Curriculum Vitae of Mukesh Singhal

Chancellor's Professor,
Chair, Electrical Engineering and Computer Science
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EDUCATION

Ph.D., Computer Science, University of Maryland, College Park, May 1986.
Dissertation Title: "Concurrency Control Algorithms and their Performance in Replicated Database Systems".

B.S., Electronics and Communication Engineering, Indian Institute of Technology, Roorkee, India, June 1980.

PROFESSIONAL EXPERIENCE

7/12-present: *Chancellor's Professor and Chair*, Electrical Engineering and Computer Science, University of California, Merced, CA 95343.

9/01-6/12: *Full Professor and Gartner Group Endowed Chair in Network Engineering*, Dept. of Computer Science, The University of Kentucky, Lexington, KY 40506.

2/86-9/01: *Assistant, Associate, and Full Professor*, Dept. of Computer Science and Engineering, The Ohio State University, Columbus, OH 43210.

9/98-8/01: *Program Director*, "Operating Systems and Compilers" Program, The Directorate of Computer and Information Science and Engineering, National Science Foundation. (On leave from Ohio State University under the Intergovernmental Personnel Act).

1/81-1/86: *Teaching Assistant/ Research Assistant/ Faculty Research Associate*, Dept. of Computer Science, University of Maryland, College Park, MD 20742.

HONORS AND AWARDS

- Fellow of IEEE (since 2001, "For pioneering contributions to distributed computing systems".)
- IEEE Technical Achievement Award, 2003. ("For pioneering contributions to distributed computing systems".)
- "Lumley Research Award", College of Engineering, Ohio State University, 1998. (Awarded for demonstrating excellence in research.)
- "Wethington Award", University of Kentucky, 2007. (In recognition of outstanding research and extramural funding).
- "Above and Beyond the Call of Duty" Award, National Science Foundation, June 2001. (Awarded for demonstrating an outstanding performance in processing of proposals in the Information Technology Research program.)

- Ameritech Faculty Fellow, 1997-98.
- National Science Talent Fellowship, Government of India, (1975), (awarded to promising young students for higher studies).
- Trophy of Merit, Uttar Pradesh State Board of Education, (1976), (for securing 2^{nd} rank in 12^{th} grade among more than a million students).

RESEARCH INTERESTS

Cloud Computing and Big Data, Cybersecurity, Wireless Networks and Mobile Computing, Distributed Computing Systems, Performance Modeling and Evaluation of large, complex computer systems, and Operating Systems.

TEACHING INTERESTS

Cloud computing and Big Data, Cybersecurity, Wireless Networks and Mobile Computing, Distributed Computing Systems, Operating systems, Performance Modeling, and Computer Architectures.

PUBLICATIONS

1. Refereed Journals

1. Mohammad Shojafar, Saeid Abolfazli, Habib Mostafaei, Mukesh Singhal, "Improving Channel Assignment in Multi-radio Wireless Mesh Networks with Learning Automata", Wireless Personal Communications, Vol 82, No 1, May 2015, pp. 61-80.

2. Saeed Javanmardi, Mohammad Shojafar, Shahdad Shariatmadari, Jemal H. Abawajy, and Mukesh Singhal, "PGSW-OS: A Novel Approach for Resource Management in a Semantic Web Operating System Based on a P2P Grid Architecture", *The Journal of Supercomputing*, Springer, August 2014, Volume 69, Issue 2, pp 955-975.

3. Ali Ahmadi, Mohammad Shojafar, Seyede Fatemeh Hajeforosh, Mehdi Dehghan, and Mukesh Singhal, "An Efficient Routing Algorithm to Preserve k-coverage in Wireless Sensor Networks", *The Journal of Supercomputing*, Springer, Vol 68, Issue 2, pp. 599-623, May 2014.

4. Mohammad Shojafar, Zahra Pooranian, Mohammad Reza Meybodi, and Mukesh Singhal, 'ALATO: An Efficient Intelligent Algorithm for Time Optimization in an Economic-Grid based on Adaptive Stochastic Petri Net", *Journal of Intelligent Manufacturing* (JIMS), Springer, August 2013.

5. Zahra Pooranian, Mohammad Shojafar, Reza Tavoli, Mukesh Singhal, and Ajith Abraham, "A Hybrid Metaheuristic Algorithm for Job Scheduling on Computational Grids", *Informatica*, (Special Issue on "Grid, Cloud and Sky Applications for Knowledge-based systems"), Vol. 37, No. 2, May 2013, pp. 157-164.

6. A. Kshemkalyani and M. Singhal, "Efficient Distributed Snapshots in an Anonymous Asynchronous Message-Passing System", *Journal of Parallel and Distributed Computing*, Vol 73, Issue 5, May 2013, pp. 621-629.

7. M. Singhal, "A Client-centric Approach to Interoperable Clouds", Journal of Soft Computing and Software Engineering, 3(3), March 2013, pp. 3-4.

8. Z. Pooranian, M. Shojafar, J. H. Abawajy, M. Singhal, "GLOA: A New Scheduling Algorithm for Grid Computing", *The International Journal of Interactive Multimedia and Artificial Intelligence*, Vol. 2, No. 1, March 2013, pp. 59-64.

9. Mukesh Singhal, Santosh Chandrasekhar, Gail-Joon Ahn, Elisa Bertino, Ram Krishnan, Ravi Sandhu and Ge Tingjian, "Collaboration in Multi-Cloud Systems: Framework and Security Issues", *IEEE Computer*, Vol 46, No 2, February 2013, pp. 76-84.

10. Santosh Chandrasekhar, Saikat Chakrabarti, and Mukesh Singhal, "A Trapdoor Hash Based Mechanism for Stream Authentication", *IEEE Trans. on Dependable and Secure Computing*, Vol 9, No 5, pp. 699-713, September/October 2012.

11. Sun, Yan, Jiang, Qiangfeng, and Singhal, Mukesh, "A Hill-Area-Restricted (HAR) Geographic Routing Protocol for Mobile Ad Hoc and Sensor Networks", *The Computer Journal*, Vol 55, April 2012, pp, 932-949 (Special Issue on Security and Performance of Networks and Clouds).

12. Yan Sun, Qiangfeng JiaQ and Mukesh Singhal, "A Pre-Processed Cross Link Detection Protocol for Geographic Routing in Mobile Ad Hoc and Sensor Networks under Realistic Environments with Obstacles", *Journal of Parallel and Distributed Computing*, Vol. 71, No. 7, July 2011.

13. Santosh Chandrasekhar, Saikat Chakrabarti, Mukesh Singhal and Kenneth L. Calvert, "Efficient Proxy Signatures Based on Trapdoor Hash Functions", *IET Information Security* (Special Issue on Multi-Agent & Distributed Information Security), Vol 4, Issue 4, December 2010, pp. 322-332.

14. Yan Sun, Qiangfeng Jiang, and Mukesh Singhal, "An Edge Constrained Localized Delaunay Graph for Geographic Routing in Mobile Ad Hoc and Sensor Networks", *IEEE Trans. on Mobile Computing*, Vol 9, No 4, April 2010, pp. 479-490.

15. Saikat Chakrabarti, Santosh Chandrasekhar, Mukesh Singhal and Kenneth L. Calvert, "An Efficient and Scalable Quasi-Aggregate Signature Scheme based on LFSR Sequences", *IEEE Trans. on Parallel and Distributed Systems*, Vol 20, No 7, July 2009, pp. 1059-1072.

16. Saikat Chakrabarti, Santosh Chandrasekhar, and Mukesh Singhal, "An Escrow-less Identity-based Group Key Agreement Protocol for Dynamic Peer Groups", *International Journal of Security and Networks (IJSN)*, Vol. 4(3), July 2009, pp 171-188.

17. Yongwei Wang and Mukesh Singhal, "A Light-weight Scalable Truthful Routing Protocol in MANETs with Selfish Nodes", *International Journal of Ad Hoc and Ubiquitous Computing*, Vol 4, Issue 3/4, 2009, pp. 210-222.

18. Huaizhi Li and M. Singhal, "ARPC: Anchor-based Routing Protocol for Mobile Ad Hoc Networks With Cell ID Management System", *International Journal of Ad Hoc and Sensor Wireless Networks*, 3(2-3): 197-218, 2008.

19. Rendong Bai, M. Singhal and Y. Luo, "Enhancing Performance by Salvaging Route Reply Messages in On-Demand Routing Protocols for MANETs", *Journal of Ad Hoc & Sensor Wireless Networks*, Vol 5, Number 3-4, 2008, pp. 161-188.

20. D. Manivannan, Q. Jiang, J. Yang and M. Singhal. "A Quasi-Synchronous Checkpointing Algorithm that Prevents Contention for Stable Storage", *Information Sciences*, 178(15):3109-3116, August 2008, Elsevier.

21. Yongwei Wang, Venkata Giruka, and Mukesh Singhal, "Truthful Multipath Routing for Ad-hoc Networks with Selfish Nodes", *Journal of Parallel and Distributed Computing*, Vol 68, Issue 6, June 2008, pp. 778-789.

22. D. Manivannan, R. Finkel, M. Singhal, "RPSF: A Routing Protocol with Selective Forwarding for Mobile Ad-Hoc Networks", *Wireless Personal Communications*, Springer, Volume 43, Number 2, October, 2007 pp. 411-436.

23. Yongwei Wang and Mukesh Singhal, "On Improving the Efficiency of Truthful Routing in MANETs with Selfish Nodes", *Pervasive and Mobile Computing*, Elsevier, Vol 3, No 5, October 2007, pp. 537-559.

24. Rendong Bai, Mukesh Singhal, and Yongwei Wang, "On Supporting High-Throughput Routing Metrics in On-Demand Routing Protocols for Multi-Hop Wireless Networks", *Journal of Parallel and Distributed Computing*, Vol 67, No 10, October 2007, pp. 1108-1118.

25. Venkata C. Giruka and Mukesh Singhal, "A Self-healing On-demand Geographic Path-based Routing Protocol for Mobile Ad-hoc Networks", *Ad Hoc Networks*, Elsevier, Vol 5, Issue 7, September 2007, pp. 1113-1128.

26. Huaizhi Li and M. Singhal, "ABRP: Anchor-based Routing Protocol for Mobile Ad Hoc Networks", *Wireless Personal Communications*, Springer, 2007, Vol 42, pp. 277-300.

27. Saikat Chakrabarti and M. Singhal, "Password-Based Authentication: Preventing Dictionary Attacks", *IEEE Computer*, Vol 40. No 6, June 2007, pp. 68-74.

28. R. Atreya, N. Mittal, A. Kshemkalyani, V. Garg, and M. Singhal, "An Efficient Algorithm for Detecting Locally Stable Predicate in a Distributed Computation", *Journal of Parallel and Distributed Computing*, No 67, April 2007, pp. 369-385.

29. Yongwei Wang, Venkata C. Giruka and Mukesh Singhal, "A Truthful Geographical Forwarding Algorithm for Ad Hoc Networks with Selfish Nodes", *International Journal on Networks Security*, Vol 5, No 3, 2007, pp. 252-263.

30. Huaizhi Li and M. Singhal, "Trust Management in Distributed Systems", *IEEE Computer*, Vol 40. No 2, February 2007, pp. 45-53.

31. Rendong Bai and M. Singhal, "DOA: DSR Over AODV routing for Mobile Ad-Hoc Networks", *IEEE Transactions on Mobile Computing*, Vol 8, No 10, October 2006, pp. 1403-1416.

32. Venkata Giruka and Mukesh Singhal, "Location Service Protocols for Wireless Ad-Hoc Networks", *Pervasive and Mobile Computing*, Elsevier, Volume 2, Issue 3, September 2006, pp. 262-285.

33. V. Giruka, M. Singhal, J. Royalty, and S. Varanasi, "Security in Wireless Sensor Networks", *Wireless Communications and Mobile Computing*, Wiley InterScience, 2006, No. 6, pp. 1-24.

34. Venkata C. Giruka, Saikat Chakrabarti and Mukesh Singhal, "A Distributed Multi-Party Key Agreement Protocol for Dynamic Collaborative Groups using ECC", *Journal of Parallel and Distributed Computing*, Vol 66, No 7, July 2006, pp. 959-970.

35. M.G. Sriram and M. Singhal, "Effect of Network Latency on Load Sharing in Distributed Systems", *Journal of Parallel and Distributed Computing*, Vol 66, No 6, June 2006, pp. 839-853.

36. Karl Persson, D. Manivannan and M. Singhal. "Bluetooth Scatternet Formation: Criteria, Models and Classification", *Ad Hoc Networks*, 3(6):777-794, November 2005, Elsevier Science.

37. J. Yang, Q. Jiang, D. Manivannan and M. Singhal, "A Fault-Tolerant Distributed Channel Allocation Scheme for Cellular Networks", *IEEE Trans. on Computers*, 54(5), 616-629 May, 2005.

38. C. Iheagwara, A. Blyth, and M. Singhal, "Cost Effective Management Frameworks for Intrusion Detection Systems", *Journal of Computer Security*, December 2004, pp. 777-798.

39. D. Manivannan and M. Singhal, "An Efficient Distributed Algorithm for Detection of Knots and Cycles in a Distributed Graph", *IEEE Trans. on Parallel and Distributed Systems*, Vol 14, No 10, October 2003, pp. 961-972.

40. S. Gupte and M. Singhal, "Secure Routing in Mobile Wireless Ad Hoc Networks", *Ad Hoc Networks*, No 1, August 2003, pp. 151-174.

41. M. Kumar, B. Shirazi, S. Das, Mukesh Singhal, and D. Levine, "Pervasive Information Communication Organization (PICO): A Framework for Enhancing Internet Services", *IEEE Pervasive Computing*, Vol 2 No 3, July-Sept. 2003, pp. 72-79.

42. G. Cao, W. Feng, and M. Singhal, "Online VBR Video Traffic Smoothing", *Computer Communication*, Vol 26/7 pp. 639-651, 2003.

43. C. Iheagwara, A. Blyth, and M. Singhal, "A Comparative Experimental Evaluation Study of Intrusion Detection Systems' Performance in a Gigabit Environment", *Journal of Computer Security*, Vol 11 (1), January 2003.

44. Guohong Cao and Mukesh Singhal, "Checkpointing with Mutable Checkpoints", *Theoretical Computer Science*, Vol 290/2, pp. 1127-1148, Jan. 2003.

45. D. Manivannan and M. Singhal, "Asynchronous Recovery Without Using Vector Timestamps", *Journal of Parallel and Distributed Computing*, Vol. 62, No. 12, December 2002, pp. 1695-1728.

46. Jun Xu and M. Singhal, "Cost-Effective Flow Table Designs for High-Speed Internet Routers: Architecture and Performance Evaluation", *IEEE Trans. on Computers*, Vol 51, No. 9, Sept. 2002, pp. 1089-1099.

47. A.D. Kshemkalyani and M. Singhal, "Communication Patterns in Distributed Computations", *Journal of Parallel and Distributed Computing*, No 62, pp. 1104-1119, June 2002.

48. G. Cao and M. Singhal, "A Delay-Optimal Quorum-Based Mutual Exclusion Algorithm for Distributed Systems", *IEEE Transactions on Parallel and Distributed Systems*, Vol 12, No. 12, pp. 1256-1268, Dec. 2001.

49. R. Prakash, Zygmunt Haas, and M. Singhal, "Load-balanced Location Management for Cellular Mobile Systems Using Quorums and Dynamic Hashing", *Wireless Networks (WINET)*, Volume 7, No. 5, 2001, pp. 497-512.

50. M. Raynal and M. Singhal, "Mastering Agreement Problems in Distributed Systems", IEEE Software, July/August 2001, pp. 40-47. (Special issue on "Fault Tolerance: Making Software Behave.)

51. Sri Subramanian and Mukesh Singhal, "A secure, electronic, real-time stock market transactions protocol", *Journal of NETNOMICS* (Economic research and electronic networking), Vol. 2, No. 3, pp. 221-245, September 2000.

52. G. Cao and M. Singhal, "Distributed fault-tolerant channel allocation for cellular networks", *IEEE Journal on Selected Areas in Communications*, July 2000, pp. 1326-1337. (Special issue on "Wireless Communications Series")

53. G. Cao amd M. Singhal, "Mutable Checkpoints: A New Checkpointing Approach for Mobile Computing Systems", *IEEE Transactions on Parallel and Distributed Systems*, Vol 12, No. 2, January 2001, pp. 157-172. (Special Issue on "Dependable Network Computing")

54. G. Cao and M. Singhal, "Efficient Distributed Channel Allocation for Mobile Cellular Networks", *Computer Communication*, May 2000, pp. 950-961.

55. G. Cao and M. Singhal, "An Adaptive Distributed Channel Allocation Strategy for Mobile Cellular Networks", *Journal of Parallel and Distributed Computing*, Vol. 60, No. 4, pp. 451-473, April 2000. (Special issue on "Mobile Computing")

56. Ajay Kshemkalyani and Mukesh Singhal, "A One-Phase Algorithm to Detect Distributed Deadlocks in Replicated Databases", *IEEE Trans. on Knowledge and Data Engineering*, Vol 11, No 6, Nov/Dec 1999, pp. 880-895.

57. R. Prakash, N. Shivaratri, and M. Singhal, "Distributed Dynamic Fault-Tolerant Channel Allocation for Mobile Computing", *IEEE Trans. on Vehicular Technology*, Vol 48, No 6, November 1999, pp. 1874-1888.

58. Jun Xu and Mukesh Singhal, "Design of a High-Performance ATM Firewall", *The ACM Transactions on Information and System Security*, Vol 2, No 3, August 1999, pp. 169-194.

59. D. Manivannan and M. Singhal, "Quasi-Synchronous Checkpointing: Models, Characterization, and Classification", *IEEE Trans. on Parallel and Distributed Systems*, Vol 10, No 7, July 1999, pp. 703-713.

60. Jun Xu and M. Singhal, "Design and Evaluation of A High-Performance ATM Firewall Switch and Its Applications", *IEEE Journal on Selected Areas in Communications*, Vol 17, No 6, June 1999, pp. 1190-1200. (Special Issue on "Next Generation IP Switches and Routers")

61. Jun Xu and M. Singhal, "A Firewalling Scheme for Securing MPOA-based Corporate Intranets", *International Journal of Software Engineering and Knowledge Engineering*, Vol. 9, No. 2, April 1999, pp. 173-179. (Special issue on "High-Assurance Systems")

62. Khalid H. Sheta and Mukesh Singhal, "Scheduling Support for Multicasting Sessions in Broadband Communication Networks", *Computer Networks and ISDN Systems*, Vol. 31 (1-2), pp. 139-148, 1999.

63. Y. Yang and M. Singhal, "Signature Cache: A Light Weight Web Cache Indexing Structure", *Journal of the Brazilian Computer Society*, November 1998, pp. 56-66. (Special Issue on "World Wide Web")

64. G. Cao and M. Singhal, "On Coordinated Checkpointing in Distributed Systems", *IEEE Trans. on Parallel and Distributed Systems*, December 1998, pp. 1213-1225.

65. Gopal Dommety, Malathi Veeraraghavan, and Mukesh Singhal, "A Route Optimization Algorithm and its Application to Mobile Location Management in ATM networks", *IEEE Journal of Selected Areas in Communications*, August 1998, pp. 890-908.

66. R. Baldoni, R. Prakash, M. Raynal, and M. Singhal, "Efficient Δ-Causal Broadcasting", *Int'l Journal of Computer Systems: Science and Engineering*, September 1998, Vol 13, No 5, pp. 263-271.

67. Gopal Dommety, Malathi Veeraraghavan, and Mukesh Singhal, "Rerouting Connections in Mobile ATM networks", *ACM/Baltzer Journal of Mobile Networks and Applications*, Vol. 3, No. 2, 1998, pp. 203-220.

68. M. Hurfin, M. Masaaki, M. Raynal, and M. Singhal, "Efficient Distributed Detection of Conjunction of Local Predicates", *IEEE Trans. on Software Engineering*, August 1998, pp. 664-677.

69. A.D. Kshemkalyani and M. Singhal, "Necessary and Sufficient Conditions on Information for Causal Message Ordering in Distributed Systems and Their Optimal Implementation", *Distributed Computing*, 11(2), April 1998, pp. 91-111.

70. W. Mostafa and M. Singhal, "A Taxonomy of Multicast Protocols for Internet Applications", *Computer Communications*, Vol 20, No. 16, January 1998, pp. 1448-1457. (Special issue on "Internet: State-of-the-Art.)

71. Khalid H. Sheta and Mukesh Singhal, "Performance Study of Buffer Management with Two Classes of Service Under Multicast Traffic in ATM Switching Nodes", *Computer Communications*, Vol 20, No. 12, Nov. 1997, pp. 1059-1068.

72. R. Prakash and M. Singhal, "Dependency Sequences and Hierarchical Clocks: Efficient Alternatives to Vector Clocks for Mobile Computing Systems", *ACM/Baltzer Journal on Wireless Networks*, No. 3, 1997, pp. 349-360.

73. F. Adelstein and M. Singhal, "Real-Time Causal Ordering in Multimedia Systems", *Journal of Telecommunication Systems, Modeling, Analysis, Design, and Management*, No. 7, July 1997, pp. 59-74.

74. G. Richard and M. Singhal, "Complete Process Recovery: A Vector Time-Based Multiple Failures Recovery Method for Distributed Systems," *IEEE Concurrency*, April-June 1997, pp. 50-59. (Special issue on "Multiprocessor Operating Systems")

75. D. Manivannan, R.H.B Netzer, and M. Singhal, "Finding Consistent Global Checkpoints in a Distributed Computation", *IEEE Trans. of Parallel and Distributed Systems*, June 1997, pp. 623-627.

76. R. Prakash, M. Raynal, and M. Singhal, "An Adaptive Causal Ordering Algorithm for Mobile Computing Environments", *Journal of Parallel and Distributed Computing*, March 1997, Vol 41, No 2, pp. 190-204.

77. Ravi Prakash and M. Singhal, "Low-Cost Checkpointing and Failure Recovery in Mobile Computing Systems", *IEEE Trans. on Parallel and Distributed Systems*, October 1996, Vol 7, No 10, pp. 1035-1048.

78. A. Elsaadany, M. Singhal, and M. Liu, "Performance Study of Buffering within Switches in Local Area Networks", *Computer Communications*, July 1996, pp. 659-667. (Special issue on "Computer Communications and Networks")

79. Duane Buck and Mukesh Singhal, "An Analytic Study of Caching in Computer Systems", *Journal of Parallel and Distributed Computing*, February 1996, pp. 205-214.

