VIJAY KUMAR GARG
Cullen Trust for Higher Education Endowed Professor
Electrical and Computer Engineering Department
The University of Texas at Austin.

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Citizenship: U.S.

Areas of Interest: Distributed Systems, Discrete Event Systems, Software Engineering

Education:

- *Ph.D.* in Electrical Engineering and Computer Science, University of California at Berkeley, December 1988.

- *M.S.* in Electrical Engineering and Computer Science, University of California at Berkeley, December 1985.

- *B.Tech.* in Computer Science and Engineering, Indian Institute of Technology (IIT) at Kanpur, India, May 1984.

Academic Positions:

- *Cullen Trust for Higher Education Endowed Professor*, The University of Texas at Austin, beginning September 2006.

- *Engineering Foundation Endowed Professor*, The University of Texas at Austin, 9/98 - 8/06.

- *Associate Professor*, The University of Texas at Austin, 9/94 - 8/98.

- *General Motors Foundation Centennial Teaching Fellow in Electrical Engineering*, effective September 1993.

- *Assistant Professor*, The University of Texas at Austin, January 1989 - August 1994.

- *Post Graduate Researcher*, Electronics Research Laboratory, University of California at Berkeley, 9/86 - 10/88.

- *Research Assistant*, Electronics Research Laboratory, University of California at Berkeley, 8/84 - 9/86.

- *Teaching Assistant*, Electrical Engineering and Computer Science Department, University of California at Berkeley, 8/84-12/84.

Other Professional Experience:

- *Manager, High Performance Computing Group*, IBM Research Lab, Delhi, India, 8/07 - 5/09.

- *Visiting Member of Research Staff*, IBM India Research Lab, Delhi, India, 6/05 - 7/05.

- *N. Rama Rao Distinguished Visiting Chair Professor*, IIT Kanpur, India, 7/02 - 12/02.

- *Software Engineer*, Patni Computer Systems, Bombay, India, 5/84 - 7/84.

Awards and Honors:

- **Faculty Research Award**, The University of Texas at Austin, Fall 2020, on "Applying Predicate Detection Techniques for Combinatorial Optimization."

- **Best Paper Award**, 17th International Conference on Runtime Verification (RV)- Seattle, US on 13-16 September 2017.

- Invited Keynote Speaker, 2nd Workshop on "Formal Reasoning in Distributed Algorithms" (FRIDA), Grenoble, France, June 2015.

- Nomination by the ECE department for Lockheed Martin Aeronautics Company Award for Excellence in Engineering Teaching, 2015.

- Lepley Teaching Award (ECE Departmental Teaching Award based on student nominations), 2014-2015.

- Invited Panelist, Challenges in Runtime Verification of Distributed Systems, RV'2014, Toronto, Canada, September 2014.

- Invited Tutorial Speaker, Lattice-Theoretic Approach to Monitoring Distributed Systems, RV'2014, Toronto, Canada, September 2014.

- Paper in *Proc. ACM Principles of Distributed Computing (PODC)'13* invited for journal publication, June 2013.

- Invited Distinguished Panelist, Data Intensive Distributed Computing, International Conference on Distributed Computing and Networking (ICDCN) 2013.

- Paper in *Proc. International Conference on Distributed Computing and Networking (ICDCN)'12* invited for journal publication, Jan 2012.

- UT Outstanding Inventor, UT Office of Technology Commercialization, UT Inventor Ceremony, December 2011.

- **Best Paper Award**, 12th International Symposium on Stabilization, Safety, and Security of Distributed Systems - (SSS 2010), New York, NY, USA, September 20-22, 2010. Invited for journal publication.

- Invited Distinguished Panelist, Workshop on Digital Preservation, FICCI, Delhi, India, November 2008.

- Cullen Trust for Higher Education Endowed Professorship No. 5, Sept 2006 - present.

- Distribution of income from the sale of patent by the OTC, The University of Texas at Austin. The patent, "A Method for Tolerating Synchronization Software Faults in Concurrent Programs," (with Ashis Tarafdar) results in income to the University, 2007.

- Invited Panelist, 8th International Symposium on Stabilization, Safety, and Security of Distributed Systems - (SSS 2006), Dallas, TX USA, Nov 2006.

- Represented the University of Texas at Austin for signing an MoU with the Department of Science and Technology, Government of India. Part of the delegation that met the President of India, Abdul Kalam, Dec 2005.

- **IEEE Fellow** for contributions to distributed computing systems and discrete event systems, 2004.

- N. Rama Rao Distinguished Visiting Chair Professor, IIT Kanpur, Fall 2002.

- **Best Paper Award Nomination**, International Conference on Parallel and Distributed Computing Systems, 2003.

- Dean's Fellowship, The University of Texas at Austin, 2002.

- **Best Paper Award Nomination**, IEEE International Conference on Distributed Computing Systems, 2001.

- paper in *Proc. ACM Principles of Distributed Computing (PODC)'01* invited for journal publication, 2001.

- Faculty Research Award, The University of Texas at Austin, Spring 2000, for research on "Software fault-tolerance of concurrent programs."

- Engineering Foundation Endowed Faculty Fellowship in Engineering, 1998 - 2006.

- Keynote Speaker at 3rd International Workshop on Automatic Debugging, Linkoping, Sweden, May 1997.

- Program Committee vice-chair, the 9th International Conference on Tools with Artificial Intelligence, Newport Beach, California.

- Invited as a distinguished speaker at the International Conference on Software and Knowledge Engineering 96, Lake Tahoe, Nevada.

- Engineering Foundation Faculty Excellence Award, 1996. (Award of Excellence by Halliburton Foundation)

- IBM gift of $140,000 in recognition of contributions to the area of distributed debugging (1993-1995).

- General Motors Foundation Centennial Teaching Fellowship in Electrical Engineering, 1993 - 1998.

- TRW Faculty Assistantship Award, 1992-95.

- Paper selected from the *Proceedings of the IEEE International Conference on Computer Languages*, 1988, for publication in the *Computer Languages* journal.

- Paper selected from the *Proceedings of the International Conference on Computer Software and Applications*, 1986, for publication in the *IEEE Transactions on Software Engineering*.

- Supervised a Ph.D. dissertation nominated by the Electrical and Computer Engineering Department for the best dissertation in The University of Texas at Austin, 1991.

- Non-Resident Tuition Scholarship, University of California, Berkeley, 1984-87.

- National Talent Scholarship, India, 1979-1984.

- Selected for one year advancement at the Indian Institute of Technology, Kanpur, 1980.

- Second Rank in the state of Punjab in the Higher Secondary Exam 1979, India.

Publications:
A0. Books/Research Monographs

1. V.K. Garg, *A Systematic Approach to Discrete Optimization Problems*, in progress.

2. V.K. Garg, *Lattice Theory with Applications to Computer Science*, 2015, John Wiley and Sons, ISBN 978-1118914373.

3. V.K. Garg, *Concurrent and Distributed Computing in Java*, John Wiley and Sons, 2004 ISBN 0-471-43230-X.

4. V.K. Garg, *Elements of Distributed Computing*, John Wiley and Sons, 2002, 424 pp. ISBN 0-471-03600-5.

5. V.K. Garg, *Principles of Distributed Systems*, Springer, 1996. 272 pp. ISBN 0-7923-9668-5.

6. R. Kumar, V.K. Garg, *Modeling and Control of Logical Discrete Event Systems*, The Springer International Series in Engineering and Computer Science, Springer, 1995, 160 pp. ISBN 0-7923-9538-7.

A1. Edited Books:

1. Maria Potop-Butucaru, Vijay K. Garg: *Special Issue on Theoretical Computer Science, Proceedings of the 19th International Conference on Distributed Computing and Networking, (ICDCN 2018)*, 2018. ACM 2018, ISBN 978-1-4503-6372-3.

2. Pascal Felber and Vijay K. Garg, Editors, *Special Issue of Information and Computation*, Selected Papers from *International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS)* 2016.

3. Pascal Felber and Vijay K. Garg, Editors, *Proc. 16th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS)* 2014, Paderborn, Germany, September 28 - October 1, 2014. Springer Verlag Lecture Notes in Computer Science, Volume 8756, 2014.

4. Vijay K. Garg, Roger Wattenhofer, Kishore Kothapalli, Editors, *Proceedings 10th International Conference Distributed Computing and Networking (ICDCN 2009)*, Springer Verlag Lecture Notes in Computer Science, Volume 5408, 2009.

A2. Refereed Archival Journal Publications:

1. Himanshu Chauhan, Vijay K. Garg, Efficient Traversal of Consistent Global States, *Formal Methods in System Design*, 2018, (invited for journal publication as the **best paper** from RV'17).

2. Himanshu Chauhan, Vijay K. Garg, Aravind Natarajan, Neeraj Mittal, Distributed Online Algorithms for Slicing and Temporal Logic Predicate Detection, Theoretical Computer Science 688: 24-48 (2017). (invited for journal publication as **selected top papers** from ICDCN).

3. Hammurabi Mendes, Maurice Herlihy, Nitin Vaidya and Vijay K. Garg, Multidimensional Agreement in Byzantine Systems, *Distributed Computing*, 28(6): 423-441, 2015 (invited for journal publication as **selected top papers** from PODC).

4. Bharath Balasubramanian, Vijay K. Garg, Fault Tolerance in Distributed Systems using Fused State Machines, *Distributed Computing*, 27(4), pp. 287 - 311, 2014.

5. Vijay K. Garg, Anurag Agarwal, Vinit Ogale Modeling, Analyzing and Slicing Periodic Distributed Computations, *Information and Computation*, pp. 26 - 43, 2014. (invited for journal publication as the **best paper** from SSS'11).

6. Bharath Balasubramanian, Vijay K. Garg, Fault Tolerance in Distributed Systems using Fused Data Structures, *IEEE Transactions on Parallel and Distributed Systems* 24(4): 701-715 (2013).

7. Venkatesan T. Chakaravarthy, Anamitra R. Choudhury, Vijay K. Garg, Yogish Sabharwal, Efficient Decentralized Algorithms for the Distributed Trigger Counting Problem. *Theory of Computing Systems* 51(4): 447-473 (2012). (invited for journal publication as **selected top papers** from ICDCN).

8. Rahul Garg, Vijay K. Garg, Yogish Sabharwal: Scalable algorithms for global snapshots in distributed systems. *IEEE Transactions on Parallel and Distributed Systems*, 21(5): 620-630, May 2010.

9. Neeraj Mittal, Alper Sen and Vijay K. Garg, Solving Computation Slicing Using Predicate Detection, *IEEE Transactions on Parallel and Distributed Systems* 18(12): 1700-1713 (2007).

10. Ranganath Atreya, Neeraj Mittal, Ajay Kshemkalyani, Vijay K. Garg, and Mukesh Singhal Efficient Detection of a Locally Stable Predicate in a Distributed System, *Journal on Parallel and Distributed Computing* 67(4): 369-385 (2007)

11. V.K. Garg, C. Skawratananond, N. Mittal, Timestamping Messages and Events in a Distributed System using Synchronous Communication, *Distributed Computing* 19(5-6): 387-402 (2007).

12. Alper Sen and Vijay K. Garg, Formal Verfication of Simulation Traces using Computation Slicing , *IEEE Transactions on Computers*, 56(4): 511-527 (2007).

13. Anurag Agarwal, Vijay K. Garg, Efficient Dependency Tracking for Relevant Events in Concurrent Systems, *Distributed Computing* 19(3): 163-183 (2007).

14. Vijay K. Garg, Algorithmic Combinatorics based on Slicing Posets , *Theoretical Computer Science*, Vol. 359, August 2006, pp. 200 - 213.

15. Shailesh Patil, Vijay K. Garg, Adaptive Algorithms for Perfectly Periodic Schedules, *Information Processing Letters* Vol. 98, No. 3, May 2006, pp. 107 – 114.

16. Sujatha Kashyap, Vijay K. Garg, Intractability Results in Predicate Detection, *Information Processing Letters*, Vol. 94, No. 6, pp. 277 - 282, June 2005.

17. Neeraj Mittal and Vijay K. Garg, "Techniques and Applications of Computation Slicing," *Distributed Computing* 17(3): 251-277 (2005).

18. R. Kumar, V. K. Garg, "Computation of State Avoidance Control for Infinite State Systems in Assignment Program Framework," *IEEE Transactions on Automation Science and Engineering*, Volume 2, No. 1, January 2005, pp. 87 - 91.

19. Neeraj Mittal and Vijay K. Garg, "Finding missing synchronization in a distributed computation using controlled re-execution," *Distributed Computing* Vol. 17, 2004, pp. 107–130.

20. A. Tarafdar, V. K. Garg, "Predicate Control: Synchronization in Distributed Computations with Look-Ahead," *Journal of Parallel and Distributed Computing*, Vol. 64, No. 2, 2004, pp. 219 – 237.

21. O. Damani, Yi-Min Wang and V. K. Garg, "K-Optmistic Message Logging," *Journal on Parallel and Distributed Computing*, Volume 63, Issue 12, December 2003, Pages 1193-1218.

22. R. Kumar, V. K. Garg, "Control of Stochastic Discrete Event Systems Modeled by Probabilistic Languages," *IEEE Transactions on Automatic Control*, Volume 46, No. 1, April 2001, pp. 593 – 606.

23. V. K. Garg, M. Raynal, "Normality: A Consistency Condition for Concurrent Objects," *Parallel Processing Letters*, Vol. 9, No. 1, March 1999, pp. 123 - 134.

24. V. K. Garg, R. Kumar, S. I. Marcus, "A Probabilistic Language Formalism for Stochastic Discrete Event Systems," *IEEE Transactions on Automatic Control*, Vol. 44, No. 2, February 1999, pp. 280 – 293.

25. C. M. Chase, V. K. Garg, "Efficient Detection of Global Predicates in a Distributed System," *Distributed Computing*, Vol. 11, No. 4, 1998, pp. 169 – 189.

26. V. K. Garg, C. M. Chase, R. Kilgore and J. R. Mitchell, "Efficient Detection of Channel Predicates in a Distributed System," *Journal of Parallel and Distributed Computing*, Vol. 45, No. 2, September 1997, pp. 134 – 147.

27. V. K. Garg, "Methods for Observing Global Properties in Distributed Systems," *IEEE Concurrency*, Vol. 5, No. 4, October 1997, pp. 69 – 77.

28. V. K. Garg, J. R. Mitchell, "Efficient Detection of Conjunctions of Global Predicates in a Distributed System," *Information Processing Letters 63*, 1997, pp. 295 – 302.

29. V. K. Garg, A. I. Tomlinson, "Using the Causal Domain to Specify and Verify Distributed Programs," *Acta Informatica*, Vol. 34, 1997, pp. 667 – 686.

30. A. I. Tomlinson, V. K. Garg, "Monitoring Functions on Global States in Distributed Programs," *Journal of Parallel and Distributed Computing*, Vol. 41, No. 2, March 1997, pp. 173 – 189.

31. V. K. Garg, B. Waldecker, "Detection of Strong Unstable Predicates in Distributed Programs," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 7, No. 12, Dec. 1996, pp. 1323 – 1333.

32. D. D. Cofer, V. K. Garg, "Supervisory Control of Real-Time Discrete Event Systems Using Lattice Theory," *IEEE Transactions on Automatic Control*, Vol. 41, No. 2, February 1996, pp. 199-209.

33. R. Kumar and V. K. Garg, "Extremal Solutions of Inequations over Lattices," *Theoretical Computer Science*, 148, August 1995, pp. 67 – 92.

34. R. Kumar, V. K. Garg, S. I. Marcus, "Finite Buffer Realization of Input-Output Discrete Event Systems," *IEEE Transactions on Automatic Control*, Vol. 40, No. 6, June 1995, pp. 1042 – 1053.

35. S. Young, V. K. Garg, "Model Uncertainty in Discrete Event Systems," *SIAM Journal on Control and Optimization*, Vol. 33, No. 1, January 1995, pp. 208 – 226.

36. R. Kumar, V. K. Garg, "Optimal Supervisory Control of Discrete Event Dynamical Systems," *SIAM Journal on Control and Optimization* Vol. 33, No. 2, March 1995, pp. 419 – 439.

37. V. K. Garg, J. Ghosh, "Repeated Computation of Global Functions in a Distributed Environment," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 5, No. 8, August 1994, pp. 823 – 834.

38. V. K. Garg, B. Waldecker, "Detection of Weak Unstable Predicates in Distributed Programs," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 5, No. 3, March 1994, pp. 299-307.

39. R. Kumar, V. K. Garg, S. I. Marcus, "Language Stability and Stabilizability of Discrete Event Dynamic Systems," *SIAM Journal on Control and Optimization*, Vol. 31, No. 5, September 1993, pp. 1294-1320.

40. R. Kumar, V. K. Garg, S. I. Marcus, "A Predicate Transformer Approach to Control of Discrete Event Systems," *IEEE Transactions on Automatic Control*, Vol. 38, No. 2, February 1993, pp. 232-247.

41. R. Kumar, V. K. Garg, S. I. Marcus, "On ω-Controllability and ω-Observability of Discrete Event Dynamic Systems," *IEEE Transactions on Automatic Control*, Vol. 37, No. 12, December 1992, pp. 1978-1985.

42. V. K. Garg, "Some Optimal Algorithms for Decomposed Partially Ordered Sets," *Information Processing Letters*, 44, November 1992, pp. 39-43.

43. V. K. Garg, M. T. Raghunath, "Concurrent Regular Expressions and their Relationship to Petri Net Languages," *Theoretical Computer Science*, 96 (1992), pp. 285-304.

44. V. K. Garg, C. V. Ramamoorthy, "ConC: A Language for Concurrent Programming," *Computer Languages Journal*, Vol. 16, No. 1, January 1991, pp. 5-18. (invited for journal publication as **selected top papers in Proc. IEEE International Conference on Computer Languages,**

45. R. Kumar, V. K. Garg, S. I. Marcus, "On Controllability and Observability of Discrete Event Dynamic Systems," *System & Control Letters*, Vol. 17, No. 3, 1991, pp. 157-168.

46. R. D. Brandt, V. K. Garg, R. Kumar, F. Lin, S. I. Marcus, W. M. Wonham, "Formulas for Calculating Supremal Controllable and Normal Sublanguages," *System and Control Letters*, Vol. 15, No. 8, August 1990, pp. 111-117.

47. C. V. Ramamoorthy, V. K. Garg, A. Prakash, "Reusability Support in GENESIS," *IEEE Transactions on Software Engineering*, Vol. 14, No. 8, August 1988, pp. 1145-1154.

48. C. V. Ramamoorthy, A. Prakash, V. K. Garg, T. Yamaura, A. Bhide, "Issues in the Development of Large, Distributed, and Reliable Software," *Advances in Computers*, Vol. 26, 1987, pp. 396-443.

49. C. V. Ramamoorthy, S. Shekhar, V. K. Garg, "Software Development Support for AI Programs," *IEEE Computer,* January 1987, pp. 30-40.

50. C. V. Ramamoorthy, V. K. Garg, A. Prakash, "Programming in the Large," *IEEE Transactions on Software Engineering,* Vol. 12, No. 7, July 1986, pp. 769-783.

B1. Refereed Conference Proceedings (Published/Accepted)

1. Xiong Zheng, Vijay K. Garg, Byzantine Lattice Agreement in Synchronous Systems, *International Symposium on DIStributed Computing (DISC'20)*, October 2020.

2. David R. Alves, Madan S. Krishnakumar, Vijay K. Garg, Efficient Parallel Shortest Path Algorithms, *19th International Symposium on Parallel and Distributed Computing, (ISPDC 2020), Warsaw, Poland, July 5-8, 2020*.

3. Vijay K. Garg, Predicate Detection to Solve the Constrained Optimization Problems, *32nd ACM Symposium on Parallelism in Algorithms and Architectures (SPAA 2020)*.

4. Changyong Hu, Vijay K. Garg, NC Algorithms for Popular Matchings in One-Sided Preference Systems and Related Problems, IEEE International Parallel and Distributed Processing Symposium (IPDPS 2020), New Orleans, LA, USA, May 18-22, 2020.

5. Xiong Zheng, Vijay K. Garg, Parallel and Distributed Algorithms for the housing allocation Problem, *International Symposium on Principles of Distributed Systems (OPODIS'2019)*.

6. Xiong Zheng, Vijay K. Garg, John Kaippallimalil, Linearlizable Replicated State Machines, *International Symposium on Principles of Distributed Systems (OPODIS'2019)*.

7. Xiong Zheng, Vijay K. Garg, An Optimal Vector Clock Algorithm for Multithreaded Systems, *IEEE International Conference on on Distributed Computing Systems (ICDCS'2019)*, Acceptance rate:19.6%, Dallas, Texas, July 2019.

8. Vijay K. Garg, R. Garg, Parallel Algorithms for Predicate Detection, *International Conference on on Distributed Computing and Networking (ICDCN'2019)*, Bangalore, India, January 2019. (Acceptance rate: 16/56).

9. Xiong Zheng, Changyong Hu, Vijay K. Garg, Lattice Agreement in Message Passing Systems, *International Symposium on DIStributed Computing (DISC'18)*, New Orleans, Louisiana, October 2018.

10. Himanshu Chauhan, Vijay K. Garg, Fast Enumeration of Counting and Stable Predicates, International Conference on Principles of Distributed Systems, (OPODIS 2017), December 13-16, 2017, 20:1-20:21, Lisbon, Portugal.

11. Himanshu Chauhan, Vijay K. Garg, Space Efficient Breadth-First and Level Traversals of Consistent Global States of Parallel Programs, *Runtime Verification (RV'2017)*, October 2017, 138-154, Seattle, Washington. (**Best Paper Award**)

12. Vijay K. Garg, Brief Announcement: Applying Predicate Detection to the Stable Marriage Problem, International Symposium on DIStributed Computing (DISC'17), Vienna, Austria, October 2017.

13. Wei-Lun Hung, Vijay K. Garg, Automatic-Signal Monitors with Multi-Object Synchronization, Proceedings of International Parallel and Distributed Processing Symposium (IPDPS), May 2017, Orlando, Florida, USA.

14. Yen-Jung Chang, Vijay K. Garg, Predicate Detection for Concurrent Computations with Lock Synchronization, International Conference on Principles of Distributed Systems, (OPODIS 2016), 17:1-17. December 13-16, 2016, Madrid, Spain.

15. Yen-Jung Chang, Vijay K. Garg QuickLex: A Fast Algorithm for Consistent Global States Enumeration of Distributed Computations OPODIS 2015, (Acceptance rate: 31/91).

16. Wei-Lun Hung; Himanshu Chauhan; Vijay K. Garg ActiveMonitor: Asynchronous Monitor Framework for Scalability and Multi-Object Synchronization OPODIS 2015, (Acceptance rate: 31/91).

17. Yen-Jung Chang, Vijay K. Garg, A Parallel Algorithm for Global States Enumeration in Concurrent Systems, Proceedings of the 20th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP 2015), pp. 140-149. (Acceptance rate: 23/133).

18. Himanshu Chauhan, Vijay K. Garg, Necessary and Sufficient Conditions on Partial Orders for Modeling Concurrent Computations Proc. of Distributed Computing and Networking - 16th International Conference, ICDCN 2015, (Acceptance rate: 18/80).

19. Wei-Lun Hung, Himanshu Chauhan, Vijay K. Garg Brief Announcement: Non-blocking Monitor Executions for Increased Parallelism, DISC 2014.

20. Aravind Natarajan, Vijay K. Garg, Neeraj Mittal, "Online Algorithms to Generate Slices for Regular Temporal Logic Predicates," "Proc. of Distributed Computing and Networking - 15th International Conference, ICDCN 2014", pp. 165-180, (acceptance rate: 18/53). **(paper invited for journal submission)**

21. Himanshu Chauhan, Vijay K. Garg, Aravind Natarajan, Neeraj Mittal, "A Distributed Abstraction Algorithm for Online Predicate Detection," Symposium on Reliable Distributed Systems (SRDS 2013), Portugal, pp. 101-110. (acceptance rate: 22/67).

22. Nitin Vaidya, Vijay K. Garg Byzantine Vector Consensus in Complete Graphs, ACM Principle of Distributed Computing (PODC) 2013, pp. 65-73. **(paper invited for journal submission)**

23. Wei-Lun Hung, Vijay K. Garg, AutoSynch: An Automatic-Signal Monitor Based on Predicate Tagging, ACM Programming Languages Design and Implementation (PLDI) 2013. pp. 253-262. **(paper invited for journal submission)**.

24. Himanshu Chauhan, Vijay K. Garg, Democratic Elections in Faulty Distributed Systems Proc. of Distributed Computing and Networking - 14th International Conference, ICDCN 2013, pp. 176-191, (acceptance rate: 18/67).

25. Vijay K. Garg, Maximal Antichain Lattice Algorithms for Distributed Computations, "Proc. of Distributed Computing and Networking - 14th International Conference, ICDCN 2013", pp. 240-254, (acceptance rate: 18/67).

26. John Bridgman, Vijay K. Garg All-to-All Gradecast Using Coding with Byzantine Failures SSS 2012, Toronto, Canada, pp. 285-298.

27. Vijay K. Garg, Lattice Completion Algorithms for Distributed Computations In Proc. of Principles of Distributed Systems - 16th International Conference, OPODIS 2012, pp. 166-180, (acceptance rate: 24/80).

28. John Bridgman, Vijay K. Garg Brief Announcement: All-to-All Gradecast Using Coding with Byzantine Failures PODC 2012, Madeira, Portugal, pp. 95-96. 2011

29. Vijay K. Garg, John Bridgman, Bharath Balasubramanian Accurate Byzantine with Feedback OPODIS 2011, pp. 465-480. (acceptance rate = 31%).

30. Bharath Balasubramanian, Vijay K. Garg Fusion-based DFSMs for Fault Tolerance in Distributed Systems ,Proc. OPODIS 2011, pp. 266-282. (acceptance rate = 31%).

31. Vijay K. Garg, John Bridgman, Bharath Balasubramanian Brief Announcement: Accurate Byzantine with Feedback PODC 2011, pp. 215-216.

32. Bharath Balasubramanian, Vijay K. Garg: A fusion-based approach for tolerating multiple faults in distributed systems. ICDCS 2011, pp. 677-688 (acceptance ratio: 87/565 = 15.4%).

33. Vijay K. Garg, John Bridgman The Weighted Byzantine Agreement Problem, IPDPS'2011, pp. 524-531. (acceptance ratio: 112/571 = 20%).

34. Venkatesan T. Chakaravarthy, Anamitra R. Choudhury, Vijay K. Garg, Yogish Sabharwal: A Decentralized Algorithm for Distributed Trigger Counting, ICDCN 2011, pp. 53-64. (acceptance rate = 22.1%) **(paper invited for journal submission)**

35. Vijay K. Garg Implementing Fault-Tolerant Services Using State Machines: Beyond Replication DISC'2010 Sept 2010, pp. 450-464.

36. Anurag Agarwal, Vijay K. Garg, Vinit Ogale, Modeling and Analyzing Periodic Distributed Computations SSS'10 Sept 2010, 191-205. (**Best Paper Award, invited for journal submission**)

37. Vinit A. Ogale, Bharath Balasubramanian, Vijay K. Garg: A fusion-based approach for tolerating faults in finite state machines. IPDPS 2009: 1-11. (acceptance ratio: 101/440 = 23%).

38. Sujatha Kashyap, Vijay K. Garg: Producing Short Counterexamples Using "Crucial Events". CAV 2008: 491-503

39. Ankur Narang, Vikas Agarwal, Monu Kedia, Vijay K. Garg Highly Scalable Algorithms for Distributed Real-Time Text Indexing ,Proceedings of the Sixteenth IEEE International Conference on High Performance Computing (HiPC 2009) December 2009, pp. 332–341, Cochin, India.

40. Vaibhav Saxena, Prashant Agrawal, Yogish Sabharwal, Vijay K. Garg, Vimitha A. Kuruvilla, John A. Gunnels: Optimization of BLAS on the Cell Processor. HiPC 2008: 18-29.

41. Bharath Balasubramanian, Vinit A. Ogale, Vijay K. Garg: Fault Tolerance in Finite State Machines Using Fusion. ICDCN 2008: 124-134.

42. Vinit A. Ogale, Vijay K. Garg: Detecting Temporal Logic Predicates on Distributed Computations. DISC 2007: 420-434.

43. Vijay K. Garg, Vinit A. Ogale: Fusible Data Structures for Fault-Tolerance. ICDCS 2007: 20 (acceptance ratio: 71/528 = 13.5%).

44. Selma Ikiz and Vijay K. Garg, Efficient Incremental Optimal Chain Partition of Distributed Program Traces, Proc. IEEE International Conference on Distributed Computing Systems (ICDCS) 2006. (acceptance ratio: 75/545 = 14%).

45. Rahul Garg, Vijay K. Garg, Yogish Sabharwal, Scalable Algorithms for Global Snapshots in Distributed Systems, ACM International Conference on Supercomputing 2006 (acceptance ratio: 37/141 = 26%).

46. Sujatha Kashyap, Vijay K. Garg, Exploiting Predicate Structure for Efficient Reachability Detection, 20th IEEE/ACM International Conference on Automated Software Engineering (ASE), Long Beach, California, November 2005, pp. 4 - 13. (acceptance ratio: 28/291 = 10%).

47. Anurag Agarwal, Vijay K. Garg, Chain Clock: Efficient Causality Tracking for Shared Memory Systems, ACM Symposium on Principles of Distributed Computing (PODC'2005) Las Vegas, July 2005, pp. 19-28 (acceptance ratio: 36/160 = 22.5%).

48. Vijay K. Garg, Anurag Agarwal, Distributed Maintenance of a Spanning Tree Using Labeled Tree Encoding, Euro'Par September 2005, pp. 606 - 616. (acceptance ratio:121/388 = 31%)

49. Selma Ikiz, Vinit Ogale, V. K. Garg, Coordinated Energy Conservation in Ad Hoc Networks, International Workshop on Distributed Algorithms and Applications for Wireless and Mobile Systems (DAAWMS), Phoenix, Arizona, September 2005.

50. Alper Sen, Jayanta Bhadra, Vijay K. Garg, and Jacob Abraham, Formal Verification of a System-on-Chip Using Computation Slicing, International Test Conference, October 2004.

51. Neeraj Mittal, Alper Sen, Vijay K. Garg, and Ranganath Atreya, Finding Satisfying Global States: All for One and One for All, In Proceedings of International Parallel and Distributed Processing Symposium (IPDPS), April 2004.

52. Neeraj Mittal, Ranganath Atreya and Vijay K. Garg, Detecting Locally Stable Predicates without Modifying Application Messages *7th International Conference on Principles of Distributed Systems* La Martinique, France, December 10-13 2003.

53. Alper Sen and Vijay K. Garg, Detecting Temporal Logic Predicates in Distributed Programs Using Computation Slicing, *7th International Conference on Principles of Distributed Systems* La Martinique, France, December 10-13 2003.

54. Alper Sen and Vijay K. Garg, On Checking Whether a Predicate Definitely Holds, 3rd International Workshop on Formal Approaches to Testing of Software (FATES 2003) Montreal, Quebec, Canada, October 2003.

55. V. K. Garg, "Enumerating Global States of a Distributed Computation in Lexicographic and Breadth-First Manner," *Intl Conference on Parallel and Distributed Computing and Systems (PDCS 2003)* (**nominated for the best paper award**).

56. Alper Sen and Vijay K .Garg, Partial Order Trace Analyzer (POTA) for Distributed Programs, *Proc. Workshop on Runtime Verification*, Boulder, Colorado, 2003, pp. 22 – 43.

57. Neeraj Mittal and Vijay K. Garg, Software Fault Tolerance of Distributed Programs using Computation Slicing, *Proc. IEEE International Conference on Distributed Computing Systems (ICDCS)*, Baltimore, Maryland, 2003, pp. 105 – 113.

58. Vijay K. Garg, Algorithmic Combinatorics based on Slicing Posets, *Proc. 22nd Conference on the Foundations of Software Technology & Theoretical Computer Science (FSTTCS)*, Kanpur, India, December 2002, pp. 169 – 181.

59. Vijay K. Garg, C. Skawratananond, On Timestamping Synchronous COmputations, *Proc. IEEE International Conference on Distributed Computing Systems (ICDCS'02)*, Vienna, July 2002, pp. 552–560.

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61. Neeraj Mittal and Vijay K. Garg, Computation Slicing: Techniques and Theory, 5th International Symposium on DIStributed Computing (DISC'01), Lisbon, Portugal, pp. 78 – 92.

62. Vijay K. Garg, C. Skawratananond, String Realizers of Posets with Applications to Distributed Computing, ACM Symposium on Principles of Distributed Computing (PODC'01), August 26-29, 2001, Newport, Rhode Island, pp. 72 – 80. (**paper invited for journal submission**)

63. Neeraj Mittal and Vijay K. Garg, Efficient Algorithms for Detecting Global Properties in Distributed Computations, *Proc. IEEE International Conference on Distributed Computing Systems (ICDCS'01)*, Phoenix, May 2001, pp. 3 – 10.

64. Vijay K. Garg and Neeraj Mittal, On Slicing a Distributed Computation, *Proc. IEEE International Conference on Distributed Computing Systems (ICDCS'01)*, Phoenix, May 2001 (**nominated for the best paper award**), pp. 322 – 329 .

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71. R. Kumar, V. K. Garg, "Control of stochastic discrete event systems: Synthesis" *Proc. Conference on Decision and Control (CDC'98)*, December 1998.

72. G. Brat, V. K. Garg, "Analyzing non-deterministic real-time systems with (max,+) algebra," *Proc. Real-Time Systems Symposium (RTSS'98)*, December 1998.

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74. R. Kumar, V. K. Garg, "Control of stochastic discrete event systems: Existence" Workshop on Discrete Event Systems (WODES'98), Caligari, Italy, August 1998, pp. 24-29.

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87. V. K. Garg, R. Kumar, S. I. Marcus, "Modeling Stochastic Discrete Event Systems Using Probabilistic Languages," in *Mathematical Theory of Networks and Systems*, St. Louis, MO, June 1996.

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93. C. Chase, V. K. Garg, "Efficient Detection of Restricted Classes of Global Predicates," *Proc. 9th International Workshop on Distributed Algorithms*, Le Mont-Saint-Michel, France, *Lecture Notes in Computer Science*, 972, September 1995, pp. 303 – 317.

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101. E. Fromentin, M. Raynal, V. K. Garg, A. I. Tomlinson, "On the fly testing of Regular Patterns in distributed computations," *Proc. 23rd International Conference on Parallel Processing*, St. Charles, Illinois, August 1994, pp. 2:73–76.

102. A. I. Tomlinson, V. K. Garg, "Maintenance of Global Assertions in Distributed Systems," *Proc. International Conference on Computer Science and Education*, Bangalore, India, June 1994, Tata McGraw-Hill Publishing Company Limited, pp. 257 – 272.

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111. V. K. Garg, "An Algebraic Approach to Modeling Probabilistic Discrete Event Systems," *Proc. 31st Conference on Decision and Control*, Tucson, Arizona, Dec. 1992, pp. 2348–2353.

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113. A. I. Tomlinson, G. Hoagland, V. K. Garg, "Distributed Resource Management Using Active Supervisory Predicate Control," *Proc. American Control Conference*, Chicago, Illinois, June 1992, pp. 2799–2803.

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118. R. Kumar, V. K. Garg, "Optimal Control of Discrete Event Dynamic Systems Using Network Flow Techniques," *Proc. 29th Allerton Conference on Communication, Control, and Computing*, Allerton, Illinois, Oct. 1991, pp. 705–714.

119. V. K. Garg, "Timed Probabilistic Languages," extended abstract in Current System Development, *IEEE Symposium on Real-time Systems*, San Antonio, Texas, Aug. 1991.

120. R. Kumar, V. K. Garg, S. I. Marcus, "Stability of Discrete Event System Behavior" *Proc. IFAC International Symposium on Distributed Intelligence Systems*, Arlington, Virginia, Aug. 1991, pp. 13–18.

121. S. Young, V. K. Garg, "Uncertainty in Discrete Event Systems," *Proc. IEEE International Symposium on Intelligent Control*, Arlington, Virginia, Aug. 1991, pp. 245–250.

122. R. Kumar, V. K. Garg, S. I. Marcus, "On $\omega-$Controllability and $\omega-$Normality of DEDS," *Proc. American Control Conference*, Vol. 3, Boston, Massachusetts, June 1991, pp. 2905–2910.

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124. V. K. Garg, S. Ajmani, "A Distributed Algorithm for N-process Synchronization," *Proc. 2nd IEEE Symposium on Parallel and Distributed Processing,* Dallas, Texas, Dec. 1990.

125. V. K. Garg, J. Ghosh, "Symmetry In Spite of Hierarchy," *Proc. 10th IEEE International Conference on Distributed Computing Systems*, Paris, France, June 1990, pp. 4–11.

126. V. K. Garg, "Modeling of Distributed Systems by Concurrent Regular Expressions," *Proc. 2nd International Conference on Formal Description Techniques for Distributed Systems and Communication Protocols,* Vancouver, Canada, Dec. 1989. Published by North-Holland, 1990, pp. 313–327.

127. R. Kumar, V. K. Garg, S. I. Marcus, "Language Stability of DEDS," *Proc. International Conference on Mathematical Theory of Control*, published as *Lecture Notes in Pure and Applied Mathematics*, Marcel Dekker, Vol. 142, edited by M. C. Joshi and A. V. Balakrishnan, Bombay, India, 1990, pp. 185–203.

128. R. Kumar, V. K. Garg, S. I. Marcus, "Control of Discrete Event Dynamic Systems: Supremal Controllable and Observable Languages," *Proc. 27th Allerton Conference on Communication, Control, and Computing*, Allerton, Illinois, Sept. 1989, pp. 501–510.

129. V. K. Garg, C. V. Ramamoorthy, "High Level Communication Primitives in the Distributed System Specification Language," *Proc. IEEE International Conference on Computer Languages,* Miami Beach, Florida, Oct. 1988, pp. 92–99. **(paper invited for journal submission)**

130. V. K. Garg, "Analysis of Distributed Systems with Many Identical Processes," *Proc. 8th IEEE International Conference on Distributed Computing Systems*, San Jose, California, June 1988, pp. 358–365.

131. V. K. Garg, "Specification and Analysis of Concurrent Systems using the STOCS Model," *Proc. 1988 Computer Networking Symposium*, Washington, D.C., April 1988, pp. 192–200.

132. V. K. Garg, C. V. Ramamoorthy, "Effect of Locality in Large Networks," *Proc. 7th IEEE International Conference on Distributed Computing Systems*, Berlin, Germany, Sept. 1987, pp. 544–550.

133. C. V. Ramamoorthy, V. K. Garg, A. Prakash, "Reusability Support in GENESIS," *Proc. 10th IEEE International Conference on Computer Software and Applications,* Chicago, Illinois, Oct. 1986, pp. 299–305. **(paper invited for journal submission)**

134. C. V. Ramamoorthy, A. Bhide, V. K. Garg, T. Yamaura, "Software Quality and Requirement Specification," *Proc. IEEE International Conference on Computer Languages,* Miami, Florida, Oct. 1986, pp. 75–83.

135. C. V. Ramamoorthy, V. K. Garg, R. Aggarwal, "Environment Modeling and Activity Management in Genesis," *Proc. 2nd Conference on Software Tools, Techniques and Alternatives, (SOFTFAIR II)* San Francisco, California, Dec. 1985.

C. Invited Papers

1. Himanshu Chauhan, Vijay K. Garg, Space Efficient Breadth-First Traversal of Consistent Global States of Parallel Programs, at Mid-south Theory Day, Louisiana State University, Baton Rouge, LA. December 9, 2016.

2. Vijay K. Garg,"Runtime Monitoring of Global Properties in Distributed Systems," invited tutorial, International Conference on Runtime Verification, RV'2014.

3. Vijay K. Garg, Neeraj Mittal and Alper Sen, Using Order in Distributed Computing, American Mathematical Society National Meeting (invited), San Antonio, Texas, Jan. 2006.

4. V. K. Garg, Neeraj Mittal, A Critique of Java for Concurrent Programming, IEEE Distributed Systems online, September 2005.

5. V. K. Garg, Neeraj Mittal, Global Time and State in Distributed Systems, Wiley Encyclopedia on Parallel and Distributed Computing, (edited by B. Wah), 2004.

6. Vijay K. Garg, Neeraj Mittal and Alper Sen, Applications of Lattice Theory to Distributed Computing, ACM SIGACT Notes (invited paper), September 2003, Vol. 34, No. 3, pp. 40-61.

7. V. K. Garg, "Observation and Control for Debugging Distributed Computations," *Proc. Third International Workshop on Automated Debugging (AADEBUG'97)*, Linkoping, Sweden, May 97, pp. 1 – 12.

8. R. Kumar, V. K. Garg, "Assignment Program Model for Control of Infinite State Systems," *Proc. 32nd Allerton Conference on Communication, Control, and Computing*, Allerton, Illinois, Oct. 1995, pp. 166 – 175.

9. V. K. Garg, "Observation of Global Properties in Distributed Systems," Proc. *Eighth IEEE International Conference on Software and Knowledge Engineering*, Lake Tahoe, Nevada, June 1996, pp. 418 – 425.

10. D. D. Cofer, V. K. Garg, "On Controlling Timed Discrete Event Systems," DIMACS Workshop on Verification and Control of Hybrid Systems, New Brunswick, New Jersey, Oct. 1995, *Lecture Notes in Computer Science 1066*, Springer-Verlag, pp. 340–349.

11. D. D. Cofer, V. K. Garg, "Idempotent Structures in the Supervisory Control of Discrete Event Systems," in *Idempotency*, J. Gunawardena, Ed., Cambridge University Press, 1995.

12. R. Kumar, V. K. Garg, "Computation and Formula for Supremal $\omega-$controllable sublanguage, *Proc. 32nd Allerton Conference on Communication, Control, and Computing*, Allerton, Illinois, Sept. 1994, pp. 900 – 901.

13. D. D. Cofer, V. K. Garg, "Supervisory Control of Timed Event Graphs," IEEE Conference on System, Man and Cybernetics, San Antonio, TX, Oct. 1994, pp 994-999.

14. V. K. Garg, "Parallel and Distributed Algorithms for Supervisory Control of Discrete Event Systems," *Proc. 32nd Conference on Decision and Control*, San Antonio, Texas, Dec. 1993, 2236–2241.

15. S. Young, V. K. Garg, "Optimal Sensor and Actuator Choices for Discrete Event Systems," *Proc. 31st Allerton Conference on Communication, Control, and Computing*, Allerton, Illinois, Oct. 1993.

16. V. K. Garg, "Probabilistic Languages for Modeling of DEDS" *Proc. Conference on Information Sciences and Systems*, Princeton, New Jersey, March 1992, pp. 198–203.

17. R. Kumar, V. K. Garg, "On Optimal Control of Discrete Event Systems," *SIAM Conference on Control and Its Applications*, Abstracts and Author Index, Minneapolis, Minnesota, Sept. 1992, pp. A42.

18. S. Young, V. K. Garg, "Transition Uncertainty in Discrete Event Systems," *Abstracts of the NSF Workshop on Discrete Event Systems*, Amherst, Massachusetts, June 1991.

D. Papers Reprinted in Books

1. V. K. Garg, C. M. Chase, R. Kilgore and J. Mitchell, "Efficient Detection of Unstable Global Conditions Based on Monotonic Channel Predicates," in *Tools and Environments for Parallel and Distributed Systems*, Edited by Amr Zaky, Kluwer Academic Press, 1996, pp. 195–226.

2. V. K. Garg, B. Waldecker, "Detection of Weak Unstable Predicates in Distributed Programs," in *IEEE Transactions on Parallel and Distributed Systems*, March 1994, reprinted in the book, *Global States and Time in Distributed Systems*, edited by Z. Yang and T. Marsland, IEEE Computer Society Press, 1994, pp. 44-52.

3. C. V. Ramamoorthy, S. Shekhar, V. K. Garg, "Software Development Support for AI Programs," *IEEE Computer,* January 1987, pp. 30-40, reprinted in *Computer Architectures for Artificial Intelligence*, edited by Wah and Ramamoorthy, John Wiley & Sons, 1990, pp. 513-531.

F. Other Publications

- V. K. Garg, "Specification and Analysis of Distributed Systems with a Large Number of Processes," Ph.D. Dissertation, University of California, Berkeley, December 1988.

- V. K. Garg, "Genesis - A Software Engineering Environment for Programming in the Large," Master's Research Report, University of California, Berkeley, December 1985.

- V. K. Garg, M. B. Agrawal, "Dimensional Analysis in Pascal," *ACM SIGPLAN Notices,* Vol. 19, No. 3, March 1984, pp. 7–11.

- V. K. Garg, "Screen-Oriented High Level Debugger for Pascal," *ACM SIGPLAN Notices,* Vol. 19, No. 3, March 1984, pp. 39–41.

- V. K. Garg, "Functional Composition: A Mechanism to Compose Programs," *ACM SIGSOFT Software Engineering Notes,* Vol. 10, No. 3, July 1985, pp. 37–39.

Grants and Contracts:

1. Sponsoring Agency: National Science Foundation (NSF)
   Title: "Runtime Verification of Concurrent Programs,"
   Principal Investigator: V. K. Garg,
   Amount: $414, 844
   Duration: Sept 2018 - August 2021

2. Sponsoring Agency: National Science Foundation (NSF)
   Title: "A Smart Runtime System for Parallel Programming,"
   Principal Investigator: V. K. Garg,
   Amount: $509,755
   Duration: Sept 2016 - August 2019

3. Sponsoring Agency: Huawie Inc.,
   Title: "Smart Contracts,"
   Principal Investigator: V. K. Garg,
   Amount: $60K
   Duration: August 2018 - June 2019

4. Sponsoring Agency: Huawie Inc.
   Title: "Control Data Distribution and Consensus,"
   Principal Investigator: V. K. Garg,
   Amount: $170K
   Duration: Sept 2016 - August 2018

5. Sponsoring Company: Visa Inc.
   Title: " Learning Rules to Detect Fraud in Credit and Debit TransactionsModel,"
   Principal Investigator: Vijay K. Garg,
   Amount: $39,330
   Duration: Sept 1, 2016 - June 2017.

6. Sponsoring Agency: National Science Foundation (NSF)
   Title: "Efficient Monitor-Based Synchronization Mechanisms for Concurrent Programs,"
   Principal Investigator: V. K. Garg,
   Amount: $165K
   Duration: Sept 2013 - August 2016.

7. Sponsoring Company: Visa Inc.
   Title: " Model Ensemble Techniques for Electronic Transactions,"
   Principal Investigator: Vijay K. Garg,
   Amount: $80,996
   Duration: July 1, 2015 - June 2016.

8. Sponsoring Agency: National Science Foundation (NSF)
   Title: "Improving Dependability of Multithreaded Distributed Programs,"
   Principal Investigator: V. K. Garg,
   Co-PI: Neeraj Mittal, University of Texas at Dallas
   Amount: $450K (my share: $225K)
   Duration: Sept 2011 - August 2015

9. Sponsoring Agency: Portuguese Science and Technology Foundation
   Title: "Combining Erasure Coding with Replication for Efficient Fault-tolerance,"
   Principal Investigator: Robert Peterson, IC2 Institute
   Sub-Recepient: Vijay K. Garg,
   My share: $50, 000
   Duration: May 2011 - August 2012.

10. Sponsoring Agency: NVidia Corp.
    Title: "Efficient Algorithms for SAT using GPU,"
    Principal Investigator: Vijay K. Garg,
    Equipment Donation: Tesla C2070 P1030-A01 Channel 6GB GDDR5
    Duration: May 2011 - May 2014.

11. Sponsoring Agency: National Science Foundation (NSF)
    Title: "Combining Erasure Coding with Replication for Efficient Fault-tolerance,"
    Principal Investigator: V. K. Garg,
    Amount: $242,332
    Duration: Sept 2007 - August 2010.

12. Sponsoring Agency: Semiconductor Research Corporation (SRC)
    Title: "System Level Runtime Verification,"
    Principal Investigator: V. K. Garg,
    Amount: $180,000,
    Duration: July 1, 2006 - June 2009.

13. Sponsoring Agency: Texas Higher Education Corrdinating Board
    Title: "Distributed Computing Environment for the Rational Design of Catalysts from First Principles,"
    co-Principal Investigator: V. K. Garg,
    co-Principal Investigator: Graeme Henkelman, Professor, Department of Chemistry
    Amount: $66,000,
    Duration: July 2006 - June 2008.

14. Sponsoring Agency: National Science Foundation (NSF)
    Title: "Monitoring and Controlling Multi-threaded Distributed Software,"
    Principal Investigator: V. K. Garg,
    Amount: $315,000,
    Duration: August 2005 - July 2008.

15. Sponsoring Agency: College of Engineering, The University of Texas at Austin
    Title: "Curriculum Development for Software Engineering,"

Principal Investigator: V. K. Garg,
Amount: $30,000,
Duration: July 2003.

16. Sponsoring Agency: National Science Foundation (NSF), CCR Division,
Title: "Software Fault-Tolerance based on Observation and Control of Distributed Programs,"
Principal Investigator: V. K. Garg,
Amount: $190,000,
Duration: September 2000 - August 2003.

17. Sponsoring Agency: National Science Foundation (NSF), ECS Division,
Title: "Distributed Supervisory Control: Theory and Applications," Principal Investigator:
V. K. Garg,
Amount: $224,051,
Duration: October 1999 - September 2002.

18. Sponsoring Agency: Faculty Research Award, The University of Texas at Austin.
Title: "Automatically avoiding faults in Concurrent Programs,"
Amount: Salary for Spring 2000.
Duration: January 2000 - May 2000.

19. Sponsoring Agency: Compaq,
Title: "Application of Technology for Instruction of Distributed Algorithms,"
Principal Investigator: V. K. Garg,
Amount: Compaq DeskPro 4000 (with Pentium II) and a P50 color monitor
Date: March 1998.

20. Sponsoring Agency: Center for INstructional Technology,
Title: "A Tool to Teach Distributed Algorithms via Java Applets,"
Principal Investigator: V. K. Garg,
Amount: Student support
Duration: January 1998 - May 1998.

21. Sponsoring Agency: International Business Machines (IBM),
Title: "Research in Distributed Debugging,"
Principal Investigator: V. K. Garg,
Amount: RS/6000 system, Tape Drive, CD-ROM Drive
Date: January 1998.

22. Sponsoring Agency: Texas Higher Education Coordinating Board, Texas Advanced Research
Program,
Title: "Nereus: Registration and Verification of Secure Sessions on the Internet ,"
Co-Principal Investigator: V. K. Garg,
Other co-PI: Mohamed Gouda,
Amount: $154,110, (my share $77,055),
Duration: January 98 - December 99.

23. Sponsoring Agency: National Science Foundation (NSF), CCR Division,
    Title: "Detection of Global Properties in Distributed Systems,"
    Principal Investigator: V. K. Garg,
    Amount: $153,983,
    Duration: September 95 - September 98.

24. Sponsoring Agency: National Science Foundation (NSF), ECS Division,
    Title: "Control and Analysis of Real-Time DES using Max-Algebra,"
    Principal Investigator: V. K. Garg,
    Amount: $105,983,
    Duration: September 95 - September 98.

25. Sponsoring Agency: International Business Machines (IBM),
    Title: "Unrestricted Research in Distributed Debugging,"
    Principal Investigator: V. K. Garg,
    Amount: $70,000,
    Duration: January 95 - August 97.

26. Sponsoring Agency: IBM,
    Title: "Equipment Award,"
    Recipient: V. K. Garg,
    Amount: Power PC based IBM Workstation,
    Date: February 1994.

27. Sponsoring Agency: International Business Machines (IBM),
    Title: "Unrestricted Research in Distributed Debugging,"
    Principal Investigator: V. K. Garg,
    Amount: $70,000,
    Duration: September 93 - August 94.

28. Sponsoring Agency: Army Research Office, through Applied Research Laboratories (ARL),
    Principal Investigator: V. K. Garg,
    Title: "Distributed Simulation,"
    Amount: $56,172,
    Duration: May 92 - May 94.

29. Sponsoring Agency: National Science Foundation (NSF) Research Initiation Program,
    Title: "A Debugging System for Distributed Programs,"
    Principal Investigator: V. K. Garg,
    Amount: $59,095,
    Duration: August 91 - July 93.

30. Sponsoring Agency: International Business Machines (IBM), as a member of the Computer
    and Vision Research Center under Prof. J.K. Aggarwal,
    Title: "Research in Distributed Computing,"
    Faculty Investigator: V. K. Garg,
    Amount: $11,496,
    Duration: August 91 - August 92.

31. Sponsoring Agency: TRW,
    Title: "Faculty Assistantship Award from TRW Foundation,"
    Co-Recipient: V. K. Garg,
    Other Recipient: Joydeep Ghosh,
    Amount: $45,000 (Garg's share: $22,500),
    Duration: March 92 - March 95.

32. Sponsoring Agency: University Research Institute (URI), The University of Texas at Austin,
    Title: "Decentralized Control of Discrete Event Systems,"
    Principal Investigator: V. K. Garg,
    Amount: $15,000,
    Duration: May 90 - August 90.

33. Sponsoring Agency: University Research Institute, The University of Texas at Austin,
    Title: "High Level Communication Abstraction Mechanisms,"
    Principal Investigator: V. K. Garg,
    Amount: $4,000,
    Duration: April 89 - August 89.

34. Sponsoring Agency: Bureau of Engineering Research (BER), The University of Texas at Austin,
    Title: "Algebraic Characterization of Petri Nets,"
    Principal Investigator: V. K. Garg,
    Amount: $5,000,
    Duration: January 89 - August 90.

35. Sponsoring Agency: College of Engineering, The University of Texas at Austin,
    Title: "Hardware Equipment Support,"
    Principal Investigator: V. K. Garg,
    Amount: $50,000,
    Duration: January 89 - January 91.

Patents:

1. "A Method for massively parallel multi-core text indexing" A Narang, V Agarwal, VK Garg, DJ Joseph, M Kedia, MM Michael, US Patent 8,229,916

2. "Method for Providing Fault Tolerance to Multiple Servers," (with Vinit Ogale) University of Texas at Austin, November 9, 2010. U.S. Patent Number 7,831,859.

3. "Enabling access to information on a web page", H Chauhan, OD Deshmukh, VK Garg, S Joshi, A Verma US Patent App. 12/353,669

4. "Software fault tolerance of concurrent programs using controlled re-execution," (with A. Tarafdar), U.S. Patent Number 6,772,367. Awarded 08/03/2004. *Sold by the University of Texas at Austin to a third party.*

5. Continuation of "Optimistic Distributed Simulation based on transitive dependency tracking," (with Om Damani and Yi-Min Wang, AT&T) U.S. Patent Number 6,341,262 Awarded 01/22/2002.

6. "Optimistic Distributed Simulation based on transitive dependency tracking," (with Om Damani and Yi-Min Wang, AT&T) U.S. Patent Number 6,031,987. Awarded 02/29/2000.

7. "An Infrastructure for Secure Collaborative Internet Applications" (with Anupam Kunwar and Jerome Froment-Curtil), filed by the University of Texas at Austin, August 2000 (UTA A-054).

8. "Distributed recovery with K-optimistic logging," (with Om Damani and Yi-Min Wang, AT&T) U.S. Patent Number 5,938,775. Awarded August 99.

Selected List of Published Software Systems (Since 2008):

- *BFS Enumeration of Predicates*: This package allows efficient enumeration of a lattice in BFS manner. The package uses space polynomial in the size of the computation. Prior to this work, the efficient enumeration was done by storing a level of lattice which could be exponential in the number of processes. (with Himanshu Chauhan, described in RV'17 **best paper award**)

- *Exposure: Concurrency Bug Detector*: This package allows programmer to detect concurrency bugs including data race errors, atomicity violations and other general invariant violations. (with Yen-Jung, described in PPoPP' 15)

- *AutoSynch: Monitors with Automatic Notification*: This package allows programmer to use monitors which have automatic signaling. The performance of the package is comparable or even better than handcrafted signaling because AutoSynch has fewer context switches. (with Wei-Lun, described in ACM PLDI'13)

- *Fused Data Structures Package*: A Java package that uses fusion (combination of replication and coding theory) to provide fault-tolerance with efficient maintenance of data structures. (with Bharath Balasubramanian, described in IEEE Transactions on Parallel and Distributed Systems'13)

- *Lattice Enumeration Package*: This package written in Java takes a poset and enumerates all its ideals, normal cuts, maximal antichains and maximum sized antichains. (algorithms described in OPODIS'12 and ICDCN'13)

- *Fused Finite State Machine Generator*: A Java package that allows generation of backup finite state machines with optimal number of states. (with Bharath Balasubramanian, described in OPODIS'11)

- *Checkpointing Software for IBM BlueGene*: This package allows chekpointing of a message passing program for fault-tolerance on a supercomputer. The package implemented in collaboration with IBM incorporates new algorithms with lower message complexity than traditional Chandy and Lamport's algorithm. (with Yogish Sabharwal and Rahul Garg, described in IEEE Transactions on Parallel and Distributed Systems'10)

- *Package for Distributed Real-time Text Indexing*: This package is an extension of popular text-indexing software Lucene for exploiting massive parallelism available in BlueGene. Developed at IBM Research Lab during 2007-2009 visit. (with Ankur Narang, Vikas Agarwal, Monu Kedia, described in HiPC'2009)

- *SPICED (Simple PROMELA Interpreter with Crucial Event Detection)*: This program is an extension of popoular model checker SPIN with ability to produce short counterexamples to invariants. (with Sujatha Kashyap, described in CAV'08)

- *Optimization of BLAS on Cell*: BLAS is one of the popular Basic Linear Algebra Software package. A package that optimizes BLAS for IBM Cell architecture was accomplished via collaboration across multiple IBM Research and Software Labs. (with Vaibhav Saxena, Prashant Agrawal, Yogish Sabharwal, Vimitha A. Kuruvilla, and John A. Gunnels, HiPC'2008)

- *POTA: Partial Order Trace Analyzer*: POTA uses slicing techniques to analyze partially ordered trace for temporal logic formulas. (with Alper Sen, described in IEEE Transacions on Computers '2008)

Professional Membership:

- Institute for Electrical and Electronic Engineers (IEEE) Fellow, 2004-Present, Member since 1989.

- IEEE Computer Society, 1989-present.

- Association for Computing Machinery (ACM), 1989 - present.

- Society of Industrial and Applied Mathematics, 1991-1994.

- American Mathematical Society, 2005-2007

Professional Activities:

- Member, Program Committee, *International Conference on Principles of Distributed Systems (OPODIS)*, 2020.

- Member, Program Committee, *International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2020)*

- Member, Steering Committee, *International Conference on Distributed Computing and Networking (ICDCN)*, 2020.

- Member, Program Committee, *39th IEEE International Symposium on Reliable Distributed Systems (SRDS 2020)*

- Steering Committee Member, *2nd Workshop on Scalable Deep Learning in Distributed Systems as part of (IPDPS)*, (joint with CMU and IBM), 2020.

- Member, Program Committee, *International Symposium on Distributed Computing (DISC)*, 2019.

- Member, Program Committee, *International Conference on Distributed Computing and Networking (ICDCN)*, 2019.

- Co-organizer, *First Workshop on Scalable Deep Learning in Distributed Systems as part of (IPDPS)*, (joint with CMU and IBM), 2019.

- Co-chair, General chair, *International Conference on Distributed Computing and Networking (ICDCN)*, 2018.

- Member, Program Committee, *37th ACM Symposium on Principles of Distributed Computing (PODC 2018)*

- Member, Program Committee, *37th IEEE International Symposium on Reliable Distributed Systems (SRDS 2018)*

- NSF panelist, *Algorithmic Foundations – Career and Research Initiation Awards*, 2017.

- Member, Program Committee, *International Conference on Runtime Verification (RV)*, 2016.

- Co-chair, Program Committee track on Foundations *17th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2016)*

- Co-chair, General chair, *International Conference on Distributed Computing and Networking (ICDCN)*, 2016.

- Member, Program Committee, *16th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2015)*

- Member, Editorial Advisory Board, Emerging Research in Cloud Distributed Computing Systems, IGI Global, 2014.

- Co-chair, Technical Program Committee, *16th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2014)*

- Member, Program Committee, *HotDep 2014 - 10th Workshop on Hot Topics in Dependable Systems*, 2014.

- Member, Program Committee, *International Symposium on Distributed Computing (DISC)*, 2014.

- Member, NSF Travel Award Committee for DISC 2014.

- Member, Program Committee, *International Conference on Runtime Verification (RV)*, 2014.

- Member, Program Committee, *International Conference on Networked Systems (Netys)*, 2014.

- Member, Steering Committee, *International Conference on Distributed Computing and Networking (ICDCN)*, 2014.

- Member, Program Committee, *International Conference on Distributed Computing and Networking (ICDCN)*, 2014.

- Member, Program Committee, *IEEE International Symposium on High Assurance Systems Engineering (HASE)*, 2014.

- Member, Program Committee, *15th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2013)*

- Member, Program Committee, *International Conference on Parallel Processing (ICPP)*, 2013.

- Member, Program Committee, *International Conference on Distributed Computing and Networking (ICDCN)* 2013.

