

## VITA

### Jitender S. Deogun

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#### EDUCATION:

1979, Ph.D., University of Illinois, Urbana, IL  
1974, M.S., University of Illinois, Urbana, IL  
1970, M.Sc., University of Delhi, Delhi  
1966, B.Sc. (Hons.), Punjab University, Chandigarh

#### PROFESSIONAL EXPERIENCE:

1988 to date, Professor, Computer Science & Engineering, University of Nebraska, Lincoln, Nebraska.

1984 to 1988, Associate Professor, Computer Science & Engineering, University of Nebraska, Lincoln, Nebraska.

Fall 1987, Visiting Associate Professor, Computer Science, The Center for Advanced Computer Studies, University of Southwestern Louisiana, Lafayette, Louisiana.

May 1987 to August 1987, Visiting Professor, Electrical Communications, Tohoku University, Sendai, JAPAN.

1981 to 1984, Assistant Professor, Computer Science, University of Nebraska, Lincoln, Nebraska.

1979 to 1981, Assistant Professor, Computer Science, University of South Carolina, Columbia, South Carolina.

#### RESEARCH AREAS:

High Performance Optical Switch Architecture, Optical and Optical Wireless Networks, Sensor Networks, Structural and Algorithmic Graph Theory, Design and Analysis of Algorithms, Bioinformatics, and Data Mining Models.

## **GRADUATE STUDENT SUPERVISING:**

Supervised twenty two Ph.D. and twenty M.S. students, served on an additional twenty Ph.D. and twenty five M.S. committees. Currently, supervising five Ph.D. students. The success of my former Ph.D. students in industry as well as academia speaks for the quality of the training they have received. For example, in industry my former students have progressed to General Manager of Microelectronics Services at Intel, Director of Parallel Compilers Lab at Intel and Research Scientist at Alcatel, and in academia, my students are working at various ranks from Assistant Professor to Dean.

## **PROGRAM DEVELOPMENT:**

1. Leading role in development of *Bioinformatics Research Program* and *Bioinformatics Research Laboratory*. Developed Ph.D. and M.S. programs for Bioinformatics specialization in Computer science and Engineering.

## **GRANTS, FELLOWSHIPS, AWARDS:**

1. "Decision Science in Rehabilitation," DHHS-Nat Inst Mental Health, Sep. 1, 2007 – Aug. 31, 2010, \$893,197. PI: W. Spaulding, Co-I: J. S. Deogun, et al.
2. "Development of Functional Nanoscaled Devices Using Optical Near Field Effects", Nebraska Research Initiative, June 1, 2007 – May 31, 2008, \$50,000. PI: Dennis Alexander, Co-PIs: Jitender S. Deogun.
3. "Adaptive Real-Time Scheduling for Grid Computing", NSF CNS-0720810, CSR-AES, Sep. 1, 2007 – Aug. 31, 2009, \$125,000. PI: Ying Lu, Co-PIs: Jitender S. Deogun and Stephen M. Goddard.
4. "Equipment Grant, for Studying Energy Efficient and Secure Wireless Multimedia Sensor Networks," \$40,000, Sep. 1, 2007 – Aug. 31, 2008, CoE, UNL. PI: Hamid Sharif, Co-PIs: Jitender S. Deogun, et al.
5. "Hi Speed File Transfer/Data Stream," Aspera Inc., June 20, 2007 – Aug. 15, 2007, \$14,589. PI: Jitender Deogun and Huzaifa Al Nahas.
6. "Center for Mobile Computing Research," NSF EPSCoR, Infrastructure and Research grant, Feb. 1, 2004 – Jan. 31, 2007, \$ 550,000. PI: H. Ali, Co-PIs: J. S. Deogun, H. Shariff, and J. Youn.
7. "Nebraska High Performance Wireless Research and Education Network," NRI, Sept. 1, 2004 – Aug. 31, 2006, \$ 682,232. PI: H. Ali, Co-PIs: J. S. Deogun, S. Henrich, H. Shariff, and J. Youn.
8. "Risk Assessment and Exposure Analysis," USDA #02IE08310228, October 1, 2002 – September 30, 2004, \$1,326,623. PI: S. Goddard; Co-PIs: J. Deogun, M. Hayes, K. Hubbard, W. Waltman, D. Wilhite.

9. "Translational Research Center for Rehabilitation Informatics and Decision Science," Strategic Research Cluster Grant, University of Nebraska-Lincoln, July 2003 - June 2004, \$50,000. PI: William D. Spaulding; Co-PI: Jitender S. Deogun, et al.
10. "Bioinformatics Research Laboratories," NSF EPSCoR, Infrastructure and Research grant, Feb. 1, 2001 – Jan. 31, 2004, \$2,475,563 (plus \$2,475,563 UNL cost share). PI and Project Co-leader: J. S. Deogun, Co-PIs: A. Benson, R. Donis, K. Gill, V. Gladyshev, S. Mackenzie, and S. Scott.
11. "DIGITAL GOVERNMENT: A Geospatial Decision Support System for Drought Risk Management," NSF, (5/1/2001–4/30/2004), \$1,103,643 (\$1,007,914 from NSF, \$95,729 from CCIS and UNL cost share). PI: S. Reichenbach; Co-PIs: J. Deogun, S. Goddard, M. Hayes, K. Hubbard, P. Revesz, W. Waltman, D. Wilhite.
12. "Bioinformatics Systems Laboratory," (Equipment grant for a graduate student training lab), NU Foundation, August 2000 – December 2001, \$54,000. PI: . D. Deogun, Co-PIs: A. Benson, K. Gill, and V. Gladyshev.
13. "Prototype for an Open Intelligent Information System," DoD-EPSCoR Grant–(DAAH04-96-1-0325), August 1996, July 2000. \$266,040, plus \$137,019 matching grant CCIS University of Nebraska. PI: J. S. Deogun and Co-PI S. Seth, and A. Samal.
14. "Electronic Commerce Systems Laboratory," University of Nebraska Foundation, August 1997 - July 1998, \$96,972. PI: D. Stinson, Co-PI: J. S. Deogun with a group of CSE and CBA faculty.
15. "Microsoft Software Grant for Multimedia Laboratory," Microsoft Corporation, January 1994-January 1995. \$11,897. PI: J. S. Deogun.
16. "Multimedia Laboratory Equipment," CCIS Grant, December 1993. \$7,900.
17. "Workshop on Future Directions in Text Analysis, Retrieval and Understanding," NSF Grant–(NSF-9114210), September 1991-June 1993. \$25,105. PI: J. S. Deogun and Co-PI: V. V. Raghavan.
18. "Diametral Path Graphs and Incremental Distance Sequences," ONR Grant–(N00014-91-J-1693), April 1991-June 1994. \$167,738. PI: J. S. Deogun and Co-PI: K. J. Bagga.
19. "Message Understanding for Template Filling," DARPA Grant–(MDA 903-89-c-0041), October 1990-September 1991. \$45,000. PI: J. S. Deogun and Co-PI: V. V. Raghavan.
20. "Cluster Based Adaptive Information Retrieval System," NSF Grant–IRI-8805875), July 1988-June 1991, \$142,458. PI: V. V. Raghavan and Co-PI: J. S. Deogun.
21. "Cluster-Based Adaptive Information Retrieval Systems," CCIS Grant, October 1989, \$14,498.
22. "Planned Database Evolution in a Growing Service Environment," US West Advanced Technologies, June 1989-June 1990, \$40,000. Investigators: J. S. Deogun et al.

