

Xin ZHANG

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Education

- *Ph.D. program in Computer Science, May 1998-present*

Worcester Polytechnic Institute, Worcester, MA, USA.

Advisor: Prof. Elke A. Rundensteiner.

Ph.D. Committee: Prof. Nabil Hachem, Prof. Karen Lemon, Dr. Gail Mitchell, Prof. Wang-Chien Lee.

Progress in the program:

- Ph.D. Dissertation Defense (planned Fall 2002).
 - Passed Ph.D. Dissertation Proposal Defense (May 2001).
 - Passed Ph.D. comprehensive exam portion (March 2000).
 - Formed Ph.D. Committee (Jan 2000).
 - Passed Ph.D. qualifying exam research portion (February 1999).
 - Passed Ph.D. qualifying exam written portion (April 1998).
- *Master's program in Computer Science, January 1997 – May 1999*
Worcester Polytechnic Institute, Worcester MA, USA, Current Cumulative GPA 3.83
 - Thesis Defense Talk passed (December 1998).
 - Thesis Proposal presented (April 1998).
- *Chinese university degree (comparable to BS-Program) in Computer Science, 1991-1995*
Bachelor of Science, Computer Science, 1991 - 1995
Xiamen University, Xiamen, P.R. China
A-average, Top 10% of the class
- *High School, -1991*
Beijing No. 8 Middle School, Beijing, P.R. China.
Selected in the Young Children's Class of No.8 Middle School. Select 30 out of 600 competitors.

Professional Experience

- *Academic Experience*

Research Assistant, Spring 2002 - present

Worcester Polytechnic Institute, Worcester, MA.

Research flexible loading XML data into object-relational database, query rewriting from XML query into SQLs, order sensitive query processing, and update propagation. The main application of this work is the flexible and powerful XML document management. Built and maintained a software system called “Rainbow” that demonstrates the findings.

Research Assistant, Spring 2000 - Fall 2001

Worcester Polytechnic Institute, Worcester, MA.

Research querying XML data by reusing relational technology and related technologies, e.g., importing and exporting XML documents and synchronizing XML data updates using related DB engines. Built and maintained a software system called “Clock” that demonstrates the findings. [Funded by Verizon Laboratories Incorporated.]

Research Assistant, Spring 1998 - Spring 2000

Worcester Polytechnic Institute, Worcester, MA.

Researched into data warehouses in general and data warehouse evolution in particular under the umbrella of the EVE project (Evolvable View Environment). The main application of this work is the support of changing information sources on the WWW into views that combine information from several sources and their maintenance under changes. Built and maintained a software system that demonstrates the findings. [Funded by NSF grant.]

Teaching Assistant, Fall 1997

Worcester Polytechnic Institute, Worcester, MA.

Teaching Assistant of C Programming Language in cooperation with 7 other TAs to handle 200 students, and X86 Assembly Language with another TA to handle 30 students.

Bachelor’s Project, 1994-1995

Xiamen University, Xiamen, P.R. China

Designed and implemented the GUI and sampling software of an Earthquake Simulation and Test System.

Reviewer for Conferences, 1997-present

Reviewed papers for several conferences and journals (SIGMOD ’98, ICDCS ’98, DEXA ’99, VLDB ’99, WIDM 2001, CIKM 2001, VLDB 2002).

- *Industry and Other Practical Experience*

Student Internship, Jan. 2001 – Sep. 2001

Verizon Laboratories Incorporated, Waltham, MA.

As a member of the Software Systems department, conducted research in the areas of XML and relational data management.

Student Internship, Fall 1998 – Winter 2000

GTE Labs, Waltham, MA.

As a member of the Advanced System Technology group, conducted research in the related area of data integration and transformation in the context of metadata repositories.

Research Assistant, Summer 1998-present

Worcester Polytechnic Institute, Worcester, MA.

As part of the duties as Research Assistant, maintained several Windows-NT-PCs, an Oracle Database instance, installed and maintained software for the DSRG research group (Java, MS Office, LaTeX, CVS)

Software Consultant, 1995-1996

Beijing JinSanRong Electronic Publications Limited Corporation, Beijing, P.R.China.

Designed and implemented GUI components and supporting software for a keyword searching system. This work was done in C.

Network Engineer, 1994-1995

Beijing Network Installation Company, Beijing, P.R.China. Hardware installation of local area network.

- *Other Experience*

Student Representative, 1999 - 2000

Worcester Polytechnic Institute, Worcester, MA

Part of computer science department graduate student council.

Student Representative, 1998 - 1999

Worcester Polytechnic Institute, Worcester, MA

President of the Chinese Student and Scholar Association. Elected by CSSA students to represent students in all activities related to WPI and student life.

