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## Elke Angelika Rundensteiner

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### RESEARCH INTERESTS

Big data analytics, database management, health analytics, high-performance stream processing, visual interactive data exploration.

### PROFESSIONAL EXPERIENCE

- **Founding Director** (July 2014 - onwards)  
Data Science Program, Worcester Polytechnic Institute, Worcester, MA.
- **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.

## 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).

## SCHOLARSHIPS AND AWARDS

- **Top winning team for MADE, Task 1.** Susmitha Wunnava, Xiao Qin, Tabassum Kakar, Elke Rundensteiner and Xiangnan Kong, Deep Learning using Letter and Word Embeddings, MADE 1.0 challenge, AMIA 2018 Informatics Summit: Translational, Clinical Research, Implementation, and Data Science, “Frontiers of Clinical Information Extraction: Current Progress in Medication and Adverse Drug Event Detection from Electronic Health Records”, NLP task 1, MADE 1.0 Panel, March 12-15, 2018, San Francisco, CA.
- **Honorable Mention (Among Best 6 Papers):** Maryam Hasan, Elke Rundensteiner, Xiangnan Kong and Emmanuel Agu, Using Social Sensing to Discover Trends in Public Emotion, IEEE International Conference on Semantic Computing (IEEE ICSC 2017), San Diego, CA, Jan 2017.
- **Best Research Poster Award:** Ramoza Ahsan, Rodica Neamtu, and Elke Rundensteiner, “Towards Spreadsheet Integration using Entity Identification Driven by a Spatial-Temporal Model”, The 31st ACM/SIGAPP Symposium on Applied Computing (ACM SAC 2016), Pisa, Italy. <http://oldwww.acm.org/conferences/sac/sac2016/SAC>
- **Best Paper Award:** “MaVis: Machine Learning Aided Multi-Model Framework for Time Series Visual Analytics”, by Kaiyu Zhao, Matthew Ward, Elke Rundensteiner, and Huang Higgins, VDA 2016.
- **Best Paper Award:** Karen Works and Elke Rundensteiner, Utilizing Dynamic Precedence Criteria To Ensure the Production of Critical Results from Big Data Streams, BigData: The Fourth ASE International Conference on Big Data”, 2014.
- CS Honor Society, Upsilon Pi Epsilon, 2013.
- EPTS Innovative Principles Award 2011: Di Wang, Prof. Rundensteiner, and Dr. D. Ellison for their work on “Active Complex Event Processing”, IBM, Yorktown Heights, July 11, DBES 2011.

- **WPI Chairman’s Exemplary Faculty Price, 2010.**
- **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.
- **Nominated one of five 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.
- 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.
- III-COR-Small: Event Analytics, Elke A. Rundensteiner, NSF, \$500,000, 2010-2013.
- Student Travel Grant for US Graduate Students to Attend EDBT/ICDT 2012, Elke A. Rundensteiner, NSF, \$20,000, 2011-2012.