23. Mentor Graphics CAD Software Gift Program Grant, November 1988, \$600,000.
24. Center for Communications and Information Sciences, Equipment Grant, October 1988, \$12,000.
25. SIGDA Graduate Research Support Grant, \$8,000, June 1988.
26. Ministry of Education, Japan, Fellowship, May, 1987, \$20,000, Tokohu University, Sendai, Japan.
27. Faculty Development Fellowship, June 87, \$3,000, College of Engineering, University of Nebraska, Lincoln.
28. Visiting Research Scholar, September 86, \$2000, Istituto per la Matematica Applicata, del C.N.R., Genova, Italy and NSF. Canada.
29. Visiting Research Scholar, July 85, \$5000, University of Regina, Regina, Canada.
30. Research Council Summer Fellowship, June 85, \$5,000, University of Nebraska, Lincoln, NE 68588.
31. NSF Equipment Grant, \$60,000, September 84. Matematica Applicata, del C.N.R., Genova, Italy.
32. Faculty Development Fellowship, June 83, \$4,000, College of Engineering, University of Nebraska, Lincoln.
33. Visiting Research Scholar, July 82, \$5000, University of Regina, Regina, Canada.
34. Visiting Research Scholar, July 81, \$4500, University of Regina, Regina, Canada.
35. Professor R. S. Verma Memorial Gold Medal, University of Delhi, Delhi, 1970.
36. University Gold Medal, University of Delhi, Delhi, 1970.

## PUBLICATIONS AND PATENTS

### PATENTS:

1. NanoParticle/Quantum Dot Based Optical Switch, Wavelength Exchanger, and Wavelength Converter. Dennis Alexander, Jitender Deogun, Haitham Hamza. Patent disclosure filed, November 2004.
2. NanoPartilce Based Optical Diode. Dennis Alexander, Jitender Deogun, Haitham Hamza, *et al.* Patent disclosure filed, August 2005.
3. All Optical Multicast Devices and Switches Based on Nanotechnology and Micro Ring Cavities. Dennis Alexander, Jitender Deogun, Eric Manley, *et al.* Patent disclosure filed, November 28, 2008.

## **LIGHTLY REFEREED Workshop Papers:**

1. "Medical Cyber-Physical System Platforms," Steve Goddard and Jitender Deogun. *High-Confidence Software Platforms for Cyber-Physical Systems (HCSP-CPS) Workshop*, November 30 - December 1, 2006 Alexandria, Virginia.
2. "Future Mobile Cyber-Physical Systems: spatio-temporal computational environments," Steve Goddard and Jitender Deogun. *NSF Workshop On Cyber-Physical Systems Research Motivation, Techniques and Roadmap*, October 16 - 17, 2006, Austin, TX.

## **REFEREED PUBLICATIONS:**

**2009**

### **Book Chapters:**

1. "Conceptual Development of Mental Health Ontologies", Jitender S. Deogun, and William Spaulding, *Advances in Intelligent Information Systems*, eds. Z. W. Ras, and L. Tsay, in press, 2009.

### **Journal Papers:**

2. "Proactive Mitigation of Impact of Wormholes and Sinkholes on Routing Security in Energy-Efficient Wireless Sensor Networks", H. Al Nahas, J. S. Deogun, and E. D. Manley, *ACM/Springer Wireless Networks*, vol. 15, no. 4, pp. 431-441, May 2009.
3. "Real-Time Scheduling of Divisible Loads in Cluster Computing Environments", Xuan Lin, Ying Lu, Jitender Deogun, and Steve Goddard, to appear in *Journal of Parallel and Distributed Computing*, 2009.
4. "Thermally related optical hysteresis of semiconductor quantum dots", J. Bruce III, C. Zuhlke, and D. Alexander, and Jitender Deogun, Submitted to *Applied Physics Letters*, September 2009.
5. "Decomposition Tree and Indecomposable Coverings", Andrew Breiner, Jitender Deogun, and Pierre Ille, Submitted to *Contributions to Discrete Mathematics*, 2009.
6. "All-Optical Switching Devices Based on Nanoparticles and Micro-ring Cavities for Multicast Networks," Dennis Alexander, Jitender S. Deogun. Submitted to *IEEE Journal of Selected Topics in Quantum Electronics*, pp. 1-8, 2009.
7. "Network coding for WDM All-Optical Multicast," E. D. Manely, J. S. Deogun, L. Xu, and D. R. Alexander. Submitted to *IEEE/OSA Journal of Optical Communications and Networking*, pp. 1-14, 2009.