80. M. Raynal and M. Singhal, "Logical Time: Capturing Causality in Distributed Systems", *IEEE Computer*, February 1996, Vol 30, No 2, pp. 49-56.

81. D. Manivannan and M. Singhal, "A Decentralized Token Generation Scheme for Token-Based Mutual Exclusion algorithms", *Int'l Journal of Computer Systems: Science and Engineering*, January 1996, Vol 11, No 1, pp. 45-54. (Special issue on "Parallel and Distributed Computing Environments")

82. A. Kshemkalyani, M. Raynal, and M. Singhal. "Global Snapshots of a Distributed System", *Distributed Systems Engineering Journal*, Vol 2, No 4, December 1995, pp. 224-233.

83. J. Brezezinski, J.M. Helary, M. Raynal, and M. Singhal, "Deadlock Models and Generalized Algorithm for Distributed Deadlock Detection", *Journal of Parallel and Distributed Computing*, December 1995, Vol 31, No 2, pp. 112-125.

84. N. Shivaratri and M. Singhal, "A Load Index and A Transfer Policy for Global Scheduling Tasks With Deadlines", *Concurrency: Practice and Experience*, Oct. 1995, pp. 671-688, Vol 7, No. 7. (Special issue on "Resource Management in Parallel and Distributed Systems: Dynamic Scheduling")

85. M. Singhal and F. Mattern, "An Optimality Proof for Asynchronous Recovery Algorithms in Distributed Systems", *Information Processing Letters*, 55, pp. 117-121, 1995.

86. M. Ramachandran and M. Singhal, "Decentralized Semaphore support in a Virtual Shared Memory Systems", *Journal of Supercomputing*, Vol 9, Nos. 1&2, pp. 51-70, 1995. (Special issue on "Trends in Parallel Operating Systems")

87. M.G. Sriram and M. Singhal, "Measures for Load Imbalance in Distributed Computing Systems", *IEEE Trans. on Software Engineering*, May 1995, pp. 468-475.

88. T. Couvreur, D. Lee, M. Singhal, N. Shivaratri, and P. Wong, "An Analysis of Performance and Cost Factors in Searching Large Text Databases Using Parallel Search Systems", *Journal of the American Society for Information Science*, August 1994.

89. I.M. Hsu, M. Singhal, and M.T. Liu, "Distributed Rule Monitoring in Active Databases", *Heuristics – The Journal of Knowledge Engineering*, 1(4), 1994, pp. 295-310. (Special issue on "Database Systems")

90. Ajay Kshemkalyani and Mukesh Singhal, "On Characterization and Correctness of Distributed Deadlocks", *Journal of Parallel and Distributed Computing*, July 1994, No 22, pp. 44-59.

91. Mukesh Singhal, Yelena Yesha, and Mike Liu, "Probabilistic Analysis of Transaction Blocking Under Arbitrary Data Access Distribution in Database Systems", *Information Sciences*, Vol 78, No 3-4, May 1994, pp. 161-186.

92. F. Adelstein, G. Richard, L. Schwiebert, R. Parent, and M. Singhal, "A Distributed Graphic Library System", *Software – Practice and Experience*, April 1994, Vol 24(4), pp. 363-376.

93. Ajay Kshemkalyani and Mukesh Singhal, "Efficient Detection and Resolution of Generalized Distributed Deadlocks", *IEEE Trans. on Software Engineering*, January 1994, Vol 20, No. 1, pp. 43-54.

94. M. Singhal, "A Taxonomy of Distributed Mutual Exclusion", *Journal on Parallel and Distributed Computing*, May 1993, Vol 18 no. 1, pp. 94-101.

95. N. Shivaratri, Phil Krueger, and M. Singhal, "Load Sharing Policies in Locally Distributed Systems", *IEEE Computer*, Dec. 1992, Vol. 25, No. 12, pp. 33-44.

96. A. Ahluwalia and M. Singhal, "Performance Analysis of the Communication Architecture of the Connection Machine", *IEEE Trans. on Parallel and Distributed Systems*, Nov. 1992, pp. 728-738. (Special issue on "Measurements and Evaluation of Parallel and Distributed Systems")

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97. Mukesh Singhal and Ajay Kshemkalyani, "An Efficient Implementation of Vector Timestamps", *Information Processing Letters*, 43, August 1992, pp. 47-52.

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98. Mukesh Singhal, "A Dynamic Information Structure Mutual Exclusion Algorithm for Distributed Systems", *IEEE Trans. on Parallel and Distributed Systems*, January 1992, pp. 121-125.

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100. Mukesh Singhal, "Analysis of the Probability of Abort and Throughput of Two Timestamp Ordering Algorithms for Database Systems", *IEEE Transactions on Knowledge and Data Engineering*, June 1991, pp. 261-266.

101. Mukesh Singhal, "A Class of Deadlock-Free Maekawa Type Mutual Exclusion Algorithms for Distributed Systems", *Distributed Computing*, February 1991, Vol 4, No 3, pp. 131-138.

102. Mukesh Singhal, "Performance Analysis of the Basic Timestamp Ordering Algorithm via Markov Modeling", *Performance Evaluation*, January 1991, pp. 17-41.

103. Mukesh Singhal, "Update Transport: A New Approach for Update Synchronization in Replicated Database Systems", *IEEE Transactions on Software Engineering*, December 1990, Vol 16, No 12, pp. 1325-1336.

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2. Other Journal Articles

1. Niklas Carlsson, Xiaolin Li, Mukesh Singhal, and Mea Wang, Guest Editorial–Special Issue on "Cloud and Big Data", Journal of Communications, pp. 1-3, Vol 9, No 4, April 2014.

2. Mukesh Singhal ,"A Client-centric Approach to Interoperable Clouds", International Journal of Soft Computing and Software Engineering [JSCSE], Vol. 3, No. 3, pp. 3-4, 2013. (Special Issue: The Proceeding of International Conference on Soft Computing and Software Engineering 2013 [SCSE13], San Francisco, CA, March 2013.)

3. Jelena V. Misic and Mukesh Singhal, Editorial for the Special Issue of Ad hoc networks "Security issues in sensor and Ad hoc networks", Ad Hoc Networks, (5):1-2, 2007.

4. Jeff Tsai and Mukesh Singhal, "Introduction: Special issue of the IEEE SUTC'06", ACM Transactions on Autonomous and Adaptive Systems (TAAS), Vol 2, Issue 3, September 2007.

5. W. Mostafa and M. Singhal, "A Portable Reliable Multicast Session Protocol", *The IEEE Technical Committee on Operating Systems Bulletin*, IEEE Computer Society, Vol 8, No 2, August 1996, pp. 33-41.

6. Mukesh Singhal and Thomas Casavant, "Distributed Computing Systems: Guest Editors' Introduction", IEEE Computer (Special issue on "Distributed Computing Systems"), August 1991, pp. 12-15.

7. Mukesh Singhal, "Issues and Approaches to Design of Real-Time Database Systems", ACM SIGMOD RECORD (Special issue on "Real-Time Databases"), March 1988, Vol. 17, No. 1, pp. 19-33 (Invited Paper).

3. Books

1. M. Singhal and A.D. Kshemkalyani, "Distributed Computing: Principles, Algorithms, and Systems", Cambridge University Press, UK, 2008, 750 pages.

2. M. Singhal and N. Shivaratri, "Advanced Concepts in Operating Systems: Distributed, Database, and Multiprocessor Operating Systems", McGraw-Hill Publishing Company, New York, 1994, 525 pages.

3. G.S Hura and M. Singhal, "Data and Computer Communications: Networking and Internetworking", CRC Press, Boca Raton, FL (ISBN: 0-8493-0928-X), 2001, 1169 pages.

