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RESEARCH INTERESTS:

Data Mining, Data Stream Mining, Bioinformatics, Mobile Computing, Temporal Databases, Information Retrieval, Database Systems, Concurrency Control, Recovery, Main Memory Databases.

EDUCATION:

- BA in Mathematics; 1970; Miami University; Oxford, Ohio
- MS in Mathematics; 1972; Miami University; Oxford, Ohio
Thesis Title: (v,k,λ) - *Configurations and Generalized Quadrangles*
- PhD in Computer Science; 1984; Southern Methodist University; Dallas, Texas
Dissertation Title: *Concurrency in a Data Flow Database Machine*
Advisor: Dr. David L. Wells

ACADEMIC EXPERIENCE:

- May 2013 – present
Professor Emeritus
Department of Computer Science and Engineering
Southern Methodist University
Dallas, Texas 75275
- 1984-May 2013
Department of Computer Science and Engineering
Southern Methodist University
 - Assistant Professor (September 1984 - August 1990)
 - Associate Professor (September 1990 - August 2001)
 - Spring Semester 1995 - Visiting Academic while on sabbatical at the University of Queensland; Brisbane, Australia
 - Professor (September 2001 – May 2013)
 - Associate Chairman (August 1992 - August 1994, March 2000 - 2001)
 - Undergraduate Program Director (August 2002 – August 2005)
- 1982-1984
Instructor, Teaching Assistant; Department of Computer Science and Engineering
Southern Methodist University
- 1970-1972
Teaching Assistant; Department of Mathematics
Miami University

Courses Taught:

Operating Systems, Database Systems, Object Oriented Databases, Data Mining, Relational Database Theory, Distributed Databases, Topics in Database Machines, Topics in Main Memory Database Systems, Topics in Real Time Database Systems, Topics in Mobile Computing, Artificial Intelligence, Information Retrieval, Compiler Construction, Data Structures, Discrete Computational Structures, Assembly Language Programming, Introduction to Computing.

OTHER EXPERIENCE:

- 2003-Present
Consulting
- 1980-1981
Manager of Database Administration and Applications Programming
Anderson Clayton Foods; Dallas, Texas
- 1978-1980
Supervisor of Data Base Administration
Texas Instruments; Dallas, Texas
- 1972-1978
Senior Training Specialist, Database Administrator, Programmer
Xerox Corporation; Rochester, New York.

SPONSORED RESEARCH:

1. NSF Summer Traineeship, 1971 (\$1000)
2. Halliburton Faculty Development, 1985 (\$4000)
3. SMU Travel Grant, 1986 (\$1000)
4. DOD Grant MDA903-86-C-0182, 1986-1987(xx)
Investigator on *Optimality and Parallel Fractalization* (Main Project: R. R. Fossum, Principal Investigator, *Optimization Algorithms for New Computer Architectures with Application to Engineering and Scientific Problems*)
5. NSF Grant IRI-8713654, September 1987-June 1989 (\$59,732)
Principal Investigator on *MARS: The Design of a Main Memory Database*
6. Texas Higher Education Coordination Board #2265, Aug 1988-Nov 1990, (\$93,911)
Principal Investigator on *Semantic Concurrency Control and Recovery in a Main Memory Database*
7. REU Supplement to NSF Grant IRI-8713654, September 1988-June 1989 (\$2700)
8. NEC America, Inc., September 1990-December 1991 (\$30,709)
Principal Investigator on *A Main Memory Database Testbed*
9. Texas Instruments Incorporated, January 1991-December 1991 (\$15,000)
Principal Investigator on *Extended Transaction Support*
10. Texas Higher Education Coordination Board #003613008, Jan 1992-Dec 1994, (\$154,601)
Principal Investigator on *MARS: A Main Memory Database Prototype*
11. NSF Grant IRI-9201643, September 1992-August 1996, (\$194,998)
Principal Investigator on *Main Memory Database Recovery Issues*
12. REU Supplement to NSF IRI9201643, June 1993 - February 1994, (\$8,000)
13. Southern Methodist University, January 1995, (\$1500)
14. DOD MDDS, April 1995 - October 1997, (\$166,864)
Principal Investigator on *Partition Checkpointing and Recovery for Distributed Heterogeneous Databases*
15. NSF International Programs, April 1995 - March 1996, (\$10,750)
Principal Investigator on *Partition Checkpointing and Recovery for Distributed Databases*
16. NSF MRI Program, September 1997 - August 2000, (\$150,000)
Principal Investigator on *Laboratory for Telecommunications Management Network Research*, (CoPIs: Dick Barr, Eric Lin, Jeff Tian)
17. SMU President's Partners Program, April 1999, (\$2500)
18. NSF Grant IIS-9820481, July 1999-July 2003, (\$141,000)
Principal Investigator on *GOALI: Data Mining Tools for Geospatial Databases - Enabling Technologies for the Environment*, Collaborative grant with Raytheon
19. REU Extension to NSF Grant IIS-9820481, (\$6,000)
20. NSF Grant IIS-9979458, October 1999-September 2003, (\$180,000)

- Principal Investigator on *WITN: Collaborative Research in Location Dependent Data Management*, Collaborative grant with Vijay Kumar at UMKC
21. REU Extension to NSF Grant IIS-9979458, (\$6,000)
 22. NSF Grant IIS-0208741, August 2002-July 2006, (\$120,000)
Principal Investigator on *WITN: Collaborative Research in DATA in Your Space (DAYS)*, Collaborative grant with Vijay Kumar at UMKC.
 23. SMU URC Grant, February 2005, (\$6,000)
Principal Investigator on *Microarray Driven Protein Identification in 2D Protein Gels*.
 24. REU Extension to NSF Grant IIS-0208741, (\$6,000).
 25. Lightbus Technology Graduate Fellowship, June 2007 – December 2007, (\$16,000).
 26. Lightbus Technology Graduate Fellowship, June 2008 – December 2008, (\$16,600).
 27. T Systems, Graduate Fellowship, September 2008 – 2010 (\$30,000).
 28. NSF Grant, September 1, 2009 – August 31, 2011, (\$196,000) Principal Investigator on III/EAGER: Temporal Relationships Among Clusters in Data Streams (TRACDS) (Co-PI Michael Hahsler).
 29. NSF REU Extension to III/EAGER: Temporal Relationships Among Clusters in Data Streams (TRACDS), \$16,000, July 2011.
 30. NIH Grant (1R21HG005912-01A1) Position Sensitive P-Mer Frequency Clustering with Applications to Classification, 08/16/2011 – 05/31/2013, \$385,643.
 31. SMU URC Travel Grant, \$5000, January 2012.
 32. Fulbright Specialists Grant, January 16, 2012 – February 18, 2012, \$8,648.84.

PUBLICATIONS (Journal Articles):

1. M. Margaret Eich and Stanley E. Payne, “Nonisomorphic Symmetric Block Designs Derived from Generalized Quadrangles,” *Accademia Nazionale Dei Lincei*, Vol 52, No 6, June 1972, pp 893-902.
2. Margaret H. Eich, “Transaction Oriented Performance Analysis of Database Machines,” *Database Engineering*, Vol 8, No 1, March 1985, pp 53-60.
3. Margaret H. Eich, “Graph Directed Locking,” *IEEE Transactions on Software Engineering*, Vol 14, No 2, February 1988, pp 133-140. (Earlier version available as SMU technical report 85-13.)
4. Margaret H. Eich and David L. Wells, “Database Concurrency Control Using Data Flow Graphs,” *ACM Transactions on Database Systems*, Vol 13, No 2, June 1988, pp 197-227. (Earlier version available as SMU technical report 84-19.)
5. Margaret H. Eich, Chin-Feng Fan, Wei-Li Sun, and Sohail Rafiqi, “A Methodology for Simulation of Database Systems,” *Simulation*, Vol 52, No 6, June 1989, pp 241-254.
6. Margaret H. Eich and Sharon M. Garard, “The Performance of Flow Graph Locking,” *IEEE Transactions on Software Engineering*, Vol. 16, No. 4, April 1990 pp 477-483.
7. Zaman Gulzar and Margaret H. Eich, “A Microprocessor Based Memory Resident Database System,” *The International Journal of Microcomputer Applications*, Vol. 10, No. 2, 1991, pp. 66-73. (Invited Paper).
8. Priti Mishra and Margaret H. Eich, “Join Processing in Relational Databases,” *ACM Computing Surveys*, Vol. 24, No. 1, March 1992, pp. 63-113. (Earlier version available as SMU technical report 90-CSE-16.)
9. Priti Mishra and Margaret Eich, “Functional Completeness in Object-Oriented Databases,” *ACM SIGMOD Record*, Vol. 21, No. 1, March 1992, pp. 71-83. (Earlier version available as SMU technical report 91-CSE-29.)
10. Le Gruenwald and Margaret H. Eich, “Simulation of Main Memory Database Recovery,” *Simulation*, Vol. 60, No. 1, March 1993, pp. 17-35.
11. Le Gruenwald and Margaret H. Eich, “Selecting a Database Partitioning Technique,” *Journal of Database Management*, Vol. 4, No. 3, Summer 1993, pp. 27-39.

12. Le Gruenwald and Margaret H. Eich, "MMDB Reload Concerns," *Information Sciences - An International Journal*, Vol. 76, No. 1, January 1994, pp. 151-176.
13. Margaret H. Eich and Xi Li, "Logging in Main Memory Databases," *Australian Computer Science Communications*, Vol. 17, No. 2, January 1995, pp. 93-102. (Also available in the Proceedings of the Sixth Australasian Database Conference.)
14. Margaret H. Dunham and Abelsalam Helal, "Mobile Computing and Databases: Anything New?," *ACM SIGMOD Record*, December 1995, Vol. 24, No. 4, pp.5-9.
15. Mario A. Nascimento, Margaret H. Dunham, and Vram Kouramajian, "A Multiple Tree Mapping-Based Approach for Ranges Indexing," *Journal of the Brazilian Computer Society*, vol. 3, no. 2, April 1996, pp. 36-46.
16. Le Gruenwald, Jing Huang, Margaret H. Dunham, Jun-Lin Lin, and Ashley Chaffin Peltier, "Survey of Recovery in Main Memory Databases," *Engineering Intelligent Systems*, vol. 4, no. 3, September 1996, pp. 177-184.
17. Jun-Lin Lin, Margaret H. Dunham, and Mario A. Nascimento, "A Survey of Distributed Database Checkpointing," *Distributed and Parallel Databases*, July 1997, Vol 5, No 3, pp. 289-319.
18. Margaret H. Dunham, Abdelsalam Helal, and Santosh Balakrishnan, "A Mobile Transaction Model That Captures Both the Data and Movement Behavior," *ACM/Baltzer Journal on Special Topics in Mobile Networks and Applications (MONET)*, Vol 2, 1997, pp. 149--162.
19. Fa Chung Fred Chen and Margaret H. Eich, "Common Subexpression Processing in Multiple-Query Processing," *IEEE Transactions on Knowledge and Data Engineering*, Vol 10, No 3, May/June 1998, pp 493-499.
20. Mario A. Nascimento and Margaret H. Dunham, "Indexing Valid Time Databases Via B+-Trees," *IEEE Transactions on Knowledge and Data Engineering*, November/December 1999, pp 929-947.
21. JF Yao and Margaret H. Dunham "Caching Management of Mobile DBMS," *Journal of Integrated Computer-Aided Engineering*, April 2001, Vol 8, No 2, pp 151-169.
22. Jun-Lin Lin and Margaret H. Dunham, "A Low-Cost Checkpointing Technique for Distributed Databases," April 2000, *Distributed and Parallel Databases*, Vol 10, pp 241-268, 2001.
23. Yongqiao Xiao and Margaret H. Dunham, "Efficient Mining of Traversal Patterns", *Data and Knowledge Engineering*. November 2001, Vol 39, No 2, pp 191-214.
24. Vijay Kumar, Nitin Prabhu, Margaret H. Dunham, and Ayse Yasemin Seydim, "TCOT - A Timeout-based Mobile Transaction Commitment Protocol", *IEEE Transactions on Computers*, Vol 51, No 10, October 2002, pp 1212-1218.
25. Qun Ren, Margaret H. Dunham, and Vijay Kumar, "Semantic Caching and Query Processing," *IEEE Transactions on Knowledge and Data Engineering*, Vol 15, No 1, January/February 2003, pp 192-210.
26. Vijay Kumar, Margaret H. Dunham, and Nitin Prabhu, "Mobilaction: A Mobile Transaction Framework Supporting Spatial Replication and Spatial Consistency, *International Journal of Computer Systems Science and Engineering (IJCSS)*, Vol 20, No 2, March 2005.
27. Yu Meng and Margaret H. Dunham, "Mining Developing Trends of Dynamic Spatiotemporal Data Streams," *Journal of Computers*, Vol 1, No 3, June 2006, pp 43-50.
28. Charlie Isaksson, Yu Meng, and Margaret H. Dunham, "Risk Leveling of Network Traffic Anomalies," *International Journal of Computer Science and Network Security*, Vol 6, No 6, June 2006, pp 258-265.
29. Michael Hahsler and Margaret H. Dunham, "rEMM: Extensible Markov Model for Data Stream Clustering in R," *Journal of Statistical Software*, Vol 35, Issue 5, July 2010.
30. Rao M. Kotamarit, Michael Hahsler, Douglas Raiford, Monnie McGee, and Margaret H. Dunham, "Analyzing Taxonomic Classification Using Extensible Markov Models," *Bioinformatics*, June, 2010, Vol. 26, No. 18, pp 2235-2241.
31. Christophe Giraud-Carrier and Margaret H. Dunham, "On the Importance of Sharing Negative Results," *ACM SIGKDD Explorations*, December 2010, Vol. 12, No. 2, pp 3-4.