### **Conference Papers:**

8. "A Model Academic Ethics and Integrity Policy for Computer Science Departments," Charles Riedesel, Eric D. Manley, Susan Poser, and Jitender S. Deogun. *Proceedings of the 40th ACM Technical Symposium on Computer Science Education (SIGCSE '09)* - ACM SIGCSE Bulletin, Volume 41 , Issue 1 (March 2009), Pages 357-361, Chattanooga, TN USA, March 2009.
9. "Selection of Switching Sites in All Optical Network Topology Design", Shivashis Saha, Eric D. Manley, and Jitender S. Deogun, Submitted to *IEEE ICC*, 2010.
10. "Design of An All-Optical WDM Lightpath Concentrator", Shivashis Saha and Jitender S. Deogun, Submitted to *IEEE ANTS*, 2009.
11. "Minimizing Network Cost in All-Optical Networks", Shivashis Saha, Eric D. Manley, and Jitender S. Deogun, Submitted to *IEEE ANTS*, 2009.
12. "An Ontology-based Knowledge Management System for Psychiatric Rehabilitation", Jitender S. Deogun, William Spaulding, Shivashis Saha, and Jeffrey Nolting, Submitted to *Rough Sets, Fuzzy Sets, Data Mining & Granular Computing (RSFDGrC'09)*, 2009.

2008

#### **Book Chapters:**

13. "Soft Computing Techniques in Data Mining," Dan Li and Jitender S. Deogun. In *New Trends in Database Systems. Methods, Tools, Applications*, Danuta Zakrzewska and Ernestina Menasalvas (Eds.), pp. 1-40, Springer Verlag Publishers, in press, 2008.

#### **Journal Papers:**

14. "Partially Critical Indecomposable Graphs," A. Breiner, J. Deogun, and P. Ille. *Contributions to Discrete Mathematics*, Vol. 3, No. 2, pp. 40-59, 2008.

#### **LIGHTLY REFEREED Workshop Papers:**

15. "Feedback Scheduling of Real-Time Divisible Loads in Clusters," Duc Luong, Jitender Deogun, Steve Goddard, in *14th IEEE Real-Time and Embedded Technology and Application Symposium (RTAS'08), Work in Progress (WIP) Proceedings*, pp. 1-4, St. Louis, Mo, April 2008.
16. "Reasoning about Time and Space: A Cyber Physical Systems Perspective," Jitender Deogun, Steve Goddard, in *14th IEEE Real-Time and Embedded Technology and Application Symposium (RTAS'08), Work in Progress (WIP) Proceedings*, pp. 1-4, St. Louis, Mo, April 2008.

#### **Conference Papers:**

17. "Multi-round Real-Time Divisible Load Scheduling for Clusters," Xuan Lin, Jitender S. Deogun, Ying Lu, and Steve Goddard. *Proceedings of the 15th International Conference on High Performance Computing (HiPC)*, (P. Sadayappan, Manish Parashar, Ramamurthy Badrinath, Viktor K. Prasanna (Eds.)), Bangalore, India, pp. 196-207, December 17-20, 2008.
18. "Network Coding for Optical-Layer Multicast," E. D. Manley, J. S. Deogun, and L. Xu. *5th International Conference on Broadband Communications, Networks, and Systems (Broadnets)*, London, UK, September, pp. 1-8, 2008.
19. "Real-Time Divisible Load Scheduling with Advance Reservation," Anwar Mamat, Ying Lu, Jitender S. Deogun and Steve Goddard. *20th Euromicro Conference on Real-Time Systems* pp. 37-46, July 2-4, 2008.
20. "I2MeDS: Intelligent Integrated Medical Data System," Jason Uher, Dillon Sadofsky, Jong-Hoon Youn, Hesham H. Ali, Hamid Sharif, Jitender S. Deogun, and Steven H. Hinrichs. *Proceedings of the International Conference on BioMedical Engineering and Informatics (BMEI)*, Sanya, Hainan, China, Vol. 1, pp. 631-637, May 28-30, 2008.
21. "Classifying G Protein-Coupled Receptors with Multiple Physicochemical Properties," Jingyi Yang and Jitender S. Deogun. *Proceedings of the International Conference on BioMedical Engineering and Informatics (BMEI)*, Sanya, Hainan, China, Vol. 1, pp. 93-97, May 28-30, 2008.
22. "Stable and Fair MANETs: A Scalable Multi-Measure Clustering Framework," Ahmed M. Mahdy and Jitender S. Deogun. *Seventh International Conference on Networking (ICN)*, Cancun, Mexico, pp. 131-136, April 13-18, 2008.

## 2007

23. "Enhanced Real-Time Divisible Load Scheduling with Different Processor Available Times," Xuan Lin, Ying Lu, Jitender Deogun, Steve Goddard. *Proceedings of the 14th International Conference on High Performance Computing-HiPC 2007*, (S. Aluru, M. Parashar, R. Badrinath, and V. Prasana (Eds)), *Lecture Notes in Computer Science 4873, Springer-Verlag Berlin, 2007*, Goa, India, pp. 308-319, December 2007.
24. "WDM Optical Interconnects: A Balanced Design Approach," Haitham S. Hamza and Jitender S. Deogun. *IEEE/ACM Transactions on Networking (TON)*, Vol. 15, Issue 6, pp. 1565 - 1578, Dec. 2007.
25. "Gene Function Classification Using Fuzzy K-Nearest Neighbor Approach," Dan Li, Jitender S. Deogun, and Kefei Wang. *Granular Computing, 2007. GRC 2007. IEEE International Conference on* pp. 644 644 (four pages), 2-4 Nov. 2007.
26. "WLAN-Based Real-Time Asset Tracking System in Healthcare Environments," Jong-Hoon Youn, Hesham Ali, Hamid Sharif, Jitender Deogun, Jason Uher, Steven H. Hinrichs. *Wireless and Mobile Computing, Networking and Communications, 2007 (WiMOB 2007) Third IEEE International Conference on* pp. 71 71 (Seven Pages), 8-10 Oct. 2007.

