

## CHANGQING LI

### RESEARCH INTERESTS

Database in general, with particular interests in XML, text processing, search engine and cloud computing.

### SKILLS

Programming in *C++/C, Java, python, Visual Basic; PHP, AJAX, JavaScript, CSS; PostgreSQL, MySQL, Microsoft SQL Server, Oracle; Apache2, IIS*; etc.

### EXPERIENCE

#### Duke University, Durham, NC

2006 - present

Associate in Research, Research Associate, and Postdoctoral Associate Jul/2006 - present

- Processed more than 60 GB data with *C/C++*, *Java* and *Python* programming languages and stored them into databases in *PostgreSQL* as well as *MySQL*; used *Python* and *GATE* to do natural language processing such as stemming and part-of-speech tagging texts.
- Built a search engine with *PHP*, *AJAX*, *JavaScript*, *CSS*, and *TSearch2* and *GIN index* of *PostgreSQL* database management system to search about 20 million medical paper abstracts and about 200 million sentences. This search engine worked on *multiple database tables* distributed on *multiple computers*, and it also supports "*auto-suggestion*" and "*did you mean*". *Apache2* and *IIS* were used as web servers on *Linux* as well as *Windows*.
- Automatically extracted Recombination Signal (RS) sequences from HTML and XML and processed the queries.

#### National University of Singapore, Singapore (The best university of Singapore; 19<sup>th</sup>-33<sup>rd</sup> in the world) 2001 - 2006

Ph.D. Thesis, Querying and Updating XML Data Based on Node Labeling Schemes Jul/2001 - Apr/2006

- Researched on XML data query and update processing based on labeling (numbering) schemes. Had a paper published in a *top* international database conference which was one of the two Best Student Paper candidates. Ph.D. Thesis was one of the top 5 in School of Computing nominated for the Best Ph.D. Thesis Award. External Reviewer: Professor M. Tamer Özsu.
- Used *Java* in the data processing.

Casual Employment, Department of Computer Science May/2006 - Jul/2006

- Continued my Ph.D. research before joining Duke University.

Graduate Student Researcher, Department of Computer Science Apr/2006, and, Apr/2005 - Jul/2005

- Worked on ontology modeling and semantic web.

Research Assistant, Department of Computer Science Aug/2005 - Mar/2006

- Researched on XML data processing, data integration and data interoperability.

Teaching Assistant, Department of Computer Science 2004 - 2005

- Taught and graded the course Database Design.

#### Peking University, Beijing, China (One of the top 2 universities of China; 14<sup>th</sup>-50<sup>th</sup> in the world) 1998 - 2001

Master Thesis, Research and Development of E-commerce and Its Related Technologies in the PeopleFirst System

Sep/1998 - Jun/2001

- Worked on an internationally collaborative e-commerce project, in which Johns Hopkins University was a partner; built a web-based bargain system for users to negotiate price with the system.
- Worked on a key and foundation research of the nation, named the Organization, Processing and Integration of Mass Information under the Internet and Web.
- Used *Visual C++*, *Oracle*, *Java Servlet*, *JSP*, *VBScript*, *JavaScript*, and *Biztalk*.

Software Engineer, Intern, Founder Group of Peking University Apr 2001

- Developed a web system in a team for a news company of Beijing; used *JSP*.

Software Engineer, Intern, Qinghai Province Post Nov/2000 - May/2001

- As the team leader, developed a web system with a friend for Qinghai Province Post; used *Microsoft SQL Server*, *ASP*, and *Internet Information Services (IIS)*.

Mentor, Peking University Jun/2000

- Directed an undergraduate student on his thesis.

Software Engineer, Intern, Hewlett-Packard (HP) Jul/1999 - Aug/1999

- Researched & developed an interface software; used *Visual Basic*.

**Xi'an Jiaotong University, Xi'an, China (One of the top 9 universities of China)**

1994 - 1998

Bachelor Thesis, Stock Market Analysis Using Regressive Method Sep/1994 - Jul/1998

- Used regressive method to model and analyze stocks.
- Developed a software with C programming language to visualize the modeling results, hence users can easily use this software to make decisions on trading stocks.

Data Analyst, Intern, Lanzhou Petroleum Refinery Jul/1997

- Used mathematical model to model and analyze manufactural data; used *Matlab* and *Mathematica*.

Grader, Shaanxi Province Jul/1996

- Scored the National College Entrance Exam (physics) with some other teachers and students.

**TRAINING AND EDUCATION**

Duke University	Durham, NC	
Postdoctoral Training	July/2006 - present	
National University of Singapore	Singapore	
Ph.D. in Computer Science	Ph.D. Thesis was in top 5 in School of Computing	April 2006
Peking University	Beijing, China	
M.E. in Information Science	3 <sup>rd</sup> /14 in the department	June 2001
Xi'an Jiaotong University	Xi'an, China	
B.S. in Applied Mathematics	2 <sup>nd</sup> /30 in the department	July 1998

**AWARDS AND HONORS FOR EXCELLENCE**

1. One of the two paper candidates selected for the Best Student Paper Award at a *top* international database conference ICDE06, *internationally recognized honor*, 2006.
2. Dean's Graduate Award for *meritorious performance* in School of Computing, National University of Singapore, 2006.
3. Student Travel Award of international conference CIKM05, *an international award*, 2005.
4. First Class Award of Excellent Achievements of Scientific and Technological Innovation for a journal paper in China, *a nationwide award*, 2002.
5. Innovation Award of Peking University, *one of the highest level awards* of Peking University, 2000.
6. Excellent Graduation Student of Shaanxi Province (where Xi'an Jiaotong University locates) over about 75,000 graduation students in that year, *provincially recognized award*, 1998.
7. Excellent Graduation Student of Xi'an Jiaotong University, 1998.
8. Xin Zhu Alumni (from Tai Wan) and Jin Long Ka fellowships of Xi'an Jiaotong University, 1996 and 1997.
9. First-class fellowship and Excellent Three-goodness Student (*sometimes no one in a department is qualified for this award*) of Xi'an Jiaotong university, 1997.
10. Second-class fellowship and Three-goodness Student of Xi'an Jiaotong university, 1995.
11. *Number 1* in general (including all subjects like mathematics, physics, history, etc.) and *Number 1* in history in the grade (*10 classes and total 300 students*) for the contest in the middle of high school period, 1993.