- REU Supplement, III-Small: Query Mesh - A Novel Paradigm for Query Processing, Elke A. Rundensteiner, NSF, \$8,000, 2011-2012.
- REU Supplement, III-COR-Small: Event Analytics, Elke A. Rundensteiner, NSF, \$8,000, 2011-2012.
- IIS-CGV: Small: Model-Driven Visual Analytics on Streams (Graphics and Visualization), M. Ward, E. Rundensteiner, and H. Higgins, NSF, \$500,000, 08/2011 - 8/2014.
- NSF CNS: 305258 II-EN: Compute Infrastructure for Large-Scale Data Analytics, Profs. Eltabakh, Rundensteiner, and Ward, \$189,952.00, Aug. 2013-2014.
- NSF IIS 1343620 III: Small: Complex Event Analytics, REU Supplement, \$16,000, 2013-2014, Rundensteiner
- NSF 1117139 CGV: Small: Model-Driven Visual Analytics on Streams, REU Supplement, \$16,000, 2013-2014, Ward, Rundensteiner, Higgins
- MIT Lincoln Labs, Big Data Analytics for USTransCom, 9/1/2015 - 8/31/2016, \$99,161.
- Dept of Education GAANN: Fellowships in Computer Science to Support Data-driven, 9/1/2015 - 8/31/2018, \$895,278.00.
- Amadeus Corporation, Real-Time Fraud Detection Analytics For Travel Services, 1/11/2016 - 1/10/2019, \$100,000.
- NSF REU Grant, “REU SITE: Data Science Research for Safe, Sustainable and Healthy Communities.”, 5/1/2016-4/30/2018, \$367,500.
- FDA CDER, Discovery Environment for Scalable Adverse Event Trend Detection; Support for 2 Graduate Students on ORISE Fellowships, 23/9/2016 - 1/12/2018.
- NSRDEC ORISE for MHTC Project, Sponsorship for 1 Graduate Student, 2014-2017.
- Smartphone Biomarkers (Sensing) for Warfighter Health, PI: Agu and Co-PI: Rundensteiner, DARPA, \$2,800,000. 2018-2022.
- Supporting WPI Women Faculty Researchers, WPI Women’s Impact Network (WIN) Announces Grant, DIANE STRONG, ELEANOR LOIACONO, ELKE RUNDENSTEINER, and PAMELA WEATHERS \$7,000.
- Supporting Women in Data Science via the Women in Data Science Symposium: Fostering Diversity, Community, Mentorship, Outreach and Global Impact all in one! WPI Women’s Impact Network (WIN) Announces Grant, MELANIE JUTRAS, ELKE RUNDENSTEINER, FATEMEH EMDAD, CAITLIN KUHLMAN, and CANSU SEN. \$10,000.

## 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

- *I continue to serve on PC of numerous professional meetings. However, I no longer list these here.*
- Group Leader for Technical Program Committee, ACM SIGMOD 2014, Snowbird, Utah, USA.
- Research Track Associate Editor, VLDB 2014, Scalable Stream Processing, Hangzhou, China, Sep. 1 - 5th, 2014.
- Member, Technical Program Committee, EDBT/ICDT 2014 Joint Conference March 24-28, 2014 - Athens, Greece.
- E. Rundensteiner, Associate Editor, Proc. of VLDB, Vol 7 (for VLDB'2014), April 2013 - May 2014.  
VLDB workshop
- Prof. Rundensteiner is serving as program chair The 7th ACM International Conference on Distributed Event-Based Systems, June 29 - July 3, 2013, Arlington, Texas, USA. (DEBS 2013).
- EDBT Association, consulting member (2012-2016).
- Prof. Rundensteiner is serving as program chair for the 15th International Conference on Extending Database Technology, March 27-30, 2012, to be held in Berlin, Germany (EDBT'2012)
- Prof. Rundensteiner is serving as co-chair of the VLDB workshop called the "Sixth BIRTE International Workshop on Real-Time Business Intelligence (BIRTE 2012)", which was just accepted by VLDB'2012 program as full day workshop for Aug 27, 2012. The chairs are Dr. Malu Castellanos, HP Labs, Dr. Umeshwar Dayal, HP Labs, and Prof. Rundensteiner, WPI.
- Workshop Co-Chair, SIAM Data Mining (SDM) 2012 Workshop, Chetan Gupta (HP), Umesh Dayal (HP), Elke Rundensteiner, et al., 1st International Workshop on Analytics for Cyber-Physical Systems (ACS-2012), 2012.
- Workshop Co-Chair, ICDE'2011, Hannover, Germany, Geetika T Lakshmanan (IBM), Charu Aggarwal (IBM), Elke A. Rundensteiner (WPI). "Analytics and Data Management for Semi-Structured Business Processes", ICDE 2011, Hannover, Germany.
- 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, Theory and Practice of Object Systems ((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 continue to serve on program committees. However, I no longer list these here.*
- Program Committee, BigDataMR2012, The 2012 International Symposium on Big Data and MapReduce, Nov. 01-03, 2012, Xiangtan, Hunan, China.
- 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