32. Margaret H. Dunham, Michael Hahsler, and Myra Spiliopoulou, "Novel Data Stream Pattern Mining Report on the StreamKDD'10 Workshop," *ACM SIGKDD Explorations*, December 2010, Vol. 12, No. 2, pp 54-55.
33. Ayse Yasemin Seydim, Margaret H. Dunham and Yu Meng, "Location Leveling," May 2012, *International Journal of Mobile Computing and Multimedia Communications*, Vol. 4, Issue 4, pp 36-61.

PUBLICATIONS (Refereed Conference Proceedings):

Margaret H. Eich and David L. Wells, "Subkey Invalidation," *Proceedings of the 1983 Conference on Information Sciences and Systems*, Johns Hopkins University, Baltimore, Maryland, March 1983, p 697.

1. Margaret H. Eich and David L. Wells, "Database Flow Graphs," *Proceedings of the 1984 International Conference on Parallel Processing*, Illinois, August 1984, pp 266-268.
2. Margaret H. Eich, "MMDB Recovery," *Proceedings of the 1986 ACM-IEEE C/S Fall Joint Computer Conference*; Dallas, Texas, November, 1986, 1226-1232.
3. Margaret H. Eich, "A Classification and Comparison of Main Memory Database Recovery Techniques," *Proceedings of the Third International Conference on Data Engineering*, Los Angeles, California, February 1987, pp 332-339.
4. Margaret H. Eich, "MARS: The Design of a Main Memory Database Machine," *Proceedings of the 5th International Workshop on Database Machines*, Karuizawa, Japan, October 1987, pp 468-481.
5. Chin-Feng Fan, Wei-Li Sun, Margaret H. Eich, and Murat M. Tanik, "Simulation of a Main Memory Database Based on Wisconsin Benchmarks," *Proceedings of the Nineteenth Annual Modeling and Simulation Conference*, May, 1988, pp 1233-1237. (Earlier version available as SMU technical report 88-5.)
6. Chinfeng Fan and Margaret H. Eich, "Performance of MARS Logging, Checkpointing, and Recovery," *Proceedings of the 1989 Hawaii International Conference on System Sciences*, Kona, Hawaii, January 1989, pp 636-642. (Earlier version available as SMU technical report 87-21.)
7. Margaret H. Eich, "Main Memory Database Research Directions," *Proceedings of the 1989 International Workshop on Database Machines*, Deauville, France, June 1989, pp 251-268. (Earlier version available as SMU technical report 88-35.)
8. Le Gruenwald and Margaret H. Eich, "Database Partitioning Techniques To Support Reload In A Main Memory Database System: MARS," *Proceedings of the International Conference on Parallel Processing and Databases*, Florida, March 1990, pp. 107-109.
9. Le Gruenwald and Margaret Eich, "Reload in a Main Memory Database System: MARS," *Proceedings of 1990 Symposium on Applied Computing*, Arkansas, April 5-6, 1990, pp. 174-176.
10. Le Gruenwald and Margaret H. Eich, "Choosing the Best Storage Technique for a Main Memory Database System," *Proceedings of the 5th Jerusalem Conference on Information Technology*, October 1990, pp. 1-10.
11. Francisco Mariategui and Margaret H. Eich, "A Transaction Definition Based on Message Passing," *Proceedings of the IEEE Symposium on Parallel & Distributed Processing*, December 1990, pp. 160-163.
12. Chris H. Corti and Margaret H. Eich, "Construction of a Main Memory Database Testbed," *Proceedings of the Symposium on Applied Computing*, Kansas City, Missouri, April 1991, pp. 2-11.
13. Le Gruenwald and Margaret H. Eich, "MMDB Reload Algorithms," *Proceedings of the ACM SIGMOD International Conference on Management of Data*, Denver, Colorado, May 1991, pp. 397-405. (Earlier version available as SMU technical report 90-CSE-35.)
14. Le Gruenwald and Margaret H. Eich, "Partial Reload of Memory-Resident Databases," *Proceedings of ASME Symposium of Computer Applications*, January 1992.

