

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

Tel: (517) 432-9576
[Home page](#)
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

- 11/19 – Present** Chairperson, CSE Department, MSU.
8/17 – 11/19 Interim Chair, CSE Department, MSU.
5/09 – 08/17 Associate Chair, CSE Department, MSU.
1994 – 2004 Graduate Director, CSE Department, MSU.
7/90 – present Associate Professor with tenure, 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
- Data Mining, Computer Networks
- Design and Analysis of Algorithms, Fault-Tolerant Computing

Recognitions

- Recipient of The Withrow Teaching Excellence Award, College of Engineering, MSU, 2015.
- 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, 2010-present.
- *GMPX*, A Graph Manipulation Package written in C#, 2004.
- *TMS*, a Tutorial Management System, a .NET C# capstone project, 2002.
- *Enhanced Student Information System*, an MS Access based Application, 1995- 2004.

- *The Shuffler*, Software for a World-Wide-Web Based Form Routing System (with Matthew Pfeiffer and Daniel Dapkus), 1997.
- *GPM2000*, A Graph Manipulation Package written in Visual Basic (with Matthew P. Stabile), 1997.
- *GMP*, An X-Windows based Graph Manipulation Package for Unix (with Guy Zimmerman), 1989 – 1996.

Publications

Journal Articles

1. M.H. Khalifeh and Abdol-Hossein Esfahanian, "Some Preliminary Result About the Inset Edge and Average Distance of Trees," submitted to *Journal of Discrete Applied Mathematics*, 2020.
2. M.H. Khalifeh and Abdol-Hossein Esfahanian, "Inset Edges Effect and Average Distance of Trees," submitted to *Journal of Information Processing Letters*, 2020.
3. Alireza Ameli Renaniy, Jun Huangz, Guoliang Xingy, Abdol-Hossein Esfahanian, "Harnessing Hardware Defects for Improving Wireless Link Performance," *IEEE Transactions on Networking*, to appear. [Pdf](#)
4. Chin-Jung Liu, Pei Huang, Li Xiao, and Abdol-Hossein Esfahanian, "Inter-femtocell Interference Identification and Resource Management," *IEEE Transactions on Mobile Computing*, Vol. 19, No. 1, January 2020, pp. 116-129. [Pdf](#)
5. Rana Forsati, Iman Barjasteh, Abdol-Hossein Esfahanian, and Hayder Radha, "Network Completion by Leveraging Similarity of Nodes," *Social Network Analysis and Mining (SNAM)*, Springer, Vol. 6, No. 1, pp. 102-124, 2016. [Pdf](#)
6. Iman Barjasteh, Rana Forsati, Dennis Ross, Abdol-Hossein Esfahanian, and Hayder Radha, "Cold-start Recommendation with Provable Guarantees: A Decoupled Approach," *IEEE Transactions on Knowledge and Data Engineering*, Vol. 26, Issue 6, pp. 1462-1474, June 2016. [Pdf](#)
7. Matthew R. Herman, A. Pouyan Nejadhashemi, Fariborz Daneshvar, Dennis M. Ross, Sean A. Woznicki, Zhen Zhang, and Abdol-Hossein Esfahanian, "Optimization of conservation practice implementation strategies in the context of stream health," *Journal of Ecological Engineering*, Vol 84, pp. 1 – 12, 2015. [Pdf](#)
8. Sean A. Woznicki, A. Pouyan Nejadhashemi, Dennis M. Ross, Zhen Zhang, LizhuWang, and Abdol-Hossein Esfahanian, "Ecohydrological model parameter selection for stream health evaluation," *Science of the Total Environment*, Vol 511, pp. 341-353, 2015. [Pdf](#)
9. Dennis Ross, Bruce Sagan, Ronald Nussbaum, and Abdol-Hossein Esfahanian, "On Constructing Regular Distance-Preserving Graphs," *Congressus Numerantium*, Vol. 219, pp. 129-138, 2014. [Pdf](#)
10. Ronald Nussbaum and Abdol-Hossein Esfahanian, "Preliminary Results on Distance-Preserving Graphs," *Congressus Numerantium*, Vol. 211, pp. 141-149, 2013. [Pdf](#)
11. Abhishek Patil, Abdol-Hossein 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. [Pdf](#)
12. Abhishek Patil, Yunhao Liu, Li Xiao, Abdol-Hossein Esfahanian, and Lionel M Ni, "SOLONet: Sub-optimal location-aided overlay network for MANETs," *Journal of Wireless Networks*, pp. 415-433, January 2008. [Pdf](#)

13. Andrew Chen and Abdol-Hossein Esfahanian, "On The Construction of Graphs with Large Numbers of Spanning Trees," *Congressus Numerantium*, Vol. 172, pp. 123-148, 2005. [Pdf](#)
14. Li Xiao, Abhishek Patil, Yunhao Liu, Lionel M Ni, and Abdol-Hossein Esfahanian, "Prioritized Overlay Multicast in Ad-hoc Environments," *IEEE Computer Magazine*, pp. 67-74, Feb 2004. [Pdf](#)
15. Barbara D. Gannod, Abdol-Hossein Esfahanian, and Eric Torng, "Source-Limited Inclusive Routing: A New Paradigm for Multicast Communication," *NETWORKS*, Vol. 35, No. 1, pp. 40-55, 2000. [Pdf](#)
16. X. Lin, Abdol-Hossein Esfahanian, and A. Burago, "Adaptive Wormhole Routing in Hypercube Multicomputers," *Journal of Parallel and Distributed Computing*, Vol. 48, pp. 165-174, 1998. [Pdf](#)
17. Barbara D. Birchler, Abdol-Hossein Esfahanian, and Eric Torng, "Software Multicast Techniques: A Survey," *Journal of Scientia Iranica*, Vol. 3, No. 4, pp. 159-174, winter 1997.
18. X. Lin, P.K. McKinley, and Abdol-Hossein Esfahanian, "Adaptive Multicast Wormhole Routing in 2D Mesh Multicomputers," *Journal of Parallel and Distributed Computing*, Vol. 28, pp. 19-31, 1995. [Pdf](#)
19. P.K. McKinley, H. Xu, Abdol-Hossein Esfahanian, L.M. Ni, "Unicast-Based Multicast Communication in Wormhole-Routed Networks", *IEEE Transactions on Parallel and Distributed Systems*, Vol. 5, No. 12, pp. 1252-1265, December 1994. [Pdf](#)
20. Abdol-Hossein 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. [Pdf](#)
21. A. Duksu Oh, H.-A. Choi, and Abdol-Hossein 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.
22. H.-A. Choi and Abdol-Hossein Esfahanian, "A Message-Routing Strategy for Multicomputer Systems," *NETWORKS*, Vol. 22, pp. 627-646, 1992. [Pdf](#)
23. G. Zimmerman and Abdol-Hossein Esfahanian, "Chordal Rings as Fault-Tolerant Loop Networks," *Journal of Discrete Applied Mathematics*, 37/38, pp. 563-573, 1992. [Pdf](#)
24. Abdol-Hossein 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. [Pdf](#)
25. Y. Lan, Abdol-Hossein Esfahanian, and L.M. Ni, "Multicast in Hypercube Multiprocessors," *Journal of Parallel and Distributed Computing*, Vol. 8, pp. 30-41, January 1990. [Pdf](#)
26. Abdol-Hossein Esfahanian, "Generalized Measures of Fault-Tolerance with Application to n -Cube Networks," *IEEE Transactions on Computers*, Vol. 38, pp. 1586-1591, November 1989. [Pdf](#)
27. Y. Lan, L.M. Ni, and Abdol-Hossein Esfahanian, "A VLSI Router Design for Hypercube Multiprocessors," *INTEGRATION, the VLSI Journal*, Vol. 7, pp. 103-125, July 1989. [Pdf](#)
28. Abdol-Hossein 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. [Pdf](#)
29. Abdol-Hossein Esfahanian, "Lower-Bounds on the Connectivities of a Graph," *Journal of Graph Theory*, Vol. 9, No. 4, pp. 503-511, 1985. [Pdf](#)

30. Abdol-Hossein 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.
31. Abdol-Hossein Esfahanian and S.L. Hakimi, "On Computing the Connectivities of Graphs and digraphs," *NETWORKS*, Vol. 14, pp. 355-366, 1984. [Pdf](#)

Book Chapters

32. Ronald Nussbaum, Abdol-Hossein Esfahanian, and Pang-Ning Tan, "Clustering Social Networks Using Distance-preserving Subgraphs," *The Influence of Technology on Social Network Analysis and Mining*, TanselÖzyer et al. (eds.), Springer, pp. 331-350, March 2013. [Pdf](#)
33. Abdol-Hossein Esfahanian, "Connectivity Algorithms," *Structural Graph Theory*, Robin Wilson and Lowell Beineke, (Eds.), Cambridge University Press, pp. 268-281, 2013. [Pdf](#)
34. Jerry Scripps, Ronald Nussbaum, Pang-Ning Tan, and Abdol-Hossein Esfahanian, "Link-based Network Mining," *Structural Analysis of Networks*, Dehmer M. (Eds.), pp. 403-420, Birkhäuser Publishing, 2010. [Pdf](#)
35. Swamy K. Sitarama and Abdol-Hossein Esfahanian, "Designing Distance-Preserving Fault-Tolerant Topologies," *Lecture Notes in Computer Science: Graph-Theoretic Concepts in Computer Science*, G. Goos, J. Hartmanis and J. van Leeuwen (Ed.), Vol. 1197, pp. 352-366, Springer-Verlag, 1996. [Pdf](#)
36. Barbara D. Birchler, Abdol-Hossein Esfahanian, and Eric Torng, "Toward a General Theory of Unicast-Based Multicast Communication," *Lecture Notes in Computer Science: Graph-Theoretic Concepts in Computer Science*, Manfred Nagl (Ed.), Vol. 1017, pp. 237-251, Springer-Verlag, 1995. [Pdf](#)
37. Y. Lan, Abdol-Hossein Esfahanian, and L.M. Ni, "Multicast in Hypercube Multiprocessors," *Interconnection Networks for High Performance Parallel Computers*, I.D. Scherson and A.S. Youssef (Eds.), IEEE Computer Society Press, pp. 383-394, 1994. [Pdf](#)
38. Abdol-Hossein 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, pp. 668-379, 1994. [Pdf](#)
39. G. Zimmerman, Abdol-Hossein Esfahanian, and D. Vasquez, "GMP/X, An X-Windows based Graph Manipulation Package," *Computational Support for Discrete Mathematics (DIMACS 15)*, N. Dean and G. E. Shannon (Eds.), Volume 15, pp. 245-254, American Mathematical Society, 1992.
40. H.-A. Choi and Abdol-Hossein Esfahanian, "On Complexity of a Message-Routing Strategy for Multicomputer Systems," *Lecture Notes in Computer Science: Graph-Theoretic Concepts in Computer Science*, R.H. Mohring (Ed.), Vol. 484, pp. 170-181, Springer-Verlag, 1991. [Pdf](#)
41. H.-A. Choi, Abdol-Hossein 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

42. Farzan Masrour, Pang-Ning Tan, and Abdol-Hossein Esfahanian, "Fairness Perception from a Network-Centric Perspective," *2020 IEEE International Conference on Data Mining*, to appear.
43. Farzan Masrour, Tyler Wilson, Heng Yan, Pang-Ning Tan, and Abdol-Hossein Esfahanian, "Bursting the Filter Bubble: Fairness-Aware Network Link Prediction," *The Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI-20)*, pp. 841-848. [Pdf](#)
44. Farzan Masrour, Pang-Ning Tan, and Abdol-Hossein Esfahanian, "OPTANE: An OPTimal Transport Algorithm for NETwork Alignment," *The 2019 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2019)*, pp. 448 – 451, Vancouver, Canada, 2019.
45. Farzan Masrour, Pang-Ning Tan, Abdol-Hossein Esfahanian, and Courtland VanDam, "Attributed Network Representation Learning Approaches for Link Prediction," *The 2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2018)*, pp. 560 – 563, Barcelona, Spain, 2018.
46. Alireza Ameli Renani, Jun Huang, Guoliang Xing, and Abdol-Hossein Esfahanian, "Harnessing hardware defects for improving wireless link performance: Measurements and applications," *INFOCOM*, pp. 1-9, 2017.
47. Rana Forsati, Iman Barjasteh, and Abdol-Hossein Esfahanian, "Semi-supervised Collaborative Ranking with Push at the Top," *The 2017 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2017)*, pp. 401 – 408, Sydney, Australia, 2017.
48. Rana Forsati, Iman Barjasteh, Dennis Ross, and Abdol-Hossein Esfahanian, "Learning the Implicit Preference of Users for Effective Recommendation," *The 2017 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2017)*, pp. 636 – 639, Sydney, Australia, 2017.
49. Emad Zahedi, Masoud Mirmomeni, and Abdol-Hossein Esfahanian, "An Evolutionary Framework for Analyzing the Distance Preserving Property of Weighted Graphs," *The 2017 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2017)*, pp. 577 – 584, Sydney, Australia, 2017.
50. Rana Forsati, Iman Barjasteh, Abdol-Hossein Esfahanian, and Hayder Radha, "Semi-supervised Collaborative Ranking with Push at Top," *SIAM MLRec, International Workshop on Machine Learning Methods for Recommender Systems*, 2016.
51. Farzan Mansour, Iman Barjasteh, Rana Forsati, Abdol-Hossein Esfahanian, and Hayder Radha, "Network Completion with Node Similarity: A Matrix Completion Approach with Provable Guarantees," *The 2015 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2015)*, pp. 302 – 307, Paris, France, 2015.
52. Rana Forsati, Iman Barjasteh, Farzan Mansour, Abdol-Hossein Esfahanian, and Hayder Radha, "PushTrust: An Efficient Recommendation Algorithm by Leveraging Trust and Distrust Relations," *The 9th ACM Conference on Recommender Systems*, pp. 51 – 58, Vienna, Austria, 2015.

53. Iman Barjasteh, Rana Forsati, Farzan Mansour, Abdol-Hossein Esfahanian, and Hayder Radha, "Cold-Start Item and User Recommendation with Decoupled Completion and Transduction," *The 9th ACM Conference on Recommender Systems*, Vienna, Austria, 2015.
54. Chin-Jung Liu, Pei Huang, Li Xiao, Abdol-Hossein Esfahanian, "Interference identification and resource management in OFDMA femtocell networks," *2014 IFIP Networking Conference*, pp 1-9, Trondheim, Norway.
55. Claudia Elena Vergara, Mark Urban-Lurain, Abdol-Hossein Esfahanian, et al. "Towards Improving Computational Competencies for Undergraduate Engineering Students," *ASEE Conference*, Indianapolis, IN, June 2014.
56. Claudia Elena Vergara, Mark Urban-Lurain, Abdol-Hossein Esfahanian, Daina Briedis, Neeraj Buch, "Integrating computation across engineering curricula: Preliminary impact on students," *Frontiers in Education*, pp. 1-2, Seattle WA, 2012.
57. Claudia Elena Vergara, Mark Urban-Lurain, Abdol-Hossein Esfahanian, Daina Briedis, Neeraj Buch, Thomas F. Wolff, Jon Sticklen, Cindee Dresen, Kysha L. Frazier, and Louise Paquette, "Computational Expertise in Engineering: Aligning Workforce Computing Needs with Computer Science Concepts," *ASEE 2011*, Vancouver BC, AC 2011-1050.
58. Ronald Nussbaum, Abdol-Hossein Esfahanian, and Pang-Ning Tan, "Clustering Social Networks Using Distance-preserving Subgraphs," *Proceedings of the 2010 International Conference on Advances in Social Networks Analysis and Mining (ASONAM'10)*, pp. 380-385, Odense, Denmark, August 9-11, 2010.
59. Claudia E. Vergara, Mark Urban-Lurain, Cindee Dresen, Tammy Coxen, Taryn MacFarlane, Kysha Frazier, Daina Briedis, Neeraj Buch, Abdol-Hossein Esfahanian, Louise Paquette, Jon Sticklen, Jeannine LaPrad, and Thomas F. Wolff, "Aligning Computing Education with Engineering Workforce Computational Needs: New Curricular Directions to Improve Computational Thinking in Engineering Graduates," *The 39th ASEE/IEEE Frontiers in Education Conference*, pp. (W2H)1-6, October 18 - 21, 2009, San Antonio, TX.
60. Ronald Nussbaum, Abdol-Hossein Esfahanian, and Pang-Ning Tan, "History-based Email Prioritization," *Proceedings of the 2009 International Conference on Advances in Social Networks Analysis and Mining (ASONAM'09)*, pp. 364-365, Athens, Greece, July 20-22, 2009
61. Jerry Scripps, Pang-Ning Tan, and Abdol-Hossein Esfahanian, "Measuring the Effects of Preprocessing Decisions and Network Forces in Dynamic Network Analysis," *Proceedings of ACM SIGKDD International Conference on Data Mining (KDD-2009)*, Paris, France 2009.
62. Jerry Scripps, Pang-Ning Tan, Feilong Chen, and Abdol-Hossein Esfahanian, "A Matrix Alignment Approach for Collective Classification," *Proceedings of the 2009 International Conference on Advances in Social Networks Analysis and Mining (ASONAM'09)*, pp.155-159, Athens, Greece, July 20-22, 2009.
63. Jerry Scripps, Pang-Ning Tan, Feilong Chen, and Abdol-Hossein Esfahanian, "A Matrix Alignment Approach for Link Prediction," *Proceedings of the 19th International Conference on Pattern Recognition (ICPR-08)*, pp. 1-4, Tampa, Florida, December 8-11, 2008. Nominated for IBM best student paper award.
64. Jerry Scripps, Pang-Ning Tan, and Abdol-Hossein Esfahanian, "Node Roles and Community Structure in Networks," *KDD 2007 Workshop on Web Mining and Social Network Analysis*, pp. 26 - 36, August 2007.