27. "Real-Time Divisible Load Scheduling with Different Processor Available Times. Xuan Lin, Ying Lu, Jitender S. Deogun, Steve Goddard. *Proceedings of the 2007 International Conference on Parallel Processing (ICPP 2007)*, Xi-An, China, pp. 20, September 10-14, 2007.
28. "A New Class of Strictly Nonblocking WDM Multicast Switching Networks," H. Hamza, J. Deogun. *4th International Conference on Broadband Communications, Networks, and Systems (BROADNETS 2007)*, Raleigh, North Carolina, USA, September 10-14, 2007.
29. "Proactive mitigation of impact of wormholes and sinkholes on routing security in energy-efficient wireless sensor networks," Huzaifa Al Nahas, Jitender S. Deogun, and Eric D. Manley. *Wireless Networks (WiNet)*, August 2007.
30. "On The Bandwidth Efficiency of Pre-Crossconnected Trails," Manley, E. D., Hamza, H. S. and Deogun, J. S. *Proceedings of the IEEE International Conference on Communications (ICC '07)*, pp. 2294-2299, Glasgow, Scotland, UK. June 2007.
31. "Design alternatives for N-stage WDM optical planar permutation networks," Haitham S. Hamza and Jitender S. Deogun. *Photonic Network Communications*, Volume 13, Number 3, pp. 297-312, June, 2007.
32. "Location Learning for Smart Homes," Eric D. Manley and Jitender S. Deogun. *Proceedings of the 21st International Conference on Advanced Information Networking and Applications Workshops (AINA'07)*, pp. 787-792, May 2007.
33. "Parameter Tuning for Disjoint Clusters Based on Concept Lattices with Application to Location Learning," Brandon M. Hauff, Jitender S. Deogun. *Proceedings of the 11th International Conference, Rough Sets, Fuzzy Sets, Data Mining and Granular Computing, (RSFDGrC 2007)*, Toronto, Canada, Aijun An, Jerzy Stefanowski, Sheela Ramanna, Cory J. Butz, Witold Pedrycz, Guoyin Wang (Eds.): *Lecture Notes in Computer Science 4482*, Springer, pp.232-239, May 14-16, 2007.
34. "Real-time Divisible Load Scheduling for Cluster Computing," Xuan Lin, Ying Lu, Jitender Deogun, and Steve Goddard, *Proceedings of the 13th IEEE Real-Time and Embedded Technology and Application Symposium (RTAS'07)*, pp. 303-314 Bellevue,WA, April 2007.
35. "Design and analysis of strictly nonblocking WDM optical-switching networks," Haitham S. Hamza and Jitender S. Deogun. *Journal of Optical Networking (JON)*, Vol. 6, Issue 4, pp. 322-340, March 2007.
36. "Efficient use of protection bandwidth and switching resources in optical WDM networks," Eric D. Manley, Haitham S. Hamza and Jitender S. Deogun. *Journal of Optical Networking(JON)*, Vol. 6, Issue 4, pp. 349-368, March 2007.
37. "Optimizing Free Space Optics for City-Wide Wireless Networks," Ahmed M. Mahdy, and Jitender S. Deogun. *Proceedings of the Sixth International Conference on Networking (ICN'07)*, pp. 66, January 2007.



38. "A Dynamic Approach for the Selection of Super Peers in Ad Hoc Networks," Ahmed M. Mahdy, Jitender S. Deogun and Jun Wang. *Proceedings of the Sixth International Conference on Networking (ICN'07)*, pp. 18, January 2007.
39. "Radio Frequency Identification Applications in Smart Hospitals," H Al Nahas and Jitender S. Deogun. *Proceedings of the Twentieth IEEE International Symposium on Computer-Based Medical Systems (CBMS'07)*, pp. 337-342, 2007.
40. "SPICE: A New Framework for Data Mining based on Probability Logic and Formal Concept Analysis," Liying Jiang and Jitender S. Deogun. *Fundamenta Informaticae*, Volume 78, pp. 467-485, 2007.

## 2006

41. "Wavelength-division-multiplexing optical Benes-type networks with simultaneous space-wavelength switching," Haitham S. Hamza and Jitender Deogun. *The OSA Journal of Optical Networking (JON)*, Vol. 5, No. 11, pp. 807-828, November 2006.
42. "Demonstration of a Nano-particle Based Optical Diode," D. Alexander, J. Deogun, H. Hamza, J. Bruce III, C. Zuhlke, B. Koch, R. Rudebusch, C. Zuhlke, B. Koch, R. Rudebusch, *Optics Letters*, Vol. 31, No. 13, July 1, 2006.
43. "A New Scalable WDM Optical Interconnect Design with Reduced Complexity," Haitham S. Hamza and Jitender S. Deogun. *Proc. IEEE International Conference on Communications (ICC 2006)*, Vol. 6, pp. 2613-2318, June 2006.
44. "Path-based Protection in WDM Networks with Differentiated Quality-of-Protection," Yu Lin, Haitham S. Hamza and Jitender S. Deogun. *Proc. IEEE International Conference on Communications (ICC 2006)*, Vol. 6, pp. 2489-2494, June 2006.
45. "Method of predicting Splice Sites based on signal interactions," Alexander Churbanov, Igor B. Rogozin, Jitender S. Deogun, and Hesham Ali. *Biology Direct*, Vol. 1, April 3, 2006.
46. "Multi-Round Real-Time Divisible Load Scheduling for Clusters, Xuan Lin, Ying Lu, Jitender Deogun, and Steve Goddard, *Proceedings of the 12th IEEE Real-Time and Embedded Technology and Applications Symposium Work in Progress*, pp. 28-31, April 2006.
47. "Strictly Nonblocking Multicasting WDM Optical Cross Connects Using Multiwavelength Converters," Haitham S. Hamza and Jitender S. Deogun, *HOTI '06: Proceedings of the 14th IEEE Symposium on High-Performance Interconnects*, pp. 37-44, 2006.
48. "Designing Full-Connectivity WDM Optical Interconnects with Reduced Switching and Conversion Complexity," Haitham S. Hamza and Jitender S. Deogun, *HOTI '06: Proceedings of the 14th IEEE Symposium on High-Performance Interconnects*, pp. 25-30, 2006.