15. Le Gruenwald and Margaret H. Eich, "How to Recover from System Failure in Main Memory Databases," *Proceedings of NASA International Space Year Conference on Earth and Science Information Systems*, February 1992.
16. Margaret H. Eich, "Main Memory Databases: Current and Future Research Issues," *IEEE Transactions on Knowledge and Database Engineering*, Vol. 4, No. 6, December 1992, pp. 507-508 (Introduction to Special Section on Main Memory Databases).
17. Xi Li and Margaret H. Eich, "Post-crash Log Processing for Fuzzy Checkpointing Main Memory Databases," *Proceedings of the IEEE International Conference on Data Engineering*, Vienna, Austria, April 1993.
18. Priti Mishra and Margaret H. Eich, "A Taxonomy of Views in OODBs," *Proceedings of the ACM Computer Science Conference*, Phoenix Arizona, March 1994, pp. 147-156.
19. Xi Li, Margaret H. Eich, V. John Joseph, Zaman Gulzar, Chris H. Corti, Mario A. Nascimento, and Ashley Chaffin Peltier, "Checkpointing and Recovery in Partitioned Main Memory Databases," *Proceedings of the Intelligent Information Management Systems Conference*, June 1995.
20. Mario A. Nascimento and Margaret H. Eich, "Decision Time in Temporal Databases," *International Workshop on Temporal Representation and Reasoning - TIME'95*, Melbourne Beach, Florida, April 26, 1995, pp.157-162.
21. Mario A. Nascimento, Margaret H. Dunham, and Ramez Elmasri, "Using Incremental Trees for Space Efficient Indexing of Bitemporal Databases," *Proceedings of the 2nd International Conference on Applications of Databases*, December 1995, pp. 235-248.
22. Mario A. Nascimento and Margaret H. Dunham, "Indexing A Transaction-Decision Time Database," *Proceedings of the ACM Symposium on Applied Computing*, February 1996, pp 166-172.
23. Jun-Lin Lin and Margaret H. Dunham, "Segmented Fuzzy Checkpointing for Main Memory Databases," *Proceedings of the ACM Symposium on Applied Computing*, February 1996, pp 158-165.
24. Mario A. Nascimento, Margaret H. Dunham, and Ramez Elmasri, "M-IVTT: A Practical Index for Bitemporal Databases," *Lecture Notes in Computer Science 1134, Database and Expert Systems Applications*, 1996, pp.779-790.
25. Mario A. Nascimento and Margaret H. Dunham, "Using Parallel B+-trees to Index Spatial Data," *Proceedings of the Symposium on Brazilian Databases*, 1996, pp. 187-200.
26. Mario A. Nascimento and Margaret H. Dunham, "A Proposal for Indexing Bitemporal Databases Via Cooperative B+-trees," *Proceedings of the International Database Engineering and Application Symposium, Montreal*, August 1997, pp. 349--357.
27. Mario Nascimento and Margaret Dunham, "Using B+-Trees in a Two Disk-Single Processor Architecture to Efficiently Process Inclusion Spatial Queries," *Proceedings of the ACM-GIS Workshop*, November 1997, pp 5-8.
28. Jun-Lin Lin and Margaret H. Dunham, "Mining Association Rules: Anti-Skew Algorithms," *Proceedings of the IEEE International Conference on Data Engineering*, February 1998, pp 486-493.
29. Margaret H. Dunham and Vijay Kumar, "Location Dependent Data and its Management in Mobile Databases," *Proceedings of the Ninth International Workshop on Database and Expert Systems Applications*, August 26-29, 1998, pp 414-419
30. Qun Ren and Margaret H. Dunham, " Using Clustering for Effective Management of a Semantic Cache in Mobile Computing," August 1999, *Proceedings of the International Workshop on Data Engineering for Wireless and Mobile Access*, pp 94-101.
31. Margaret H. Dunham and Vijay Kumar, "Impact of Mobility on Transaction Management," August 1999, *Proceedings of the International Workshop on Data Engineering for Wireless and Mobile Access(MobiDE99)*, pp 14-21.
32. Yongqiao Xiao and Margaret H. Dunham, "Considering Main Memory in Mining Association Rules," *Proceedings of the First International Conference Conference on Data Warehousing and Knowledge Discovery*, September 1999, pp 209-218.

33. Qun Ren and Margaret H. Dunham, "Using Semantic Caching to Manage Location Dependent Data in Mobile Computing," May 2000, *Proceedings of International conference on Mobile Computing*.
34. Margaret H. Dunham, Ayse Yasemin Seydim, Ahmad Al-Mogren, and Vijay Kumar, "Data in Your Space" (invited paper), *Proceedings of WECWIS*, pp 66-73, 2001.
35. Yongqiao Xiao and Margaret H. Dunham, "Interactive Clustering for Transaction Data", *DAWAK*, September 2001.
36. Ayse Yasemin Seydim, Margaret H. Dunham, and Vijay Kumar, "Location Dependent Query processing", May 2001, *Proceedings of Mobide*, pp 47-54.
37. Ayse Yasemin Seydim, Margaret H. Dunham, and Vijay Kumar, "An Architecture for Location Dependent Query Processing", September 2001, *Proceedings of DEXA*, pp 549-555.
38. Ahmad S. Al-Mogren and Margaret H. Dunham, "BUC, a Simple yet Efficient Concurrency Control Technique for Mobile Data Broadcast Environment", September 2001, *Proceedings of DEXA*, pp 564-569.
39. Ayse Yasemin Seydim and Margaret H. Dunham, "A Location Dependent Benchmark with Mobility Behavior", *Proceedings of the International Database Engineering and Applications Symposium*, July 2002, pp 74-83.
40. Zhigang Li and Margaret H. Dunham, "STIFF: A Forecasting Framework for Spatio-Temporal Data", *Proceedings of the First International Workshop on Knowledge Discovery in Multimedia and Complex Data*, May 2002, pp 1-9.
41. Zhigang Li, Liangang Liu, and Margaret H. Dunham, "Considering Correlation Between Variables to Improve Spatiotemporal Forecasting," *Proceedings of the PAKDD Conference*, May 2003, pp 519-531.
42. Zhigang Li, Mig-Tan Sun, Margaret H. Dunham, and Yongqiao Xiao, "Improving the Web Site's Effectiveness by Considering Each Page's Temporal Information," *Proceedings of the Fourth International conference on Web-Age information Management (WAIM)*, August 2003, pp 47-54.
43. Ahmad S. Al-Mogren and Margaret H. Dunham, "Concurrency Control Performance in DAYS," *Proceedings of the 3rd ACM International Workshop on Data Engineering for Wireless and Mobile Access (Mobide)*, September 2003, pp 25-29.
44. Nimisha Garg, Vijay Kumar, and Margaret H. Dunham, "Information Mapping and Indexing in DAYS," *Proceedings of the DEXA Workshops*, 2003, pp 951-955.
45. Yongqiao Xiao, Jenq-Foung Yao, Zhigang Li, and Margaret H. Dunham, "Efficient Data Mining for Maximal Frequent Subtrees," *Proceedings of the IEEE International Conference on Data Mining (ICDM)*, November 2003. pp 379-386.
46. Jie Huang, Yu Meng, and Margaret H. Dunham, "Extensible Markov Model," *Proceedings IEEE ICDM Conference*, November 2004, pp 371-374.
47. Ahmad S. Al-Mogren and Margaret H. Dunham, "Data Broadcast Classification," *Proceedings of ACS/IEEE AICCSA-05 Conference*, January 2005.
48. Jason Mizher, Margaret H. Dunham, Lin Lu, and Yongqiao Xiao, "Scalability of OAT" *Proceedings of ACS/IEEE AICCSA-05 Conference*, January 2005.
49. Lin Lu, Margaret H. Dunham, and Yu Meng, "Discovery Significant Usage Patterns from Clusters of Clickstream Data," *Proceedings of the Workshop on Knowledge discovery in the Web*, August 2005. (Extended version to appear in *Lecture Notes in Computer Science*,
50. Yu Meng and Margaret H. Dunham, "Efficient Mining of Emerging Events in a Dynamic Spatiotemporal," *Proceedings of the IEEE PAKDD Conference*, April 2006, Singapore. (Also in *Lecture Notes in Computer Science*, Vol 3918, 2006, Springer Berlin/Heidelberg, pp 750-754.) (Extended version submitted to *Journal of Computers*.)
51. Yu Meng, Margaret Dunham, Marco Marchetti, and Jie Huang, "Rare Event Detection in a Spatiotemporal Environment," *Proceedings of the IEEE Conference on Granular Computing*, May 2006, pp 629-634.