**PROFESSIONAL ACTIVITIES**

- *Program Committee Member*, International Conference on Knowledge Discovery and Information Retrieval (KDIR), 2009.
- *Program Committee Member*, International Conference on Information and Knowledge Management (CIKM), 2007.
- *Program Committee Member*, International Conference on Database and Expert Systems Applications (DEXA), 2007.
- Reviewer for SIGMOD, VLDB, ICDE, WWW, ACM GIS, etc. IEEE student member, 2006

**PUBLICATIONS AND PRESENTATIONS**

1. **Changqing Li**, Tok Wang Ling. Advanced Applications and Structures in XML Processing: Label Streams, Semantics Utilization and Data Query Technologies. *Book Editor*, Publisher: IGI Global, 2009. To appear.
2. Jiaheng Lu, Liang Xu, Tok Wang Ling, **Changqing Li**. Labeling XML Documents. *Chapter* in Advanced Applications and Structures in XML Processing: Label Streams, Semantics Utilization and Data Query Technologies. Changqing Li and Tok Wang Ling, ed. 2009. Publisher: IGI Global, 2009. To appear.
3. **Changqing Li**. Database Adapters and Connectors. *Chapter* in Encyclopedia of Database Systems. Ling Liu and M. Tamer Ozsu, ed. 2008. Invited contribution. Publisher: Springer-Verlag New York, LLC. Pub. Date: June 28, 2009.
4. **Changqing Li**. Open Database Connectivity. *Chapter* in Encyclopedia of Database Systems. Ling Liu and M. Tamer Ozsu, ed. 2008. Invited contribution. Publisher: Springer-Verlag New York, LLC. Pub. Date: June 28, 2009.
5. **Changqing Li**. Java Database Connectivity. *Chapter* in Encyclopedia of Database Systems. Ling Liu and M. Tamer Ozsu, ed. 2008. Invited contribution. Publisher: Springer-Verlag New York, LLC. Pub. Date: June 28, 2009.

6. **Changqing Li**, Tok Wang Ling. A Basis for Semantic Web and e-Business: Efficient Organization of Ontology Languages and Ontologies. *Chapter* in book *Semantic Web Technologies and eBusiness*. A.F. Salam and Jason R. Stevens, ed. Publisher: IDEA GROUP INC., U.S.A. 2007.
7. **Changqing Li**, Tok Wang Ling, Min Hu. Efficient Updates in Dynamic XML Data: From Binary String to Quaternary String. *VLDB Journal*, Volume 17, Issue 3, May 2008, ISSN:1066-8888.
8. **Changqing Li**, Tok Wang Ling, Min Hu. Efficient Processing of Updates in Dynamic XML Data. In Proc. of the 22nd IEEE International Conference on Data Engineering (*ICDE*), Apr. 2006. *One of the two candidates selected for the Best Student Paper Award*. \*\* (\*\* means I presented this paper in an international conference.)
9. **Changqing Li**, Tok Wang Ling, Min Hu. Reuse or Never Reuse the Deleted Labels in XML Query Processing Based on Labeling Schemes. In Proc. of the 11th International Conference on Database Systems for Advanced Applications (*DASFAA*), pages 659-673, Apr. 2006. \*\*
10. **Changqing Li**, Tok Wang Ling. QED: A Novel Quaternary Encoding to Completely Avoid Re-labeling in XML Updates. In Proc. of the 14th ACM International Conference on Information and Knowledge Management (*CIKM*), pages 501-508, Oct. 2005. *Student Travel Award (500 EURO)*. \*\*
11. **Changqing Li**, Tok Wang Ling, Jiaheng Lu, Tian Yu. On Reducing Redundancy and Improving Efficiency of XML Labeling Schemes. In Proc. of the 14th ACM International Conference on Information and Knowledge Management (*CIKM*), pages 225-226, Oct. 2005. \*\*
12. Jiaheng Lu, Tok Wang Ling, Tian Yu, **Changqing Li**, Wei Ni. Efficient Processing of Ordered XML Twig Pattern. In Proc. of the 16th Database and Expert Systems Applications (*DEXA*), pages 300-309, Aug. 2005.
13. **Changqing Li**, Tok Wang Ling. An Improved Prefix Labeling Scheme: A Binary String Approach for Dynamic Ordered XML. In Proc. of the 10th International Conference on Database Systems for Advanced Applications (*DASFAA*), pages 125-137, Apr. 2005. \*\*
14. **Changqing Li**, Tok Wang Ling. From XML to Semantic Web. In Proc. of the 10th International Conference on Database Systems for Advanced Applications (*DASFAA*), pages 582-587, Apr. 2005. \*\*
15. **Changqing Li**, Tok Wang Ling. OWL-Based Semantic Conflicts Detection and Resolution for Data Interoperability. In Proc. of the 23rd Int. