control of Nondeterministic Systems using Prioritized Synchronous Composition and Trajectory Models". *SIAM Journal of Control and Optimization*, pages 469-497, volume 33, number 2, March 1995.
78. R. Kumar and Haomin Li*. "Integer Programming Approach to Printed Circuit Board Assembly Time Optimization". *IEEE Transactions on Components, Packaging and Manufacturing Technology*, pages 720-727, volume 18, number 4, November 1995.
79. R. Kumar, V. K. Garg⁺, and S. I. Marcus⁺. "Language Stability and Language Stabilizability of Discrete Event Systems". *SIAM Journal of Control and Optimization*, pages 1294-1320, volume 31, number 5, September 1993.
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119. R. Kumar, H. M. Cheung*, and S. I. Marcus⁺. "Extension based Limited Lookahead Supervision of Discrete Event Systems". *1996 IEEE Conference on Decision and Control*, Kobe, Japan, December 1996.
120. R. Kumar, S. Nelvagal*, and S. I. Marcus⁺. "Protocol Conversion using Supervisory Control Techniques". *1996 IEEE CCA/ISIC/CACSD*, pages 32-37, Dearborn, MI, September 1996.
121. R. Kumar and M. A. Shayman⁺. "Automata Theoretic Tests for Observability and Co-Observability". *1995 IEEE Conference on Decision and Control*, pages 919-920, New Orleans, LA, December 1995.
122. R. Kumar and V. K. Garg⁺. "Assignment Program Model for Control of Infinite State Systems". *1995 Annual Allerton Conference on Communication, Control, and Computing*, pages 166-175, Urbana, IL, October 1995.
123. M. A. Shayman⁺ and R. Kumar. "A New Framework for Supervisory Control". *1995 American Control Conference on Decision and Control*, pages 3141-3145, Seattle, WA, June 1995.
124. R. Kumar and M. A. Shayman⁺. "Supervisory Control under Partial Observation of Nondeterministic Systems via Prioritized Synchronization". *1994 IEEE Conference on Decision and Control*, pages 3649-3654, Orlando, FL, December 1994.
125. R. Kumar and V. K. Garg⁺. "Extremal Solutions of Inequalities over Lattices with Applications to Supervisory Control". *1994 IEEE Conference on Decision and Control*, pages 3636-3641, Orlando, FL, December 1994.
126. M. A. Shayman⁺ and R. Kumar. "A New Approach to Supervisory Control". *1994 Annual Allerton Conference on Communication, Control, and Computing*, pages 861-870, Urbana, IL, September 1994.
127. R. Kumar and V. K. Garg⁺. "Formula for Supremal ω -Controllable Languages". *1994 Annual Allerton Conference on Communication, Control, and Computing*, pages 900-901, Urbana, IL, September 1994.
128. R. Kumar and Haomin Li*. "Assembly Time Optimization for PCB Assembly". *1994 American Control Conference*, pages 306-310, Baltimore, MD, June 1994.

129. R. Kumar and M. A. Shayman⁺. "Non-blocking Supervisory Control of Nondeterministic Discrete Event Systems". *1994 American Control Conference*, pages 1089-1093, Baltimore, MD, June 1994.
130. M. A. Shayman⁺ and R. Kumar. "Supervisory Control of Nondeterministic Discrete Event Dynamical Systems". *1993 IEEE Conference on Decision and Control*, pages 1188-1193, San Antonio, TX, December 1993.
131. R. Kumar and M. A. Shayman⁺. "Non-blocking Control of Nondeterministic Systems". *1993 Annual Allerton Conference*, pages 707-716, Urbana, IL, October 1993.
132. R. Kumar, V. K. Garg⁺, and S. I. Marcus⁺. "Logical Design of a Dispatching Unit". *1993 American Control Conference*, pages 1198-1202, San Francisco, CA, July 1993.
133. R. Kumar. "Formulas for Observability of Discrete Event Dynamical Systems". *1993 Conference on Information Sciences and Systems*, pages 581-586, Johns Hopkins University, Baltimore, MD, March 1993.
134. M. A. Shayman⁺ and R. Kumar. "Supervisory Control of Nondeterministic Systems". *1993 Conference on Information Sciences and Systems*, pages 587-592, Johns Hopkins University, Baltimore, MD, March 1993.
135. R. Kumar and L. E. Holloway⁺. "Supervisory Control of Petri Net Languages". *1992 IEEE Conference on Decision and Control*, pages 1190-1195, Tucson, AZ, December 1992.
136. R. Kumar and V. K. Garg⁺. "A State-Variable Approach for Controlling Discrete Event Systems with Infinite States". *1992 American Control Conference*, 2809-2813, Chicago, IL, June 1992.
137. R. Kumar, V. K. Garg⁺ and S. I. Marcus⁺. "Using Predicate Transformers for Supervisory Control". *1991 IEEE Conference on Decision and Control*, pages 98-103, Brighton, UK, December 1991.
138. R. Kumar and V. K. Garg⁺. "Optimal Control of Discrete Event Dynamical Systems using Network Flow Techniques". *1991 Allerton Conference on Communication, Control, and Computing*, pages 705-714, Urbana, IL, October 1991.
139. R. Kumar, V. K. Garg⁺, and S. I. Marcus⁺. "Stability of Discrete Event System Behavior". *1991 IFAC Symposium on Distributed Intelligent Systems*, pages 13-18, Arlington, VA, August 1991.
140. R. Kumar, V. K. Garg⁺, and S. I. Marcus⁺. "On ω -Controllability and ω -Normality of DEDS". *1991 American Control Conference*, pages 2905-2910, Boston, MA, June 1991.
141. R. Kumar, V. K. Garg⁺, and S. I. Marcus⁺. "Supervisory Control of Discrete Event Systems: Supremal Controllable and Observable Languages". *1989 Allerton Conference on Communication, Control, and Computing*, pages 501-510, September 1989.

E. Refereed Conference Articles Submitted

F. Refereed Book Articles Published

1. T. Fuhrman⁺, M. Osella⁺ and S. Jiang⁺ (GM); W. Milam⁺ and D. Watson⁺ (Ford); R. Hormel⁺ (Chrysler); P. Koopman⁺ and J. Black⁺ (CMU); B. Williams⁺, P. Robertson⁺ and C. Wilcox⁺ (MIT); R. Kumar and C. Zhou (ISU); "Fault Tolerant Embedded Software", Final Report of USCAR Electrical Architecture Task Force, Jan. 2010.
2. J. McCalley⁺, R. Kumar, V. Ajjrappu⁺, O. Volij⁺, H. Liu^{*}, L. Jin^{*}, W. Shang^{*}, "Models for Transmission Expansion Planning based on Reconfigurable Capacitor Switching", In *Economic Market Design and Planning for Electric Power Systems*, Editors J. Momoh and L. Milli, IEEE Press (Publisher: John Wiley and Sons, Inc.), 2009.
3. A. Arapostathis⁺, R. Kumar, and S. Tangirala⁺, "Safety Control of Completely Observed Markov Chains", *5th Workshop on Discrete Event Systems*, Ghent, Belgium, August 2000.
4. R. Kumar and V. K. Garg⁺. "Control of Stochastic Discrete Event Systems: Existence". *1998 International Workshop on Discrete Event Systems*, pages 24-29, Cagliari, Italy, August 1998.

5. R. Kumar and M. A. Shayman⁺. "Supervisory Control of Real-Time Systems Using Prioritized Synchronization". In R. Alur, T. Henzinger, and E. Sontag, editors. *Hybrid Systems III, Verification and Control, LNCS 1066*, pages 350-361, Springer-Verlag, 1996.
6. R. Kumar, S. Nelvagal*, and S. I. Marcus⁺. "Design of Protocol Conversion: A Discrete Event Systems Approach". *1996 International Workshop on Discrete Event Systems*, pages 7-12, Edinburgh, UK, August 1996.
7. R. Kumar and Haomin Li*. "Optimizing Assembly Time for PCB Assembly". In H. R. Pasaei and T. R. Hanley, editors. *Manufacturing Decision and Support Systems*, Chapter 11, Chapman and Hall, 1996.
8. R. Kumar and M. A. Shayman⁺. "Avoiding Blocking in Prioritized Synchronization Based Control of Nondeterministic Systems". In G. Cohen and J.-P. Quadrat, editors. *11th International Conference on Analysis and Optimization of Systems: Discrete Event Systems, LNCIS 199*, pages 49-58, Springer-Verlag, 1994.
9. R. Kumar, V. K. Garg⁺, and S. I. Marcus⁺. "Stable Behavior and Stabilizing Supervisor for Discrete Event Dynamical Systems". In S. M. Joshi and A. V. Balakrishna, editors. *Mathematical Theory of Control*, pages 185-203, Marcer Dakker, New York, 1992.

G. Thesis and Dissertation

1. "Supervisory Synthesis Techniques for Discrete Event Dynamical Systems". Ph.D. Dissertation, University of Texas at Austin, August 1991.
2. "Robotics Arm Control Using 68000 Microprocessor System". Bachelors Project Report, Department of Electrical Engineering, Indian Institute of Technology Kanpur, India, April 1987 (with R. Guruprasadh).

GRADUATE STUDENTS SUPERVISED

A. PhD/PostDoc Students (24 Total, 12 PhD and 2 PostDoc Completed; 9 PhD and 1 PostDoc under Supervision)

1. Dr. Lucien Ouedraogo, PotDoc, Started Fall 2009.
2. Dr. Jing Huang, PostDoc, Feb. 2009-August 2010.
3. Dr. Changyan Zhou, PostDoc, Jan. 2008-Oct. 2008.
4. Gang Wu, Started Fall 2011.
5. Kanishka A. Singh, started Fall 2011.
6. Jun Chen, Started Spring 2011.
7. Rituparna Sarkar, Started Fall 2010.
8. Meng Li, Started Fall 2009.
9. Gungan Pandey, Started Fall 2009.
10. Junggyu Yang, Started Fall 2008, Discontinued Spring 2010.
11. Herman Sahota, Passed PhD Qualifier Fall 2007.
12. Songyan Xu, "Control and diagnosis of real-time systems under finite-precision measurement of time", Nov. 2010, ECE, Iowa State Univ. (Currently with Rockwell Collins.)
13. Glenn Westerman, Part time Ph.D. Student at Univ. of Kentucky.
14. Wen Qin, "Fault-Tolerant Control of Discrete-Event Systems", March 2009, ECE, Iowa State Univ. (Currently with Statistics & Controls)
15. Licheng Jin, "Reachability and Model-Prediction Based Power System Protection Schemes", March 2009, ECE, Iowa State Univ. (Currently with California ISO)

16. Jing Huang, "Directed Control of Discrete-Event Systems", Feb. 2009, ECE, Iowa State Univ.
17. Saayan Mitra, "I/O-Automata based formal approach to Web Services Choreography", Jan. 2009, ECE, Iowa State Univ. (Currently with Adobe)
18. Changyan Zhou, "Control for Discrete Event Systems for Bisimulation and Simulation Equivalence Specification", May 2006, ECE, Iowa State Univ. (Currently with Magnatech Inc.)
19. Siddhartha Bhattacharyya, "Hierarchical Hybrid-Model Based Design, Verification, Simulation, and Synthesis of Mission Control for Autonomous Underwater Vehicles", July 2005, ECE, Univ. of KY. (Currently with Kentucky State University, Computer and Technical Sciences Dept.)
20. Wenbin Qiu, "Decentralized/distributed failure diagnosis and supervisory control of discrete event systems", May 2005, ECE, Iowa State Univ. (Currently with Corning, Inc.)
21. Jeff Ashley, "Diagnosis of Condition Systems". February 2004, ECE, Univ. of KY. (Currently with Univ. of Kentucky, ECE)
22. Zhongdong Huang, "Rules based Modeling of Discrete Event Systems with Faults and their Diagnosis". August 2003, ECE, Univ. of KY. (Currently with LHP Software)
23. Vigyan Chandra, "New Modeling and Interaction Formalism for Discrete Event Systems and their Control". April 2002, ECE Univ. of KY. (Currently with Eastern Kentucky University, Technology Dept.)
24. Shengbing Jiang, "Control and Diagnosis of Discrete Event Systems with Temporal Logic Specifications". April 2002, ECE, Univ. of KY. (Currently with General Motors R&D)