49. "Designing scalable WDM optical interconnects using predefined wavelength conversion," H. S. Hamza and J. S. Deogun, *Journal of Optical Networking*, Vol. 5, pp. 422-434, 2006.
50. "FADS: A Fuzzy Anomaly Detection System." Dan Li, Kefei Wang, Jitender S. Deogun. *Real-Life Applications Based on Knowledge Technology, First International Conference (RSKT 2006)*, pp. 792 - 798, Chongqing, China, July 24-26, 2006
51. "A WDM Banyan Switching Network for Multicast Optical Cross-Connects," Haitham S. Hamza and Jitender S. Deogun. *Proc. 2006 IEEE Sarnoff Symposium*, 2006.
52. "Wavelength and OEO Sharing and optimization in WDM networks with Path Protection," K. Wang, H. S. Hamza, and J. S. Deogun, *Journal of Optical Networking*, Vol. 5, No. 3, pp. 175-192, March 2006.
53. "Full-Connectivity Optical WDM Interconnects Using Fixed-range Wavelength Conversion," Haitham S. Hamza, Jitender S. Deogun. *Proceedings of the IEEE 2006 Global Communications Conference (GLOBECOM 2006)*, 27 November - 1 December 2006.
54. "On the Design of a  $2 \log N - 2$  WDM Optical Path Cross Connect with Full Permutation Capability," Haitham S. Hamza, Jitender S. Deogun. *Proceedings of the IEEE 2006 Global Communications Conference (GLOBECOM 2006)*, 27 November - 1 December 2006.
55. "Design and Analysis of a New Class of WDM Optical Interconnect Architectures," Haitham S. Hamza, Jitender S. Deogun. *3rd International Conference on Broadband Communications, Networks, and Systems (BROADNETS 2006)*, San Jos, California, USA, 1-5 October 2006.
56. "Periodic association mining in a geospatial decision support system. " Dan Li and Jitender S. Deogun. *Proceedings of the 7th Annual International Conference on Digital Government Research, DG.O 2006*, San Diego, California, USA, May 21-24, 2006. Digital Government Research Center 2006: 427-428
57. "Designing Fast and Bandwidth Efficient Protection Scheme for WDM Optical Networks." Yu Lin, Haitham S. Hamza, and Jitender S. Deogun. *Networking*. pp 391-402, 2006.
58. "A Fuzzy Anomaly Detection System." Dan Li, Kefei Wang, Jitender S. Deogun. *Lecture Notes in Computer Science*, No. 3917, pp. 167-168, 2006.
59. "Building Redundant Multicast Trees for Preplanned Recovery in WDM optical networks." Lan Kong, Maher Ali, and Jitender S. Deogun. *Journal of High Speed Networks*, Vol. 15 No. 4, pp. 379-398, 2006.
60. "Wavelength Exchanging Cross-Connect (WEX) — A New Class of Photonic Cross-Connects," Haitham S. Hamza and Jitender Deogun. *IEEE/OSA Journal of Lightwave Technology* Vol. 24, No. 3, pp. 1101 - 1111, March 2006.

61. "Localization and Tracking in Sensor Systems," Eric D. Manley, Huzaifa Al Nahas, and Jitender S. Deogun. *IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC)*, Vol. 2, pp. 237-242, 2006.

## 2005

62. "A New WDM Photonic Cross-Connect Architecture based on Wavelength Exchange Optical Crossbar," Haitham S. Hamza and Jitender Deogun. *Proc. 2005 IEEE Workshop on High Performance Switching and Routing (HPSR 2005)*, Page(s):530 - 534, May, 2005.
63. "Routing and Wavelength Assignment with Maximum Resource Sharing in WDM Mesh Networks with Path-Based Protection," Haitham S. Hamza, Jitender Deogun, and Kefei Wang *Proc. 2005 IEEE Workshop on High Performance Switching and Routing (HPSR 2005)*, Page(s):421 - 425, 12-14 May,2005.
64. "Public-key Cryptography in Sensor Networks," E. Manley, J. S. Deogun and H. Al Nahas. *Proceedings Fifth IASTED International Multiconference: Wireless Networks and Emerging Technologies (WNET 2005)*, Banff, B.C., Canada, pp.120-125, July, 2005.
65. "Wavelength Assignment for Light-tree Protection in WDM Optical Networks," L. Kong, L. Li, J. S. Deogun and S. Scott. *Proceedings Fifth IASTED International Multiconference: Optical Communication Systems and Networks (OCSN 2005)*, Banff, B.C., Canada, pp. 58-63, July, 2005.
66. "EDIVER: An Efficient routing algorithm for wireless sensor networks," Haitham S. Hamza, Shasha Wu, and Jitender Deogun. *Proc. Fifth IASTED International Multiconference: Communication Systems and Applications (CSA 2005)*, pp. 58-63.
67. "Heuristics for maximizing OEO sharing in WDM mesh networks with path-based protection," Kefei Wang, Haitham S. Hamza, and Jitender Deogun. *Proc. Fifth IASTED International Multiconference: Optical Communication Systems and Networks (OCSN 2005)*, pp.64-69.
68. "Architectures for WDM Benes network with simultaneous space-wavelength switching capabilities," Haitham S. Hamza and Jitender Deogun. *Proc. 2nd IEEE Int. Conf. on Broadband Networks (BROADNETS 05)*, pp. 209-218 (**Best Paper Award**).
69. "WDM Multistage Interconnection Networks Architectures for Enhancing Supernetworks Switching Infrastructure," Haitham S. Hamza and Jitender Deogun. *Proc. 12th Annual IEEE International Conference on High Performance Computing* Vol. 3769, pp. 444-453, 2005.
70. "An Algorithm for Boundary Discovery in Wireless Sensor Networks'," Jitender Deogun, Saket Das, Haitham S. Hamza and Steve Goddard. *Proc. 12th Annual IEEE International Conference on High Performance Computing* Vol. 3769, pp. 343-352, 2005.

71. "Prediction Mining — An Approach to Mining Association Rules for Prediction," Jitender S. Deogun and Liying Jiang. Proceedings of the *10th International Conference on Rough Sets, Fuzzy Sets, Data Mining and Granular Computing (RSFDGrC'2005)* conference, Regina, Canada, Lecture Notes in Computer Science, 2005.
72. "Adaptive Radio Channel Allocation for Supporting Coexistence of 802.15.4 and 802.11b," Chulho Won, Jong-Hoon Youn, Hesham Ali, Hamid Sharif, and Jitender Deogun. Proceedings of the *IEEE 62nd Semiannual Vehicular Technology Conference (VTC 2005)*, Dallas, Texas, USA, Vol. 4, pp. 2522–2526, September 2005.
73. "SPICE: A Novel Approach to Data Analysis," Jitender S. Deogun and Liying Jiang. Proceedings of the *2nd Indian International Conference on Artificial Intelligence (IICAI-05)* Pune, India, pp. 2432-2443, 2005.
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199. "Structured Spanning Trees," M. Ancona, L. De Floriani, and J. S. Deogun. *The Computer Journal*, vol. 33, no. 4, 1990, pp. 344-355.

