
Department of Computer Science and Engineering
Michigan State University
East Lansing, MI 48824-1226 USA

Tel: (517) 353-4389
Fax: (517) 432-1061
esfahanian@cse.msu.edu

Education

PhD Department of Electrical Engineering and Computer Science, Northwestern University, Evanston, Illinois, 1983.

Thesis On the Connectivities of Networks with Application to Multiple Processor Systems

Advisor Professor S. Louis Hakimi

MS Department of Computer, Information, and Control Engineering, University of Michigan, Ann Arbor, Michigan, 1977.

BS Department of Electrical Engineering, University of Michigan, Ann Arbor, Michigan, 1975.

Academic Career

7/90 - present Associate Professor with tenure, CSE Department, MSU.

1994-2004 Graduate Director, CSE Department, MSU.

9/83 - 6/90 Assistant Professor, CSE Department, MSU.

9/86 - 9/88 Faculty Affiliate, A.H. Case Center for Computer Aided Design, MSU.

Research Interests

- Graph Theory Applications in Computer Science
- Fault-Tolerant Computing, Computer Networks
- Design and Analysis of Algorithms, Database Applications

Recognitions

- Recipient of The Withrow Teaching Excellence Award, College of Engineering, MSU, 2005.
- Recipient of The Withrow Exceptional Service Award, College of Engineering, MSU, 1998.
- Undergraduate Scholarship, University of Michigan, 1973.

Major Software Packages Developed/Supervised

- *PG*, A Graph Manipulation Package written in Python
- *GMPX*, A Graph Manipulation Package written in C#
- *TMS*, a Tutorial Management System, a .NET C# capstone project
- *Enhanced Student Information System*, an MS Access based Application.
- *The Shuffler*, Software for a World-Wide-Web Based Form Routing System (with Matthew Pfeiffer and Daniel Dapkus).
- *GPM2000*, A Graph Manipulation Package written in Visual Basic (with Matthew P. Stabile).

- *GMP*, An X-Windows based Graph Manipulation Package for Unix (with Guy Zimmerman)

Publications

Journal Articles

1. Abhishek Patil, A-H. Esfahanian, Li Xiao, and Yunhao Liu, "Resource Allocation using Multiple Edge-Sharing Multicast Trees," *IEEE Transactions on Vehicular Technology*, Vol. 57, pp. 3178-3186, September 2008.
2. Abhishek Patil, Yunhao Liu, Li Xiao, A-H. Esfahanian, and Lionel M Ni, "SOLONet: Sub-optimal location-aided overlay network for MANETs," *Journal of Wireless Networks*, pp. 1572-8196, January 2007.
3. Andrew Chen and A-H. Esfahanian, "On The Construction of Graphs with Large Numbers of Spanning Trees," *Congressus Numerantium*, Vol. 172, pp. 123-148, 2005.
4. Li Xiao, Abhishek Patil, Yunhao Liu, Lionel M Ni, and A-H. Esfahanian, "Prioritized Overlay Multicast in Ad-hoc Environments," *IEEE Computer Magazine*, pp. 67-74, Feb 2004.
5. Barbara D. Gannod, A-H. Esfahanian, and Eric Torng, "Source-Limited Inclusive Routing: A New Paradigm for Multicast Communication," *NETWORKS*, Vol. 35, No. 1, pp. 40-55, 2000.
6. X. Lin, A-H. Esfahanian, and A. Burago, "Adaptive Wormhole Routing in Hypercube Multicomputers," *Journal of Parallel and Distributed Computing*, Vol. 48, pp. 165-174, 1998.
7. Barbara D. Birchler, A-H. Esfahanian, and Eric Torng, "Software Multicast Techniques: A Survey," *Journal of Scientia Iranica*, Vol. 3, No. 4, pp. 159-174, winter 1997.
8. X. Lin, P.K. McKinley, and A-H. Esfahanian, "Adaptive Multicast Wormhole Routing in 2D Mesh Multicomputers," *Journal of Parallel and Distributed Computing*, Vol. 28, pp. 19-31, 1995.
9. P.K. McKinley, H. Xu, A-H. Esfahanian, L.M. Ni, "Unicast-Based Multicast Communication in Wormhole-Routed Networks", *IEEE Transactions on Parallel and Distributed Systems*, Vol. 5, pp. 1252-1265, December 1994.
10. A-H. Esfahanian and Ortrud R. Oellermann, "Distance-Hereditary Graphs and Multidestination Message-Routing in Multicomputers," *Journal of Combinatorial Mathematics and Combinatorial Computing*, Vol. 13. pp. 213-222, April 1993.
11. A. Duksu Oh, H.-A. Choi, and A-H. Esfahanian, "Some Results on Generalized Connectivity With Applications to Topological Design of Fault-Tolerant Multicomputers," *Journal of Combinatorial Mathematics and Combinatorial Computing*, Vol. 13, pp. 39-56, April 1993.
12. H.-A. Choi and A-H. Esfahanian, "A Message-Routing Strategy for Multicomputer Systems," *NETWORKS*, Vol. 12, pp. 627-646, 1992.
13. G. Zimmerman and A-H. Esfahanian, "Chordal Rings as Fault-Tolerant Loop Networks," *Journal of Discrete Applied Mathematics*, 37/38, pp. 563-573, 1992.
14. A-H. Esfahanian, L.M. Ni, and B. Sagan, "The Twisted n -Cube with Application to Multiprocessing," *IEEE Transactions on Computers*, Vol. 40, pp. 88-94, January 1991.
15. Y. Lan, A-H. Esfahanian, and L.M. Ni, "Multicast in Hypercube Multiprocessors," *Journal of Parallel and Distributed Computing*, Vol. 8, pp. 30-41, January 1990.
16. A-H. Esfahanian, "Generalized Measures of Fault-Tolerance with Application to n -Cube Networks," *IEEE Transactions on Computers*, Vol. 38, pp. 1586-1591, November 1989.

17. Y. Lan, L.M. Ni, and A-H. Esfahanian, "A VLSI Router Design for Hypercube Multiprocessors," *INTEGRATION, the VLSI Journal*, Vol. 7, pp. 103-125, July 1989.
18. A-H. Esfahanian and S.L. Hakimi, "On Computing a Conditional Edge-connectivity of a Graph," *Journal of Information Processing Letters*, Vol. 27, pp. 195-199, April 1988.
19. A-H. Esfahanian, "Lower-Bounds on the Connectivities of a Graph," *Journal of Graph Theory*, Vol. 9, No. 4, pp. 503-511, 1985.
20. A-H. Esfahanian and S.L. Hakimi, "Fault-Tolerant Routing in De Bruijn Communication Networks," *IEEE Transactions on Computers*, Vol. 34, No. 9, pp. 777-789, September 1985.
21. A-H. Esfahanian and S.L. Hakimi, "On Computing the Connectivities of Graphs and digraphs," *NETWORKS*, Vol. 14, pp. 355-366, 1984.

Book Chapters

22. Jerry Scripps, Ronald Nussbaum, Pang-Ning Tan, and A-H. Esfahanian, "Link-based Network Mining," to appear in *Structural Analysis of Networks*, Dehmer M. (Eds.), Birkhäuser Publishing, 2008.
23. A-H. Esfahanian, "On the evolution of connectivity algorithms," (invited), submitted, *Selected Topics in Graph Theory*, Edited by Robin Wilson and Lowell Beineke, Cambridge University Press.
24. Swamy K. Sitarama and A-H. Esfahanian, "Designing Distance-Preserving Fault-Tolerant Topologies," *Lecture Notes in Computer Science*, G. Goos, J. Hartmanis and J. van Leeuwen (Ed.), Vol. 1197, pp. 150-164, Springer-Verlag, 1996.
25. Barbara D. Birchler, A-H. Esfahanian, and Eric Torng, "Toward a General Theory of Unicast-Based Multicast Communication," *Lecture Notes in Computer Science*, Manfred Nagl (Ed.), Vol. 1017, pp. 237-251, Springer-Verlag, 1995.
26. A-H. Esfahanian and S.L. Hakimi, "Fault-Tolerant Routing in De Bruijn Communication Networks," *Interconnection Networks for High Performance Parallel Computers*, I.D. Scherson and A.S. Youssef (Eds.), IEEE Computer Society Press, 1994.
27. G. Zimmerman, A-H. Esfahanian, and D. Vasquez, "GMP/X, An X-Windows based Graph Manipulation Package," *Computational Support for Discrete Mathematics*, N. Dean and G. E. Shannon (Eds.), Volume 15, pp. 245-254, American Mathematical Society, 1992.
28. H.-A. Choi and A-H. Esfahanian, "On Complexity of a Message-Routing Strategy for Multicomputer Systems," *Lecture Notes in Computer Science*, R.H. Mohring (Ed.), Vol. 484, pp. 170-181, Springer-Verlag, 1991.
29. H.-A. Choi, A-H. Esfahanian, and B. Houck, "Optimal Communication Trees with Application to Hypercube Multiprocessors," *Graph Theory, Combinatorics, and Applications*, Y. Alavi, G. Chartrand, O.R. Oellermann, and A.J. Schwenk (Eds.), Vol. 1, pp. 245-264, 1991.