B. Master Students (22 Total; 19 Completed; 3 under Supervision)

1. Juan Segal (Started 2005F), Employed at Rockwell Collins.
2. Daniel Humke (Started 2005S), Employed at John Deere.
3. Lucas Wagner (Started Summer 2003S), Employed at Rockwell Collins.
4. Mathew Jeschke, "Modern Embedded Systems Design: Survey of Tools, Techniques, and Current Practices" Fall 2007, ECE, Iowa State Univ.
5. Gregory P. Stamp, "Software for Discrete Event Systems", Fall 2006, ECE, Iowa State Univ.
6. Joshua M. Olson, "Modeling of a Discrete-Event Manufacturing Plant and Design and Implementation of Controller using LabView and Programmable Logic Controllers", April 2005, ECE, Iowa State Univ.
7. Vigyan Chandra, "Automated Extraction of a Controller from a Supervisor in Discrete Event Systems", August 2003, Mfg., Univ. of KY.
8. Zhen Yu, "Enhancements of CINET Fuzzy Classifier". April 2003, ECE, Iowa State Univ.
9. Siddhartha Bhattacharyya, "Discrete Event System Approach to Network Fault Management". April 2003, ECE, Iowa State Univ.
10. Huang Zhongdong, "Coal Segregation Control: Meeting Homogeneity Standards". July 2002, ECE, Univ. of KY.
11. Satya R. Mohanty, "On the Design of Controllers for Discrete Event Systems: An Optimization Based Theory". January 1999, ECE, Univ. of KY.
12. Shiva Gopala Namburi, "Design and Analysis of Multiprotocol Converter for Multiple Flow Control Protocols: A Discrete Event Systems Approach", December 1998, ECE, Univ. of KY.
13. Bharath Orunganti, "A Graphical User Interface for Discrete Event Control Algorithms and their Applications". October 1997, ECE, Univ. of KY.
14. Vigyan Chandra, "Design, Discrete Event Modeling & Control of a Miniature LEGO Assembly Line". October 1997, ECE, Univ. of KY.
15. Manoz G. Krovvidy, "Timed Automaton based Successive Refinement of Digital Circuit Design for Hardware Synthesis". October 1996, ECE, Univ. of KY.

16. Zhonghui Luo, "Load Side Electrical Demand Control". December 1995, ECE, Univ. of KY.
17. Sudhir Nelvagal, "Design of Protocol Converters: A Discrete Event Systems Approach". July 1995, ECE, Univ. of KY.
18. Wai Kit Leong, "Autoplacement and Autorouting in Printed Circuit Layout". June 1995, ECE, Univ. of KY.
19. Steve Harris, "Temperature Control in Laser Printers". April 1995, ECE, Univ. of KY.
20. Ravichander Sekar, "Stability and Tolerance in Discrete Event Systems". September 1994, ECE, Univ. of KY.
21. Hok M. Cheung, "Control of Discrete Event Systems Using Limited Lookahead Based on Estimation". December 1993, ECE, Univ. of KY.
22. Haomin Li, "Optimal Sequencing for Pick-and-Place Robots". September 1993, ECE, Univ. of KY.

GRADUATE STUDENTS COMMITTEE SERVED

1. Tauha Sahab, MS-EE, UK,
2. Prakash Chavadi, MS-EE, UK, Graduated
3. Manjunath Hiriyanaiyah, MS-EE, UK, Graduated
4. VenkitaRamani Rajagopal, MS-EE, UK, Graduated
5. Sujit R. Das, MS-EE, UK, Graduated
6. Jian Zhaou, MS-EE, UK, Graduated
7. Hang-Lian Lim, MS-EE, UK, Graduated
8. Jeff Ashley, MS-Mfg, UK, Graduated
9. Lan Zhang, MS-EE, UK, Graduated
10. Deepa Pandalai, MS-EE, UK, Graduated
11. Xiaoyi Guan, PhD-ECE, UK, Graduated
12. Inna V. Pivkina, PhD-CS, Graduated Fall 2001.
13. Christopher Diaz, PhD-CS, Graduated Spring 2002.
14. Leonid Poutievski, PhD-CS, Graduated
15. Mengkun Yang, PhD-CS, Graduated
16. Ahmed Abou-Alfotouh, PhD-ECE, Graduated
17. Yu Gong, PhD-ECE, UK, Graduated Spring 2003.
18. Ramprasad Potluri, PhD-ECE, UK, Graduated Spring 2003.
19. Kun Liang, MS-CS, ISU, Graduated Summer 2004.
20. Curtis Keller, MS-CS, ISU, Graduated Fall 2005.
21. Qian Feng, MS-CS, ISU, Graduated Fall 2005.
22. Dmitry Kirilov, MS-CS, ISU, Graduated Spring 2008.
23. Vipul Katyal, PhD-ECE, ISU, Graduated Summer 2008.
24. Hongyu Sun, PhD-CS, ISU, Graduated Fall 2010.
25. Xiaohui Zhou, PhD-ME, ISU, Yet to graduate.
26. Yaping Jing, PhD-CS, ISU, Yet to graduate.
27. Hung Nguyen, PhD-ECE, ISU, Yet to graduate.