52. Yu Meng and Margaret H. Dunham, "Online Mining of Risk Level of Traffic Anomalies with User's Feedbacks," *Proceedings of the IEEE Conference on Granular Computing*, May 2006, pp 176-181.
53. Yuhang Wang, Margaret H. Dunham, James A. Waddle, and Monnie McGee, "Classifier Fusion for Poorly-Differentiated Tumor Classification using Both Messenger RNA and MicroRNA Expression Profiles," *Computational Systems Bioinformatics Conference (CSB 2006)*, Stanford, California, 2006.
54. Margaret H. Dunham, Donya Quick, Yuhang Wang, Monnie McGee, Jim Waddle, "Visualization of DNA/RNA Structure using Temporal CGRs," *Proceedings of the IEEE 6th Symposium on Bioinformatics & Bioengineering (BIBE06)*, October 16-18, 2006, Washington D.C. ,pp 171-178.
55. Donya Quick and Margaret H. Dunham, "TCGR: A Novel DNA/RNA Visualization Technique," *NSF Symposium on Next Generation of Data Mining and Cyber-Enabled Discovery for Innovation*, October 10-12, 2007, Baltimore.
56. Margaret H. Dunham and Vijay Kumar, "Stream Hierarchy Data Mining for Sensor Data," *Innovations and Real-Time Applications of Distributed Sensor Networks (DSN) Symposium*, November 26, 2007, Shreveport Louisiana.
57. Mallik Kotamarti, Douglas W. Raiford, M. L. Raymer, and Margaret H. Dunham, "A Data Mining Approach to Predicting Phylum for Microbial Organisms Using Genome-Wide Sequence Data," *Proceedings of the IEEE Ninth International Conference on Bioinformatics and Bioengineering*, pp 161-167, June 22-24 2009.
58. Charlie Isaksson and Margaret H. Dunham, "A Comparative Study of Outlier Detection," July 2009, *Proceedings of the IEEE MLDM Conference*, pp 440-453.
59. Rao M. Kotamarti and Margaret H. Dunham, "Alignment-free Sequence Analysis Using Extensible Markov Models," *ACM BioKDD Workshop*, July 25, 2010, pp 98-105.
60. Yu Su, Sudheer Chelluboina, Michael Hahsler, and Margaret H. Dunham, "A New Data Mining Model for Hurricane Intensity Prediction," *Proceedings of the IEEE ICDM Workshop on Knowledge Discovery from Climate Data: Prediction, Extremes, and Impacts*, December 14, 2010, pp 98-105.
61. Margaret H. Dunham, Michael Hahsler, and Myra Spiliopoulou, "Novel Data Stream Pattern Mining Report on the StreamKDD'10 Workshop," *SIGKDD Newsletter*, December 2010.
62. Michael Hahsler and Margaret H. Dunham, "Temporal Structure Learning for Clustering Massive Data Streams in Real-Time" *SIAM Conference on Data Mining (SDM11)*, pp 664-675, 2011.
63. Yu Su and Margaret H. Dunham, "A Graph-based Fuzzy Linguistic Metadata Schema for Describing Spatial Relationships," April 2011, *Proceeding of the 2011 visual Information – International Symposium (VINCI2011)*, August 2011.
64. Vladimir Jovanovic, Margaret H. Dunham, Michael Hahsler, and Yu Su, "Evaluating hurricane intensity prediction techniques in real time," *In Third IEEE ICDM Workshop on Knowledge Discovery from Climate Data (ICDMW 2011)*, December 2011, pp 23-29.
65. Charlie Isaksson, Margaret H. Dunham, and Michael Hahsler, "SOSstream: Self Organizing Density-Based Clustering Over Data Stream," *Proceedings of the International Conference on Machine Learning and Data Mining (MLDM'2012)*, July 13-20, 2012.

PUBLICATIONS (Submissions Under Review):

1. Yu Su and Margaret H. Dunham, " Learning a Prediction Interval Model for Hurricane Intensities," November 2011, submitted to *ACM Transactions on Knowledge Discovery from Data*.

Published Reviews:

1. *Computing Reviews*, 8804-0285, Vol. 29, No. 4, April 1988, pp 222-223.
2. *Computing Reviews*, 8903-0117, Vol. 30, No. 3, March 1989, p 140.
3. *Computing Reviews*, 8908-0569, Vol. 30, No. 8, August 1989, p 425.
4. *Computing Reviews*, 8908-0571, Vol. 30, No. 8, August 1989, p 426.
5. *Computing Reviews*, 9006-0515, Vol. 31, No. 6, June 1990, p 327.

6. *Computing Reviews*, 9010-0835, Vol. 31, No. 10, October 1990, p 556.
7. *Computing Reviews*, 9106-0465, Vol. 32, No. 6, June 1991, pp 319-320.
8. *Computing Reviews*, 9208-0521, Vol. 33, No. 8, August 1992, p 401.
9. *Computing Reviews*, 9310-0804, Vol. 34, No. 10, October 1993, pp 556-557.
10. *Computing Reviews*, 9406-0371, Vol. 35, No. 6, June 1994, pp.312-313.
11. *Computing Reviews*, 9609-0737, Vol. 37, No. 9, September 1996, pp.487-488.
12. *Computing Reviews*, 9907-0556, Vol. 40, No. 7, July 1999, pp.358-359.