4. Thomas Casavant and Mukesh Singhal (Editors), "Advanced Readings in Distributed Computing Systems", IEEE Computer Society Press, 1993, 618 pages.

4. Book Chapters

1. Mehdi Bahrami and Mukesh Singhal, "The Role of Cloud Computing Architecture in Big Data, Information Granularity, Big Data, and Computational Intelligence, Vol. 8, pp. 275-295, Chapter 13, W. Pedrycz and S.-M. Chen (eds.), Springer, 2015

2. Saikat Chakrabarti, Venkata Giruka, and M. Singhal, "Authentication in Wireless Networks", in "Security in Distributed, Grid, Mobile, and Pervasive Computing", (Edited by Prof. Yang Xiao), Auerbach Publications, CRC Press 2007, pp. 87-110.

3. Venkata Giruka, Saikat Chakrabarti, and M. Singhal, "Key Management and Agreement in Distributed Systems", in "Security in Distributed, Grid, Mobile, and Pervasive Computing", (Edited by Prof. Yang Xiao), Auerbach Publications, CRC Press 2007, pp. 23-52.

4. Venkata Giruka and M. Singhal, "Secure Routing in Wireless Ad Hoc Networks",in Wireless/Mobile Network Security (eds Yang Xiao, Xuemin (Sherman) Shen, and Ding-zhu Du), Springer 2006.

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2. Santosh Chandrasekhar and Mukesh Singhal, "An Effcient and Scalable Authenticated Cloud Storage Scheme Based on Trapdoor Hash Functions", submitted to *IEEE Transactions on Service Computing*.

3. Mohammad Shojafar, Nicola Cordeschi, and Mukesh Singhal, "GreenNetDC: A New DVFS-based Processor Frequencies to Preserve Energy Efficiency in Networked Data Centers", submitted to *Journal of Parallel and Distributed Computing*.

4. Gail-Joon Ahn, Ruoyu Wu, Hongxin Hu, and Mukesh Singhal, "Information Flow Control in Clouds, submitted to *IEEE Transactions on Systems, Man and Cybernetics.*

7. Conference Publications under Review

1. Mehdi Bahrami and Mukesh Singhal, "DCCSOA: A Dynamic Cloud Computing Service-Oriented Architecture", submitted to 16th IEEE International Conference on Information Resue and Integration, San Francisco, CA, August 13-15, 2015.

2. Habib Mostafaei, Mohammad Shojafary, Bahman Zaher, Jamshid Bagherzadeh and Mukesh Singhal, "ICABC: An Optimal Solution for Barrier Coverage of Wireless Sensor Networks", submitted to GlobeCom, San Diego, CA, December 2015.

3. Vikrant Yadav, Faisal Khan, Anshul Singhal, Sandeep Kumar and Mukesh Singhal, "Learning Web Queries for Retrieval of Relevant Information About an Entity in a Wikipedia Category", submittd to Conference on Empirical Methods in Natural Language Processing (EMNLP 2015), September 1721, 2015, Lisboa, Portugal.

Ph.D. DISSERTATIONS DIRECTED

1. Yelena Yesha, "Performance Modeling of Database Systems Under Non-Uniform Data Access Distributions", Ph.D. Dissertation, August 1989. (Verizon Chair Professor of Computer Sc., Univ. of Maryland at Baltimore.)

2. Ajay Kshemkalyani, "On Characterization and Correctness of Distributed Deadlocks", Ph.D. Dissertation, August 1991. (Full Professor of Computer Science at University of Illinois at Chicago.) **(Recipient, NSF Career Award.)**

3. Duane Buck, "Integrated Performance Analysis of Caching, Recovery, and Concurrency Control Algorithms in Database Systems", June 1993. (Associate Professor of Computer Science at the Otterbein University, Westerville, OH.)

4. A. Gahlot, "Global Flush Primitives for Distributed Computing Systems", June 1993. (Member Technical Staff, at AT&T Bell Labs., Murray Hill.)

5. N. Shivaratri, "Stable, Adaptive High-Performance Load Sharing Algorithms for Distributed Systems", June 1994. (Software Engineer, Cisco Systems, CA)

6. Golden Richard, "Complete Process Recovery in Distributed Message-Passing and Distributed Shared Memory Systems", Dec. 1994. (Full Professor of Computer Science at Univ. of New Orleans, LA)

7. M.G. Sriram, "A Stochastic Analysis of Load Imbalance in Distributed Systems", March 1995. (Associate Professor of Computer Science at University of Texas at Houston.)

8. M. Ramachandran, "Distributed Semaphores", March 1995. (Member Technical Staff, Sequent Computers, Portland, Oregon.)

9. Frank Adelstein, "Networks and Operating Systems Support for Real-Time Multimedia Systems", June 1995. (Principal Scientist, ATC-NY, Ithaca, NY.)

10. Ravi Prakash, "Fault-Tolerant Resource Allocation in Mobile Computing Systems", August 1996. (Full Professor, Dept. of CS, University of Texas at Dallas.) **(Recipient, NSF Career Award.)**

11. R. Subramanian, "Performance Analysis of Multiprocessor Cache-Coherence Protocols under Generalized Access Environments", August 1996. (Research scientist, QualCom, San Diego, CA).

12. W. Mostafa, "A Distributed Fault-Tolerant Multicast Session Protocols for Reliable Collaborative Communications", March 1997. (Manager, Lucent Technologies.)

13. D. Manivannan, "Checkpointing and Comprehensive Failure Recovery in Mobile Computing Systems", August 1997. (Associate Professor of Computer Science at Univ. of Kentucky.) **(Recipient, NSF Career Award.)**

14. K. Sheta, "Design and Analysis of Buffer Allocation and Scheduling Policies in an ATM Switch under Multicasting", August 1997. (Member of Technical Staff, Lucent Technologies.)

15. L. Ren, "Document Ranking on Weight-Partitioned Signature Files", June 1998. (Member of Technical Staff, Microsoft.)

16. G. Dommety, "Efficient Location Management and Routing in Seamless Wireless Networks on ATM Networks", June 1998. (Member of Technical Staff, Cisco Systems.)

17. G. Cao, "Efficient, Low-cost Failure Recovery Mechanisms for Mobile Computing Systems", August 1999. (IEEE Fellow, Full Professor of Computer Science and Engineering, The Penn State University, Univ. Park.) **(Recipient, NSF Career Award.)**

18. S. Subramanian, "Design and Analysis of Secure, Atomic Protocols for Transaction Execution in Electronic Commerce", August 1999. (Member of Technical Staff, N*able Systems.)

19. Y. Yang, "Theory and Mining of Association Rules Over Large Databases", March 2000. (American Electric Power.)

20. Jun Xu, "Design of Security Mechanisms for High-Speed Computer Networks", August 2000. (Full Professor, College of Computing, Georgia Tech, Atlanta.) **(Recipient, NSF Career Award.)**

21. Huaizhi Li, "Design of a Secure, Trustworthy, and Scalable Network Architecture for Wireless Ad Hoc Networks", December 2006. (Joined a startup in CA.)

22. Venkata Giruka, "Adaptive and Efficient Position-based Protocols for Network Layer Services in Mobile Ad-hoc Networks", May 2007.

23. Rendong Bai, "Routing in Mobile Ad Hoc Networks: Efficiency and Scalability", December 2007. (Assistant Professor, Eastern Illinois University.)

24. Yongwei Wang, "Enhancing Nodes' Cooperation in Mobile Wireless Ad Hoc Networks with Selfish Nodes", May 2008. (Joined a startup in CA.)

