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## Elke Angelika Rundensteiner

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### PERSONAL

U.S. resident; Female; Married; Two Children.

### RESEARCH INTERESTS

Database management systems, high-performance stream processing, visual interactive data access, information integration and data warehousing, web-based information systems, query optimization, database support for engineering and scientific applications.

### EDUCATION

- **Ph.D., Computer Science**  
University of California, Irvine, California, August 1992. (GPA of 4.0). Dissertation titled “Object-Oriented Views: A Novel Approach to Tool Integration in Design Environments.”
- **Master of Science, Computer Science**  
Florida State University, Tallahassee, Florida, Spring 1987. (GPA of 3.94). Master’s Thesis titled “The Development of a Fuzzy Temporal Relational Database (FTRDB).”
- **Master of Science Minor (Diplomnebenfach), Business Administration**  
Johann Wolfgang Goethe University, Frankfurt, West Germany, Summer 1984. (GPA of 4.0).
- **Bachelor of Science (Vordiplom), Computer Science**  
Johann Wolfgang Goethe University, Frankfurt, West Germany, Summer 1983. (GPA of 4.0).

### PROFESSIONAL EXPERIENCE

- **Full Professor** (July 2005 - onwards)  
Computer Science Dept., Worcester Polytechnic Institute, Worcester, MA.
- **Associate Professor** (June 1998 - present)  
Computer Science Dept., Worcester Polytechnic Institute, Worcester, MA.
- **Assistant Professor** (Fall 1996 - May 1998)  
Computer Science Dept., Worcester Polytechnic Institute, Worcester, MA.
- **Assistant Professor** (Fall 1992 - Fall 1996)  
Electrical Engineering and Computer Science Dept., University of Michigan, Ann Arbor.
- **Research Associate** (Fall 1988 - Summer 1992)  
Information and Computer Science Department, University of California, Irvine.

- **Teaching Assistant** (1987 - 1988)  
Information and Computer Science Department, University of California, Irvine.
- **Research Assistant** (1986 - 1987)  
Computer Science Department, Florida State University, Tallahassee, Florida.
- **Research Assistant** (Fall 1985 - Spring 1986)  
Mechanical Engineering Department, Florida State University, Tallahassee.
- **Teaching Assistant** (1984 - 1985)  
Computer Science Department, Florida State University, Tallahassee, Florida.
- **Undergraduate-Teaching Assistant** (1983 - 1984)  
Computer Science Department, J. W. Goethe University, Frankfurt, Germany.
- **Systems Programmer** (Summer 1983)  
Reaktor Brennelement Union GmbH, Hanau, West Germany.
- **Instructor** (1982 - 1984)  
Institut fuer Unterrichtsvermittlung, Frankfurt, West Germany.
- **Programmer** (Summer 1982)  
Honeywell GmbH, Doernigheim, West Germany.

## SCHOLARSHIPS AND AWARDS

- WPI Trustees' Award for Outstanding Research and Creative Scholarship, 2007.
- Sigma Xi Outstanding Senior Faculty Researcher Award, 2007.
- Nominated to be among best papers at ER 2003. Jinhui Jian, Hong Su, and Elke A. Rundensteiner; Automaton Meets Query Algebra: Towards A Unified Model for XQuery Evaluation over XML Data Streams; ER2003 Conference.
- One of Five Nominated for Best Paper Award Selection. Kajal T. Claypool, Elke A. Rundensteiner and George T. Heineman, ROVER: A Framework for Evolution of Relationships, International Conference on Conceptual Modeling, ER'2000, Salt Lake City, Oct. 2000. 409-422.
- Best Paper Award, for paper titled "Keeping Virtual Information Resources Up and Running" in Proceedings of IBM Centre for Advanced Studies Conference (CASCON'97), Nov. 1997, (with Ph.d. students A. J. Lee and A. Nica).
- Listed in Dictionary of International Biography (IBC), Twenty-Fifth Edition, 1997.
- IBM Partnership Award, 1996-1998.
- NSF Young Investigator Award (NYI), 1994-2000.
- Engineering Foundation Research Initiation Award, 1994.
- NSF Research Initiation Award (RIA), 1993-1995.
- Graduate Opportunity Dissertation Fellowship, Univ. of California, Irvine, Winter 1991/92.
- IBM Fellowship for Computer Science Studies, 1990 - 1991.

- UC Regents' Fellowship, University of California, Irvine, Winter 1989/90.
- Summer Research Fellowship, University of California, Irvine, Summer 1989.
- Quadrille Scholarship for Computer Science studies, Univ. of California, Irvine, 1988 - 1989.
- Tuition Fellowship for Ph.D. Studies, University of California, Irvine, 1987 - 1990.
- Tuition Fellowship for Graduate Studies, Florida State University, Tallahassee, 1984 - 1987.
- Fulbright Scholarship for Computer Science Studies, 1984 - 1985.
- Most Outstanding High School Diploma, Karl Rehbein Gymnasium, Hanau, Germany, 1980.
- Scholarships of the German people (Studienstiftung des Deutschen Volkes), Recommendation of student being among the best 1% of all German high school graduates, 1980.

## GRANTS AND CONTRACTS

- An Object-Oriented Extensible View System For Computer-Aided Design Applications, Research Initiation Award Proposal, NSF, June 1993 - May 1996, \$100,000.
- "Genomic Technology and Genetic Disease", NIH, Michigan Human Genome Center, project director: Francis S. Collins (new project director: Miriam Meisler), \$11,288,525, 9/31/90 - 9/30/94. 10% of academic year faculty salary offset for consultation on object-oriented database support for the genome project. (the Center terminates Summer 1995).
- \$15,000 Faculty Award Grant from the School of Graduate Studies, Office of the Vice President for Research, University of Michigan, May 1993 - May. 1995, for research project on Design Views for an Object-Oriented Databases.
- An Extensible Database for Scientific Information Management, NASA Graduate Student Researcher Program, \$66,000 for student support, Aug. 1993 - July 1996.
- Object-Oriented Map Databases Supporting Intelligent Transportation Systems, (with S. Underwood as co-investigator), \$171,000, for Jan/1/94 - Dec/31/96, ITS Center of Excellence, University of Michigan.
- NSF Young Investigator Award, NSF, Sep. 1994 - Aug. 1999, \$125,000 base amount (plus \$37,500 matching for 1994/1995), total amount granted was \$500,000 This grant was continued until Fall 1996 at Michigan, and then transferred to WPI to last from 1996 to Summer 2002.
- A Transparent Schema Evolution System for Object-Oriented Databases, Intel Foundation Research Initiation Grant, Engineering Foundation, Sep. 1994 - Aug. 1995, \$23,000.
- "University of Michigan Digital Library Project," NSF, ARPA, NASA, Project Director D. Atkins, period 9/1994 - 8/1998, \$8,562,292, (1 ms summer support).
- REU supplement, NSF Young Investigator Award, NSF, May 1995 - May 1996, \$5,000.
- "AT&T Equipment Grant," (co-investigator N. Soparkar), AT&T, Nov. 1994, \$44,838.
- IBM Research Fellowship for 1 Graduate Student at University Of Michigan, IBM Toronto, Center for Advanced Studies Program, \$27,000 per year (includes salary and tuition) Jan 1996 - Dec. 1997.