PUBLICATIONS(Book):

Data Mining Introductory and Advanced Topics, Prentice Hall, 2003.
Chinese and Indian Editions Available; Greek translation available.

PUBLICATIONS(Chapters in Books):

1. Margaret H. Eich, "MARS: The Design of a Main Memory Database Machine," *Database Machines and Knowledge Base Machines*, Kluwer Academic Publishers, 1988, pp 325-338. (Reprint from Proceedings of the 5th International Workshop on Database Machines.)
2. Margaret H. Eich, "A Classification and Comparison of Main Memory Database Recovery Techniques," *Parallel Architecture for Database Systems*, IEEE Computer Society Press, 1989, pp 417-424. (Reprint from Proceedings of the Third International Conference on Data Engineering.)
3. A.R. Hurson, L.L. Miller, S.H. Pakzad, M.H. Eich, and B. Shirazi, "Parallel Architectures for Database Systems," *Advances in Computers*, Vol. 28, Academic Press, 1989, pp 107-151.
4. Margaret H. Eich, "Database Organization and Management," *Encyclopedia of Telecommunications*, Volume 5, Marcel Dekker, Inc., 1993, pp. 261-284..
5. Margaret H. Eich, "Database Concurrency Control Using Data Flow Graphs," Chapter 9, pages 215-247 in *Performance of Concurrency Control Mechanisms in Centralized Database Systems*, edited by Vijay Kumar, Prentice-Hall, Inc. 1996.
6. Margaret H. Dunham, Jun-Lin Lin, and Xi Li, "Fuzzy Checkpointing Alternatives for Main Memory Databases," in *Recovery Mechanisms in Database Systems*, pages 574--616, edited by Vijay Kumar, Prentice-Hall, Inc., 1998.
7. Zhigang Li, Margaret H. Dunham, and Yongqiao Xiao, "STIFF: A Forecasting Framework for SpatioTemporal Data," Osmar R. Zaïane, Simeon J. Simoff, Chabane Djeraba, *Mining Multimedia and Complex Data*, published by Springer Verlag, Lecture Notes in Artificial Intelligence Volume 2797, 2003, ISBN:3-540-20305-2.
8. Ayse Yasemin Seydim and Margaret H. Dunham, "Location-Dependent Query Processing in Mobile Computing," Chapter 11 in *Mobile Computing Handbook*, Mohammad Ilyas and Imad Mahgoub, Editors, Auerbach Publications, 2005, pp 255-274.
9. Abdelsalam Helal, Snatosh Balakrishnand, Margaret H. Dunham, and Youzhong Lin, "A Survey on Mobile Transaction Models," Chapter 35 in *Mobile Computing Handbook*, Mohammad Ilyas and Imad Mahgoub, Editors, Auerbach Publications, 2005, pp 839-876.
10. Ayse Yasemin Seydim and Margaret H. Dunham, "Location Dependent Query Processing Benchmark," Chapter XIII in *Wireless Information Highways*, Dimitrios Katsaros and Yannis Manolopoulos, Editors, 2005, Idea Group Publishing, pp 372-398.
11. Margaret H. Dunham, Nathaniel Ayewah, Zhigang Li, Kathryn Bean, and Jie Huang, "Spatiotemporal Prediction Using Data Mining Tools," Chapter XI in *Spatial Databases: Technologies, Techniques and Trends*, Yannis Manolopoulos, Apostolos N. Papadopoulos and Michael Gr. Vassilakopoulos, Editors, 2005, Idea Group Publishing, pp 251-271.
12. Lin Lu, Margaret H. Dunham, and Yu Meng, "Mining Significant Usage Patterns from Clickstream Data," in *Lecture Notes in Artificial Intelligence, LNAI 4198*, Volume, 2006, pp 1-17. (Extended version of WebKDD paper)

13. Faiza Najjar, Sean Kelley, and Margaret H. Dunham, "Location-Dependent Database Access," Chapter 31, pp 819-850, in *Handbook of Mobile Middleware*, CRC Press, 2006, editors Paolo Bellavista and Antonio Corradi.
14. Rao M. Kotamarti, Mitchell A. Thornton, and Margaret H. Dunham, "Quantum Computing Approach For Alignment-free Sequence Search and Classification", in *Multidisciplinary Computational Intelligence Techniques: Applications in Business, Engineering, and Medicine*, IGI Global, 2012.

PUBLICATIONS(Technical Reports):

66 SMU CSE Technical Reports between 1982-1989.

HONORS & SOCIETIES:

General:

- ACM Distinguished Speaker, April 2008 - present
- Fulbright Specialists Roster, December 2007 – present
 - Fulbright Specialist Award 4522, India Institute of Information Technology, Allahabad, Uttar Pradesh, India, January 16-February 18, 2012.
- Professional Engineer
- Association for Computing Machinery Senior Member- SIGMOD
- IEEE Senior Member
- IEEE Computer Society - Database Engineering Technical Committee
- Upsilon Pi Epsilon
- Pi Mu Epsilon
- Recognition of Service Award from ACM, 2000
- Listed in the following Marquis Who's Who books:
 - *Who's Who in the South and Southwest*
 - *The World of Who's Who of Women*
 - *Who's Who of American Women*
 - *Who's Who of Emerging Leaders in America*
 - *Who's Who in Science and Engineering*
 - *Who's Who in American Education*
 - *Who's Who in the World*
 - *Who's Who in Engineering Education*
 - *Who's Who in the Media and Communications*
- Listed in International Biographical Centre book: *The World Who's Who of Women*
- Listed in Academic Keys:
 - *Who's Who in Sciences Higher Education (WWSHE)*
 - *Who's Who in Engineering Education*
- Received CDP (Certified Data Processor)

SMU School of Engineering:

- SMU Engineering Executive Board Faculty Excellence Award, 2002.