25. Saikat Chakrabarti, "Efficient and Scalable Network Security Protocols based on LFSR Sequences", August 2008 (Advisor: Mukesh Singhal, Co-advisor: Ken Calvert). (Senior Security Architect, Siemens IT Solutions and Services.)

26. Santosh Chandrasekhar, "New Constructions of Efficient Authentication Schemes Using Trapdoor Hash Functions", May 2011.

27. Yi Luo, "Efficient, Low Cost checkpointing and Failure Recovery in Very Large Distributed Systems", May 2011. (Advisor: D. Manivannan, Co-advisor: M. Singhal).

28. Yan Sun, “”Efficient, Greedy-Face-Greedy, Geographic Routing Protocols in Mobile Ad-Hoc and Sensor Networks”, December 2011.

Ph.D. DISSERTATIONS UNDER SUPERVISION

1. Mina Naghshnejad, Working on scheduling algorithms in Cloud Computing.
2. Chandrayi Basu, Working on intelligent distributed cyber physical systems.
3. Mehdi Bahrami, Working on secure data access in Mobile Cloud Computing.
4. Ahmed Ibrahim, Working on security of electronic health records in Mobile Cloud Computing (University of Kentucky).

GRANTS

1. Mukesh Singhal, “New Efficient and Scalable Techniques for Maintaining Integrity and Authenticity of Outsourced Data with Multiple Sources”, National Science Foundation, $474,242 (Pending).
2. J. Griffioen (Technical PI), M. Singhal, Ken Calvert, R. Finkel, Z. Fei, and D. Manivannan, “Kentucky Center for Resilient Information Systems (CRIS)”, US Department of Treasury, October 1, 2005-Dec. 31, 2008, $3,712,484.
3. D. Manivannan (PI) and Mukesh Singhal, “A Framework for the Design and Implementation of Fault-Tolerant Distributed and Mobile Information Systems”, National Science Foundation, Aug 1, 2004-July 31 2007, $390,000.
4. M. Singhal (PI) and R. Finkel, “ITR Collaborative Research: Pervasively Secure Infrastructures (PSI): Integrating Smart Sensing, Data Mining, Pervasive Networking, and Community Computing”, National Science Foundation, Sept 15, 2003-August 31, 2009, $400,000.
5. M. Singhal, “Collaborative Research: Secure Information Sharing for Internet-Based Collaborative Applications”, National Science Foundation, June 1, 2003-May 31, 2007, $140,000.
6. Zongming Fei (PI), J. Griffioen, and M. Singhal, “An Integrated Approach to Scalable Content Delivery over the Internet”, National Science Foundation, August 15, 2002 - August 14, 2006, $300,000.
7. M. Singhal (PI), O. Wolfson, and Clement Yu, “Design of Adaptable Dynamic Wireless Network Architectures Using Intelligent Agents”, National Science Foundation, July 1, 1998 - June 30, 2002, $320,000.
8. M. Singhal, “Program Directorship of the Operating Systems and Compilers Program”, National Science Foundation, September 1, 1998 - August 30, 2001, $385,415.
9. M. Singhal, “Design of Intelligent, Adaptive Wireless Computing Systems”, Ameritech Foundation, October 1, 1997 - September 30, 1998, $30,000.
10. M. Singhal, “Design and Analysis of Adaptive Location Management Techniques for Wireless Networks on ATM Networks”, Bell Labs Lucent Technologies, Holmdel, NJ, January 1, 1997 - Dec 31, 1997, $62,000.

11. M. Singhal, "Scalability Analysis of NASA's Mass Storage Archives", NASA Goddard Flight Center, January 1, 1997 - August 31, 1998, $84,000.
12. M. Singhal (PI), A. Arora, and T. Page, "Securing Distributed Environments", National Security Agency, DoD, July 1, 1996 - June 30, 1998, $100,000.

INVITED/Keynote LECTURES

1. Invited Speaker, Distinguished Seminar Series, Donald Bren School of Information and Computer Sciences, University of California, Irvine, 2013.
2. Keynote Speaker, The 8th International Symposium on Embedded Technology, May 23-24, 2013, Daegu, Korea.
3. Keynote Speaker, The International Conference on Soft Computing and Software Engineering, March 1-2, 2013, San Francisco, CA.
4. Iowa State University (2010).
5. University of Notre Dame (2009).
6. Distinguished Invited Speaker (IC3N, Virgin Islands, 2008).
7. Virginia Tech (2008).
8. University of Texas at Arlington (2006)
9. NC State University (2006)
10. College of William and Mary (2005)
11. Arizona State University, 2001.
12. University of Florida, 2001.
13. Penn State University, 2001.
14. Keynote Speaker, IC3N, Las Vegas, 2000.
15. George Mason University, 1999.
16. University of Illinois at UC, 1999.
17. Purdue University, 1998.
18. Keynote Speaker, SPDP'96, New Orleans, 1996.
19. University of Cincinnati, 1996
20. CESDIS/USRA, NASA Goddard Space Flight Center, Maryland, 1995.
21. University of Illinois at UC, 1994.
22. Wayne State University, 1994.
23. University of Tuebingen, Germany 1993.
24. Purdue University, 1991.
25. University of Pittsburgh, 1991.

ADMINISTRATIVE COMMITTEES/SERVICES (UC Merced)

1. University-level Committee Assignments

- member, The Periodic Review Oversight Committee (PROC) (2014-15).
- member, The Committee on Academic Planning and Resource Allocation (CAPRA) (2014-15).
- Co-Chair, Committee on Academic Planning and Resource Allocation (CAPRA) (2013-14)
- Member, Program Review Committee, Academic Senate (2013-14).
- member, CITRIS Director Search Committee (2013-14).
- Chair, Chemistry Program Review Committee (2012-13).
- Member, Program Review Committee, Academic Senate (2012-13).

2. School-Level Committees/Services

1. Chair, Curriculum Committee (2012-13).
2. Member, Executive Committee (2012-13).

2. Department-Level Committees/Services

1. Chair, Promotion review committees.

Curriculum/Course Development (UC Merced)

- Developed and taught "CSE178: Computer and Networks Security" (2012-13).
- Developed and taught "EECS 263: Cloud Computing" (2012-13).

PROFESSIONAL ACTIVITIES

Editorship

- Member, Editorial Board, IEEE Trans. on Dependable and Secure Computing, (2010-2014).
- Member, Editorial Board, IEEE Trans. on Parallel and Distributed Systems (2006-2009).
- Member, Editorial Board, IEEE Trans. on Computers, (2002-2006).
- Member, Editorial Board, IEEE Trans. on Data and Knowledge Engineering, (1999-2004).
- Member, Editorial Board, Journal of Pervasive and Mobile Computing (PMC) by Elsevier Scince (2004-2008).
- Member, Editorial Board, International Journal of Information Assurance and Cybersecurity (2009-).
- Member, Editorial Board, International Journal of Next-Generation Computing.
- Member, Editorial Board, International Journal of Network Security.

- Associate Editor, Journal of Ubiquitous Computing and Intelligence (JUCI), American Scientific Publishers (ASP), (2006-).
- Editor, Computer Networks, (1999-2003).