- *I continue to serve on proposal review panels for NSF and other agencies. However, I have no longer listed these here.*
- 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

- *I continue to actively serve in various committees within the department, the data science program, and the university. However, I have no longer listed these here.*
- Computer Science, Graduate and Reserch Chair, 2012 - now.
- WPI, Committee on Governance (COG), member 2011 - now.
- WPI, Committee on Tenure and Promotion, member 2009 - 2012.
- WPI, Committe on Graduate Studies and Research, Chair, 2008 - 2010.
- WPI, Committe on Graduate Studies and Research, Chair, 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**

- Director, NSF REU Summer Site at WPI from 2016 until 2019. Serving as site director, as well as mentor of one team composed of REU participants each summer.
- Manasi Vartak, CREU Undergraduate Research Program, 2009, funded by CRA, advisor. Mansi now is PhD student at MIT.
- 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.

### Former Ph.D. Students (Now Graduated)

- 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, Dongdaemungu, 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; then Research Scientist at Univ. of Minnesota.
- 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. 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-advised at Univ. of Michigan by Prof. N. Soparkar  
Graduated Summer 2000.  
Employment: Instructor at Univ. of Michigan.
- Andreas Koeller, WPI,  
Research area: information integration.  
Graduated December 2001.  
Employment: Tenure track Assistant Professor at MontClare University; then Oracle Inc.
- Kajal Claypool, WPI,  
Research topic: change management tools,  
Completion Date: 2003.  
Employment: Tenure track Assistant Professor at University of Massachusetts, Lowell; then  
MIT Lincoln Labs.
- 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; since 2007, IBM Corporation.
- 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, but left for Employment: 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 as CEO.
- 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., Cupertino.
- 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 : Continuously Providing Approximate Results under Limited Resources: Load Shedding and Spilling in XML Streams  
Completion Date: Dec. 2011.  
Employment: Oracle Corp.
  
- Di Yang,  
Ph.D. student,  
Dissertation : “Mining and Managing Neighbor-Based Patterns in Data Streams”.  
Completion Date: Jan. 2012.  
Employment: Oracle Corp.
  
- Mo Liu,  
Ph.D. student,  
Dissertation : “Extending Event Sequence Processing: New Models and Optimization Techniques”  
Completion Date: March 2012.  
Employment: Sybase Inc. (An SAP Company).
  
- Venky Raghavan,  
Ph.D. student,  
Dissertation : Decision Support Systems  
Completion Date: 2012.  
Employment: GreenPlum Startup (acquired by EMC Corporation); nor Pivotal Inc.
  
- Di Wang  
Ph.D. student,  
Dissertation : Extending Complex Event Processing for Advanced Applications  
Completion Date: April 2013.  
Employment: BING!, Microsoft Corp. (2013); now Facebook (2014)
  
- Karen Works,  
Ph.D. student,  
Dissertation: Targeted Prioritized Processing in Overloaded Data Stream Systems  
Completion Date: May 2014.  
Employment: Professor, Westfield State University
  
- Abhishek Mukherji  
Ph.D. student,  
Dissertation: Rule-Driven Analytics Technologies.  
Employment: Samsung Research Lab.

- Chuan Lei  
Ph.D. student,  
Dissertation: Scalable Recurring Analytics Technologies: Streaming and Map-Reduce Models.  
Completion Date: Fall 2015.  
Employment: NEC Research Lab.; now at research staff at IBM Almaden Research Lab. (2017)
- Lei Cao  
Ph.D. student,  
Dissertation: Scalable Outlier Analytics.  
Completion Date: 2015.  
Employment: Research Lab, IBM TJ Watson. Now Postdoc at MIT (2017)
- Rodica Neamtu  
Ph.D. student,  
Dissertation: Time Series Analytics.  
Completion Date: May 2017.  
Employment: Associate Teaching Faculty, WPI.
- Olga Poppe  
Ph.D. student,  
Dissertation: Scalable Event Aggregation Systems.  
Completion Date: Jan 2018.  
Employment: Scientist, J. Gray Microsoft Research Lab, WI