Publications

- *Conferences*

- X. Zhang, L. Ding, and E. A. Rundensteiner, PVM: Parallel View Maintenance under Concurrent Data Updates for Distributed Sources. *DaWaK 2001*, September 2001.
- X. Zhang, G. Mitchell, W. Lee, and E. A. Rundensteiner. Clock: Synchronizing Internal Relational Storage with External XML Documents. *RIDE 2001*, April 2001.
- L. Ding, X. Zhang, and E. A. Rundensteiner. Scalable Maintenance of Multiple Interrelated Data Warehousing Systems. *DaWaK 2000*, September 2000.
- X. Zhang and E. A. Rundensteiner. DyDa: Dynamic Data Warehouse Maintenance in a Fully Concurrent Environment. *DaWaK 2000*, September 2000.
- L. Ding, X. Zhang, and E. A. Rundensteiner. The MRE Wrapper Approach: Enabling Incremental View Maintenance of Data Warehouses Defined on Multi-Relation Information Sources. *DOLAP 1999*, November 1999.
- X. Zhang and E. A. Rundensteiner. Data Warehouse Maintenance Under Concurrent Schema and Data Updates, *International Conference on Data Engineering (ICDE'99)* Poster Session Paper, March 1999.
- X. Zhang and E. A. Rundensteiner. Cooperative Information Sources and Data Warehouse Maintenance, *International Database Engineering and Application Symposium (IDEAS'99)*, July 1999.

- E. A. Rundensteiner, A. Koller, X. Zhang, A. V. Wyk, Y. Li, A. J. Lee, and A. Nica. Evolvable View Environment (EVE): Non-Equivalent View Maintenance under Schema Changes, *ACM SIGMOD'99*, Demo Paper, March 1999.
 - E. A. Rundensteiner, K. T. Claypool, M. Li, L. Chen, X. Zhang, C. Natarajan, J. Jing, S. DeLima, S. Weiner. SERF: ODMG-Based Generic Re-structuring Facility, *ACM SIGMOD'99*, Demo Paper, March 1999.
- *Journal Papers*
 - X. Zhang, L. Ding, E. A. Rundensteiner, Parallel Multi-Source View Maintenance. *Submitted to VLDB Journal*.
 - X. Zhang, E. A. Rundensteiner, Integrating the Maintenance and Synchronization of Data Warehousing using a Cooperative Framework. *Information Systems 2002*, to appear.
- *Magazines*

E. A. Rundensteiner and A. Koeller and X. Zhang. Maintaining Data Warehouses over Changing Information Sources, *Invited feature article, Special Section, "The Interdisciplinary Study of Systems Integration"*, edited by W. Hasselbring, Communication of the ACM, April 2000.
- *Technical Reports*
 - X. Zhang, E. A. Rundensteiner, G. Mitchell, Wang-Chien Lee, Clock: An XML Update Synchronization Framework. TR-WPI-CS-01-15.
 - X. Zhang, W. Lee, and G. Mitchell. Metadata-driven Approach to Integrating XML and Relational Data. TR-0404-12-00-4240, Verizon Laboratories Incorporated, 2000.
 - X. Zhang and E. A. Rundensteiner. DyDa: Dynamic Data Warehouse Maintenance in a Fully Concurrent Environment, WPI-CS-TR-99-20, 1999.
 - X. Zhang and E. A. Rundensteiner. PSWEEP: Parallel View Maintenance Under Concurrent Data Updates of Distributed Sources, WPI-CS-TR-99-14, 1999.
 - X. Zhang and E. A. Rundensteiner. Data Warehouse Maintenance Under Interleaved Schema and Data Updates, WPI-CS-TR-98-10, 1998.
- *Software Demonstrations*
 - X. Zhang, M. Mulchandani, S. Christ, B. Murphy, E. A. Rundensteiner, Rainbow: Mapping-Driven XQuery Processing System. *SIGMOD 2002 Demo*, to appear.
 - E. A. Rundensteiner, X. Zhang, A. Koeller, and J. Chen. DyDa: Dynamic Data Warehouse Maintenance in a Fully Concurrent Environment. *ACM SIGMOD 2001*, Software Demonstrator, May 2001.
 - K. T. Claypool, X. Zhang, E. A. Rundensteiner, H. Su, H. Kuno, W. Lee, and G. Mitchell. Model Management - A Solution to Support Multiple Data Models, Their Mappings and Maintenance. *ACM SIGMOD 2001*, Software Demonstrator, May 2001.
 - E. A. Rundensteiner, A. Koeller, and X. Zhang. "Evolvable View Environment (EVE): Non-equivalent View Maintenance" *Proceedings of International Database Engineering and Application Symposium (IDEAS)*, Software Demonstrator, 1999
 - E. A. Rundensteiner, A. Koeller, X. Zhang, A. Lee, and A. Nica. Evolvable View Environment. *Proceedings of SIGMOD'99*, Software Demonstrator, June 1999.