Special Issues' Editorship

- Guest Co-editor, Special issue of Journal of Communications on "Cloud and Big Data", Vol 9, No. 4, April 2014.
- Guest Co-editor, Special issue of ACM Transactions on Autonomous and Adaptive Systems on "Introduction: Special issue of the IEEE SUTC'06", (2007).
- Guest Co-editor, Special issue of Ad Hoc Networks Journal on "Security in Ad Hoc and Sensor Networks", (2007).
- Guest Co-editor, Special issue of Pervasive and Mobile Computing Journal on "Security in Wireless Networks", (2006).
- Guest Co-editor, Special issue of Pervasive and Mobile Computing Journal on "PerCom 2005", (2005).
- Guest Editor, Computer Networks and ISDN Systems, 1999. (Special issue on "Wireless and Broadband Networks")
- Book series editor (for series on "Computer Networks and Distributed Computing"), Oxford University Press, (1998-2000).
- Editor, IEEE Computer Science Press (March 1993 - Feb. 1997).
- Guest editor, IEEE Computer, August 1991. (Special issue on "Distributed Computing Systems")

Conference Organization

A. Steering Committees

1. Chair, Steering Committee, The IEEE Symposium on Reliable Distributed Systems (2002-2005).
2. Member, Steering Committee, The IEEE Symposium on Reliable Distributed Systems (2000-present).

B. General Chair

1. General Co-Chair, IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC2008), June 11-13, 2008, Taichung, Taiwan.
2. General Chair, Second IEEE International Conference on Security and Privacy for Emerging Areas in Communication Networks (SecureComm 2006), August 2006, Baltimore.
3. General Chair, The 24th IEEE Symposium on Reliable Distributed Systems, October 26-28, 2005, Orlando, FL.
4. General Chair, The 20th IEEE Symposium on Reliable Distributed Systems (SRDS'01), October 2001, New Orleans.

C. Program Chair

1. Program Co-Chair, Globecom 2010, December 2010, Miami, FL.
2. Program Co-Chair, IEEE Int'l Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing, June 2005, Taiwan.
3. Program Co-Chair, The 2nd IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS'05), November 7-10, 2005, Washington, DC.
4. Program Chair, The 17th IEEE Symposium on Reliable Distributed Systems (SRDS'98), October 20-23, 1998, West Lafayette, IN.
5. Program Co-Chair, The 6th International Conf. on Computer Communications and Networks, September 1997.

D. Program Vice Chair

1. Vice Chair, Pervasive Communication Track, Third IEEE International Conference on Pervasive Computing and Communication (PerCom'05), Hawaii, March 2005.
2. Vice-Chair, "Distributed Operating Systems" Track, 21th International Conference on Distributed Computing Systems, Phoenix, AZ, 2001.
3. Vice-Chair, "Distributed Operating Systems" Track, 16th International Conference on Distributed Computing Systems, Hongkong, 1996.

E. Program Committee Member

1. IEEE INFOCOM 2016, April 10-15, 2016, San Francisco, CA.
2. The 10th International Symposium on Embedded Technology, June 4-6, 2015, Daegu, Korea.
3. The Fifth International Conference on Performance, Safety and Robustness in Complex Systems and Applications (PESARO 2015), April 19 - 24, 2015, Barcelona, Spain.
4. The 35th International Conference on Distributed Computing Systems (ICDCS 2015), Columbus, OH, June 29-July 2, 2015.
5. 2015 Conference on New Advances in Optical Communications and Networks (NAOCN 2015, March 18-20, 2015, Suzhou, China.
6. IEEE INFOCOM 2015,Kowloon, Hong Kong, 26 April - 01 May, 2015.
7. IEEE INFOCOM 2014, Toronto, Canada, April 28-May 2, 2014.
8. The Second Workshop on Dependability Issues in Cloud Computing (DISCCO), (in conjunction with the 32nd IEEE International Symposium on Reliable Distributed Systems (SRDS)), Braga, Portugal, October 2013.
9. The 9th International Conference on Security and Privacy in Communication Networks (Securecomm 2013), September, 2013 Sydney, Australia.
10. First IEEE Conference on Communications and Network Security, October 14-16, 2013, Washington, DC.

11. IEEE INFOCOM 2013, Torino, Italy, April 14-19, 2013.

12. The Second International Conference on Performance, Safety and Robustness in Complex Systems and Applications (PESARO 2012), April 29-May 4, 2012, Chamonix/Mont Blanc, France.

13. The 13th International Conference on Mobile Data Management (MDM2012), July 23-26, 2012, Bangalore, India.

14. The 7th International Conference on Security and Privacy in Communication Networks (SecureComm2011), London, UK, September 7-9, 2011.

15. IEEE INFOCOM, March 25-30, 2012, Orlando, Florida, USA.

16. The Fifth International Conference on COMmunication System softWAre and middlewaRE (COMSWARE 2011), Verona, Italy, July 1-3 2011.

17. The 12th International Conference on Mobile Data Management (MDM), June 6-9, 2011 in Lulea, Sweden.

18. IEEE INFOCOM, April 10-15, 2011, Shanghai, China.

19. Security Track, The 12th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS-2010), New York, NY, September 20-22, 2010.

20. The 29th IEEE International Symposium on Reliable Distributed Systems (IEEE SRDS 2010), November 1-3, Delhi, India.

21. The 11th International Conference on Mobile Data Management (MDM 2010), in cooperation with IEEE TCDE/TCI and ACM SIGMOBILE/SIGMOD, Kansas City, MO, May 2010.

22. The 2nd IEEE International Workshop on Information and Data Assurance (WIDA'09), Phoenix, Arizona, December 14-16, 2009. (In conjunction with IEEE IPCCC 2009.)

23. The 5th Annual Workshop on Secure Network Protocols 2009 (NPSec'09), (co-located with ICNP).

24. The 10th International Conference on Mobile Data Management: Systems, Services and Middleware (MDM 2009), May 18-21, 2009, Taipei, Taiwan.

25. The Fifth International Conference on Mobile and Ubiquitous Computing Systems, Networking and Services (MobiQuitous'08), July 21-25, 2008, Trinity College, Dublin, Ireland.

26. The Fourth International Conference on Security and Privacy in Communication Networks (SecureComm 2008), September 22-25, 2008, Istanbul, Turkey.

27. The 3rd IEEE International Workshop on Security, Trust, and Privacy for Software Applications (STPSA 2008) in COMPSAC 2008, July 28-August 1, 2008, Turku, Finland.

28. The Second International Conference on Emerging Security Information, Systems and Technologies (SECURWARE 2008), August 25-31, 2008, Cap Esterel, France.

29. Member, Program Committee, The 28th International Conference on Distributed Computing Systems, June 17-20, 2008, Beijing, China.

30. Member, Program Committee, The Second International Workshop on Trust and Reputation Management in Massively Distributed Computing Systems (TRAM 2008), in conjunction with IEEE ICDCS 2008, June 17-20, 2008, Beijing China.

31. Member, Program Committee, The Second International Workshop on Trust and Reputation Management in Massively Distributed Computing Systems (TRAM 2008), (in conjunction with IEEE ICDCS 2008, Beijing, China).

32. Member, Program Committee, First International Workshop on Mobile Ad hoc and Sensor Systems for Global and Homeland Security, Pisa, Italy, October 2007.

33. Member, Program Committee, The First International Conference on Emerging Security Information, Systems and Technologies (SECURWARE 2007), October 14-20, 2007, Valencia, Spain.

34. Member, Program Committee, The Fourth International Symposium on Ubiquitous Computing Systems (UCS'07), Tokyo, Japan, November 26-29, 2007.

35. Member, Program Committee, The 26th IEEE Symposium on Reliable Distributed Systems (SRDS-26), Beijing, China, Oct. 10-12, 2007.

36. Member, Program Committee, PerCom 2007, March 2007.

37. Member, Program Committee, Workshop on "Security, Privacy, and Trust for Pervasive Computing Applications (SPTPA 2006), in conjunction with COMPSAC 2006.

38. Member, Program Committee, International Workshop on Security, Privacy and Trust in Pervasive and Ubiquitous Computing, Lyon, France, June 29, 2006.