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202. "Linear Time Algorithms for Global Routing in Hierarchical Design," K. Soumyanath, and J. S. Deogun. *Proceedings of the 33rd Midwest Symposium on Circuits and Systems*, Calgary, Alberta, Canada, August 1990.
203. "Assignment of Term Descriptors to Clusters," S. K. Bhatia, J. S. Deogun, and V. V. Raghavan. *Proceedings of the 1990 ACM/IEEE Symposium on Applied Computing*, April 5-6, 1990, Fayetteville, AR, pp. 181-185.

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205. "A Theoretical Basis for the Automatic Extraction of Relationships from Expert-provided Data," J. S. Deogun, V. V. Raghavan, and S. K. Bhatia. *Proc. of the Fourth International Symposium on Methodologies for Intelligent Systems: Poster Session Program*, Oak Ridge National Lab., October 1989, Charlotte, NC, pp. 123-131.
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207. "On Regular Planar Line Graphs," J. S. Deogun. *Recent Studies in Graph Theory 89*, (ed. V. R. Kulli), Vishwa International, 1989, pp. 87-95.
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210. "Single Row Routing with Bounded Number of Doglegs per Net," J. S. Deogun, A. Roy, and N. A. Sherwani. *Proceedings of the 1989 IEEE International Symposium on Circuits and Systems*, Portland, OR, pp. 43-47.



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## 1988

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213. "Conceptual Modeling of Decision Support Systems," J. S. Deogun. *Information Processing and Management Journal*, July 1988, vol. 24, no. 4, pp. 429-448.
214. "A Graph Theoretic Approach to Single Row Routing," *Proceedings of the IEEE International Symposium on Circuits and Systems*, June 6-9, 1988, Espoo, Finland, pp. 1437-1440, (co-authored with B. Bhattacharya and N. Sherwani).
215. "Integration of Information Retrieval and Database Management Systems," J. S. Deogun, and V. V. Raghavan. *Information Processing and Management Journal - Special Issue: The Potential for Improvements in Commercial Retrieval Systems*, May 1988, vol. 24, no. 3, pp. 303-313.

## 1987

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217. "Minimizing Setups in Scheduling Interval-ordered Tasks," H. Ali, and J. S. Deogun. *Proceedings of the ACM South Central Regional Conference*, November 19-21 1987, Lafayette, Louisiana, pp. 94-105.
218. "A Heuristic Algorithm for Conflict Resolution Problem in Multistage Interconnection Networks," Z. Fang, and J. S. Deogun. *The Proceedings of the 2nd International Conference on Parallel Processing*, August 1987, University Park, Pennsylvania, pp. 475-479.
219. "Optimal Determination of User-oriented Clusters," V. V. Raghavan, and J. S. Deogun. *The Proceedings of the Tenth Annual ACM-SIGIR International Conference*, June 1987, New Orleans, Louisiana, pp. 140-146.
220. "A Unified approach to Via Minimization with Movable Terminals in VLSI Routing," J. S. Deogun, and B. B. Bhattacharya. *The Proceedings of the 2nd International Conference on Computers and Applications*, June 1987, Beijing, China, pp. 873-881.

## 1986

221. "Path Problems in Directed Structured Graphs," M. Ancona, L. De Floriani, and J. S. Deogun. *The Computer Journal*, December, 1986, vol. 29, no. 6, pp. 553 - 564.
222. "On periodic scheduling of Time-Critical Tasks," J. S. Deogun, and M. C. Kong. *The Proceedings of the IFIP 10th World Computer Conference*, September 1986, Dublin, Ireland, pp. 791-796.
223. "User-oriented Clustering - A Framework for Learning in IR," J. S. Deogun, and V. V. Raghavan. *The Proceedings of ACM-SIGIR conference*, September 1986, Pisa, Italy, pp. 157-163.
224. "Periodic Real-Time Scheduling in Distributed Control Systems," J. S. Deogun, and M. C. Kong. *The Proceedings of the 4th IFAC/IFIP Symposium on Software for Computer Control*, June 1986, Vienna, Austria, pp. 87-93.
225. "Control Function Transfer in Multistage Interconnection Networks," J. S. Deogun, and Z. Fang. *The Proceedings of the 1986 IEEE International Symposium on Circuits and Systems*, May 1986, pp. 1063-1068.
226. "On Non-Preemptive Periodic Scheduling," J. S. Deogun, and M. C. Kong. *Proceedings of the Nineteenth Hawaii International Conference on System Sciences*, January 1986, Honolulu, Hawaii, pp. 761- 766.

## 1985

227. "Integration of Information Retrieval and Database Management Systems," J. S. Deogun, and V. V. Raghavan. *Proceedings of Recherche d'Informations Assistee par Ordinateur (RIAO '85)*, March 1985, Grenoble, France, pp. 627-644.
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## 1984

229. "Organization of Clustered Files for Consecutive Retrieval," J. S. Deogun, V. V. Raghavan, and T. K. W. Tsou. *ACM Transactions on Database Systems*, December 1984, vol. 9, pp. 646-671.
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231. "A Personnel Assignment Problem," P. Ramanan, J. S. Deogun, and C. L. Liu. *Journal of Algorithms*, January 1984, vol. 5, pp. 135-155.

232. "A Conceptual Approach to development of Decision Support Systems," J. S. Deogun, and A. Nakhforoush. *Proceedings of the Seventeenth Hawaii International Conference on System Sciences*, January 1984, Honolulu, Hawaii, pp. 538-547.

### 1983

233. "On Scheduling with Ready Times to Minimize Mean Flow Time," J. S. Deogun. *The Computer Journal*, November 1983, vol. 26, no. 4, pp. 320-328.
234. "Structured Graphs and Spanning Trees," L. De Floriani, and J. S. Deogun. *Proceedings of the IEEE Computer Society's Seventh International Computer Software and Applications Conference (COMPSAC '83)*, November 1983, Chicago, Illinois pp. 320-327.
235. "Consecutive Retrieval with Redundancy Organization of Clustered Files," T. K. W. Tsou, L. V. Saxton, V. V. Raghavan, and J. S. Deogun. *Proceedings of the IFIP 9th World Computer Conference*, September 1983, Paris, France, pp. 533-537.
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### 1982

237. "Information Retrieval Research: Strategies and User Implications," V. V. Raghavan, and J. S. Deogun. *Information Technology: Research and Development*, February, 1982, vol. 1, pp. 157-171.