Conference Articles

30. Jerry Scripps, Pang-Ning Tan, and A-H. Esfahanian, "Node Roles and Community Structure in Networks," *KDD 2007 Workshop on Web Mining and Social Network Analysis*, pp. 26 - 36, August 2007.

31. Jerry Scripps, Pang-Ning Tan, and A-H. Esfahanian, "Exploration of Link Structure and Community-based Node Roles in Network Data," *Proc of IEEE Int'l Conf. on Data Mining (ICDM-07)*, Omaha, Nebraska, pp. 649 - 654, Oct 2007.
32. Andrew Chen and A-H. Esfahanian, "A Demography of t-Optimal (n, m) Graphs Where $n \leq 12$," *Proceedings of The 2005 International Conference on Algorithmic Mathematics and Computer Science*, pp. 121-127.
33. Abhishek Patil, A-H. Esfahanian, Li Xiao and Yunhao Liu, "Resource Allocation using Multiple Edge-Sharing Multicast Trees," *Proceedings of the 2nd IEEE International Conference on Mobile Ad-hoc and Sensor Systems (IEEE MASS 2005)*, Washington D.C., November 2005.
34. Yunhao Liu, Li Xiao, A-H. Esfahanian, and Lionel M. Ni, "Approaching Optimal Peer-to-Peer Overlays," *Proceedings of the 13th IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS 2005)*, Atlanta, Georgia, September 2005, pp.407-414.
35. Abhishek Patil, Yunhao Liu, Li Xiao, A-H. Esfahanian, and Lionel M. Ni, "SOLONet: Sub-Optimal Location-Aided Overlay Network for MANETs", *IEEE International Conference on Mobile Ad-hoc and Sensor Systems (IEEE MASS 2004)*, Fort Lauderdale, Florida, October 2004.
36. Abhishek Patil, Yunhao Liu, Lionel Ni, Li Xiao and A-H. Esfahanian, "POMA: Prioritized Overlay Multicast in Ad Hoc Environments", proceedings of the *2003 International Conference on High Performance Computing, LNCS 2913*, (228-237), Hyderabad, India, December, 2003.
37. Baijian Yang, A-H. Esfahanian, Lionel Ni, and P. Mohapatra, "A Tree Building Technique for Overlay Multicasting in DiffServ Domain," International Conference on Internet Computing, USA, 2003.
38. Boris Gelfand, A-H. Esfahanian, and Matt Mutka, "An Agent-Based Approach to Enforcing Fairness in Peer-to-Peer Distributed File Systems," *The Ninth International Conference on Parallel and Distributed Systems (CPADS 2002)*, pp. 157-162, Taiwan, December 2002.
39. Boris Gelfand, Matt Mutka, and A-H. Esfahanian, "A-DFS: An Agent-Based Serverless Distributed File System," *The 15th International Conference on Parallel and Distributed Computing Systems (PDCS 2002)*, pp. 545-551, Louisville, Kentucky, September 2002.
40. F. Du, L. M. Ni and A-H. Esfahanian, "HOPOVER: A New Handoff Protocol for Overlay Networks," *IEEE ICC2002*, pp. 3234 – 3239, New York, New York, May 2002.
41. W.K. Liao, A-H. Esfahanian and L.M. Ni, "Flow Control for ABR Dispersity Multicasting," *IEEE ICCCN2000*, pp. 598 – 603, Oct. 2000, Las Vegas, Nevada.
42. W. Tang, F. Du, M. W. Mutka, L. M. Ni, A-H. Esfahanian, "Supporting Global Replicated Services by a Routing-Metric-Aware DNS," *The Second International Workshop on Advanced Issues of E-commerce and Web-based Information Systems*, pp. 67-72, June 2000.
43. F. Du, L. M. Ni and A-H. Esfahanian, "Towards Solving Multicast Key Management Problem," *The Eighth International Conference on Computer Communications and Networks*, pp. 232-236, October 1999.
44. Matthew Pfeiffer, Daniel Dapkus, A-H. Esfahanian, and Charles B. Owen, "The Shuffler: Software for a World-Wide-Web Based Form Routing System," *WebNet99*, Honolulu, Hawaii, October 1999.