SMU CSE Department:

- Outstanding Graduate Faculty Award 1989, 2001, 2002.
- Departmental Residency Fellowship 1984
- Outstanding Graduate Student 1984
- Frederick Terman Award in Computer Science 1984

PROFESSIONAL ACTIVITIES:

Editorship:

- *ACM SIGMOD Record* Editor, January 1986-December 1988
- *IEEE Transactions on Knowledge and Data Engineering*, Guest Editor, December 1992.
- *ACM SIGMOD Record*, Guest Editor, December 1995
- *IEEE Transactions on Knowledge and Data Engineering*, Associate Editor, August 2000 – December 2004.
- *ACM SIGKDD Explorations, December 2010, Special Issue: Unexpected Results.* (Co-editor with Christophe Giraud-Carrier)

General Conference Chair:

- ACM SIGMOD/PODS 2000 (<http://www.engr.smu.edu/sigmod2000>)
- ACM StreamKDD Workshop, July 25, 2010 (<http://lyle.smu.edu/IDA/StreamKDD2010/>) (Co-Chair with Michael Hahsler and Myra Spiliopolou)

Conference Organizing Committee:

- Mobile Information Management Seminar at Dagstuhl Germany, 10/24/2004

.Program Committee Chair:

- AICCSA-05

Program Committee:

- 1989 ACM SIGMOD Conference
- 1990 IEEE Symposium on Parallel and Distributed Processing
- 1991 ACM/IEEE Symposium on Applied Computing
- 1992 ACM SIGMOD Conference
- 1995 IEEE Data Engineering Conference Program Vice Chair(Engineering and Scientific Databases)
- 1995 International Conference on Intelligent Information Management Systems
- 1996 WOSIBS:First International Workshop on Satellite-based Information Services
- 1997 Brazilian Database Symposium
- 1998 ACM Symposium on Applied Computing, Database Technology Track Chair
- 1998 IEEE Data Engineering Conference
- 1999 IEEE Data Engineering Conference
- 2000 IEEE Data Engineering Conference
- 2000 International Workshop on Data Engineering for Wireless and Mobile Access
- 2000 Mobile Database Technology Track of ADBIS-DASFAA
- 2001 VLDB Conference
- 2001 International Conference on Mobile Data Access
- 2001 International Workshop on Data Engineering for Wireless and Mobile Access
- 2001 International Symposium on Spatial and Temporal Databases
- 2001 International Workshop on Data Semantics in Web Information Systems
- 2002 SIGKDD
- 2002 IEEE MDM
- 2002 MDDS (reviewed 3 papers)
- 2003 MDDS (reviewed 4 papers)
- 2003 SBBD (reviewed 6 papers)
- 2004 IASTED International Conference on Databases and Applications (DBA'04)
- 2004 MDM (reviewed 7 papers)
- 2004 MDDS
- 2005 MDM (reviewed 6 papers)
- 2006 VLDB
- 2006 Mobide

- 2007 ICDM (3 papers)
- 2008 SIGMOD (12 papers)
- 2008 RFDI (2 papers)
- 2008 AICCSA (7 papers)
- 2008 CIARP (10 papers)

Session Chairman:

- 1989 ACM SIGMOD Conference (Query Processing and Stable Storage)
- 1990 IEEE Symposium on Parallel and Distributed Processing (Databases)
- 1992 IEEE Data Engineering Conference (Concurrency Control)
- 1992 ACM SIGMOD Conference (Database Machines)
- 1993 IEEE Symposium on Parallel and Distributed Processing (Storage Management)
- 1995 IEEE Data Engineering Conference
- 1995 Fifth International Workshop on Research Issues on Data Engineering: Distributed Object Management
- 2001 MDDS Workshop
- 2004 IEEE International Conference on Data Mining (ICDM)
- 2005 ACS/IEEE International Conference on Computer Systems and Applications
- 2010 IEEE ICDM Conference

Panel Member:

- 1992 ACM CSC CASE Panel (CASE as one of many DB Design Tools)

Publicity Chairman:

- 1989 IEEE Symposium on Parallel and Distributed Processing

Publications Chairman:

- 1991 International Conference on Distributed Computing Systems

Tutorial and Panel Chairman:

- 1990 IEEE Symposium on Parallel and Distributed Processing

Tutorial Presentations:

- 1996 Brazilian Database Symposium, “Databases and Mobile Computing”
- 1998 IEEE International Conference on Data Engineering, “Databases and Mobile Computing”

Consultant:

- International Business Machines Inc.
- NEC America Inc.
- Texas Instruments Inc.
- Microelectronic Computer Corporation
- DSC Communications
- SIAC

Program Committee/Reviewer:

- International Conference on Parallel Processing (1985)
- *IEEE Transactions on Software Engineering* (1984-1988)
- *IEEE Transactions on Parallel and Distributed Systems* (1992,1994,1995,1998)
- *IEEE Transactions on Computers* (1987,1988,1990)
- *IEEE Software* (1988,1989,1990,1994,1995,1997)
- *IEEE Micro* (1991,1992)
- National Science Foundation (1984,1988-1991,1993,1995-1997,1999, 2002, 2003,2004,2005,2008)
- NSERC (2000)
- *Computer* (1987-1992)
- *Journal of Parallel and Distributed Computing* (1985,1992,1997)

- Hawaii International Conference on System Sciences (1987,1988,1989,1992,1993)
- *Information Processing Letters* (1988)
- Fall Joint Computer Conference (1987)
- *Information Sciences* (1987,1988,1992,1995)
- IEEE International Conference on Data Engineering (1988,1992-1994,1997-2000)
- MDDS (1999,2001)
- *IEEE Transactions on Knowledge and Data Engineering* (1988-1999, 2005,2006,2007,2008)
- IEEE Symposium on Parallel and Distributed Processing (1989,1990,1993)
- *Performance Evaluation: An International Journal* (1989)
- XII SBBD - Brazilian Database Symposium (1997)
- *ACM Transactions on Database Systems* (1989,1995,1996)
- *ORSA Journal on Computing* (1989,1990)
- *The VLDB Journal* (1991,1993-1995,2003,2005)
- International Conference on System Integration (1991)
- International Parallel Processing Symposium (1992)
- ACM SIGMOD International Conference on Management of Data (1989,1992)
- Symposium on Applied Computer (1990,1991,1997)
- *Journal of Integrated Computer-Aided Engineering* (1994)
- *Journal of Database Management* (2000)
- ISMM International Conference on Intelligent Information Management Systems (1994,1996)
- *Information Systems* (1994)
- *Data and Knowledge Engineering* (1996,1999)
- International Symposium on Reliability of Distributed Systems (1997)
- *Information and Software Technology* (1998)
- *Journal of Systems Architecture* (1999)
- Mobide (1999,2006)
- International Symposium on Spatial and Temporal Databases (2001)
- ISE (2001)
- VLDB (2001,2006)
- MDDS (2001)
- International Conference on Mobile Data Management (MDM) (2003, 2005)
- International Journal of Computer systems Science & Engineering (2004)
- *IEEE Transactions on Mobile Computing* (2005,2007,2008)
- IEEE ICDM (2005,2007,2008,2009,2010,2011)
- *IEEE Transactions on Systems, Man, and Cybernetics* (2005)
- Wireless Euro-Mediterranean International Conference (2005)
- AICCSA (2005,2006,2007,2008)
- SIGMOD (2007,2008)
- Software Practice and Experience (2007)
- MUBICA (2007)
- ACM Computing Surveys (2008)
- Geoinformatica (2008)
- ACM SIGKDD (2008, 2009, 2010)