### Hosting of Postdoctoral and Research Visitors

- Yi Wang, June 2015 - January 2016. College Lecturer, Information engineering department, Wuhan Police Vocational College, P.R.China. Funded by Scholarship from Provincial Department of Education, Hubei Province, China.
- Xudong Song, May 2014 - April 2015. Professor, Computer Science Department, m Dalian Jiaotong University, China, Funded by Scholarship From the Chinese Council.
- Yanwei Yu, PhD, Visiting Scholar to DSRG Lab, WPI, Yanwei Zhang, China, 2012-2013. As Assistant Professor School of Computer and Control Engineering, YanTai University, Yantai, Shandong, China, 264005.
- Dr. Nam Hun Park, Visiting Researcher to DSRG Lab, WPI, Korea, July 2008-2010.
- Dr. Jalel AKAICHI, Visiting Researcher to DSRG Lab at WPI, 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 Abhishek Mukherji, Xika Lin, Ermal Toto, Christopher Ryan Botaish, Jason Whitehouse, Elke A. Rundensteiner, and Matt Ward, "FIRE: A Two-level Interactive Visualization for Deep Exploration of Association Rules" *International Journal of Data Science and Analytics*, 2018, accepted.
- 2 Maryam Hasan, Emmanuel Agu and Elke Rundensteiner, Automatic Emotion Detection in Text Streams by Analyzing Twitter Data, *International Journal of Data Science and Analytics* (full paper), Received: 14 March 2017 / Accepted: 16 January 2018. Springer International Publishing AG, Springer Nature 2018. <https://doi.org/10.1007/s41060-018-0096-z>
- 3 R. Ahsan, R. Neamtu, E. Rundensteiner Using entity identification and classification for automated integration of spatial-temporal data, *International Journal of Design and Nature and Ecodynamics*, 07/2016; 11(3):186-197. DOI:10.2495/DNE-V11-N3-186-197, WIT Press.
- 4 Yanwei Yu, Lei Cao, Wang Qin, E. Rundensteiner Outlier Detection over Massive-Scale Trajectory Streams, *ACM Transactions on Database Systems (TODS)*, v.42 n.2, June 2017
- 5 A Prospective Controlled Trial of an Electronic Hand Hygiene Reminder System Richard T. Ellison III, Constance M. Barysaukas, Elke A. Rundensteiner, Di Wang and Bruce Barton, Division of Infectious Diseases and Immunology, Department of Medicine, University of Massachusetts Medical School, Worcester Massachusetts, Department of Quantitative Health Sciences, University of Massachusetts Medical School, Worcester Massachusetts USA *Oxford Journals*, Vol 2, Issue 4, Oct 2015.
- 6 Karen Works, Elke A. Rundensteiner: Practical Identification of Dynamic Precedence Criteria to Produce Critical Results from Big Data Streams. *Big Data Research* 2(4): 127-144 (2015)
- 7 Karen Works and Elke A. Rundensteiner, Reliable Aggregation Over Prioritized Data Streams, *LNCS Transactions on Large-Scale Data- and Knowledge-Centered Systems* 14: pp. 1-25 (2014).
- 8 Kaiyu Zhao, Matthew Ward and Elke Rundensteiner, and Higgins, Huong N, LoVis: Local Pattern Visualization for Model Refinement, *Computer Graphics Forum (CGF) Journal*, Special Issue, 33(3): 331-340 (2014).
- 9 Karen Works and Elke A. Rundensteiner, Preferential Resource Allocation in Stream Processing Systems, *International Journal of Cooperative Information Systems*, Volume 23, Issue 04, December 2014,
- 10 Chuan Lei, Elke A. Rundensteiner, Robust Distributed Query Processing for Streaming Data, *ACM Transactions on Database Systems*, 39(2): 17 (2014).
- 11 Olga Poppe, Sandro Giessl, Elke Rundensteiner, and Francois Bry, The HIT Model: Workflow-aware Event Stream Monitoring, *TLDKS Journal*, Special Issue on Advanced Data Stream Management and Processing of Continuous Queries, 11: 26-50 (2013)
- 12 Zhenyu Guo, Matthew O Ward, Elke A. Rundensteiner, and C. Ruiz, "Evaluation of a Pointwise Local Visual Exploration Method", *Tsinghua Science and Technology*, Special Issue on Visualization and Computer Graphics, Vol. 17, No. 4, Aug 2012, pp. 1-16. (accepted: June 2012)