45. Barbara D. Birchler, A-H. Esfahanian, and Eric Torng, "Sufficient Conditions for Optimal Multicast Communication," *Proceedings of the International Conference on Parallel Processing*, pp. 390-393, 1997.
46. Barbara D. Birchler, A-H. Esfahanian, and Eric Torng, "Information Dissemination in Restricted Routing Networks," *The International Symposium on Combinatorics and Applications*, (Tianjin China), pp. 33-43, June 1996.
47. X. Lin, A-H. Esfahanian, P.K. McKinley, and A. Burago, "Adaptive Wormhole Routing in Hypercube Multicomputers," *The Fifth IEEE Symposium on Parallel and Distributed Processing*, pp. 72-79, December 1993.
48. X. Lin, P.K. McKinley, and A-H. Esfahanian, "Adaptive Multicast Wormhole Routing in 2D Mesh Multicomputers," *Proceedings of the Parallel Architecture and Languages*, pp. 228-241, June 1993.
49. P.K. McKinley, H. Xu, A-H. Esfahanian, L.M. Ni, "Unicast-Based Multicast Communication in Wormhole-Routed Networks", *Proceedings of the 1992 International Conference on Parallel Processing*, Vol. II, pp. 10-19, 1992.
50. G. Zimmerman and A-H. Esfahanian, "Fault Tolerance in Chordal Rings", *Proceedings of The Second Great Lakes Computer Science Conference*, Kalamazoo, MI, September 1991.
51. G. Zimmerman and A-H. Esfahanian, "Fault Tolerant Properties of Some Chordal Rings", *Proceedings of The First International Conference on Computer Applications in Science, Technology, and Medicine*, Isfahan, Iran, pp. 63-67, December 1991.
52. A. Duksu Oh, H.-A. Choi, and A-H. Esfahanian, "Some Results on Generalized Connectivity," *Proceedings of The Twenty-second Southeastern International Conference on Combinatorics, Graph Theory and Computing*, January 1991.
53. A. Duksu Oh, H.-A. Choi, and A-H. Esfahanian, "On the Complexity of a Fault-Tolerance Model," *First Great Lakes Symposium on VLSI*, Western Michigan University, January 1991.
54. A-H. Esfahanian and H.-A. Choi, "A Message-Routing Strategy for Multicomputer Systems," *Proceedings of The International Conference on Control and Modeling*, Tehran, Iran, pp. 508-512, July 1990.
55. H.-A. Choi and A-H. Esfahanian, "Restricted Vertex-Connectivity with Application to Fault-Tolerant Computing," *Proceedings of The International Conference on Operations Research*, Vienna, Austria, August 1990.
56. H.-A. Choi and A-H. Esfahanian, "Steiner Tree Problem is NP-Complete for Planar Cube Graphs," *The Fifth SIAM Conference on Discrete Mathematics*, June 1990.
57. G. Zimmerman and A-H. Esfahanian, "A New Approach to System-Level Fault-Tolerance in Message-Passing Multicomputers," *Proceedings of First Great Lakes Computer Science Conference*, September 1989.
58. A-H. Esfahanian and G. Zimmerman, "A New Fault Tolerance Analysis for n -Cube Networks," *Proceeding of the International Symposium on Mini and Microcomputers*, December 1988.
59. A-H. Esfahanian, L.M. Ni, and B. Sagan, "On Enhancing Hypercube Multiprocessors," *Proceeding of The 1988 International Conference on Parallel Processing*, pp. 86-89, August 1988.
60. B. McMillin, A-H. Esfahanian, and L.M. Ni, "Limitations of System Level Diagnosis by Fault Model Considerations," *Proceedings of the 3rd Annual International Conference on Supercomputing*, pp. 258-264, May 1988.

61. Y. Lan, L.M. Ni, and A-H. Esfahanian, "Relay Approach Message Routing in Hypercube Multiprocessors," *Proceedings of the 3rd International Conference on Supercomputing*, pp. 174-183, May 1988.
62. A-H. Esfahanian, and G. Zimmerman, "A Distributed Broadcast Algorithm for Binary De Bruijn Networks," *Proceedings of the 7th Annual Phoenix Conference on Computers and Communications*, pp. 318-322, March 1988.
63. Y. Lan, A-H. Esfahanian, and L.M. Ni, "Multicast in Hypercube Multiprocessors," *Proceedings of the 7th Annual Phoenix Conference on Computers and Communications*, pp. 26-30, March 1988.
64. Y. Lan, A-H. Esfahanian, and L.M. Ni, "Distributed Multi-Destination Routing in Hypercube Multiprocessors," *Proceedings of the Third Conference On Hypercube Concurrent Computers and Applications*, pp. 631-639, January 1988.
65. A-H. Esfahanian and S.L. Hakimi, "Computing a Conditional Edge-Connectivity," *Proceedings of the 25th Annual Allerton Conference on Communications, Control, and Computing*, pp. 34-36, October 1987.
66. H.-A. Choi, A-H. Esfahanian, and L.M. Ni, "One-to-k Communication in Distributed-Memory Multiprocessors," *Proceedings of the 25th Annual Allerton Conference on Communications, Control, and Computing*, pp. 268-270, October 1987.