- “MDARTS: A multiprocessor database architecture for real-time systems,” (with K. G. Shin as primary PI), \$302,431 for Sept. 1995 – Aug. 98.
- CRA Distributed Mentor Project Grant, funded by NSF, \$5,000, for support for one female undergraduate student in Summer 1997 at WPI,
- REU supplement, NSF Young Investigator Award, NSF, May 1996 - May 1997, \$10,000.
- IBM Research Partnership Award, “Electronic Catalogs”, Corporate IBM, \$60,000, Sept 1996 - Aug. 1998.
- REU supplement, NSF Young Investigator Award, NSF, Sept. 1997 - Aug 1998, \$5,000. for one undergraduate student.
- “Experimental Testbed for Complex ITS Information Needs”, Michigan Dept. of Transportation, ITS Center of Excellence, Aug. 1996 - July 1999, amount \$30,000 per year. (terminated due to move to WPI).
- CRA Distributed Mentor Project Grant, funded by NSF, \$10,000, for support for two female undergraduate students in Summer 1998 at WPI,
- REU supplement, NSF Young Investigator Award, NSF, Sept. 1998 - Aug 1999, \$5,000. for one undergraduate student,
- IBM Corporate Fellowship, for one graduate student at WPI (Lily Chen), Corporate IBM, \$12,000 per year plus full tuition, Sept 1998 - Aug. 1999, renewable for up to three years.
- International Joint Research Project on Cooperative Information Systems, (Project leader: Yahiko Kambayashi) P.I.s: Yahiko Kambayashi (Project leader, Kyoto U), Eric Neuhold (GMD-IPSI, Tech U of Darmstadt), Rao Kotagiri (U of Melborn), Elke Rundensteiner (WPI), Mukesh Mohania (U of South Australia), Shin’ichi Konomi (Kyoto U). submitted to the Ministry of Education, Science, Sports and Culture, Japan. 1998-2000.
- CISE Research Instrumentation: Large-Scale Data Visualization and Management, NSF, PI: Matthew Ward, Co-PIs: Elke Rundensteiner, Isabel Cruz. \$100,000 (including \$32,000 matching funds from WPI), for equipment, Jan 1, 1998 - Dec 31, 1998.
- “Hierarchical Visualization Techniques for Data Mining”, NSF, Interactive Systems Program, PI: Matthew Ward and Co-PI: Elke Rundensteiner, June 1998 - May 2001, \$321,651. (including REU matching grant)
- RDC Council, WPI, E-Commerce Database Activities, Aug 2000 – 2001, \$10,500.
- NSF, Interactive Systems and IDM Programs, IIS-0119276, PI Matthew Ward and Co-PI: Elke Rundensteiner, Order, Spacing Clustering in Visual Exploration of Large Scale Data Sets, 2001 - Sept 2004, \$430,000.
- NSF IDM Program, “Data Warehouse Maintenance over Dynamic Distributed Sources”, NSF IDM, to Oct. 2000 - Sept. 2004, \$225,000.
- Verizon Corporation (formerly known as GTE Inc), MQP project \$4,000, 2000/2001 academic year.
- Verizon Corporation (formerly known as GTE Inc), support collaborative work between GTE and WPI by a graduate student on web data management. \$35,000, Aug. 1999 – Sept. 2001.

- HP, Grassroots Program, support collaborative work between WPI in the form of supporting one graduate student to conduct research of joint interest, Sept 2000 to March 2001, \$22,000.
- IBM Corporate Fellowship, for graduate student (Hong Su), Corporate IBM, \$15,000 per academic year stipend plus full tuition, Sept. 2001 - May 2002, first year award, renewable for up to three years.
- George Heineman and Elke Rundensteiner, “On-line Stream Monitoring Systems: Untethered Healthcare, Intrusion Detection, and Beyond”. WPI RDC grant. \$8,900, July 1, 2003 to June 30, 2004.
- TotalETL Inc., “Distributed robust data warehouse load technology using EJB”, \$3,000. Sept 2003 to May 2004.
- IBM Eclipse Innovation Award, Elke Rundensteiner, \$15,000. Jan to Dec. 2004.
- CRA Distributed Mentor Project, CRA, Committee on the Status of Women in Computing Research, Mentoring Undergraduate Women in Computing Research, funded by NSF, \$6,000, for support for one female undergraduate student in Summer 2004 at WPI.
- Automaton Meets Algebra: Towards an XML-Centric Stream Query System, Rundensteiner, Elke (PI) and Mani, Murali (co-PI), NSF, \$360,000, July 2005-2008.
- Quality-Aware Visual Exploration Tools, Matt Ward (PI) and Rundensteiner, Elke (co-PI), NSF, \$360,000, July 2005-2008.
- Distributed systems and stream processing, NEC Inc, Princeton, \$9,800. Fall 2005.
- Distributed stream processing, NEC Inc, Princeton, \$13,000. Spring 2006.
- REU Supplement for 2 undergraduate students, Automaton Meets Algebra: Towards an XML-Centric Stream Query System, Rundensteiner, Elke (PI) and Mani, Murali (co-PI), NSF, \$12,000, July 2006-2007.
- REU Supplement for 2 undergraduate students, Quality-Aware Visual Exploration Tools, Matt Ward (PI) and Rundensteiner, Elke (co-PI), NSF, \$12,000, July 2006-2007.
- CRI: High-Performance Infrastructure for Data-Intensive Stream Processing Applications, (with Prof. Heineman and Mani as co-pis), \$100,000, Aug. 2006-2008.
- SGER : Research Experience for K12 (REK), Elke A. Rundensteiner (PI) and , Neil T. Heffernan (co-PI). NSF, \$99,457. Aug. 2006- 2008.
- III-COR-Small: Managing Discoveries in Visual Analytics. Matthew O. Ward and Elke A. Rundensteiner, NSF, \$490,000. 2008-2001.
- Dynamic Application and Model Updating System (DYNAMUS), Elke A. Rundensteiner, subcontract, Charles River Analytics Inc. \$50,000. oct 2009-2010,
- Complex Event Stream Analysis for Real Time Business Intelligence Services, Elke A. Rundensteiner, Hewlett-Packard Company, \$50,000. aug 2009-2010,
- Pimse: A GK-12 Partnership Implementing Mathematics and Science Education (PIMSE): Assisting Middle School Use of Tutoring Technology in Classroom, PI: N. Heffernan, et al., NSF, \$2,300,000, 8/09 - 03/09.

- III-Small: Query Mesh - A Novel Paradigm for Query Processing, E. Rundensteiner, NSF, IIS-0917017, \$500,000, 9/09 - 8/12.
- CPA-G+V: Interactive Stream Views: Visual Analysis of Streaming Data, M. Ward and E. Rundensteiner, NSF Division of Computing and Communication Foundation; Foundations of Computing Processes and Artifacts Cluster, CCF-0811510, \$300,000, 9/08 - 8/10.
- Development and testing of an electronic infection control reminder system for healthcare workers, D. Ellison (UMass Medical Center) and E. A. Rundensteiner, UMASS/WPI, \$100,000, 11/09 - 10/11.
- REU Supplement for 2 undergraduate students, III-COR-Small: Managing Discoveries in Visual Analytics. Matthew O. Ward and Elke A. Rundensteiner, NSF, \$16,000, 2009-2010.

## PROFESSIONAL AFFILIATIONS

- IEEE Computer Society, Committee on Data Engineering (TCDE).
- Association of Computing Machinery (ACM) - ACM Special Interest Groups on Management of Data, and on Programming Languages.
- IFIP International Federation for Information Processing, IFIP TC2 Working Group 2.6. "Databases".

## PROFESSIONAL AND EDUCATIONAL SERVICE

### Editorial Service

- Associate Editor, Editorial Board, VLDB Journal, Sept 2007 - 2013.
- Associate Editor, Editorial Board, IEEE Trans. on Knowledge and Data Engineering, 2001-2004.
- Associate Editor, Editorial Board, *Theory and Practice of Object Systems (TAPOS)*, Internat. Journal John Wiley & Sons Publisher, 1999 - now.
- Guest Editor, (with E. Bertino, S. Urban), Special Issue , Innovative Applications of Object-oriented Databases, TOPAS Journal, 1999.
- Associate Editor, IEEE Data Engineering Bulletin, 1998-2000.
- Editorial Board, "International Journal of Digital Libraries (JODL)," (Editors-in-Chief: N. R. Adam and Y. Yesha), Springer Verlag, 1995 - 1996.