39. Member, Program Committee, The 26th IEEE International Conference on Distributed Computing Systems, Lisboa, Portugal, July 4-7, 2006.

40. Member, Program Committee, The 2006 High Performance Computing and Simulation (HPCS06) Conference, May 28-31, 2006, Bonn, Germany.

41. Member, Program Committee, IEEE Symposium on Software Reliability Engineering, Nov. 8-11, 2005, Chicago.

42. Member, Program Committee, the 10th International Workshop on Object-oriented Real-time Dependable Systems, Sedona, Arizona, February 2-4, 2005.

43. Member, Program Committee, The 9th Intl. Symposium on High Assurance Systems Engineering (HASE'05), Heidelberg, Germany, Oct 12-14, 2005.

44. Member, Program Committee, International Conference on Parallel Processing, Raleigh, North Carolina, 2005.

45. Member, The Organizing Committee, SIGMOD/PODS 2005, Baltimore, MD, June 13-17, 2005.

46. Member, Program Committee, IEEE INFOCOM, Miami, FL, March 2005.

47. Member, Program Committee, Workshop on "Security, Privacy and Trust in Ubiquitous Computing" to be held in conjunction with the First Annual International Conference on Mobile and Ubiquitous Systems, Networking and Services, Boston, 2004.

48. Member, Program Committee, 1st IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS), October 25-27, 2004, Fort Lauderdale, FL.

49. Member, Program Committee, NSF Sponsored Workshop on Secure Knowledge Management at Buffalo, NY September 2004.

50. Member, Program Committee, the second workshop on Mobile Distributed Computing (to be held in conjunction with the 24th International Conference on Distirbuted Computing Systems) 2004.

51. Member, Program Committee, Second IEEE International Conference on Pervasive Computing and Communication (PerCom'04), Orlando, FL March 14-17, 2004.

52. Member, Program Committee, the International Conference on Data Engineering (ICDE), Boston, Mass., March 30-April 2, 2004.

53. Member, Program Committee, the Symposium on Reliable Distributed Computing (SRDS'03), Florence, Italy, October 6-8, 2003.

54. Member, Program Committee, Supercomputing'03, November 15-21, 2003, Phoenix.

55. Member, Program Committee, Workshop on Mobile Distributed Computing, in conjunction with the 23rd International Conference on Distirbuted Computing Systems.

56. Member, Program Committee, The 23rd International Conference on Distributed Computing Systems, Providence, RI, May/June 2003.

57. Member, Program Committee, IEEE International Conf. on Pervasive Computing and Communications (PERCOM 2003), Dallas-FW, March 23-26, 2003.

58. Member, Program Committee, The 3rd IEEE Symposium on Applications and the Internet (SAINT'03) Jan 27-31, Orlando, Florida.

59. Member, Program Committee, The 21st Symposium on Reliable Distributed Systems (SRDS 2002), Oct. 13-16, 2002, Osaka, Japan.

60. Member, Program Committee, The 11th International Conference on Knowledge and Data Engineering (CIKM'02), to be held on Nov. 4-9, 2002 in McClean, Virginia.

61. Member, Program Committee, The 21th IEEE Symposium on Reliable Distributed Systems (SRDS'02), October 2002, Osaka, Japan.

62. Member, Program Committee, The Second Workshop on Principles of Mobile Computing (POMC), October 30-31, 2002, Toulouse, France. (In conjunction with the 16th International Symposium on Distributed Computing (DISC 2002)).

63. Member, Program Committee, Computer Performance and Dependability Track of Dependable Systems and Networks 2002 (DSN-2002), Washington, DC, June 23-26, 2002.

64. Member, Program Committee, The 22nd International Conference on Distributed Computing Systems, Vienna, Austria, July 2002.

65. Member, Program Committee, Fourth IEEE International Conference on Algorithms and Architectures for Parallel Processing, Hong Kong, December 2000.

66. Member, Program Committee, The 19th IEEE Symposium on Reliable Distributed Systems (SRDS'00), October 16-18, 2000, Nurenberg, Germany.

67. Member, Program Committee, IEEE Wireless Communications and Networking Conference (WCNC'00), September 2000, Chicago.

68. Member, Program Committee, 20th International Conference on Distributed Computing Systems, Taiwan, April 2000.

69. Member, Program Committee, The Third International Workshop on Discrete Algorithms for Mobile Computing and Communications (DIAL-M), Seattle, August 20, 1999. (in conjunction with ACM MOBICOM'99.)

70. Member, Program Committee, The 18th IEEE Symposium on Reliable Distributed Systems (SRDS'99), October 18-21, 1999, Lausanne, Switzerland.

71. Member, The 28th International Conference on Parallel Processing, Japan, 1999.

72. Member, Program Committee, 19th International Conference on Distributed Computing Systems, Austin, TX, June 1999.

73. Member, Program Committee, INFOCOM'98, San Francisco, CA.

74. Member, Program Committee, 16th Symposium on Reliable Distributed Software, Oct. 1997, Durham, NC.

75. Member, Program Committee, 3rd Intl. IEEE Conf. on Algorithms and Architectures for Parallel Processing, Dec. 1997, Melbourne, Australia.

76. Session Chair, 2nd IEEE International Computer Performance and Dependability Symposium, Urbana-Champaign, IL, September 1996.

77. Tutorial Chair, 5th International Conference on Computer Communications and Networks, Oct. 1996, Rockville, MD.

78. Panelist, a session chair, 16th International Conference on Distributed Computing Systems, Hongkong, 1996.

79. Member, Program Committee and a session chair, IEEE International Computer Performance and Dependability Symposium, Erlangen, Germany, April 1995.

80. Program Vice-Chair, Third ACM International Conference on Information and Knowledgement Management, Gaithersburg MD, November 1994.

81. Member, Program Committee, 7th International Conf. on Parallel and Distributed Computing Systems, Oct. 1994.

82. Member, Program Committee, 13th International Phoenix Conf. on Computers and Communications, April 1994.

83. Member, Program Committee, Second ACM International Conference on Information and Knowledgement Management, Washington DC, November 1993.

84. Member, Program Committee, First ACM International Conference on Information and Knowledgement Management, Baltimore MD, November 1992.

85. Member, Program Committee, First International Conference on Computer Communications and Networks 1992, San Diego, CA.

86. Member, Program Committee, 12th International Conference on Distributed Computing Systems, Japan, June 1992.

87. Member, Program Committee, 11th IEEE International Phoenix Conference on Computer and Communications, March 1992.

88. Local Arrangements Chairperson, 7th Symp. on Reliable Distributed Software, Oct. 1988.

89. Member, Awards Committee, 8th Intl. Conf. on Distributed Computing Systems, June 1988.

REVIEWING

Referee for:
JACM, IEEE Computer, VLDB Journal, Performance Evaluation, ACM Trans. on Computer Systems, IEEE Transactions on Computers, IEEE Transactions on Software Engineering, International Journal of Information Sciences, Journal of Parallel and Distributed Computing, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Knowledge and Data Engineering.

Reviewer for the following conferences:
International Conference on Distributed Computing Systems, International Computer Performance and Dependability Symposium, International Conference on Parallel Processing, Symposium on Parallel and Distributed Processing, ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems, Symposium on Reliable Distributed Systems, International Symposium on Computer Architecture, International Conference on Data Engineering, International Computer Software & Applications Conference, Symposium on Real-Time Systems.

Proposal reviewing: National Science Foundation, US-Israel Binational Science Foundation, National Research Council, and Hong Kong's Sino Software Research Center.

NSF Panel Reviewer: Served in 3-4 NSF review panels every year.

Book Reviewing: Prentice-Hall, Macmillan Publishing Co., and McGraw-Hill Publishing Co.