GRADUATE STUDENT THESIS SUPERVISION:

Name	Degree	Title	Defense
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Sharon Garard	MS	Implementation of Flow Graph Locking as a Concurrency Control Mechanism in Ingres	May 1988
Ron Shapiro	MS	POWR: Persistence of Objects With Relations	April 1989
Pete Johnson	MS	Emitter Identification Analysis Tool	November 1989
Geree Streun	MS	An Expert Sensor Management System	March 1990
Ken Vollmar	MS	On the Generation of Steiner Minimal Trees for Points on a Convex Polygon	March 1991
Jeff Allen	MS	An Analysis of Pressure-Based Keystroke Dynamic Algorithms	May 2010
Doug Benn	DE	The Use Of Software Metrics to Evaluate Information Systems	July 1990
Francisco Mariategui	PhD	Structured Concurrency Control in Object Oriented Data Bases	May 1989
Le Gruenwald	PhD	Reload in a Main Memory Database System: MARS	August 1990
Chris Corti	PhD	Updating in a Main Memory Database	May 1992
Priti Mishra	PhD	Functions in Object-Oriented Databases	August 1992
Fred Chen	PhD	Multiple-Query Processing in Main Memory Databases	November 1994
Mario Nascimento	PhD	Efficient Indexing of Temporal Databases Via B+-Trees	June 1996
Jun-Lin Lin	PhD	Checkpointing MMDB and Distributed Databases	July 1997
JF Yao	PhD	Mobile Computing Caching	August 1998
Qun Ren	PhD	Semantic Caching in Mobile Computing	February 2000
Al Xiao	PhD	Clustering and Association Rules	November 2000
Ahmad Al-Mogren	PhD	Developing an Architectural Model and Maintaining Transactional Consistency for Universal Mobile Broadcast Environment	July 2002
Ayse Yasemin Seydim	PhD	Location Dependent Query Processing	May 2003
Yu Meng	PhD	Extensible Markov Model: An Efficient Data Mining Framework for Spatiotemporal Stream Data	May 2007
Rao Mallik Kotamarti	PhD	Quasi Alignment methods for Molecular Sequence Analysis	December 2010
Yu Su	PhD	NEW DATA MODELING TECHNIQUES WITH APPLICATIONS TO TWO DATA MINING PROBLEMS	December 2011

- In addition have served many PhD and MS committees.

UNIVERSITY SERVICE:

SMU Service:

- Faculty Senate 1993-1998
 - President 1996-1997
 - At Large Representative 1993-1995
 - Executive Committee 1995-1998
- Board of Trustees 1996-1997
- Board of Trustees Committee Member
 - Academic Policy (1996-2000)
 - Buildings and Grounds (1996-1997)
- SACS Self Study Steering Committee (1997-2000)
 - Chairman Faculty Subcommittee
- SMU Libraries Executive Board 1996-1998

- Faculty Senate Committees:
 - Ethics and Tenure Committee 1990,1991
 - Economic Subcommittee on the Status of the Faculty 1992-1994
 - Chairman 1993-1994
 - SMU Finance Committee 1993-1994,1995-1996
 - Honorary Degrees Committee 1996-1997
- Commission on Teaching and Learning 2001-2005
- Orientation Week Discussion Leader 1989,1990
- University Research Council 1989,1990,1991
- Presidential Scholar Interviewer 1989,1990,1991,1992,1993,1998, 2003, 2004, 2005,2009
- Computer Policy and Planning Committee 1989,1990,1991
- Mainframe Selection Committee 1990
- AP Summer Institute Liason 1993-1997
- AAUW 1993 Expanding Your Horizons Career Workshop
- SMU Women's Symposium Participant 1994, 1996, 1997
- SMU Parking Committee 1993-1994
- Upperclass Presidential Scholar Committee 1996
- SMU Town & Gown 1995-1998
- Provost's Promotion and Tenure Committee 2002-2005
- SMU Honors Task Force 2006-2007
- SMU IT Ethics and Culture Committee 2006-2007
- Hyer Society Selection Committee, 2007-2009
- SACS Accreditation QEP Subcommittee, Chair(2009-2011)

School of Engineering:

- SEAS Academic Priorities Task Force 1988,1989
- CSE Department Chairperson Search Committee 1989-1992,1993-1994,1997-1998,1998-1999
- SEAS Dean Search Committee 1990
- SEAS Spring Seminar Series Organizer 1992-1993
- ME Department Brown Chair Search 1995-1996
- EE Building Committee 1998-2000
- Research Council 2004-2005
- SoE Promotion and Tenure Committee 2004-2005
- EE Department Faculty Search Committee (2008-2009)
- EMIS Department Faculty Search Committee(2009)

CSE Department Service:

- Associate Chairman 1992-1994,2000-2001
- Seminar Chairman 1985-1986
- Graduate Affairs Committee Chairman 1986-1991
- ABET Accreditation Committee 1990, 2000-2002
- Recruitment Committee Chairman 1990-1992
- Recruitment Committee Member 1992-1994, 1999-2000, 2001-2002, 204-2005
- Library Committee 1991-1993
- Review all CS graduate applications 1999-2001
- CSE Department ABET Coordinator 2000-2002
- Undergraduate Program Director 2002-2005
 - Committee Chair
 - Advise all undergraduate CS majors
 - Supervise ABET activities

- ACM Advisor
- CSE Department Faculty Affairs Committee 2004-2006
 - Chairman 2005-2006
- CSE Department Graduate Program Committee 2006-2010
 - Chairman 2006-2010