- 13 Di Yang, Elke A Rundensteiner, and Matthew O Ward, Mining Neighbor-Based Patterns In Data Streams, *Information Systems Journal*, 2012 (accepted with minor revision).
- 14 Rimma Nehme, Karen Works, Chuan Lei, E. A. Rundensteiner, and Elisa Bertino, Multi-Route Query Processing and Optimization, *Journal of Computer and System Sciences (JCSS)*, Special Issue, "Data Warehousing and Knowledge Discovery from Sensors and Streams" Elsevier Publisher, 79(3): 312-329 (2013). *Journal of Computer and System Sciences (JCSS)*, Special Issue, "Data Warehousing and Knowledge Discovery from Sensors and Streams"
- 15 Karen Works, Elke A. Rundensteiner, and Emmanuel Agu, Optimizing Adaptive Multi-Route Query Processing via Time-Partitioned Indices, *Journal of Computer and System Sciences (JCSS)*, Special Issue, "Data Warehousing and Knowledge Discovery from Sensors and Streams" Elsevier Publisher, 79(3): 330-348 (2013).
- 16 Venkatesh Raghavan, Shweta Srivastava, and Elke A. Rundensteiner, Skyline and Mapping Aware Join Query Evaluation, *Information Systems Journal*, Elsevier Science Publisher, 36(6), 917-936 (2011).
- 17 Di Yang, Elke A. Rundensteiner, Matthew O. Ward: Shared execution strategy for neighbor-based pattern mining requests over streaming windows. *ACM Trans. Database Syst. (TODS)*, 37(1): 5 (2012).
- 18 Zaixian Xie, Zhengyu Guo, Di Yang, M. Ward and E. A. Rundensteiner, Quality-aware visual data analysis, *Computational Statistics*, 2011, (accepted Dec 2010).
- 19 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*, 69(5): 424-443 (2010)
- 20 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, 9(2), 22-29 (2007).
- 21 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.
- 22 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).
- 23 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.
- 24 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.
- 25 Kajal T. Claypool, Elke A. Rundensteiner, and Chandrakant Natarajan, CHOP: Performance Optimization for Batched Schema Evolution, *KAIS Journal*, 2006. accepted.

- 26 J. Yang, D. Hubball, M. Ward, E. Rundensteiner, W. Ribarsky: "Value and Relation Display: Interactive Visual Exploration of Large Data Sets with Hundreds of Dimensions." **IEEE Trans. Vis. Comput. Graph.** 13(3): 494-507 (2007)
- 27 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.
- 28 Bin Liu, Elke Rundensteiner, and David Finkel, Restructuring View Maintenance Plans For Large Update Batches, *Information Systems Journal*, Elsevier Science Publisher, Feb 2006.
- 29 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.
- 30 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.
- 31 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).
- 32 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.
- 33 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>)
- 34 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.
- 35 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).
- 36 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.
- 37 Aparna Verde, Elke Rundensteiner, M. Takahashi, M. Ward, M. Manruzzaman and R. Sisson Jr, Apriori Analysis and Game of Life for Predictive Analysis in Materials Science, Int. Journal of Knowledge-Based Intelligent Engineering Systems, (KES), IOS press, Netherlands, May 2004, accepted for publication.
- 38 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.
- 39 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)