UNIVERSITY SERVICES

1. Chair, Dept. Seminar Committee, ISU, 2011-Present
2. College of Engineering Promotion & Tenure Committee, ISU, 2009-Present

3. Cluster Hire Search Committee, ISU, 2007-Present
4. Dept. Promotion & Tenure Committee, ISU, 2005-2007
5. Dept. Faculty Search Committee, ISU, 2004-2005
6. Dept. Curriculum Committee, ISU, 2005-2007
7. Dept. Graduate Admissions Committee, ISU, 2004-05
8. Coordinator, Dept. Governance Document revision, ISU, Summer 2003
9. Member, PTRC document revision committee, ISU, Summer 2003
10. Faculty Mentoring Committee for Prof. Berleant, ISU, 2002-03
11. Faculty Advisor, *India Student Association*, Univ. of KY, 1996, 1997, 2001
12. Member, *Undergraduate Curriculum Review Group*, Dept. ECE, Univ. of KY, 2000-2002
13. Leader, *Signals and Systems Group*, Dept. of ECE, Univ. of KY, 1999-2002
14. Member, *Undergraduate Lab. Committee*, Dept. of Elec. Eng., Univ. of KY, 1999-2002
15. Faculty Advisor, *Transfer Students*, Univ. of KY, Spring 1994
16. Member Smoking Committee for EEAnnex Bldg, Univ. of KY, Fall 1993
17. Faculty Advisor, *Co-op Students*, Univ. of KY, Spring 1993

PROFESSIONAL AND OTHER SERVICES

1. EDITORIAL AND PROGRAM COMMITTEE SERVICES
 - Associate Editor, *International Journal on Discrete Event Control Systems*, 2009-Present
 - Associate Editor, *Journal of Discrete Event Dynamical Systems*, 2005-2009
 - Associate Editor, *SIAM Journal on Control and Optimization*, 1999-2007
 - Associate Editor, *IEEE Transactions on Robotics and Automation*, 2000-2002
 - Associate Editor, *IEEE Conf. on Decision and Control*, 1996-present
 - Associate Editor, *American Control Conference*, 1996-present
 - Steering Committee, *International Workshop on Software Cybernetics*, 2009-Present
 - Program Co-Chair, *International Workshop on Software Cybernetics*, 2009
 - Co-Chair, Foundations of Automation Track, *IEEE Conference on Automation Science and Engineering*, 2009-2010
 - Panelist, *International Workshop on Software Cybernetics*, 2008
 - General Co-Chair, *International Workshop on Discrete Event Systems*, 2008
 - Program Committee, *International Workshop on Discrete Control of Dependable Systems*, 2010-Present
 - Program Committee, *International Workshop on Discrete Event Systems*, 1998-Present
 - Program Committee, *IEEE International Symposium on Intelligent Control*, 1999
 - Program Committee, *IEEE Conference on Decision and Control*, 1997, 1998, 2002, 2006.
2. SESSION/PANEL CHAIR/ORGANIZER/MEMBER
 - Panel Member, *NSF-CAREER* 1996, 2001, 2009, 2010 *NSF-CRCD 1998*, *NSF-GOALI*, 1996
 - Panel Member, *Best Paper Award for 1993 IEEE Conference on Decision and Control*
 - Member *Control Systems Delegation* to the People's Republic of China, 2000
 - Invited session organizer, *2009 International Workshop on Software Cybernetics*,
 - Invited session organizer, *2009 IEEE Conference on Automation Science and Engineering*,
 - Invited session organizer, *2005 Joint IEEE Conference on Decision and Control and European Control Conference*
 - Invited session organizer, *1999 IEEE International Symposium on Intelligent Control*
 - Invited session organizer, *1998, 2008 International Workshop on Discrete Event Systems*
 - Invited session organizer, *1996 Mathematical Theory of Networks and Systems*
 - Session Chair, *2007 Dependable Control of Discrete Systems*