### Professional Service

I've not listed recent service in professional programs in 2006 and beyond.

- Program Co-Chair, WISE'2006, China.
- Program Committee, ICDE, 2006.
- Program Committee, VLDB, 2004-2006.
- Program Committee, DEXA 2004-2006.

- Program Committee, ER 2004.
- Program Committee and Publication Chair, ICDE, 2004. Boston, March 30 to Friday April 2, 2004.
- Program Committee, CIKM, 2003, New Orleans.
- Program Committee, SIGMOD, 2003. San Diego, June 2003.
- Proceeding Chair, IEEE ICDE'2004, Boston.
- Technical Program Committee Member, IEEE ICDE'2004, Boston.
- Co-Chair, New Faculty Program, "How to Survive in Academia", SIGMOD, 2002. (This is a new program that we are initiating there at SIGMOD to help new faculty members).
- Technical Program Committee Member, 21st ER Conference on Conceptual Modelling, Tampere (Finland), October 7-11, 2002.
- Program Committee, VLDB, 2002.
- Program Committee, DBFusion - 1st Int. Workshop on Databases, Documents, and Information Fusion, Magdeburg, Germany.
- Program Committee, EC-WEB 2001, Munich, Sept. 2001. (with DEXA'2001.)
- Program Committee, International Workshop on Data Semantics in Web Information Systems, DASWIS-2001, November 29-30, 2001, Yokohama, Japan, (In conjunction with 20th International Conference on Conceptual Modeling ER 2001).
- Program Committee, 11th International Conference on Data and Expert Systems Applications (DEXA'2001), Munich, Germany, Sept 3 - Sept 7, 2001.
- Program Committee, 3rd International Workshop on Engineering Federated Systems (EFIS 2000), Dublin, Ireland, June 2000. General Chair Mark Roantree.
- Co-Chair for Group on Information Visualization, IDM'99, NSF P.I. Meeting, Los Angeles, March 7-9, 1999.
- Program Committee, ECOOP'99 Workshop on Object-Oriented Databases, 1999.
- Program Committee, Design and Management of Data Warehouses (DMDW'99), Workshop at CAiSE-99, Heidelberg, Germany, June 14-15, 1999.
- Program Committee, DEXA, First International Conference on Data Warehousing and Knowledge Discovery DaWak'99, August 30 - September 1, 1999 (<http://www.cis.unisa.edu.au/cismkm/dawak99.htm>) held along with 10th International Conference on Data and Expert Systems Applications (DEXA'99), Florence, Italy.
- Program Committee, 10th International Conference on Data and Expert Systems Applications (DEXA'99), Florence, Italy, August 30 - September 1, 1999.
- Program Committee, ECOOP 99 Workshop on Object-Oriented Databases Lisboa - Portugal, June 1999.
- Session Chair, ACM DOLAP'98, Washington, DC., Nov.. 1998.

- Session Chair, ACM WIDM'98, Washington, DC., Nov.. 1998.
- Program Chair (with Prof. Erick Neuhold as co-chair), IEEE ADL, May 12-15, 1999.
- Program Committee, "Engineering Federated Database Systems", (EFDBS), May 1999, Rostock,, Baltic Sea, Germany.
- Program Committee, Third IFCIS International Conference on Cooperative Information Systems (CoopIS'98), New York City, August 20-22, 1998.
- Program Committee, Sixth International Conference on Database Systems for Advanced Applications (Dasfaa'99), Taiwan, April 19-22, 1999.
- Program Committee, 25th Intl. Conf. on Very Large Data Bases (VLDB), 1999.
- Program Committee, ACM Special Interest Group on the Management of Data (SIGMOD), 1998. PC. Chair, Laura Haas.
- Program Committee, 4th IFIP 2.6 Working Conference on Visual Database Systems (VDB4), L'Aquila, Italy, May 27-29, 1998.
- Program Committee, SSDBM, 1998.
- Program Vice-Chair, Object-Oriented Database Subject Area, 14th IEEE Int. Conf. on Data Engineering, Orlando, Florida, 1998.
- Program Committee, 18th International Conference on Distributed Computing Systems (ICDCS '98), Amsterdam, May 1998.
- International Program Chair, Int. Symposium, Info. Processing Society of Japan, Fukuoka, Japan, Sept. 1997
- Panel for Data Integration Workshop, Panelists: Laura Haas, Mary Tork-Roth, Chaitan Baru, Alberto Mendelzon, Pam Drew, Elke A. Rundensteiner, Organizer: Yannis Papakonstantinou. CASCON conference 1997, Toronto, Canada. Nov 12.
- Program Committee, ACM Workshop on Geographic Information Systems (ACM GIS'97), Vegas, Nov. 1997.
- Session Chair, CODAS'96, Kyoto, Dec. 1996.
- Program Vice-Chair, Object-Oriented Database Subject Area, 14th IEEE Int. Conf. on Data Engineering, Orlando, Florida, 1998.
- Program Committee, 13th IEEE Int. Conf. on Data Engineering, Birmingham, UK, 1997.
- Publications Co-Chair, "13th IEEE Int. Conf. on Data Engineering, Birmingham, UK, 1997.
- Program Committee, 5th International Symposium on Large Spatial Databases (SSD'97), Berlin, Germany, July 15-18, 1997.
- Technical Program Committee, "4th ACM Workshop on Advances in Geographic Information Systems", Rockville, Maryland, Nov. 15-16, 1996
- Program Committee, CODAS'96, Kyoto, Dec. 1996.
- Program Committee, "Advances in Digital Library Systems," Washington, D.C., 1996.



- Session Chair, “12th Int. Conf. on Data Engineering, New Orleans, 1996.
- Program Committee, “ACM Int. Conf. on Information and Knowledge Management,” Washington, D.C., Nov. 1995.
- Program Committee, “Int. Conf. on Data Engineering, New Orleans, 1995-1996.
- Program Committee, “2nd ACM Workshop on Geographic Information Systems”, Washington, D.C., Nov . 1995.
- Panelist, ”The Future of Active Database Systems: SQL Triggers, Knowledge-Based Rule Processing, and Beyond”, Int. Conf. on Data Engineering, 1995.
- Program Committee, “1st ACM Workshop on Geographic Information Systems”, Washington, D.C., 1994.
- Participant on National Science Foundation review panel NSF/IRIS DBES Panel for RIAs, Database and Expert Systems, 1994.
- Instructor, Engineering Summer Conference, Object-Oriented Modeling and Databases Course, University of Michigan, Summer 1995 (with T. J. Toby, J. Fry, A. Prakash).
- Co-chair, Engineering Summer Conference, Object-Oriented Modeling and Databases Course, University of Michigan, Summer 1994 (with T. J. Toby, J. Fry).
- Principal Consultant/Instructor, General Motors Technical Education Program, “Object-Oriented Databases and Technology,” Spring 1994 (with K. Shin, J. Fry).
- Program Committee, “CAD Frameworks,” Brazil, 1994.
- Program Committee, “ACM Int. Conf. on Information and Knowledge Management,” Washington, D.C., 1994.
- Participant on National Science Foundation review panel NSF/IRIS DBES Panel, Database and Expert Systems, 1992.
- Co-chair, Engineering Summer Conference, Object-Oriented Databases and Programming Course, University of Michigan, Summer 1993 (with T. J. Toby).