Technical Papers

67. Abhishek Patil, A-H. Esfahanian, Yunhao Liu, and Li Xiao, "Resource Allocation using Multiple Edge-Sharing Multicast Trees," *Tech report MSU-CSE-07-195*, Michigan State University, November 2007.
68. Jerry Scripps, Pang-Ning Tan, and A-H. Esfahanian, "Exploration of Link Structure and Community-based Node Roles in Network Analysis," *Tech report MSU-CSE-07-191*, Michigan State University, August 2007.
69. Jerry Scripps, Pang-Nig Tan, and A-H. Esfahanian, Yunhao Liu, and Li Xiao, "Exploration of Link Structure and Community-based Node Roles in Network," *Tech report MSU-CSE-07-191*, Michigan State University, August 2007.
70. Abhishek Patil, Yunhao Liu, Li Xiao, A-H. Esfahanian and Lionel M. Ni, "SOLONet: Sub-Optimal Location-Aided Overlay Network for MANETs," *Tech report MSU-CSE-05-3*, Michigan State University, January 2005.
71. Andrew Chen, and A-H. Esfahanian, "A Demography of t-optimal (n,m) graphs where $n \leq 12$," *Tech report MSU-CSE-04-50*, Michigan State University, December 2004.
72. Abhishek Patil, Yunhao Liu, Lionel Ni, Li Xiao and A-H. Esfahanian, "SOMA: Security Using Overly Multicast in Ad-hoc Environment," *Technical Report*, MSU-CSE-03-21, Michigan State University, August 2003.
73. William Wilson and A-H. Esfahanian, "Adobe Form Modification through XML in a Mobile Environment," *Technical Report*, MSU-CSE-02-15, Michigan State University, May 2002.
74. Lei Wang and A-H. Esfahanian, "Recent Advances and Challenges in Wireless Networking Technologies: A Survey", *Technical Report*, MSU-CSE-01-15, Michigan State University, May 2001.
75. Xiaohui Xiong and A-H. Esfahanian, "Graph Connectivity Algorithms: A Survey", *Technical Report*, MSU-CSE-01-16, Michigan State University, May 2001.

76. Nasrollah Seyed Alavi and A-H. Esfahanian, "Guidelines for Developing Web-Based Database Applications," *Technical Report*, CPS-98-41, Michigan State University, December 1998.
77. Dmitri Perkins, Eric Torng, and A-H. Esfahanian, "Internet and Web Security," *Technical Report*, CPS-98-40, Michigan State University, December 1998.
78. Matthew Pfeiffer, A-H. Esfahanian, "The Shuffler: Software for a World Wide Web based Form Routing System", *Technical Report*, CPS-98-19, Michigan State University, June 1998.
79. Daniel Dapkus, and A-H. Esfahanian, "The Shuffler: Design & Implementation of the Installation Utility and the Database", *Technical Report*, CPS-98-20, Michigan State University, June 1998.
80. Lynn Kubinec and A-H. Esfahanian, "Understanding Asynchronous Transfer Mode," *Informatic Newsletters*, No. 59, pp. 186-208, April 1995.
81. Barbara D. Birchler, A-H. Esfahanian, and Eric Torng, "Toward a General Theory of Unicast-Based Multicast Communication," *Technical Report*, CPS-95-03, Michigan State University, March 1995.
82. C.C. Chiu, C.G. Venkatesh, A-H. Esfahanian, and J.R. Deller, "An Algorithm for finding a Cycle in Planar Graph Subpartitioning," *Technical Report*, CPS-94-49, Michigan State University, September 1994.
83. Lynn Kubinec, M. W. Mutka, and A-H. Esfahanian, "Introduction to the ASX-100 Switch Source Code," *Technical Report*, CPS-94-45, Michigan State University, September 1994.
84. Lynn Kubinec and A-H. Esfahanian, "Understanding Asynchronous Transfer Mode," *Technical Report*, CPS-94-11, Michigan State University, February 1994.
85. Swamy K. Sitarama and A-H. Esfahanian, "Designing Distance-Preserving Fault-Tolerant Topologies," *Technical Report*, CPS-94-12, Michigan State University, February 1994.
86. P.K. McKinley, H. Xu, A-H. Esfahanian, L.M. Ni, "Unicast-Based Multicast Communication in Wormhole-Routed Networks," *Technical Report*, MSU-CPS-ACS-48, Michigan State University, 1993.
87. H.-A. Choi and A-H. Esfahanian, "A New Complexity Result on Steiner Tree Problem," *Technical Report*, MSU-CPS-ACS-19, October 1989.
88. H.-A. Choi and A-H. Esfahanian, "The Complexity of Optimal Distance-Preserving Trees," *Technical Report*, MSU-CPS-ACS-18, October 1989.
89. G. Zimmerman and A-H. Esfahanian, "A New Approach to System-Wide Redundancy in Designing Fault-Tolerant Topologies," *Technical Report*, MSU-CPS-ACS-019, Department of Computer Science, Michigan State university, February 1989.
90. B. McMillin, A-H. Esfahanian, and L.M. Ni, "Incompleteness of Syndrome Testing and its Impact on Byzantine Diagnosis," *Technical Report*, MSU-ENGR-88-020, Department of Computer Science, Michigan State university, November 1988.
91. G. Zimmerman, and A-H. Esfahanian, "GMP: A Graph Manipulation Software Package for SUN Workstations," *Technical Report*, MSU-ENGR-88-019}, Department of Computer Science, Michigan State university, October 1988.
92. B. McMillin, L.M. Ni, and A-H. Esfahanian, "Design of a Reliable Parallel Environment through Constraint Predicate Specification," *Technical Report*, MSU-ENGR-87-023, Department of Computer Science, Michigan State University, 1987.
93. G. Zimmerman, and A-H. Esfahanian, "On Some Properties of Minimum Broadcast Trees," *Technical Report*, MSU-ENGR-86-012, Department of Computer Science, Michigan State university, July 1986.

Grants

1. "The Sloan Engineering Program: A Research & Education Program to Increase the Number of Underrepresented Minority Doctoral Graduates in ECE and CSE at MSU," (Jointly with P. Pierre, B. O'Kelly, and M. Shanblatt), Alfred P. Sloan Foundation, \$210,000, 1/1/01 – 12/31/03.
2. "The Sloan Engineering Program: A Research and Education Program to Increase the Number of Underrepresented Minority Doctoral Graduates in Electrical & Computer Engineering and Computer Science & Engineering at Michigan State University," (Jointly with P. Pierre, B. O'Kelly, and M. Shanblatt), Alfred P. Sloan Foundation, \$180,000, 1/1/01 – 12/31/03.
3. "EMPOWER: EMulate the PerfOrnance of Wide aRea networks," (Jointly with M. Mutka, and Lionel Ni), NSF, \$101,490 (NSF \$65,968, MSU \$35,522) 3/00 – 3/01.
4. "ESIS and ERCIS Database Projects," *College of Engineering*, MSU, \$18000, 7/99-7/00.
5. "ESIS and ERCIS Database Projects," *College of Engineering*, MSU, \$18000, 7/98-7/99.
6. "ESIS and ERCIS Database Projects," *College of Engineering*, MSU, \$20000, 7/97-7/98.
7. "Engineering Student Information System," *College of Engineering*, MSU, \$12000, 7/96-7/97.
8. "Engineering Student Information System," *College of Engineering*, MSU, \$10988, 7/95-7/96.
9. "Enhancements to the High-Speed Network and Performance Laboratory," (Jointly with H. Hughes, P. McKinley, M. Mutka), *AT&T Foundation*, \$50000, 10/94 - 10/95.
10. "Research Experiences for Undergraduates," (Jointly with P. McKinley and L.M. Ni), *National Science Foundation*, \$13000, 5/94 - 3/96.
11. "Research Experiences for Undergraduates," (Jointly with P. McKinley and L.M. Ni), *National Science Foundation*, \$13000, 5/93 - 3/96.
12. "Equipment Proposal for High-Speed Local Area Networks," (Jointly with H. Hughes, P. McKinley, M. Mutka), *National Science Foundation*, \$100000, 1/93 - 6/94.
13. "Multicast Communication in Multicomputers," (Jointly with L.M. Ni and P. McKinley), *National Science Foundation*, \$331914, 8/92 - 1/96.
14. "Designing Fault-Tolerant Topologies for Multicomputers," *AURIG*, Michigan State University, \$10000, 7/92 - 7/93.
15. "Communication and Topological Issues Concerning Multicomputers," *National Science Foundation*, \$25249, 9/89 - 8/91.
16. "One-to- k Communication in Distributed-Memory Multiprocessor," *AURIG*, Michigan State University, \$4000, 1/89 - 1/90.
17. "Equipment Proposal for Advanced Computing Laboratory," (Jointly with L.M. Ni), *National Science Foundation*, \$60000, July 1987.
18. "NSF Travel Grant," to attend NSF-CBMS Regional Conference on Algorithm and Complexity, \$1000, August 1988.
19. "A CAD tool for Graph Manipulation," *General Electric faculty development program in CAD*, \$5776, April 1986.
20. "New Measures of Fault-Tolerance for Large Scale Multiple Processor Systems," *Division of Engineering Research*, \$4850, April 1985.
21. "NSF Travel Grant", to attend NSF-CBMS Regional Conference on *Applied Algorithms Design*, \$600, July 1984.