65. Jerry Scripps, Pang-Ning Tan, and Abdol-Hossein 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.
66. Andrew Chen and Abdol-Hossein 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.
67. Abhishek Patil, Abdol-Hossein 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.
68. Yunhao Liu, Li Xiao, Abdol-Hossein 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.
69. Abhishek Patil, Yunhao Liu, Li Xiao, Abdol-Hossein 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.
70. Abhishek Patil, Yunhao Liu, Lionel Ni, Li Xiao and Abdol-Hossein 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.
71. Baijian Yang, Abdol-Hossein Esfahanian, Lionel Ni, and P. Mohapatra, "A Tree Building Technique for Overlay Multicasting in DiffServ Domain," *International Conference on Internet Computing, USA, 2003*.
72. Boris Gelfand, Abdol-Hossein 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.
73. Boris Gelfand, Matt Mutka, and Abdol-Hossein 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.
74. F. Du, L. M. Ni and Abdol-Hossein Esfahanian, "HOPOVER: A New Handoff Protocol for Overlay Networks," *IEEE ICC2002*, pp. 3234 – 3239, New York, New York, May 2002.
75. W.K. Liao, Abdol-Hossein Esfahanian and L.M. Ni, "Flow Control for ABR Dispersity Multicasting," *IEEE ICCCN2000*, pp. 598 – 603, Oct. 2000, Las Vegas, Nevada.
76. W. Tang, F. Du, M. W. Mutka, L. M. Ni, Abdol-Hossein 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.
77. F. Du, L. M. Ni and Abdol-Hossein Esfahanian, "Towards Solving Multicast Key Management Problem," *The Eighth International Conference on Computer Communications and Networks*, pp. 232-236, October 1999.

78. Matthew Pfeiffer, Daniel Dapkus, Abdol-Hossein Esfahanian, and Charles B. Owen, "The Shuffler: Software for a World-Wide-Web Based Form Routing System," *WebNet99*, Honolulu, Hawaii, October 1999.
79. Barbara D. Birchler, Abdol-Hossein Esfahanian, and Eric Torng, "Sufficient Conditions for Optimal Multicast Communication," *Proceedings of the International Conference on Parallel Processing*, pp. 390-393, 1997.
80. Barbara D. Birchler, Abdol-Hossein Esfahanian, and Eric Torng, "Information Dissemination in Restricted Routing Networks," *The International Symposium on Combinatorics and Applications*, (Tianjin China), pp. 33-43, June 1996.
81. X. Lin, Abdol-Hossein 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.
82. X. Lin, P.K. McKinley, and Abdol-Hossein Esfahanian, "Adaptive Multicast Wormhole Routing in 2D Mesh Multicomputers," *Proceedings of the Parallel Architecture and Languages*, pp. 228-241, June 1993.
83. P.K. McKinley, H. Xu, Abdol-Hossein 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.
84. G. Zimmerman and Abdol-Hossein Esfahanian, "Fault Tolerance in Chordal Rings", *Proceedings of The Second Great Lakes Computer Science Conference*, Kalamazoo, MI, September 1991.
85. G. Zimmerman and Abdol-Hossein 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.
86. A. Duksu Oh, H.-A. Choi, and Abdol-Hossein Esfahanian, "Some Results on Generalized Connectivity," *Proceedings of The Twenty-second Southeastern International Conference on Combinatorics, Graph Theory and Computing*, January 1991.
87. A. Duksu Oh, H.-A. Choi, and Abdol-Hossein Esfahanian, "On the Complexity of a Fault-Tolerance Model," *First Great Lakes Symposium on VLSI*, Western Michigan University, January 1991.
88. Abdol-Hossein 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.
89. H.-A. Choi and Abdol-Hossein Esfahanian, "Restricted Vertex-Connectivity with Application to Fault-Tolerant Computing," *Proceedings of The International Conference on Operations Research*, Vienna, Austria, August 1990.
90. H.-A. Choi and Abdol-Hossein Esfahanian, "Steiner Tree Problem is NP-Complete for Planar Cube Graphs," *The Fifth SIAM Conference on Discrete Mathematics*, June 1990.
91. G. Zimmerman and Abdol-Hossein Esfahanian, "A New Approach to System-Level Fault-Tolerance in Message-Passing Multicomputers," *Proceedings of First Great Lakes Computer Science Conference*, September 1989.
92. Abdol-Hossein Esfahanian and G. Zimmerman, "A New Fault Tolerance Analysis for n -Cube Networks," *Proceeding of the International Symposium on Mini and Microcomputers*, December 1988.

93. Abdol-Hossein 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.
94. B. McMillin, Abdol-Hossein 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.
95. Y. Lan, L.M. Ni, and Abdol-Hossein Esfahanian, "Relay Approach Message Routing in Hypercube Multiprocessors," *Proceedings of the 3rd International Conference on Supercomputing*, pp. 174-183, May 1988.
96. Abdol-Hossein 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.
97. Y. Lan, Abdol-Hossein 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.
98. Y. Lan, Abdol-Hossein 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.
99. Abdol-Hossein 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.
100. H.-A. Choi, Abdol-Hossein 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

101. R. Nussbaum, Abdol-Hossein Esfahanian, and Pang-Ning Tan, "Graph-based Email Prioritization," *Tech report MSU-CSE-08-33*, Michigan State University, December 2008.
102. Abhishek Patil, Abdol-Hossein 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.
103. Jerry Scripps, Pang-Ning Tan, and Abdol-Hossein Esfahanian, "Exploration of Link Structure and Community-based Node Roles in Network Analysis," *Tech report MSU-CSE-07-191*, Michigan State University, August 2007.
104. Jerry Scripps, Pang-Nig Tan, and Abdol-Hossein 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.
105. Abhishek Patil, Yunhao Liu, Li Xiao, Abdol-Hossein 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.
106. Andrew Chen, and Abdol-Hossein Esfahanian, "A Demography of t-optimal (n,m) graphs where $n \leq 12$," *Tech report MSU-CSE-04-50*, Michigan State University, December 2004.

107. Abhishek Patil, Yunhao Liu, Lionel Ni, Li Xiao and Abdol-Hossein Esfahanian, "SOMA: Security Using Overly Multicast in Ad-hoc Environment," *Technical Report*, MSU-CSE-03-21, Michigan State University, August 2003.
108. William Wilson and Abdol-Hossein Esfahanian, "Adobe Form Modification through XML in a Mobile Environment," *Technical Report*, MSU-CSE-02-15, Michigan State University, May 2002.
109. Lei Wang and Abdol-Hossein Esfahanian, "Recent Advances and Challenges in Wireless Networking Technologies: A Survey", *Technical Report*, MSU-CSE-01-15, Michigan State University, May 2001.
110. Xiaohui Xiong and Abdol-Hossein Esfahanian, "Graph Connectivity Algorithms: A Survey", *Technical Report*, MSU-CSE-01-16, Michigan State University, May 2001.
111. Nasrollah Seyed Alavi and Abdol-Hossein Esfahanian, "Guidelines for Developing Web-Based Database Applications," *Technical Report*, CPS-98-41, Michigan State University, December 1998.
112. Dmitri Perkins, Eric Torng, and Abdol-Hossein Esfahanian, "Internet and Web Security," *Technical Report*, CPS-98-40, Michigan State University, December 1998.
113. Matthew Pfeiffer, Abdol-Hossein Esfahanian, "The Shuffler: Software for a World Wide Web based Form Routing System", *Technical Report*, CPS-98-19, Michigan State University, June 1998.
114. Daniel Dapkus, and Abdol-Hossein Esfahanian, "The Shuffler: Design & Implementation of the Installation Utility and the Database", *Technical Report*, CPS-98-20, Michigan State University, June 1998.
115. Lynn Kubinec and Abdol-Hossein Esfahanian, "Understanding Asynchronous Transfer Mode," *Informatic Newsletters*, No. 59, pp. 186-208, April 1995.
116. Barbara D. Birchler, Abdol-Hossein Esfahanian, and Eric Torng, "Toward a General Theory of Unicast-Based Multicast Communication," *Technical Report*, CPS-95-03, Michigan State University, March 1995.
117. C.C. Chiu, C.G. Venkatesh, Abdol-Hossein 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.
118. Lynn Kubinec, M. W. Mutka, and Abdol-Hossein Esfahanian, "Introduction to the ASX-100 Switch Source Code," *Technical Report*, CPS-94-45, Michigan State University, September 1994.
119. Lynn Kubinec and Abdol-Hossein Esfahanian, "Understanding Asynchronous Transfer Mode," *Technical Report*, CPS-94-11, Michigan State University, February 1994.
120. Swamy K. Sitarama and Abdol-Hossein Esfahanian, "Designing Distance-Preserving Fault-Tolerant Topologies," *Technical Report*, CPS-94-12, Michigan State University, February 1994.
121. P.K. McKinley, H. Xu, Abdol-Hossein Esfahanian, L.M. Ni, "Unicast-Based Multicast Communication in Wormhole-Routed Networks," *Technical Report*, MSU-CPS-ACS-48, Michigan State University, 1993.
122. H.-A. Choi and Abdol-Hossein Esfahanian, "A New Complexity Result on Steiner Tree Problem," *Technical Report*, MSU-CPS-ACS-19, October 1989.