- 40 Xin Zhang, Lingli Ding, and Elke A. Rundensteiner, Parallel Multi-source View Maintenance, *The VLDB Journal*, 13(1): 22-48 (2004)
- 41 Andreas Koeller and Elke A. Rundensteiner, Incremental Maintenance of Schema-Restructuring Views in SchemaSQL, *IEEE Trans. Knowl. Data Eng.* 16(9): 1096-1111 (2004).
- 42 Li Chen, Song Wang, and Elke A. Rundensteiner, "Replacement strategies for XQuery caching systems." *Data and Knowledge Engineering Journal*. 49(2): 145-175 (2004)
- 43 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.
- 44 Xin, Z. and Rundensteiner, E. A., 'Integrating the Maintenance and Synchronization of Data Warehouses Using a Cooperative Framework,' *Information Systems*, 27 (4): 219 - 243 (2002).
- 45 Jing Yang, Matthew O. Ward, and Elke A. Rundensteiner, 'Interactive Hierarchical Displays: A General Framework for Visualization and Exploration of Large Multivariate Data Sets', *Computers and Graphics journal*, 2002.
- 46 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.
- 47 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.
- 48 Chen, L, Choubey, R., and Rundensteiner, E. A., "Merging R-Trees: Efficient Strategies for Local Bulk Insertion," **GeoInformatica**, 6(1): 7-34 (2002)
- 49 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).
- 50 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),
- 51 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)
- 52 E. A. Rundensteiner, A. Koeller, and X. Zhang, "Maintaining Data Warehouses over Changing Information Sources", *Comm. of ACM*, 43(6): 57-62 (2000). (Invited feature article).
- 53 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.
- 54 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.

- 55 Claypool, K. T. and Rundensteiner, E. A., "Flexible Database Transformations: The SERF Approach", *IEEE Bulletin*, Special Issue on Database Transformation Technology, IEEE, March 1999, pp. 19-24.
- 56 Crestana, V. M., Lee, A. and Rundensteiner, E. A., "Consistent Schema Version Removal: An Optimization Technique for Object-Oriented Views", *IEEE Transaction on Data and Knowledge Engineering*, Vol. 12, No. 2, March/April 2000, pp. 261 - 270.
- 57 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.
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- 63 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..
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- 68 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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- 5 Kirthana Beaulac, ML Tlachac, Elke Rundensteiner, Kerri Barton, Scott Troppy, Shira Doron, Utilization of Predictive Modeling to Identify Emerging Statewide Antibiotic Resistance Trends, The Society for Healthcare Epidemiology of America - SHEA 2018, SHEA Spring Conference: Science Guiding Prevention, Oral Presentation, Portland, OR, April 18 - 20, 2018. (Selected as a Top Featured Abstract, one among 5 outstanding abstracts selected for this presentation).

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- 9 Monica Tlachac, Elke Rundensteiner, Kerri Barton, Scott Troppy, Kirthana Beaulac, Shira Doron, Jian Zou, CASSIA: An Assistant For Identifying Clinically and Statistically Significant Decreases in Antimicrobial Susceptibility 2018 IEEE International Conference on Biomedical and Health Informatics (BHI-2018), March 4-7, 2018.
- 10 Sarah Brownell ( REU student), Mentored by Graduate student: Tom Hartvigsen (who had been an REU student himself as undergraduate student) And Faculty Advisors: Professor X. Kong and E. Rundensteiner Title of Poster : MRSA Infection Prediction System. Accepted as poster for presentation at 2017 IEEE MIT Undergraduate Research Technology Conference, Nov 2017, <http://ieeescrpts.mit.edu/conference>
- 11 Courtney Burns (REU) and Jennifer Ha (REU), with WPI undergraduate student Andrew Schade (WPI) Mentored by Graduate student: Eraldo Toto and by Faculty Advisors: Professors E. Agu and E. Rundensteiner Title of Poster : Using Machine Learning to Detect Depression by Voice, Accepted as poster for presentation at 2017 IEEE MIT Undergraduate Research Technology Conference, Nov 2017, <http://ieeescrpts.mit.edu/conference>
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