### 1981

238. "Query Directed Partitioning Scheme for Securing Statistical Databases," J. S. Deogun, and V. V. Raghavan. *Proceedings of the Berkeley Workshop on Statistical Database Management*, December 1981, Menlo Park, California, pp. 285-293, (co-authored with V. V. Raghavan).
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240. "Information Retrieval: Research Strategies and their Implications," J. S. Deogun, and V. V. Raghavan. *Proceedings of the Canadian Information Processing Society Annual Conference*, June 1981, Waterloo, Ontario, pp. 9.41 - 9.49.
241. "Sequencing Jobs with Unequal Ready Times to Minimize Mean Flow Time," M. I. Dessouky, and J. S. Deogun. *SIAM Journal on Computing*, February, 1981, vol. 10, no. 1, pp. 192-202.

## PROFESSIONAL ACTIVITIES:

### External Examiner for Ph.D./M.S. Theses:

1. M.Sc. Thesis, *Design and Analysis of Packet Switching Networks*, by Eng. T. I. Tawfik  
Department of Engineering Applications of Laser, Cairo University,  
Cairo, Egypt, 2008 – 2009.
2. Ph.D. Thesis, *A Novel Approach to Training Neurons with Dynamic Relational Learning*, by Ms. Bernadette Garner  
School of Computer Science and Software Engineering, Monash University,  
Clayton, VIC 3168 Australia, 2004 – 2005.
3. Ph.D. Thesis, *Optimal Multidimensional Storage Organization for Efficient Query Processing in Databases*, by Mr. Salahdin Mohammed  
School of Computer Science and Software Engineering, Monash University,  
Clayton, VIC 3168 Australia, 2001 – 2002.
4. Ph.D. Thesis, *Content-Based Image retrieval Problem*, by Mr. Santosh Kulkarni  
School of Computer Science and Software Engineering, Monash University,  
Clayton, VIC 3168 Australia, September 2000.
5. Ph.D. Thesis, *Performance Amelioration of Object Oriented Databases*, by Mr. Paul Rodrigues, Department of Computer Science, Pondicherry University,  
Pondicherry - 605 014, INDIA, March 2000.
6. Habilitation Thesis, *Asteroidal Sets in Graphs* by Mr. Haiko Müller  
Fakultät für Mathematik und Informatik, Friedrich-Schiller-Universität,  
D-07743 Jena, Germany, January 1999.
7. Ph.D. Thesis, *Perception Based Quality Measure for Image Compression and Transmission*, by Mr. Le Phu Dung, School of Computer Science and Software Engineering,  
Monash University, Clayton, VIC 3168 Australia, January 1999.

### Professional Service:

1. Member Program Committee *ISKE 2008*, Xiamen, China, November 2008.
2. Member Program Committee MIK 2009, Tianan, Taiwan, June 2009.
3. Member Program Committee ISKE 2008, Xiamen, China, November 2008.
4. Member, Program Committee Broadnets 2008, London, England, September 2008.
5. Member, Program Committee Golbecom 2008, New Orleans, LA, November 2008.
6. Mmember, Editorial Board *Transactions on Rough Sets*, Springer, Berlin, Germany, 2004- todate.

7. Member, Program Committee, IEEE International Symposium on Advanced Networks and Telecommunication Systems (ANTS 2008), Mumbai, India, December 2008.
8. Member, Program Committee, Optical Communications and Networking Symposium (ChinaCom2008), Hangzhou, Zhejiang, China, August, 2008.
9. Member, Program Committee, The IASTED International Conference on Computational Biology and Bioinformatics (CBB 2008), Orlando, Florida, USA, November, 2008.
10. Member, Program Committee, The Sixth International Conferences on Rough Sets and Current Trends in Computing (RSCTC 2008), Akron, OH USA, October, 2008.
11. Member, Program Committee, The IASTED International Conference on Computational Biology and Bioinformatics (CBB 2008), Orlando, Florida, USA, November, 2008.
12. Member, Program Committee, The Eighth IASTED International Conferences on Wireless and Optical Communications (WOC 2008), Quebec City, Quebec, Canada, May, 2008.
13. Member, Program Committee, The 4th IEEE/IFIP International Symposium on Network Centric Ubiquitous Systems (NCUS 2008), Shanghai, China, December 17-20, 2008.
14. Member Program Committee *Broadnets 2007*, Raleigh, NC, September 2007.
15. Member Program Committee *Golbecom 2007*, Washington, DC, November 2007.
16. Member Program Committee *The 18th European Conference on Machine Learning (ECML) 2007*.
17. Member Program Committee *Joint Rough Set Symposium (JRS07)*, Toronto, Canada, May 2007.
18. Member Program Committee *Seventh IASTED International Multiconference: Optical Communication Systems and Networks (OCSN 2007)*, Canada, 2007.
19. Member Program Committee *sixth IASTED International Multiconference: Optical Communication Systems and Networks (OCSN 2006)*, Banff, B.C., Canada, July, 2006.
20. Member Program Committee *Broadnets 2006*, San Jose, CA, October 2006.
21. Member Program Committee *Fifth IASTED International Multiconference: Optical Communication Systems and Networks (OCSN 2005)*, Banff, B.C., Canada, July, 2005.
22. Member Program Committee *Broadnets 2005*, Boston, MA, October 2005.
23. Member Program Committee *Second Indian International Conference on Artificial Intelligence (IICAI-05)* Pune, India, 2005.