### **Referee For Professional Submittals**

- 1992 - present, Reviewer for National Science Foundation proposals.
- 1995 - present; Reviewer for NCERC Program Reviews, Canada.
- 1995-; Referee for Int. Conf. on Data Engineering.
- 1993-; Referee for IEEE Computer.
- 1993-; Referee for ACM Int. Conf. on Information and Knowledge Management
- 1992-; Referee for IEEE Transactions on Knowledge and Data Engineering
- 1992-; Referee for ACM Transactions on Database Systems
- 1992; Referee for IEEE Transactions for Fuzzy Systems

- 1991 - 1993; Referee for Design Automation Conference
- 1991-; Referee for Journal of Intelligent Information Systems
- 1988 - 1990; Referee for International Conference on Data Engineering

### **University Service**

- WPI, CTAF, member 2009 - 2012.
- WPI, CGSR, Chair, 2008 - 2010.
- WPI, CGSR, Member, 2007 - 2008.
- WPI, Trustee Research Excellence Committee, 2007 - 2010.
- WPI, Computer Science, Graduate Committee, 2008-2010.
- WPI, Computer Science, Recruiting Committee, 2008-2010.
- WPI, Goddard Fellowship Selection Committee, Member, Spring 2000 - 2005.
- WPI, Computer Science, Graduate Council, 2006 - 2007.
- WPI, Computer Science, Minor Advisor, 2004 - 2007.
- WPI, CGSR, Member, Spring 2002.
- WPI, Computer Science, Graduate Coordinator, 2001 - 2002.
- WPI, Computer Science, Chair of Graduate Committee, Dec. 1998 - 2003.
- WPI, Computer Science, Member on Graduate Committee, 1996-Dec. 1998.
- University of Michigan, EECS, Member on CSE Graduate Committee, 1994-present.
- University of Michigan, EECS, Member on Executive Committee for the Human Genome Center, 1992 - present.
- Representative for the Information and Computer Science Department, University of California, Irvine, in the Associated Graduate Student Committee, 1990/1991.

### **Educational Service and Mentoring**

- Manasi Vartak, CREU Undergraduate Research Program, 2009, funded by CRA, advisor.
- Natasha Bogdanova; CRA Distributed Mentor Project (funded by NSF), female undergraduate student during the summer 2004 for mentoring and introduction to research and to graduate studies.
- Amber Van Wyk (from NW Missouri State U), CRA Distributed Mentor Project (funded by NSF), female undergraduate student came to WPI during the summer 1998 for mentoring.
- Stacia Wiener (from Washington U-St. Louis), CRA Distributed Mentor Project (funded by NSF), female undergraduate student came to WPI during the summer 1998 for mentoring.

- Esther Dublin, CRA Distributed Mentor Project (funded by NSF), female undergraduate student came to WPI during the summer 1997 for mentoring.
- EECS Reviewer for Rackham Non-Traditional fellowships, 1993 - 1994.
- panelist on EECS Graduate Student Discussion Round, “How to secure an academic position in the current market,” Winter 1993/94.
- Undergraduate Research Project Advisor, Univ. of Michigan, Christopher Ma, 1992 - 1993 (graduated).
- Panel Member, Marian Sarah Parker Scholars, Motivation and Information Session for University of Michigan, College of Engineering, female students at the junior level.
- Mentor in Undergraduate Research Opportunity Program, University of Michigan, Steve Asam (sophomore); Sean Willson (sophomore); 1993 - 1994.
- Development of new graduate course on “Object-Oriented Databases,” Univ. of Michigan, 1992/93; revision of undergraduate course on database management systems Univ. of Michigan, 1993/94.
- Panelist on Forum for Marker Paker female students, “About going to graduate school,” Winter 1993.
- Univ. of Michigan, Academic Advisor and/or Directed Study Supervisor for Graduate Students, Jane Horner, Jang Ho Lee, Andy J. Walters, Shyh-Shiuh Liu, Ryan M. Gilmore, Thomas Fontaine, Monica Brockmeyer, Rahul Anand, Ji-Bih Lee, Yun-Wu Woody Huang, Victor Ng.

#### Ph.D. Students

- Harumi Anne Kuno, Univ. of Michigan,  
“View Management Issues in Object-Oriented Databases”,  
graduated July 1996,  
Employment: first at Lawrence Berkeley Laboratory, California; now at HP Labs, Santa Clara, California.
- Young-Gook Ra, Univ. of Michigan,  
“Transparent Schema Evolution: Theory, Framework and Implementation,”  
graduated Dec. 1996,  
Employment: Samsung Data Systems, Korea. Meanwhile since 2000, Young-Gook is Associate Professor at Department of Electrical and Computer Engineering, Dongdaemun-gu, Seoul.
- Stacie Hibino, Univ. of Michigan,  
“MultiMedia Visual Information Seeking”,  
graduated May 1997.  
Employment: Lucent/Bell Research Labs, Naperville, IL.
- Yun-Wu (Woody) Huang, Univ. of Michigan,  
“Query Optimization for Geographic Information Systems,”  
Graduated June 1997.  
Employment: IBM T.J. Watson Research Lab.

- Lei Frank Zhou, Univ. of Michigan,  
“Real-Time Performance Guarantees in Manufacturing Systems”  
Jointly co-advise with Professor K. Shin;  
Graduated: October 1998.  
Employment: Lucent Technologies.
- Jyh-Liang Amy Lee, Univ. of Michigan,  
“Schema Evolution Tools for Object-Oriented Database Systems,”  
Graduated June 1998  
Employment: Faculty at Hong Kong Univ. of Science and Technology.
- Nauman Chaudhry, Univ. of Michigan,  
“Optimizing Active Database Technology for Manufacturing Systems,”  
Jointly supervised by Dr. J. Moyne, research scientist in manufacturing;  
Graduated August 1998.  
Oracle Inc, Cal. Meanwhile since 2003, Nauman is tenure-track Assistant Professor at University of New Orleans.
- Anisoara Nica, Univ. of Michigan,  
“Database Views in Large-scale Distributed Environments,”  
Graduated Fall 1999.  
Employment: Sybase, Waterloo.
- Matthew Jones, Univ. of Michigan,  
“Hierarchical Database Views:  
Extending OODB Technology for Electrical Computer-Aided Design Tool Integration,”  
(did not complete his dissertation at the end and joined a startup)  
Employment: Internet Engineering Group
- Viviane Taube, Univ. of Michigan,  
“Distributed Data Mining Algorithms”,  
co-advise at Univ. of Michigan by Prof. N. Soparkar  
Graduated Summer 2000.  
Employment: Instructor at Univ. of Michigan.
- Andreas Koeller, WPI, fifth year Ph.D. student,  
Research area: information integration.  
Graduated December 2001.  
Employment: Tenure track Assistant Professor at MontClare University  
Fall 2002 onwards.
- Kajal Claypool, WPI, fifth year Ph.D. student,  
Research topic: change management tools,  
Completion Date: 2003.  
Employment: Tenure track Assistant Professor at University of Massachusetts, Lowell.
- Li (Lily) Chen.  
IBM Corporate fellowship,  
Research topic: XML Query Caching,  
Completion Date: Dec 2003.  
Employment: Research Scientist, San Diego Super Computer Institute, Database Research Group.