- E.A. Rundensteiner, A. Koeller, X. Zhang, A.J. Lee, A.Nica, and Y. Li. *Evolvable View Environment (EVE): Maintaining Views over Dynamic Distributed Information Sources*. IBM Centre for Advanced Studies Conference (CASCON), Software Demonstrator, November 1997.
- E. A. Rundensteiner, A. Koeller, X. Zhang, Y. Li, A. VanWyk, J. Moyer, A.J. Lee and A. Nica. *EVE: Non-Equivalent View Maintenance under Schema Changes*. IBM Centre for Advanced Studies Conference (CASCON), Software Demonstrator, December 1998.
- E. A. Rundensteiner, A. Koeller, A. Lee, Y. Li, A. Nica, and X. Zhang. *Evolvable View Environment (EVE) Project: Synchronizing Views over Dynamic Distributed Information Sources*, *Proceedings of International Conference on Extending Database Technology (EDBT'98)*, Software Demonstrator, March 1998.

Projects

- *Supervised and Worked with undergraduate project teams:*

Advised: 2 students senior-level-one-year project, *PRISM*, 2001-2002.

Advised: 1 student senior-level-one-year project, *Visual Exploration of XQuery Processing*, 2001-2002.

Advised: 3 students senior-level-one-year group, *XQuery Optimizer*, 2001-2002.

Advised: 3 students senior-level-one-year group, *XML to SQL Translation System*, 2001-2002.

Advised: 3 students senior-level-one-year group, *Rainbow: Bridge over Gap between XML and Relational Data.*, 2000-2001.

Advised: 4 people MQP group, *DyDa: Dynamic Data Warehouse Maintenance Under Concurrent Data and Schema Changes*. 1999-2000. **Award of Best MQP.**

Advised: Yong Li, *Data Warehouse Evolution—The Maintenance, Derivation, and Discovery of Meta-Knowledge*, 1998 A, B and C terms.

- *Graduate Project work*

Supervised: Brian Murphy, Master's Student, *XML Order Handling*, 2001-2002.

Supervised: Steffen Christ, Master's Student, *Directed Study Project, X-Cube: A Flexible XML Mapping System Powered by XQuery*, 2001-2002.

Supervised: Ekta Bhatia, Master's Student, *Directed Study Project, EVE-Project Software Development*, 1997-1998.

Supervised: 2 graduate students group, *XML Relational Management*. Summer 2000.

Supervised: D. Amoroso-O'connor, *A Prototyping Implementation of a Metadata Driven Approach to Loading XML into a RDBMS*. Summer 2000. [at Verizon Laboratories Incorporated.]

- *View Adaptation Implementation*

Member of 2 person team, *Course Project, Advanced Database Management System*, Spring 1999.

- *PSWEEP Experimental Study*

Advised: Lingli Ding, Master's Student, *Course Project, Advanced Database Management System*, Spring 1999.

- *OQL Parser*

Full implementation of the OQL specified by ODMG2.0 in Java ,Part of *SERF: Schema Evolution using an Extensible, Re-usable and Flexible Framework*, Research Project, Fall 1998.

- *Tea Language Interpreter*
Course Project, Compiler Construction, Spring 1998.
- *Web Quiz System*
A project of web access to the databases, Member of 4 person team, Course Project, Electronic Document, Fall 1997.
- *Materialized View Maintenance Algorithm (SWEEP) Implementation*
Member of 2 person team, Course Project, Database Management System, Fall 1997.
- *Evolvable View Environment System*
Member of 6 person team, Direct Research Project, Fall 1997

Skills

- *Programming Languages and Query Languages*
Java, C++, C, Pascal, Visual Basic, x86-Assembly Language, HTML, XML, XQuery, SQL.
- *Operating Systems*
Unix (Linux), Windows (95, 98, NT, 2000, XP), Mac OS (7.0)
- *Applications*
MS Office, MS Visual Studio, Oracle, Borland Visual C++, Visual Café for Java, Rational Rose, Via-soft Rochade, Microsoft Frontpage, JavaCC, JTB, Object Store PSE OODB, IBM VisualAge Enterprise Edition, CVS, Dreamweaver.

Award

Achievement Award by GTE Laboratories. For my effort as part of the team that developed the Reuse Catalog prototype and delivered this prototype to GTE's IT organization in a prompt and responsive manner. April, 1999.

Languages

Chinese as native language; fluency in English.