22. “Identifying the Isolated Components of Certain Fault Diagnosable Systems after Having Sustained Some Failures,” *Division of Engineering Research*, \$8400, March 1984.

Presentations

- “On Graph-theoretic Formulations of Information-dissemination Models, Wayne State University,” November 1995. (invited)
- “Information-dissemination Models,” Hope College, Michigan, November 1994.
- “On Graph-theoretic Formulations of Information-dissemination Models,” The 25th Annual Iranian Mathematics Conference, Tehran, Iran, March 1994.
- “An overview of LAN Architectures,” Iran Argham Corporation, Tehran, Iran, May 1994. (invited)
- “Lectures on Computer Networks,” Azad University, Kashan campus, Kashan, Iran, May 1994. (invited)
- “Designing Fault-Tolerant Topologies for Multicomputers,” Isfahan University of Technology, Isfahan, Iran, May 1994. (invited)
- “Understanding Asynchronous Transfer Mode,” High Council of Informatic of Iran, Tehran, Iran, April 1994. (invited)
- “X.25 Protocol and its Applications,” High Council of Informatic of Iran, Tehran, Iran, April 1994. (invited)
- “Computer Networks,” Smithsonian Institute, Washington, D.C., May 1991.
- “On the Evolution of Connectivity Algorithms,” George Washington University, Washington, D.C., May 1991. (invited)
- “Research in Computer Science,” Isfahan University of Technology, Isfahan, Iran, August 1990.
- “A Message-Routing Strategy for Multicomputer Systems,” University of Tehran, Tehran, Iran, July 1990.
- “On Complexity of a Message-Routing Strategy for Multicomputer Systems,” The 16th International Workshop on Graph- Theoretic Concepts in Computer Science, West Berlin, West Germany, June 1990.
- “Fault-tolerant Topologies for Multicomputers,” CPS Department, MSU, November 1989.
- “A New Approach to System-Level Fault-Tolerance in Message-Passing Multicomputers,” First Great Lakes Computer Science Conference, September 1989.
- “Graph Connectivity Algorithms,” Sharif University of Technology, Tehran, Iran, August 1989. (invited)
- “Graph Manipulation Package,” Midwest Graph Theory Conference, MSU, March 1989.
- “On Some Topological Issues of Multicomputers,” CPS Department, MSU, February 1989.
- “On Distance-Preserving Minimum-Traffic Communication Trees,” *The Sixth International Conference on the Theory and Applications of Graphs*, Western Michigan University, May 1988. (invited)
- “On the Evolution of Connectivity Algorithms,” Western Michigan University, October 1987. (invited)

PhD Dissertations Supervised

1. Abhishek Pramod Patil (Jointly with Lionel Ni), Overlay Multicast In Manets, December 2005. Currently with Sony Inc, CA.