123. H.-A. Choi and Abdol-Hossein Esfahanian, "The Complexity of Optimal Distance-Preserving Trees," *Technical Report*, MSU-CPS-ACS-18, October 1989.
124. G. Zimmerman and Abdol-Hossein 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.
125. B. McMillin, Abdol-Hossein 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.
126. G. Zimmerman, and Abdol-Hossein 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.
127. B. McMillin, L.M. Ni, and Abdol-Hossein 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.
128. G. Zimmerman, and Abdol-Hossein 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. "FAI: Fairness-Aware Algorithms for Network Analysis," (Jointly with Pang-Ning Tan (PI)), *National Science Foundation and Amazon*, \$636,000, 1/2020 – 12/2022.
2. "CPATH-2: CPACE II: Implementing Constituency-driven Curricular Change that Integrates Computational Thinking Across Engineering Disciplines," (Jointly with Jon Sticklen, Neeraj Buch, Mark Urban-Lurain, and Daina Briedis), *National Science Foundation*, \$799,796, 9/2009 - 9/2013.
3. "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.
4. "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.
5. "EMPOWER: EMulate the PerfOrmance of WidE aRea networks," (Jointly with M. Mutka, and Lionel Ni), NSF, \$101,490 (NSF \$65,968, MSU \$35,522) 3/00 – 3/01.
6. "ESIS and ERCIS Database Projects," *College of Engineering*, MSU, \$18000, 7/99-7/00.
7. "ESIS and ERCIS Database Projects," *College of Engineering*, MSU, \$18000, 7/98-7/99.
8. "ESIS and ERCIS Database Projects," *College of Engineering*, MSU, \$20000, 7/97-7/98.
9. "Engineering Student Information System," *College of Engineering*, MSU, \$12000, 7/96-7/97.
10. "Engineering Student Information System," *College of Engineering*, MSU, \$10988, 7/95-7/96.

11. "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.
12. "Research Experiences for Undergraduates," (Jointly with P. McKinley and L.M. Ni), *National Science Foundation*, \$13000, 5/94 - 3/96.
13. "Research Experiences for Undergraduates," (Jointly with P. McKinley and L.M. Ni), *National Science Foundation*, \$13000, 5/93 - 3/96.
14. "Equipment Proposal for High-Speed Local Area Networks," (Jointly with H. Hughes, P. McKinley, M. Mutka), *National Science Foundation*, \$100000, 1/93 - 6/94.
15. "Multicast Communication in Multicomputers," (Jointly with L.M. Ni and P. McKinley), *National Science Foundation*, \$331914, 8/92 - 1/96.
16. "Designing Fault-Tolerant Topologies for Multicomputers," *AURIG*, Michigan State University, \$10000, 7/92 - 7/93.
17. "Communication and Topological Issues Concerning Multicomputers," *National Science Foundation*, \$25249, 9/89 - 8/91.
18. "One-to- k Communication in Distributed-Memory Multiprocessor," *AURIG*, Michigan State University, \$4000, 1/89 - 1/90.
19. "Equipment Proposal for Advanced Computing Laboratory," (Jointly with L.M. Ni), *National Science Foundation*, \$60000, July 1987.
20. "NSF Travel Grant," to attend NSF-CBMS Regional Conference on Algorithm and Complexity, \$1000, August 1988.
21. "A CAD tool for Graph Manipulation," *General Electric faculty development program in CAD*, \$5776, April 1986.
22. "New Measures of Fault-Tolerance for Large Scale Multiple Processor Systems," *Division of Engineering Research*, \$4850, April 1985.
23. "NSF Travel Grant", to attend NSF-CBMS Regional Conference on *Applied Algorithms Design*, \$600, July 1984.
24. "Identifying the Isolated Components of Certain Fault Diagnosable Systems after Having Sustained Some Failures," *Division of Engineering Research*, \$8400, March 1984.