- Member, Steering Committee, *International Conference on Distributed Computing and Networking (ICDCN)*, 2013.

- Session Chair, *International Conference on Distributed Computing and Networking (ICDCN)*, 2013.

- Member, Program Committee, *International Conference on Distributed Computing and Networking (ICDCN)* 2012.

- Member, Program Committee, *International Conference on Principles of Distributed Systems (OPODIS)*, 2012.

- Session Chair, *International Conference on Principles of Distributed Systems (OPODIS)*, 2012.

- Member, Program Committee, First International Workshop on Dependability Issues in Cloud Computing (DISCCO), 2012.

- Member, Program Committee, IEEE International Symposium on High Assurance Systems Engineering (HASE), 2012.

- Member, Program Committee, *International Conference on Wireless Technologies for Humanitarian Relief. (ACWR)*, 2011.

- Member, Program Committee, *International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS)* 2011.

- Member, Program Committee, *International Parallel and Distributed Processing Symposium (IPDPS)*, 2011.

- Member, Program Committee, *IEEE International Symposium on High Assurance Systems Engineering (HASE)*, 2011.

- Member, Program Committee, *IEEE International Symposium on Reliable Distributed Systems (SRDS)*, 2010.

- Member, Program Committee, *ISPDC*, 2010.

- Tutorials Chair, *International Conference on Distributed Computing and Networking (ICDCN)*, 2010.

- Member, Steering Committee, *International Conference on Distributed Computing and Networking (ICDCN)*, 2010.

- Member, Program Committee, International Conference on Principles of Distributed Systems (OPODIS), 2009.

- Member, Program Committee, *IEEE International Conference on Distributed Computing and Systems (ICDCS)*, 2009.

- Member, Program Committee, *International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS)* 2009

- co-Chair, Program Committee, *International Conference on Distributed Computing and Networking (ICDCN)*, 2009.

- vice-Chair, Distributed Algorithms track, Program Committee, *IEEE International Conference on Distributed Computing and Systems (ICDCS)*, 2008.

- Member, Panel at the NSF PEERS Workshop for US-India Collaborative Efforts to increase the Ph.D. production in India, 2009.

- Member, Program Committee, *International Conference on Distributed Computing and Networking (ICDCN)*, 2008.

- Member, Program Committee, *Runtime Verification (RV)*, 2007.

- Invited Panelist, "Self-Stabilization from Theory to Practice", 8th International Symposium on Stabilization, Safety, and Security of Distributed Systems, Dallas, Texas, 2006.

- Member, NSF Panel to review proposals for Parallel and Distributed Operating Systems, 2006.

- Member, Program Committee, *Runtime Verification (RV/FATES)*, 2006.

- Member, Program Committee, *International Workshop on Distributed Algorithms and Applications for Wireless and Mobile Systems DAAWMS 2005*, 2005.

- Member, Program Committee, *Runtime Verification*, 2005.

- Member, Program Committee, *The 25th International Conference on Distributed Computing Systems* 2005.

- Member, Program Committee, *The IEEE and ACM International Conference on Formal Methods and Models for Codesign (MEMOCODE'2005)*, 2005.

- Member, Program Committee, *The Eighth International Symposium on Autonomous Decentralized Systems (ISADS)*, 2004.

- Member, Program Committee, *The Second IEEE and ACM International Conference on Formal Methods and Models for Codesign (MEMOCODE'2004)*, 2004.

- Member, Program Committee, *Runtime Verification*, 2004.

- Member, Steering Committee, *The First IEEE and ACM International Conference on Formal Methods and Models for Codesign (MEMOCODE'2003)*, 2003.

- Member, Program Committee, *The First IEEE and ACM International Conference on Formal Methods and Models for Codesign (MEMOCODE'2003)*, 2003.

- Member, Program Committee, *The International Conference on Distributed Computing Systems*, 2002.

- Member, Program Committee, *The Fifth International Symposium on Autonomous Decentralized Systems (ISADS)*, Dallas, Texas, March 2001.

- Member, Program Committee, *IEEE Workshop on Application-Specific Software Engineering and Technology (ASSET'99)*, Dallas, Texas, March 99.

- Member, Program Committee, *The International Conference on Distributed Computing Systems*, Austin, Texas 1999.

- Member, Program Committee, *IEEE Workshop on Application-Specific Software Engineering and Technology (ASSET'98)*, Dallas, Texas, March 98.

- Vice-chair, Program Committee, *The 10th IEEE International Conference on Tools for Artificial Intelligence*, Newport Beach, California, 1997.

- Member of the panel to foster cooperation between the University of Texas at Austin and ITESM, Monterrey, Mexico, 1995.

- Registration Chair, *Parallel and Distributed Information Systems*, Austin, Texas, 1994.

- Member, Program Committee, *The 14th International Conference on Distributed Computing Systems 1994*, Poznan, Poland, 1994.

- Session Chairman, "Discrete Event Systems II," *32nd IEEE Conference on Decision and Control*, San Antonio, Texas, December 1993.

- Session Chairman, "Discrete Event Systems," *American Conference on Control*, San Francisco, California, June 1993.

- Member, Awards Panel, *The 30th Conference on Decision and Control*, San Antonio, Texas, December 1992.

- Member, Program Committee, *The Second International Conference on System Integration, 1992*, Austin, Texas, 1992.

- Mini-symposium Organizer, minisymposium on "Supervisory Control of Discrete Event Systems," *SIAM Conference on Control and Applications*, Minneapolis, Minnesota, Sept. 1992. (with Steven I. Marcus).

- Session Chairman, "Discrete Event Systems I," *American Conference on Control*, Chicago, Illinois, June 1992.

- Session Chairman, "Supervisory Control of Logical Discrete Event Systems," *SIAM Conference on Control and Applications*, Minneapolis, Minnesota, Sept. 1992.

- Secretary of IEEE Computer Society Central Texas Chapter 1991-1992.

- Member, Program Committee, *The 11th International Conference on Distributed Computing Systems, 1991*, Arlington, Texas, 1991.

- Member, Program Committee, *The First International Conference on System Integration*, Morristown, New Jersey, April 1990.

- Session Chairman, "Membership Algorithms," *IEEE The 11th International Conference on Distributed Computing Systems*, Arlington, Texas, May 1991.

- Session Chairman, "Discrete Event Dynamical Systems," *Twenty-Seventh Annual Allerton Conference on Communication, Control, and Computing*, Monticello, Illinois, Sept 1989.

University/College Committees:

- **Director**, Masters in Software Engineering, Option III, (2015 - present), Responsible for oversight of the program, including admissions, marketing, selecting and staffing courses to be taught in the program.

- **Computer Sciences Graduate Studies Committee, member** (1995 - present).
  This committee is involved with determining academic requirements, curriculum selection, catalogue selection, and thesis and dissertation requirements in the CS Department.

- **Computational and Applied Mathematics Graduate Studies Committee** (1992 - 2012). GSC committee for the interdisciplinary program for Computational and Applied Mathematics.

- **Associated Faculty: Institute of Computational Engineering Science** (ICES) (2012-present)
  Participated in various programs such as Portugal-UT collaboration including supervision of summer interns from Portuguese Universities.

- **Associated Faculty: Southeast Asian Studies Institute.** (2009-present)
  The South Asia Institute was established as part of a university initiative to promote South Asian programs, especially those pertaining to contemporary issues, across the entire university and in the larger community.

- **Member, Best Ph.D. dissertation Award Committee,** (2011-2012).
  Reviewed Ph.D. dissertations nominated by various departments for the University-wide award.

- **Electrical and Computer Engineering Graduate Studies Committee, member** (1989 - present).
  This committee is involved with determining academic requirements, curriculum selection, catalogue selection, and thesis and dissertation requirements in the ECE Department.

- **University Representative, International Agreements,** (2006-2007)
  Academic and Scientific Cooperation and Exchange Agreement between the University of Texas at Austin and the Indian Institute of Technology, Kanpur, India, August 2006.

- **Member, Grid Computing Chair Search Committee**, (2006-2007)
  A multidepartmental search for Grid Computing Chair (CS, ECE, ICES). Succesful in recruiting a distinguished scholar from Cornell University.

- **Member, Agreement for scientific cooperation with Ministry of Portugal**, (2006-2007)
  This effort resulted in establishment of a grant to the University of Texas at Austin from Portugal Science Foundation and an agreement on joint Ph.D. program.

- **University Representative, Agreement with Department of Science and Technology, Government of India**, (2005-2006).
  Represented Provost Sheldon Olson for a Memorandum of Understanding between the Government of India and the University of Texas at Austin for scientific cooperation.

- **Member, Traffic and Parking Panel**, (1997 - 1999).
  This committee is in charge of rules and regulations regarding traffic and parking in the University.

- **Member, Ad Hoc Televised Instruction Committee**, (1995- 1997).
  The goal of the distance learning committee was to promote use of video-conferencing equipment to deliver courses at remote sites. As one of the pilot projects, this equipment was used in Fall 95 to deliver a course on Distributed Systems via CableMax.

- **Member, committee to foster cooperation between the University of Texas at Austin and ITESM, Monterrey, Mexico**, (1995-1996). Visited ITESM and discussed various cooperation possibilities.

- College of Engineering Scholastic Appeals Committee (1990 - 1992)
  This committee deals with students who have failed to meet academic standards for personal or other reasons and wish to be reinstated in the College.

Department Committees:

- **Member, ECE Senior Faculty Recruitment Committee** (2017-2019).
  Responsible for selecting candidates to interview for four open positions.

- **Coordinator for the Software Area, ECE Curriculum Committee** (2016- present).
  Responsible for staffing courses in the software area. Interviewed and recommended lecturer positions in the sofware area.

- Member, Curriculum Revision Committee, May 2016 – present.

- **Member, ECE Junior Faculty Recruitment Committee** (2013-2017).
  Responsible for selecting candidates to interview for open positions.

- **Member, Ph.D. prequalification committee, CommNets** (2013-2014)
  Evaluated Ph.D. student folders for prequalification.

- **Member, ECE Faculty Recruitment Committee** (2012-2013).
  Responsible for selecting candidates to interview for four open positions. The committee was successful in filling one of the positions.

- **Member, Faculty Annual Report review and Post-Tenure Review** (2012-2013).
  A committee that reviewed all faculty annual reports and some members for post-tenure review.

- **Teaching reviews and third-year reviews of selected faculty members** (2011-2012)
  Member of ad-hoc committee to review selected faculty members.

