Xin Zhang
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OBJECTIVE

Full-Time Research and Development in the area of XML and Database technologies.

COMPUTER SKILLS

Eight years on C and C++, five years on JAVA, and SQL, and two years on OQL, XQuery, XML, and UML. Very familiar with Microsoft Visual Studio, Latex, ORACLE 8.1.6. Visual Café, JBuilder, Together ControlCenter 5.5, Rational Rose, Viasoft Rochade, JavaCC, JTB, IBM VisualAge Enterprise, and CVS.

EDUCATION

1999 – 2003 **Worcester Polytechnic Institute** **Worcester, MA**
May 2003 Ph.D. in Computer Science in Research Area: XML Query Engine
May 1999 Master of Science in Computer Science in Research Area: Data Warehousing GPA: 3.8

INDUSTRY EXPERIENCE

2000 - 2001 Technical Intern **Verizon Labs** **Waltham, MA**

- Conducted research and development of an XML management system based on relational technology. This system can load XML data into relational database by a fixed loading scheme. The relation schema is generated from XML's DTD automatically. The performance of XML data loading can compare to the Oracle's native XSU interface. The system also updates the loaded data by a set of API functions. It supports insert, delete, and update of any specific element identified by an XPath. Transaction model is implemented for the XML updates. Also the incremental validation of the updates. A paper called "Clock: Synchronizing Internal Relational Storage with External XML Documents" published on RIDE-DM2001.
- Used UML to design the project's class diagram. Used Java and JDBC to implement the main system. Used IBM's XML4J parser to parse the XML and DTD. Used dynamic SQL and JDBC to communicate with the database backend. Led group meetings. Created and maintained the group development website. Installed Oracle server on Linux box.

1999 - 2000 Technical Intern **GTE Labs** **Waltham, MA**

- Conducted research and development of a data integration system in the context of metadata repositories. The integration is based on the DTD. First, system stores the DTD into the relational database as metadata tables. Then, based on the metadata tables and different workload, created relational schema is created. Designed metadata tables to support flexible loading. A paper called "Integrating XML Data with Relational Databases" is published in ICDCS 2000.
- Collaborated with two other senior technical stuffs. Oracle's data dictionary tables are used.

1998 – 1999 Technical Intern **GTE Labs** **Waltham, MA**

- Developed a system based on Rochade to support software component management. It includes web server html static pages design, dynamic CGI scripts design, Rochade client and cache management, and Rochade server modules design. The component management system can catalog the upload software modules written in C/C++/JAVA/RPL, can search modules by keywords, and can download selected packages.
- Rochade and Rochade Web Toolkit are used. CGI scripts are used. Rochade information model are designed. Presentations and documentations are developed for this project. Rochade programming languages (like Dbase programming language) is used. TCP/IP and client/server techniques are used. Used RationalRose to design the class diagram, use cases, and activity diagrams.

RESEARCH EXPERIENCE

2000 - 2002 Research Assistant **Worcester Polytechnic Institute** **Worcester, MA**

- Conducted research and development of a system to support multiple XML loading and extraction strategies by XQueries, algebra based XQuery processing with order awareness, and update propagation. System can take XQuery parsed into XML algebra tree, optimize it and execute it. XML updates are specified by XQuery and propagated through the system. Designed system architecture. Proposed a new XML algebra and designed XML algebra rewriting rules. Extent Kweelt's XQuery parser to support XML updates. (http://davis.wpi.edu/dsrg/rainbow)

- Collaborated with four graduate students and nine undergraduate students. Used Together ControlCenter to design class diagrams and activity diagrams. Used VisualAge for the source code sharing and version management. Used visitor pattern for the XQuery parser. Used multithreading for GUI.

1999 – 2000 Research Assistant Worcester Polytechnic institute Worcester, MA

- Conducted research and development of a parallel data warehouse view maintenance system. This system can handling the data updates submitted to the data warehouse in parallel to improve the overall throughput of system. Proposed new techniques for parallel execution and to guarantee the correctness of the maintenance.
- Used multithreading and concurrency control techniques to avoid deadlock in such thread intensive system.

1998 – 1999 Research Assistant Worcester Polytechnic Institute Worcester, MA

- Conducted research and development of a data warehousing system in distributed environment. The System can maintain the view defined in the data warehouse even the underlying data source change their schema. It can handle the mix of data changes and also schema changes from the information sources. (http://davis.wpi.edu/dsrg/EVE/DyDa)
- Collaborated with five graduate students. Java Native Interface is used to connect to the modules developed in C/C++. Used RMI for communicating between the GUI and the server. Used Java AWT/Swing for the GUI design. Used CVS for code sharing and version management.

1997 - 1998 Teaching Assistant Worcester Polytechnic Institute Worcester, MA

- Taught C languages with seven other teaching assistants to handle 200 students.
- Taught X86 assembly language with another teaching assistant to handle 30 students.

LEADERSHIP SKILLS

1998 - 2002 Supervised with seven undergraduate computer science research teams (with two Awards of Outstanding Projects) composed up to four people in the area of XQuery processing, XQuery update processing, XML to SQL translation, XML storage, and distributed data warehouse management.

AWARD

Achievement Award by GTE Laboratories, April 1999

LANGUAGES

Master Chinese and fluent English.

REFERENCES

Available upon request.