- Xin Zhang, WPI, third year Ph.D. student,  
Verizon Labs Funding and NSF  
Research topic: Rainbow: Relational database auto-tuning for XML query processing,  
Expected Completion Date: 2006. (was not awarded ) Employment: Xin took on a position  
at Microsoft Corp.
- Bin Liu, WPI  
NSF and TA.  
Efficient Incremental View Maintenance for Data Warehousing Research topic: Efficient In-  
cremental View Maintenance for Data Warehousing  
Completion Date: Aug. 2005.  
Employment: Bin took on a position at a Chinese startup.
- Maged El-Sayed, WPI  
Incremental Maintenance of Materialized XQuery Views  
Completion Date: August 2005  
Employment: Maged is Tenure-Track Faculty at Egyptian University.
- Songting Chen, WPI  
NSF and IBM  
Research topic: Efficient Incremental View Maintenance for Data Warehousing  
Completion Date: Dec. 2005.  
Employment: Songting took on a Research Scientist position at NEC Research Labs., Cu-  
pertino.
- Hong Su, WPI,  
IBM fellowship  
Research topic: Automaton Meet Algebra: A Hybrid Paradigm for Efficiently Processing  
XQuery over XML Stream  
Completion Date: Jan 2006.  
Employment: Hong took a position at the Oracle Optimizer Group.
- Jing Yang, WPI, (co-advisor; with Prof. Ward main advisor) Ph.D. student,  
NSF  
Research topic: Visual Data Discovery  
Completion Date: 2005.  
Employment: Jing is tenure-track faculty at North Carolina Charlotte University.
- Aparna Varde, WPI  
Ph.D. student,  
Material Science Center (Prof. Sisson)  
Research topic: Graphical Data Mining for Computational Estimation in Materials Science  
Applications  
Completion Date: 2006.  
Employment: Aparna is tenure-track faculty at Virginia State University.
- Yali Zhu, WPI  
Ph.D. student,  
Dissertation : Dynamic Optimization and Migration of Continuous Queries Over Data Streams  
Completion Date: Aug. 2006.  
Employment: Yali took a position in the Oracle Optimizer Group.

- Ling Wang WPI  
Ph.D. student,  
Dissertation : Updating XML Views,  
Completion Date: Aug. 2006.  
Employment: Ling took a position in IBM, Santa Theresa, Cal.
- Luping Ding  
Ph.D. student,  
Dissertation : Stream System Optimization,  
Completion Date: Aug. 2008.  
Employment: Oracle Corporation.
- Song Wang  
Ph.D. student,  
Dissertation : Multi-Slicing in Stream Systems: Query Sharing and Distribution,  
Completion Date: Aug. 2008.  
Employment: HP Labs, Austin.
- Mingzhu Wei,  
Ph.D. student,  
Dissertation : XML Stream Processing  
Expected Completion Date: April 2010.
- Venky Raghavan,  
Ph.D. student,  
Dissertation : Decision Support Systems  
Expected Completion Date: July 2010.
- Mo Liu,  
Ph.D. student,  
Dissertation : Complex Event Processing  
Expected Completion Date: Dec. 2010.
- Di Yang,  
Ph.D. student,  
Dissertation : Neighbor-Based Data Mining on Streams  
Expected Completion Date: Dec. 2010.

### **Hosting of Postdoctoral and Research Visitors**

- Visiting Researcher to DSRG Lab, WPI, Dr. Nam Hun Park, Korea, July 2008-2010.
- Visiting Researcher to DSRG Lab at WPI, Dr. Jalel AKAICHI, Faculty at Dipartement d'informatique, ISG -Tunis, Universiti Tunis III, Citi Bouchoucha, WPI: July 1998 to Nov. 1998.

- Visiting Researcher to UM Database Lab, Dr. Jing Ning, Assistant Professor, China. University of Michigan: July 1994 to June 1996.

## PUBLICATIONS

### Refereed Journals

- 1 Yali Zhu, Venkatesh Raghavan, and Elke A. Rundensteiner, A New Look At Generating Multi-Join Continuous Query Plans: A Qualified Plan Generation Problem, *Data and Knowledge Engineering Journal*, Nov 2009, accepted.
- 2 M. O. Ward, D. Yang, Z. Xie, and E. A. Rundensteiner, “Quality-Aware Visual Analytics”, *Computational Statistics Journal*, 2009.
- 3 D. Yang, Z. Xie, E. A. Rundensteiner and M. O. Ward, “Managing Discoveries in The Visual Analytics Process”, *ACM SIGKDD Journal*, Special issue on Visual Analytics, ACM Press, Dec. 2007
- 4 Aparna Varde, Shuhui Ma, Mohammed Maniruzzaman, David Brown, Elke Rundensteiner and Richard Sisson Jr., Comparing Mathematical and Heuristic Approaches for Scientific Data Analysis, *Journal of Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AIEDAM-07)*, Cambridge University Press, 2007.
- 5 Mingzhu Wei, Elke A. Rundensteiner, Murali Mani, and Ming Li: Processing Recursive XQuery over XML Streams: The Raindrop Approach. *Data and Knowledge Engineering Journal*, Selected Papers of XSYM’06, XSYM Special Issue, 65(2): 243-265 (2008).
- 6 Aparna S. Varde, Elke A. Rundensteiner, Carolina Ruiz, Mohammed Maniruzzaman, and Richard D. Sisson Jr, “LearnMet: Learning Domain-Specific Distance Metrics for Plots of Scientific Functions”, *International Journal on Multimedia Tools and Applications (MTAP)*. Special issue on Multimedia Data Mining 2005, Springer Verlag, 2007.
- 7 Qingguang Cui, Matthew O. Ward, Elke A. Rundensteiner, and Jing Yang, Measuring Data Abstraction Quality in Multiresolution Visualizations, *IEEE Transactions on Visualization and Computer Graphics*, Vol. 12, No. 5, Sept/Oct 2006.
- 8 Kajal T. Claypool, Elke A. Rundensteiner, and Chandrakant Natarajan, CHOP: Performance Optimization for Batched Schema Evolution, *KAIS Journal*, 2006. accepted.
- 9 Jing Yang, Daniel Hubball, Matt Ward, Elke Rundensteiner, and William Ribarsky, Value and Relation Display : Interactive Visual Exploration of Large Datasets with Hundreds of Dimensions, *TVCG journal*, special issue, submitted June 2006.
- 10 Song Wang, Elke A. Rundensteiner, and Murali Mani, Optimization of Nested XQuery Expressions with Orderby Clauses *Data and Knowledge Engineering Journal*, Special Issue or XSYM, 2006.
- 11 Bin Liu, Elke Rundensteiner, and David Finkel, Restructuring View Maintenance Plans For Large Update Batches, *Information Systems Journal*, Elsevier Science Publisher, Feb 2006.
- 12 Hong Su, E. Rundensteiner and M. Mani, Automaton Meets Algebra: A Hybrid Paradigm for XML Stream Processing, *Data and Knowledge Engineering Journal (DKE)*, Guest Editors: Il-Yeol Song, Stephen Liddle, and Tok Wang Ling, Special Issue, In Press, 2006.