Session Chair, 1996, 1998, 2000, 2006, 2008 *International Workshop on Discrete Event Systems*
Session Chair, 1991, 1997, 1999, 2003, 2004, 2005, 2006, 2007 *IEEE Conference on Decision and Control*
Session Chair, 1994, 1998, 2003, 2004, 2005, 2006, 2007, 2008 *American Control Conference*
Session Chair, 2000 *NSF Workshop on Logic Control of Manufacturing Systems*
Session Chair, 1992 *SIAM Symposium on Control and its Application*

3. INVITED TALKS

Jonh Deere, Model-based Software Development Group, April 2011
General Motors R & D, Diagnosis & Prognosis Group, Warren, MI, March 2011
AUTO-Cyberphysical Systems, Detroit, MI, March 2011
NSF-ECCS Grantees Workshop, Honolulu, HI, Dec. 2010
Virginia Tech., Dept. of Elec. & Comp. Eng., Nov. 2009
2009 IEEE Conf. on Automation Science and Engineering, August 2009
Advances in Discrete-Event, Nonlinear and Stochastic Systems Modeling and Control, Inst. of Systems Research, Univ. of Maryland, April 2009
Univ. of Texas at Austin, Dept. of Elec. & Comp. Eng., September 2008
Multi-Conference on Systems and Control (Invited talk in "NSF GOALI session"), San Antonio, TX, September 2008
United Technologies Research Center, Hartford, Connecticut, August 2008
Keynote Speech at International Workshop on Software Cybernetics, Turku, Finland, July 2008
Dependable Control of Discrete Systems, Paris, June 2007
Iowa State University, Dept. of Elec. & Comp. Eng., Ames, December 2006
Rockwell Science Center, Cedar Rapids, IA, July 2006
Honeywell Technology Center, Minneapolis, MN, July 2006
Institute of Systems Research, Univ. of Maryland, College Park, April 2006
IEEE Conf. on Decision and Control, Seville, Spain, Dec. 2005
IFAC World Congress, Prague, Czechoslovakia, July 2005
Application and Theory of Petri Nets (ATPN), Miami, FL, June 2005
Rockwell Collins, Cedar Rapids, July 2004
Rockwell Collins, Cedar Rapids, Sept. 2002
Honeywell Technology Center, Minneapolis, May 2002
Iowa State University, Dept. of Elec. & Comp. Eng., Ames, March 2002
Argonne National Lab.—West, July 2001
CWI, Amsterdam, Netherlands, May 2001
Vanderbilt University, Dept. of Elec. Eng. & Comp. Sc., March 2001
Politecnico di Torino, Dept. di Automatica ed Informatica, Turin, Italy, August 2000
Georgia Institute of Technology, Department of Electrical Eng., Atlanta, October 1998
Pennsylvania State University, Department of Electrical Eng., State College, February 1998
Applied Research Laboratory, State College, June 1997
University of California at Berkeley, Department of EECS, Berkeley, June 1996
Institute of Industrial Engineers, Lexington Chapter, April 1996
University of Kentucky, Department of Computer Science, April 1995, Nov. 1993
University of Kentucky, Department of Mathematics, Fall 1991, Spring 1994
University of Toronto, Department of Electrical Eng., Toronto, June 1994
University of Maryland at College Park, Systems Research Center, College Park, June 1992, September 1998
Indian Institute of Sciences, Department of Computer Science and Automation, Bangalore, India, December 1990, May 2001

4. REVIEWER FOR JOURNALS, CONFERENCES, PUBLISHERS

IEEE Transactions on Automatic Control
IEEE Transactions on Robotics and Automation
IEEE Transactions on Networking
IEEE Transactions on Systems, Man and Cybernetics
SIAM Journal on Control and Optimization
Systems and Control Letters
Journal of Discrete Event Dynamical Systems: Theory and Applications
Optimal Control: Applications and Methods
Information and Decision Technology Journal
Applied Mathematics Letters
Mathematical Reviews
Transportation Research
Journal of Algorithms
International Journal of Intelligent Control Systems
IEEE Conference on Decision and Control
American Control Conference
International Workshop on Discrete Event Systems
John Wiley & Sons, Inc.

5. OTHER PUBLIC SERVICES

Secretary, *Mahalaxmi Investment Club*, Lexington, KY, 2000-Present
Council Member, *Blue Grass Indo-American Civic Society*, Lexington, KY, 1996-97
Board of Directors, *International Hindi Association*, USA, 1992