24. Member Program Committee *9th International Conference on Rough Sets, Fuzzy Sets, Data Mining and Granular Computing (RSFDGrC'2005)* conference, Regina, Canada, September 2005.
25. Member Program Committee *Rough Sets and Current Trends in Computing (RSCTC'04)* conference to be held at Uppsala Universitet, Uppsala, SWEDEN, June 2004.
26. Member Program Committee *Broadnets 2004*, San Jose, Ca, October 2004.
27. Member Advisory Group, Proposed Bioinformatics Undergraduate Degree Program, UNO Computer Science Department, Omaha, NE, 2003-2004.
28. Member Scientific Advisory Council, the UNL Center for Biotechnology, 2001-2004.
29. Member Program Committee *9th International Conference on Rough Sets, Fuzzy Sets, Data Mining and Granular Computing (RSFDGrC'2003)* conference to be held at Chongqing, China in 2003.
30. Member Program Committee *Rough Sets and Current Trends in Computing (RSCTC'04)* conference to be held at Uppsala Universitet, Uppsala, SWEDEN, June 2004.
31. Member Program Committee *Second Symposium on Photonics, Networking and Computing (PNC 2003)* Durham, NC USA, March 11-14, 2003.
32. Member Program Committee *Fourth Annual Optical Networking and Communications conference (OptiComm 2003)*, Dallas, TX, October 2003.
33. Member Program Committee *Diversity in Informatics – Nebraska EPSCoR Conference*, Lincoln, Nebraska, April, 2002.
34. Member Program Committee *Rough Sets and Current Trends in Computing (RSCTC'02)* conference to be held at Penn State Great Valley in October of 2002.
35. Member Program Committee *1st Symposium on Photonics, Networking and Computing (PNC 2002)* Durham, NC USA, March 11-14, 2002.
36. Member Program Committee International Conference on Electronic Commerce & Web Technology (EC-Web'00), September 4-6, 2000 London-Greenwich, United Kingdom.
37. Member Program Committee, Conference on Data Warehousing & Knowledge Discovery (DaWak,99).
38. Member Program Committee, DEXA'98 Workshop on Storage and Retrieval in Multimedia Databases, Vienna, Austria, 1998.
39. Guest Co-editor, special issue of the *Journal of American Society for Information Science* (JASIS) on "Data Mining," 1996-1997.
40. Member Program Committee, Workshop on Rough Set Theory (RST'95), October 95.

41. Member, NSF Site-visit Panel for Program Evaluation of University of Massachuttes, May 1995.
42. Member Program Committee, 23rd ACM Computer Science Conference Workshop on Rough Sets and Database Mining, March 95.
43. Program Committee Member, *Workshop on Rough Sets & soft Computing*, San Jose, CA, November 1994.
44. Program Evaluation Consultant, Missouri Western State College, St. Joseph, MO, 1993.
45. Co-editor, *Proceedings of the NSF Invitational Workshop on Future Directions in Text Analysis, Retrieval and Understanding*, March, 1993.
46. Co-editor, "Methodologies for Intelligent Text Processing and Information Resources Management: Achievements and Opportunities," *Report of the NSF Invitational Workshop*, March, 1993.
47. Program Committee Member, *ACM Symposium on Applied Computing*, Indianapolis, IN, March, 1993.
48. Member, NSF Site-visit Panel for Program Evaluation at University of Massachuttes, 1992,
49. Program Committee Member, Symposium on Document Analysis and Information Retrieval, Las Vegas, NV, March 1992
50. Member, Program Committee, Great Lakes VLSI Conference, 1992
51. Member, Program Committe, Great Lakes Computer Science Conference, 1991-1992
52. Organizer and Program Committee Chair, NSF Workshop on Future Directions in Text Analysis, Retrieval and Understanding, Chicago, IL, October 1991.
53. Member, Program Committee, ACM South Central Regional Conference, 1987.
54. Co-editor, Proceedings of the ACM South Central Regional Conference, 1987.
55. Session Chairman and Track Coordinator, Hawaii International Conference on Systems Sciences, 1986.
56. Chairman, Roundtable Discussion on Periodic Scheduling, Hawaii International Conference on Systems Sciences, 1986.
57. Session Chairman and Track Coordinator, Hawaii International Conference on Systems Sciences, 1985.
58. Session Chairman, ACM-SIGIR Workshop on Information Retrieval, 1985.

**Referee:**

1. SIAM Journal on Computing, IEEE/ACM Transactions on Networking, IEEE Journal of Lightwave Technology, IEEE Journal on Selected Areas of Communications.
2. IEEE Transactions on CAD, IEEE Transactions on Computers
3. The Computer Journal, Networks, JCMCC, Acta Informatica, JIIS
4. Information Processing and Management Journal
5. International Journal of Computer Aided VLSI Design
6. Several conferences including Broadnets, Globecom, IASTED OSCN, PNC, HICCS, Parallel Processing, ACM, and NCC

**Reviewer (Research Grant Proposals):**

1. Research Grants Council, Hong Kong, China.
2. Theory Computation Program, NSF.
3. Information Science and Technology Program, NSF.
4. Collaborative Research Grants Program, NATO, Belgium.
5. Australian Research Council, Canberra, Australia.

**COMMITTEE WORK:**

- Member Advisory Board, Kutak Center for Teaching & Study of Applied Ethics, UNL, 2008-2009.
- Assistant Director Recruitment Committee, Kutak Center for Teaching & Study of Applied Ethics, UNL, 2008-2009.
- CSE Department Graduate Committee, 2008-2009.
- CSE Department Bioinformatics Graduate Committee, (Chair), 2008-2009.
- CSE Department Academic Integrity & Grading Appeals Committee, 2008-2009.
- CSE Department By-Laws Committee, (Chair), 2005-2008.
- College level, — Tenure & Promotions Committee (2001-2007) ( E&T), (Chair 2003)
- UNL Graduate Council, member, 1994-1997, 2003-2007.
- Member Scientific Advisory Council, the UNL Center for Biotechnology, 2001-2005.
- Graduate Committee (Member), 1990-2005, (Chair) 1995.



- department level, — Bioinformatics Graduate Committee (Chair) (1999-2006)
- Member (Senator), UNL Faculty Senate, 2001-2004.
- CSE Department Advisory Committee, (Chair), 1999-2002.
- Intra-campus — UNO Bioinformatics UG Program Advisory Committee.
- Facilities Committee (Chair), 1999-2004
- Member, Layman Awards Panel, 2002
- Graduate Committee (Chair)
- Curriculum Committee (Chair)
- Library Committee (Chair)
- Ph. D. Program Committee
- University Academic Senate
- Search Committee (Chair)
- Advisory Committee for the Institute for International Teaching Assistants
- CSE Department Advisory Committee (Chairman)