- 13 Songting Chen, Xin Zhang, and Elke A. Rundensteiner, A Compensation-based Approach for Materialized View Maintenance in Distributed Environments, *IEEE Transactions on Data and Knowledge Engineering*, accepted 2006, to appear.
- 14 Bin Liu and Elke A. Rundensteiner, Optimizing Cyclic Join View Maintenance over Distributed Data Sources” *IEEE Transactions on Data and Knowledge Engineering*, 18(2): 363-376 (2006).
- 15 Andreas Koeller and Elke A. Rundensteiner, ‘Heuristic Strategies for the Discovery of Inclusion Dependency and Other Patterns” *Journal of Data Semantics (JoDS)* (Special issue of OTM’05), Springer Verlag, 2006: 185-210.
- 16 Kajal T. Claypool and Elke A. Rundensteiner, Sync your Data: Update Propagation for Heterogeneous Protein Databases, *VLDB Journal, The International Journal on Very Large Data Bases, Special Issue on Biological Databases, Volume 14, Number 3, Springer Verlag, Sept. 2005.* ([www.springerlink.com](http://www.springerlink.com) web site at <http://www.springerlink.com>)
- 17 L. Wang, Elke A. Rundensteiner, and M. Mani, On the Updatability of XML Views Published over Relational Data, *Data and Knowledge Engineering Journal (DKE)*, 2005, Special Issue of ER’2004, to appear.
- 18 Andreas Koeller and Elke A. Rundensteiner, Discovery of High-Dimensional Inclusion Dependencies, *ACM KDD Journal*, 2004, submitted.
- 19 Songting Chen, Bin Liu and Elke A. Rundensteiner, Multiversion Based View Maintenance Over Distributed Data Sources, *ACM Trans. Database Syst.* 29(4): 675-709 (2004).
- 20 M. El-Sayed, K. Dimitrova, E. A. Rundersteiner, Efficiently Supporting Order in XML Query Processing, Special Issue on Web Information and Data Management (WIDM 2003), *Data and Knowledge Engineering Journal*, 54(3), Sept. 2005.
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- 22 Geraldine Rosario, Elke Rundensteiner, David Brown, Matt Ward, and Shiping Huang, Mapping Nominal Values to Numbers for Effective Visualization, Special Issue, *Information Visualization Journal (IVJ)*, Palgrave Pub., volume 3(2), June 2004.
- 23 Andreas Koeller and Elke A. Rundensteiner, A History-Driven Approach at Evolving Views under Meta-Data Changes, *An International Journal on Knowledge and Information Systems (Knowl. Inf. Syst.- KAIS)*, Springer Verlag, 8(1): 34-67 (2005)
- 24 Xin Zhang, Lingli Ding, and Elke A. Rundensteiner, Parallel Multi-source View Maintenance The *VLDB Journal*, 13(1): 22-48 (2004)
- 25 Andreas Koeller and Elke A. Rundensteiner, Incremental Maintenance of Schema-Restructuring Views in SchemaSQL, *IEEE Trans. Knowl. Data Eng.* 16(9): 1096-1111 (2004).
- 26 Li Chen, Song Wang, and Elke A. Rundensteiner, “Replacement strategies for XQuery caching systems.” *Data and Knowledge Engineering Journal.* 49(2): 145-175 (2004)
- 27 Jing Yang, Matt Ward, Elke Rundensteiner, and Anil Pedro, “InterRing: An Interactive Tool for Visually Navigating and Manipulating Hierarchical Structures,” *Journal of Information Visualization, (IVS)* Palgrave Publisher, IVS volume 2, issue 1, Special Issue, March 2003.



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- 30 Kajal T. Claypool, Elke A. Rundensteiner and George T. Heineman, “ROVER: Flexible Yet Consistent Evolution of Relationships” Data and Knowledge Engineering, ER2000 Special Issue, 2001.
- 31 Amy J. Lee, Anisoara Nica, and Elke A. Rundensteiner, “The EVE Approach: View Synchronization In Dynamic Distributed Environments”, *IEEE Transaction on Data and Knowledge Engineering*, vol. 14, no. 5, Sept/Oct. 2002.
- 32 Chen, L, Choubey, R., and Rundensteiner, E. A., “Merging T-Trees: Efficient Strategies for Local Bulk Insertion,” **GeoInformatica**, 6(1): 7-34 (2002)
- 33 Li Chen, Kajal T. Claypool and Elke A. Rundensteiner, “SERFing the Web: The Re-Web Approach for Web Re-Structuring”, authored by World Wide Web journal, special issue on “World Wide Web Data Management”, vol 3(no 2): 95-109 (2000).
- 34 Fua, Y.-H., Ward, M. O., and Rundensteiner, E. A., “Structure-Based Brushes: A Mechanism for Navigating Hierarchically Organized Data and Information Spaces”, *IEEE Transactions on Visualization and Computer Graphics*. April - June 2000, vol. 6, no. 2, pp. 150 -159. (invited paper selected from IEEE Symposium on Information Visualization),
- 35 Sudhir R. Kaushik and Elke A. Rundensteiner, “SEE: A Spatial Exploration Environment Based on a Direct-Manipulation Paradigm,” *IEEE Transaction on Data and Knowledge Engineering*, 2001, July/August. 13(4): 654-670 (2001)
- 36 E. A. Rundensteiner, A. Koeller, and X. Zhang, “Maintaining Data Warehouses over Changing Information Sources”, Invited feature article, *Communication of the ACM*, 43(6): 57-62 (2000).
- 37 Claypool, K. T. Li Chen, and Rundensteiner, E. A., “Personal Views for Web Catalogs”, *IEEE Bulletin*, Special Issue on Database Technology for E-Commerce, IEEE, March 2000.
- 38 Rundensteiner, E. A., Kuno, H. A. and Zhou, J. “Experimental Evaluation of the SMX Strategy for Incremental Materialized Path View Maintenance”, *Int. Journal of Computer Systems, Science and Engineering*, Special Issue on Selected Papers from Object-Oriented Information Systems (OOIS’98) Conference, G. Grosz (Guest Editor), Vol. 14, No. 6, Nov. 1999, CLP Pub., pp. 331-342.
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- 41 Andreas Koeller and Elke A. Rundensteiner, View Synchronization: Integrating the Rewriting and Ranking of View Queries, *Journal of Computer Science and Information Management (CSIM)*, Special Issue on Selected DOLAP98 Papers, (Special Issue Editor I.-Y. Song), July 1999, Vol. 2, No. 1 issue.

- 42 Chaudhry, N., Moyne, J. and Rundensteiner, E.A., "Aggregation and Inheritance Relationships for Process Specification in Object-Oriented Databases," *Theory and Practice of Object Systems*, (Editor-in-Chief, Prof. Karl Lieberherr), in submission, Sep 1998.
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- 45 Chaudhry, N., Moyne, J. and Rundensteiner, E.A., "Active Controller: An Object-Oriented Framework for Process Flow Management for Semiconductor Manufacturing", *IEEE Trans. on Components, Packaging, and Manufacturing Technology, Part C: Manufacturing*. (CPMT), July 1998, Vol 21, Number 3, pp. 217-224.
- 46 Huang, Y.W., Jing, N. and Rundensteiner, E.A., "Symbolic Intersect Detection: A Method for Improving Spatial Intersect Joins," *Journal of GeoInformatica*, Special issue on Spatial Database Systems, 2:2, 149-174 (1998), Kluwer Aca. Pub.
- 47 Nica, A. and Rundensteiner, E. A., "Loosely-Specified Query Processing in Large-Scale Information Systems," invited and accepted for publication in the *International Journal of Cooperative Information Systems*, 7(1): 77 - 104 (1998).
- 48 Huang, Y.W., Jing, N. and Rundensteiner, E.A., "A Hierarchical Path View Model for Path Finding in Intelligent Transportation Systems," *Journal of GeoInformatica*, 1:2, pp. 125-159 (1997), Kluwer Aca. Pub..
- 49 Jing, N., Huang, Y.W., and Rundensteiner, E. A., "Hierarchical Encoded Path Views for Path Query Processing: An Optimal Model and Its Performance Evaluation," *IEEE Transaction on Data and Knowledge Engineering*, Vol. 10, No. 3, May/June 1998.
- 50 Kuno, H. A. and Rundensteiner, E.A., "Incremental Maintenance of Materialized Object-Oriented Views in MultiView: Strategies and Performance Evaluation", *IEEE Transaction on Data and Knowledge Engineering*, Vol. 10, No. 5, Sept/Oct. 1998, pp. 768 - 792.
- 51 Zhou, L., Rundensteiner, E. A. and Shin, K.G. "Schema Evolution of an Object-Oriented Real-Time Database System for Manufacturing Automation," *IEEE Transaction on Data and Knowledge Engineering*, Vol. 9, No. 6, Nov/Dec 1997, pp. 956 - 977.
- 52 Atkins, D. E. et al. from UM DL team, "Toward inquiry-based education through interacting software agents," *IEEE Computer, Special Issue on Building Large-Scale Digital Libraries*, Vol. 29, No. 5, May 1996, pp. 69 - 76.
- 53 Kuno, H. A. and Rundensteiner, E.A., "The MultiView OODB View System: Design and Implementation," *Theory and Practice of Object Systems (TAPOS), Internat. Journal, Special Issue on Subjectivity*, Vol. 2, No. 3., John Wiley & Sons Pub., 1997, pp. 202-225.
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- 56 Rundensteiner, E. A., Gajski, D. D., and Bic, L., "Component Synthesis from Functional Descriptions", *IEEE Transactions on Computer-Aided Design*, Sept. 1993, Vol. 12, No. 9, pp. 1287 - 1299.
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- 60 Rundensteiner, E. A., and Bic, L., "Evaluating Aggregates in Possibilistic Relational Databases", *Data and Knowledge Engineering Journal*, vol. 7, 1992, pp. 239-267.
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- 62 Rundensteiner, E. A., Hawkes, L. W., and Bandler, W., "On Nearness Measures in Fuzzy Relational Data Models", in *International Journal of Approximate Reasoning*, vol. 3, no. 3, July 1989, pp. 267 - 298.
- 63 Van Dommelen, L. L., and Rundensteiner, E. A., "Fast, adaptive summation of point forces in the two-dimensional Poisson equation," *Journal of Computational Physics*, vol. 83, no. 1, 1989, pp. 126 - 147.

## Book Chapters

- 1 Aparna Varde, Elke Rundensteiner and Sally Fahrenholz, XML Based Markup Languages for Specific Domains, Book Chapter to appear in "Web Based Support Systems", Springer, 2008.
- 2 Aparna Varde, Stephen Bique, Elke Rundensteiner, David Brown, Jianyu Liang, Richard Sisson Jr., Ehsan Sheybani and Brian Sayre — Component Selection to Optimize Distance Function Learning in Complex Scientific Data Sets — To appear in DEXA 2008, Turin, Italy, September 1 to 5, 2008.
- 3 Aparna Varde, Shuhui Ma, Mohammed Maniruzzaman, David Brown, Elke Rundensteiner and Richard Sisson Jr., Comparing Mathematical and Heuristic Approaches for Scientific Data Analysis, In the Journal of Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AIEDAM-08), Cambridge University Press, 2008, Volume 22, pp. 53 - 69.
- 4 Elke A. Rundensteiner, Luping Ding, Yali Zhu, Timothy Sutherland and Bradford Pielech, "CAPE: A Constraint-Aware Adaptive Stream Processing Engine", in Stream Data Management (Advances in Database Systems Series), 2005, chapter 5, Springer Verlag, pp. 83-111.

- 5 Andreas Koeller, Elke A. Rundensteiner, Amy Lee, and Anisoara Nica, "Quality and Cost of Data Warehouse Views," in *Intelligent Knowledge-Based Systems: Business and Technology in the New Millennium, Volume Two, Information Technology*, Chapter 6, (editor, C. T. Leondes) to appear in October 2004. ( Kluwer website, [www.wkap.nl](http://www.wkap.nl) ), ISBN 1-4020-7746-7 (hardcover), ISBN 1-4020-7829-3 (electronic book).
- 6 Jing Yang, Matthew O. Ward, and Elke A. Rundensteiner, Hierarchical Exploration of Large Multivariate Data Sets, in "DATA VISUALIZATION: THE STATE OF THE ART", Proceedings Dagstuhl Seminar on Scientific Visualization, Kluwer Academic Publishers, 2002, in press.
- 7 Rundensteiner, E. A., "Data Warehousing", Computer Sciences (part of the Macmillan Science Library), Encyclopedia in Computer Sciences, Publisher: Macmillan Reference USA (Farmington Hills, MI), June 2002.
- 8 Huang, Y.W., Jing, N. and Rundensteiner, E. A., Optimizing Path Query Performance: Graph Clustering Strategies, *Geographic Information Systems in Transportation Research, vol. I, 2000*. Elsevier Science (Pergamon). Volume Editor: Jean-Claude Thill. (also Special Volume of Transportation Research, Part C: Emerging Technologies in Year 2000) pp. 381 - 408.
- 9 Chaudhry, N., Moyne, J. and Rundensteiner, E.A., "Active Controller: An Object-Oriented Framework for Process Flow Management for Semiconductor Manufacturing", chapter 20 in *"Run-to-Run Control in Semiconductor Manufacturing"*, CRC Press LLC, Oct. 2000.
- 10 Chaudhry, N., Moyne, J. and Rundensteiner, E.A., Rule Inheritance and Overriding in Active Object-Oriented Databases", invited chapter in "Current Trends in Database Technology" by Idea Group Publishing, USA, Asuman Dogac & Ozgur Ulusoy, (editors), 1998.
- 11 Hibino, S., and Rundensteiner, E. A., "Interactive Visualizations for Temporal Analysis: Application to CSCW Multimedia Data," chapter in "Intelligent Multimedia Information Retrieval", *Intelligent Multimedia Information Retrieval*, (ed. Mark T. Maybury), AAAI/MIT Press, May 1997. ( <http://www.aaai.org:80/Press/Books/Maybury-2/> ). pp. 313 - 335, Boston, MA: MIT Press.
- 12 Zhou, L., Shin, K., Rundensteiner, E A., and Soparkar, N., "Probabilistic Real-Time Data Access with Deadline and Interval Constraints", chapter in *Real-Time Databases Systems: Issues and Applications*, edited by Azer Bestavros, Kwei-Jay Lin, Sang Hyuk Son, Kluwer Academic Publishers, ISBN 0-7923-9897-1, May 1997.
- 13 Hibino, S., and Rundensteiner, E. A., "A Visual Multimedia Query Language for Temporal Analysis of Video Data," invited chapter in book titled *MultiMedia Database Systems: Design and Implementation Strategies*, (ed. Kingsley C. Nwosu, Bhavani Thuraisingham, P. Bruce Berra,) pp. 123 – 159, Norwell, MA: Kluwer Academic Publishers, 1996.
- 14 Nica A. and Rundensteiner, E. A., Uniform Structured Document Handling +Using a Constraint-based Object Approach, *Advances in Digital Libraries*, (edited by N.R. Adam, B.K. Bhargava, M. Halem, and Y. Yesha), chapter 4, pp. 41 - 60, Springer Verlag, New York, 1995.
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### Other Publications

- 1 Editorial, (with E. Bertino, and S. Urban) Special Issue on "OO Databases and Applications (Selected Papers for ICDE'98)", *Theory and Practice of Object Systems (TAPOS)*, Internat. Journal, John Wiley & Sons Publisher, Vol. 5(3), page 3, 1999.
- 2 Editorial, Special Issue on "Database Transformation Technology," IEEE Bulletin, IEEE, March 1999, page 3.

### Refereed Conferences

- 1 Zaixian Xie, Matthew Ward, and Elke Rundensteiner, Operator-centric design patterns for information visualization software, in Visualization and Data Analysis conference, 2010. IS&T/SPIE Electronic Imaging meeting, 17-21 January, 2010 in San Jose, California, USA.
- 2 Gayatri Gadepalli, Elke Rundensteiner, David Brown and Kajal Claypool, "Tag and Resource-aware Collaborative Filtering Algorithms for Resource Recommendation", ITNG'2010 Conference, IEEE Computer Society/CPS Pub., TO APPEAR.
- 3 E-Cube: Multi-Dimensional Event Sequence Processing Using Concept and Pattern Hierarchies, Mo Liu, E. Rundensteiner, K. B. Greenfield, C. Gupta, S. Wang, I. Ari, And A. Mehta, Demonstration, ICDE 2010, Accepted.
- 4 M. Vartak (with V. Raghavan, E. Rundensteiner) "Recommendation-based Query Relaxation via Mapping Functions and Space Partitioning," ACM SIGMOD Undergraduate Poster, June 2009. (Winner of Poster Competition).
- 5 V. Raghavan, S. Srivastava, E. A. Rundensteiner, Progressive Result Generation for Multi-Criteria Decision Support Queries, ICDE 2010. Accepted.
- 6 Zhenyu Guo, M. Ward, and E. A. Rundensteiner, "Model Space Visualization for Multivariate Linear Trend Discovery", IEEE Symposium on Visual Analytics Science and Technology 2009, VAST'2009.
- 7 Rimma Nehme, Elisa Bertino, E. A. Rundensteiner, and Korean??, Tagging Stream Data for Rich Real-Time Services, VLDB, 2009.
- 8 Di Yang, E. A. Rundensteiner, and M. O. Ward, A Shared Execution Strategy for Multiple Pattern Mining Requests over Streaming Data, VLDB, 2009.
- 9 Rimma Nehme, Karen Works, Elisa Bertino, E. A. Rundensteiner, Query Mesh: Multi-Route Query Processing Technology, VLDB Demonstration, 2009.
- 10 Mingzhu Wei (with E. A. Rundensteiner), Achieving High Output Utility under Limited Resources through Structure-based Shedding and Spilling in XML Streams, 2009 SIGMOD PhD Workshop on Innovative Database Research (IDAR).
- 11 Venkatesh Raghavan (with E. A. Rundensteiner), SkyDB: Skyline Aware Query Evaluation Framework, 2009 SIGMOD PhD Workshop on Innovative Database Research (IDAR).