2. Andrew Chen, On Graphs with Large Number of Spanning Trees, August 2005, Currently with Minnesota State University.
3. Boris Gelfand, A Self-Moderating Peer-To-Peer File System, May 2003 (jointly with Matt Mutka). Currently with Lockheed Martin Corporation.
4. Baijian Yang, Supporting Multicast in Scalable QOS Frameworks, December 2002. (jointly with Prasant Mohapatra). Currently with The Ball State University, Indiana.
5. Fan Du, *Supporting Real-Time and Multimedia Applications in Wireless Networks*, December 2001. (jointly with Lionel Ni).
6. Wei Kuo Liao, *Multiple Multicast Problems*, December 1999. (jointly with Lionel Ni). Currently with Department of Communication Engineering, National Chiao Tung University, Taiwan.
7. Barbara Birchler, *Toward a General Theory of Multicast Communication*, August 1997. (jointly with Eric Torng). Currently with Computer Science Department, Arizona State University.
8. Swamy K. Sitarama, *Designing Distance-Preserving Graphs*, December 1996. Currently with Lucent Technologies.
9. Guy W. Zimmerman, *On Some Topological Issues in Message-Passing Multicomputer Architectures*, August 1990. Currently with Computer Science Department, Bowling Green State University.
10. Youran Lan, *Interprocessor Communication in Distributed-Memory Multiprocessors*, July 1988. (jointly with Lionel Ni).

Master's Projects Supervised

1. Ronald Nussbaum, "Email Mining," August 2008.
2. William Wilson, "Adobe Form Modification through XML in a Mobile Environment," May 2002.
3. Lei Wang, "Recent Advances and Challenges in Wireless Networking Technologies: A Survey", May 2001.
4. Xiaohui Xiong, "Graph Connectivity Algorithms: A Survey", May 2001.
5. Naser Alavi, "Guidelines for Developing Web-based Database Applications", December 1998.
6. Matthew Pfeiffer, *The Shuffler: Software for a World Wide Web based Form Routing System*, December 1997.
7. Daniel Dapkus, *The Shuffler: Design & Implementation of the Installation Utility and the Database*, December 1997.
8. Matthew P. Stabile, *GPM2000, A Graph Manipulation Package written in Visual Basic*, May 1997.
9. Lynn Kubinec, *Understanding Asynchronous Transfer Mode*, February 1994.

Courses Taught

- Informatics (CSE 240)
- Discrete Structures in Computer Science (CSE 260)
- Design and Analysis of Algorithms (CSE 830)
- Algorithmic Graph Theory (CSE 835)
- Computer Networks (CPS Q812)
- Computer Communications (CSE 422)
- Theory of Computing (CPS Q322)

- Computer Architectures (CPS Q423)
- Digital Design (CPS Q410)

Membership in Professional Societies

- Institute of Electrical and Electronics Engineering (senior member, May 1991)
- Computer Society
- Society for Industrial and Applied Mathematics
- Association for Computing Machinery

Professional Services

- Program Committee Member, 2008 IEEE International Conference on Networking, Sensing and Control, China, April 6-8, 2008.
- Track Chair, The 11th International CSI Computer Conference, Tehran, Iran, January 2006.
- CSE Graduate Director, 1994 - 2004
- Session Chair, The 9th Quadrennial International Conference on Graph Theory, Combinatorics, Algorithms and Applications (GTCC2000), Kalamazoo, MI., June 2000.
- Associate Editor, *NETWORKS*, an international journal, June 1996 – December 1999.
- Organizer, *The XXXI Midwest Graph Theory Conference*, MSU, May 1998.
- Regional Representative for the Midwest Theory Conference
- Member of the Program Committee, Second Great Lakes Computer Science Conference, October 1991.
- Member of the Scientific Committee, Computer Society of Iran.
- Reviewer for:
 - IEEE Transactions on Computers
 - IEEE Transactions on Communications
 - IEEE Computer Magazine
 - Journal of Graph Theory and Combinatorics
 - Journal of Graph Theory
 - Journal of Algorithmica
 - Journal of Networks
 - Journal of Algorithms
 - Journal of Information Processing Letters
 - Journal of Discrete Applied Mathematics
 - Journal of Distributed and Parallel Processing
 - National Science Foundation Grant Proposals

Committees Assignments, Michigan State University

- College of Engineering Grievance Committee, 8/15/05 - present
- Department Awards Committee (Chair), 2004-present
- University Academic Council, 2001-2003
- College Graduate Directors Meetings, 1994-present.
- Graduate Studies and Research Committee, CSE Department, 1994-2004.
- Advisory Committee (Elected), 1992-1994, 1998 – 1999, 2005 – present, CSE Department.
- CSE Department Search Committee, 1992.

- CSE Department Tenure/promotion Committee, 1992.
- CSE Department Representative for the College Curriculum Committee, 1992.
- Undergraduate Curriculum Committee (Chaired), Computer Science Department, 1990-1992.
- Computing Environment Committee (Chaired), Computer Science Department, 1988-1990.
- Case Center for Computer Aided Design Advisory Committee, College of Engineering, College of Engineering, 1988-1990.
- PhD Qualifying Examination Committee.