Presentations

- "Network Completion with Node Similarity: A Matrix Completion Approach with Provable Guarantees," *The 2015 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2015)* Paris, France, 2015.
- "PushTrust: An Efficient Recommendation Algorithm by Leveraging Trust and Distrust Relations," *The 9th ACM Conference on Recommender Systems*, Vienna, Austria, 2015.
- "Cold-Start Item and User Recommendation with Decoupled Completion and Transduction," *The 9th ACM Conference on Recommender Systems*, Vienna, Austria, 2015.
- "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. Youran Lan, *Interprocessor Communication in Distributed-Memory Multiprocessors*, July 1988. (jointly with Lionel Ni).
2. Guy W. Zimmerman, *On Some Topological Issues in Message-Passing Multicomputer Architectures*, August 1990. Currently with Computer Science Department, Bowling Green State University.
3. Swamy K. Sitarama, *Designing Distance-Preserving Graphs*, December 1996. Currently with Lucent Technologies.
4. Barbara Birchler, *Toward a General Theory of Multicast Communication*, August 1997. (jointly with Eric Torng). Currently with Computer Science Department, Arizona State University.

5. Wei Kuo Liao, *Multiple Multicast Problems*, December 1999. (jointly with Lionel Ni). Currently with Department of Communication Engineering, National Chiao Tung University, Taiwan.
6. Fan Du, *Supporting Real-Time and Multimedia Applications in Wireless Networks*, December 2001. (jointly with Lionel Ni).
7. Baijian Yang, *Supporting Multicast in Scalable QOS Frameworks*, December 2002. (jointly with Prasant Mohapatra). Currently with The Ball State University, Indiana.
8. Boris Gelfand, *A Self-Moderating Peer-To-Peer File System*, May 2003 (jointly with Matt Mutka). Currently with Lockheed Martin Corporation.
9. Andrew Chen, *On Graphs with Large Number of Spanning Trees*, August 2005, Currently with Minnesota State University.
10. Abhishek Pramod Patil (Jointly with Lionel Ni), *Overlay Multicast In Manets*, December 2005. Currently with Sony Inc, CA.
11. Ronald Nussbaum, *Distance-preserving Graphs*, December 2014.
12. Dennis Ross, *Edge Impact in Graphs and Social Network Matrix Completion*. August 2016.
13. Emad Zahedi, *Applied Graph Theory*, August 2017.
14. Husain Khalifeh, *Graph Theory and Machine Learning*, Expected graduation date May 2021.
15. Farzan Masrour, *Graph Theory and Social Networks*, Expected graduation date May 2021.

Master's Projects Supervised

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

Courses Taught

- Fundamentals of Information Technology (CSE 201)
- 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

- Member of Advisory Committee, Computer Science Academy, Capital Area IT Council, Lansing, MI, 2011 – present.
- 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

- CSE Department Undergraduate Curriculum Committee
- College of Engineering Grievance Committee
- CSE Department Awards Committee (Chair), 2004-2011
- University Academic Council, 2001-2003
- College Graduate Directors Meetings, 1994-2004.
- CSE Department Graduate Studies and Research Committee, 1994-2004.
- CSE Department Advisory Committee (Elected), 1992-1994, 1998 – 1999, 2005
- CSE Department Search Committee, 1992.
- CSE Department Tenure/promotion Committee, 1992.
- CSE Department Representative for the College Curriculum Committee, 1992.
- CSE Department Undergraduate Curriculum Committee (Chaired), 1990-1992.
- CSE Department Computing Environment Committee (Chaired), 1988-1990.
- Case Center for Computer Aided Design Advisory Committee, College of Engineering, 1988-1990.
- PhD Qualifying Examination Committee.