- 12 Z. Xie, M. O. Ward, and E. A. Rundensteiner. Exploring multivariate data streams using windowing and sampling strategies. Interacting with temporal data workshop, CHI 2009.
- 13 Mingrui Wei and Elke A. Rundensteiner, “Mode-Aware Stream Query Processing”, SS-DBM’2009.
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- 14 Venkatesh Raghavan, Yali Zhu, Elke A. Rundensteiner, and Daniel Dougherty, ‘Multi-Join Continuous Query Optimization: Covering the Spectrum of Linear, Acyclic and Cyclic Queries’ 26th British National Conference on Databases (BNCOD09), 2009.
- 15 Rimma Nehme, et al. StreamShield: A Stream-Centric Approach Towards Security and Privacy in Data Stream Environments, Demonstration Paper, 2009 ACM SIGMOD International Conference on Management of Data, June, Providence, Rhode Island, 2009.
- 16 Mingzhu Wei, Mo Liu, Ming Li, Denis Golovnya, Elke A. Rundensteiner, and Kajal Claypool, Supporting a Spectrum of Out-of-Order Event Processing Technologies: From Aggressive to Conservative Methodologies, Demonstration Paper, 2009 ACM SIGMOD International Conference on Management of Data, June, Providence, Rhode Island, 2009.
- 17 “Claypool, Kajal” jclaypool@ll.mit.edu, “Mineweaser, Jeremy” jilm@ll.mit.edu, “Van Hook, Daniel” jdvanhook@ll.mit.edu, “rundenst@cs.wpi.edu” jrundenst@cs.wpi.edu, “Scarito, Michael” jmichael.scarito@ll.mit.edu, “ESPACE: Web-scale Integration One Step At A Time”, ICEIS 2009.
- 18 Yang, Di, Rundensteiner, E.A., and Ward, M., Neighbor-Based Pattern Detection for Windows Over Streaming Data, EDBT’2009
- 19 Nehme, R., Rundensteiner, E.A. and Bertino, E., Self-Tuning Query Mesh for Adaptive Multi-Route Query Processing, EDBT’2009
- 20 Wang, S. and Rundensteiner, E.A., Scalable Stream Join Processing with Expensive Predicates: Workload Distribution and Adaptation by Time-Slicing, EDBT’2009.
- 21 Mo Liu, Ming Li, Denis Goyal, Kajal Claypool, Elke A. Rundensteiner, Sequence Pattern Query Processing over Out-of-Order Event Streams, International Conference on Data Engineering, March 29-April 4, 2009, Shanghai, China.
- 22 Ming Li, Elke A. Rundensteiner, and Murali Mani, ELF: A Constraint-Aware XQuery Engine for Processing XML Streams with Minimized Memory Footprint, DEXA Workshop, 2008.
- 23 Abhishek Mukherji, Elke Rundensteiner, David Brown, Venkatesh Raghavan, SNIF TOOL: Sniffing for Patterns in Continuous Streams, CIKM’2008, Cal, USA, 2008.
- 24 Ming Li, Elke A. Rundensteiner, and Murali Mani, ELF: A Constraint-Aware XQuery Engine for Processing XML Streams with Minimized Memory Footprint, IEEE International Conference on Semantic Computing 2008 (ICSC), Santa Clara, CA, USA – August 4-7, 2008, pp. 494-495.
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- 26 Ling Wang, Ming Jiang, Elke A. Rundensteiner, Murali Mani: An Optimized Two-Step Solution for Updating XML Views. DASFAA 2008: 19-34.

- 27 Luping Ding, Songting Chen (NEC), Elke Rundensteiner, Junichi Tatemura (NEC), Wang-Pin Hsiung (NEC), K. Selcuk Candan (NEC), Runtime Semantic Query Optimization for Event Stream Processing, ICDE 2008, Apr. 2008, Cancun, Mexico.
- 28 Rimma Nehme (Purdue), Elke Rundensteiner, Elisa Bertino (Purdue), A Security Punctuation Framework for Enforcing Access Control on Streaming Data, ICDE 2008, Apr. 2008, Cancun, Mexico.
- 29 Mingzhu Wei, Elke A. Rundensteiner, and Murali Mani, Utility-driven Load Shedding for XML Stream Processing, WWW'2008. China, 2008, 855-864.
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- 31 Hong Su, Elke A. Rundensteiner, and Murali Mani, Automaton In or Out: Run-time Plan Optimization for XML Stream Processing, The Second International Workshop on Scalable Stream Processing Systems (SSPS'08), March 2008, Nantes, France, 38-47.
- 32 "Semantic Query Optimization for Processing XML Streams with Minimized Memory Footprint", Ming Li, M. Mani and E. Rundensteiner, DataX'08, EDBT Workshop, April 2008.
- 33 Charudatta Wad, Elke A. Rundensteiner, and Matthew O. Ward, QoS: Quality-driven data abstraction generation for large databases, 5th Int. Workshop on Quality in Databases (QDB'07), VLDB 2007 Workshop, Sep. 2007, Vienna, Austria.
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## Patent Applications

- 1 US Patent 031306, Runtime Semantic Query Optimization for Event Stream Processing, Inventors: Luping Ding, Songting Chen, Elke Rundensteiner, Junichi Tatemura, Wang-Pin Hsiung, Selguk Candan, NEC Labs America, March 2007.
- 2 US Patent 7031956 - System and method for synchronizing and/or updating an existing relational database with supplemental XML data US Patent Issued on April 18, 2006 Inventors: Wang-Chien Lee, Gail Anne Mitchell, Elke Angelika Rundensteiner, and Xin Zhang. Verizon Laboratories Inc.
- 3 US patent 6845380, issued on 1/18/2005, “Method And System For Valuing Transformation Between Extensible Markup Language (XML) Documents”, Kuno, H., Su, H. and Rundensteiner, E. A., Hewlett-Packard Laboratories, Palo Alto, CA.

## Subset of Prototypes and Software Demonstrations

I’ve regularly each year had some of our software demonstrations accepted at top venues in my field, from ACM SIGMOD, VLDB and ICDE. Starting 2001, I’ve listed those under publications (above) instead of also listing them separately below.

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- 10 "Maintaining Data Warehouse Views over Evolving Distributed Information Sources" demonstration at Technology Showcase, IBM CASCON, Nov. 1997-2000. (with students Amy J. Lee(UMICH), Yong Li(WPI), Andreas Koeller(WPI), Anisoara Nica(UMICH), Xin Zhang(WPI))
- 11 TSE: Transparent Software Evolution Toolkit, demonstration at IBM CASCON, 1995.
- 12 MultiView: Object-Oriented View System, demonstration at SIGMOD, 1994.