- **Graduate Admissions Committee for CAEP, CE, and Software Engineering** (2009-2012).
  Actively participated in graduate admissions in CAEP, CE and SE areas.

- **Chair, Ph.D. prequalification committee, CommNets** (2010-2011)
  Evaluated Ph.D. student folders for prequalification.

- **Ph.D. coordinator for Computer Engineering Area** (2000 - 2007).
  Set up meetings for approval of Ph.D. students for pre-Qualifying and send out notices for Ph.D. committees.

- **Chair, Faculty Annual Report Review Committee**, (2006-2007).
  Started a new procedure in which every faculty member was reviewed holistically by three peer faculty members. The reviews were submitted to the chairman.

- **Member, Graduate Admission in Computer Engineering Area** (1989 - 2006)
  Prof. Garg is a member of the committee that is in charge of selecting graduate student applicants in the Computer Engineering area based on their record and faculty recommendations. Considering the large number of applicants to this area, this position requires a significant commitment of time.

- **Member, GSC ad-hoc committee for approval of new courses** (1997 - 1998)
  This committee advises the ECE graduate studies committee in the matters of approval of a new graduate course.

- **Member, Computer Engineering Faculty Recruitment Committee** (1994 - 1996)
  This committee was in charge of recruiting faculty members in the area of computer engineering. The committee was successful in hiring an outstanding applicant from the University of California at Berkeley.

- **Member, Computer Engineering Course Area Committee** (1989 - 1996)
  This committee administers the selection of textbooks, course requirements, and course catalogue for the Computer Engineering Courses in the Department.

- **Member, TeleCommunications and Information Sciences Area (TISE) Committee** (1989 - 1996)
  This committee is involved with determining Ph.D. exam procedures, admission of students to Ph.D. program based on their performance in the TISE exam, and other matters relevant to the TISE area.

- **Co-Chair, Graduate Admission in Telecommunications and Information Sciences Area** (1993 - 1995)
  Selecting graduate student applicants in the TISE area based on their record and faculty recommendations. Considering the large number of applicants to this area, this position requires a significant commitment of time.

- **Co-Chair, Graduate Admission in Software Engineering Area** (1995 - 1997)
  Selecting graduate student applicants in the Software Engineering area based on their record and faculty recommendations.

- **Member, Committee for Computer Laboratories Operations** (1991 - 1996)
  This committee governs the usage and maintenance of the ENS 340 and ENS 114A computer labs. The committee also makes decisions on which software/hardware to buy for these laboratories.

- **Member, Departmental Space Committee** (1992 - 1995)
  This committee is responsible for governing and monitoring the space usage in the ENS building.

- **Member, Ad Hoc Quality of Instruction Improvement Committee** (1989 - 1990)
  This committee was charged with reviewing the quality of instruction (especially undergraduate) in the ECE department. A list of recommendations were made to the department chairman based on the findings of this committee.

- **Member, Ad Hoc Committee for the Computer Engineering Ph.D. Preliminary Exam** (1990)
  This committee was charged with reviewing the Ph.D. program admission and testing requirements. It suggested a new procedure which was used in the Computer Engineering area.

- **Coordinator, Computer Engineering Seminars** (1989 -1991)
  Arranged seminars for the computer engineering area.

Courses Taught:

1. *Distributed Systems*: EE 382N, a *new* graduate-level course.

2. *Distributed Systems II*: EE 382N, a *new* advanced graduate-level course.

3. *Discrete Event Systems*: EE 382N, a *new* graduate-level course.

4. *Concurrent and Real-time Systems*: EE 382N, a *new* graduate-level course.

5. *Randomized Algorithms*: EE 382N, a *new* graduate-level course.

6. *Lattice Theory with Applications*: EE 382N, a *new* graduate-level course.

7. *Data Structures*: EE 322C, an undergraduate course - introduced a new text.

8. *Algorithms*: EE 360C, an undergraduate course - introduced a new text.

9. *Concurrent and Distributed Computing*: EE 360P, a *new* undergraduate course.

10. *Multicore Computing*: EE 382V/379K, a *new* crosslisted graduate and undergraduate course.

11. *Social Computing*: EE 382V, a *new* graduate-level course.

Ph.D. Supervision (Completed):

1. John Bridgman, May 2019. *Reliable Distributed Information: Agreement and Structure*, Currently employed at Applied Research Lab, Austin.

2. Himanshu Chauhan: *Algorithms for Analyzing Parallel Computations*, August 2017. Currently employed at Tableau Software.

3. Wei-Lun Hung: *Multi-Object Synchronization*, December 2016. Currently employed at Google.

4. Yen-Jung Chang, *Predicate Detection for Parallel Computations* May 2016, Currently employed at Microsoft.

5. Roopsha Samanta (co-supervised with Allen Emerson) *Program Reliability through Algorithmic Design and Analysis* December 2013, Currently employed as **Assistant Professor, Purdue University**.

6. Bharath Balasubramanian *Fault Tolerance in Distributed Systems: A Coding-Theoretic Approach*, July 2012, Currently employed at A.T.&T. Research Labs.

7. Sujatha Kashyap, *Applications of Lattice Theory to Model Checking*, May 2008, Currently employed at IBM.

8. Vinit Ogale, *Detecting and tolerating faults in distributed systems* May 2008, Currently employed at Microsoft.

9. Zhengting He (co-supervised with Al Mok) *Toward Real-Time HW Co-simulation with Operating System Support*, 2007, Currently employed at Texas Instruments.

10. Alper Sen: *Techniques for Formal Verification of Concurrent and Distributed Program Traces.* May 2004, Currently **Professor, Bogazci University**, Turkey.

11. Neeraj Mittal: *Techniques for Analyzing Distributed Computations.*
    MCD Fellow. August 2002, Currently **Professor, CS Department, University of Texas at Dallas**.

12. Chakarat Swataratonand: *A Framework for Distributed Applications on Systems with Mobile Hosts.*
    May 2002, Currently employed at IBM, Austin.

13. Ashis Tarafdar: *Predicate Control in Distributed Systems.*
    MCD Fellow, August 2000, Currently employed at Akamai, Boston, Massachusetts.

14. Om Damani: *Recovery in Distributed Systems.*
    MCD Fellow, August 99, Currently **Professor, IIT Mumbai,** India.

15. Guillaume Brat: *An Algebraic approach for periodic real-time systems.* December 98. Currently employed at NASA Ames Research Center, California.

16. James Roger Mitchell: *Fault-tolerance in Distributed Programs,* December 97, MCD Fellow. Currently employed at Tandem, Austin, Texas.

17. Venkat Murty: *Providing Guarantees on Ordering of Messages,* May 97. Currently employed at I2 systems, Dallas, Texas.

18. Alex Tomlinson: *Observation and Verification of Distributed Software*, MCD Fellow, August 95. Currently employed at Open Microsystems, Austin, Texas.

19. Darren Cofer: *Control of Real-Time Discrete Event Dynamical Systems*, MCD Fellow, May 95. Currently Principal Research Scientist, Honeywell Research Lab, Minneapolis, Minnesota.

20. Stanley Young: *Control of Systems that Exhibit Faults*, December 93, Du Pont Fellow, UT Applied Research Laboratories, Austin, Texas.

21. Ratnesh Kumar (co-supervised with Steve Marcus): *Supervisory Control of Discrete Event Systems*, Aug. 1991, MCD Fellow, Currently **Professor at the ECE Department, University of Iowa at Ames.**

22. Brian Waldecker (co-supervised with Mario Gonzalez): *Detection of Unstable Predicates in Debugging Distributed Programs*, May 91, MCD Fellow, Currently employed at IBM, Austin, Texas.

Ph.D. Supervision (in Progress):

1. David Alves

2. Changyong Hu

3. Xiong Zheng

4. Robert Streit (co-supervised with Sriram Vishwanath)

5. Yanni Georghiades (co-supervised with Sriram Vishwanath)

M.S. Supervision (Completed):

Mahesh Zurale: 1989,
Sandeep Ajmani: 1990,
Himanshu Sanghvi: 1991,
Bryan Chin: 1991,
Greg Hoagland: 1992,
Alex Tomlinson: 1992,
Chintan Mehta: 1993,
Veena Gondhalekar: 1995
Pawan Uppuluri: 1997,
Keith Johnston: 1998
Sathish Subramanian: 1998
Basu Vaidyanathan: 1999
Jerome Froment-Curtil: 2000.
Louis Suhendra: 2000.
Snehal Haridas: 2000.
Balaji Natrajan: 2000
Louis Suhendra: 2000
John Chang: 2001
Anupam Kunwar: 2001
Harita Nandela: 2001 (co-supervised)
Tuan Nguyen: 2001
Jisun Park: 2002
Jared Hodge: 2002
Rama Karve: 2003
Stephen Lips: 2003
Ramakrishna Kotla: 2003 (co-supervised)
Raghuveer Simha: 2003
Anthony Thane: 2003
Dana Brown: 2005
Travis Kaspar: 2005
Matthew Duggan: 2005
Alireza Farhangi: 2005
Charles Long: 2005
Ajay Mahimkar: 2005 (co-supervised)
Stephen Romney: 2005
David Sheth: 2005
Joseph John: 2006
Akif Rahim: 2006
Eric Roberts: 2006
Omer Shakil: 2006
Hoiwai Lau: 2007
Hasan Mahamood: 2007
David Heidt: 2010

Juan Casas: 2010
Michael Kardonik: 2011
Yousif Seedhom: 2011
Joseph Fluckiger: 2012
John Bridgman: 2012
Don Wong: 2012
Iat-Kei Ho: 2013
Robert Gass: 2014
Siddharth Kamath: 2015
Jeremy Boyd: 2015
Daniel Krawisz: 2016
Justin Rihelson: 2017
Edward Clinton: 2017.
Research Supervision for Undergraduates:

B.S. Honors Thesis Supervision:

1. Robert Streit. Defended May 2019.

2. Calvin Ly (CS Turing Scholar). Defended May 2019.

Continuous Supervision for EE 464H projects since 2011. Earlier selected supervised students include: Kevin John, Forest Fong, Khurram Qureshi, Khalid Islam, Wai To, H. Leung, Andy Wong, Robert Pang, Amit Zaveri, Wensi Jin, Helena Zheng, Michael Chang, Beaman Strong, Hiekwan Cheng, Momeng Ng, Cedric Lam, Ahmed Al-Mehdi, Tsang Wong.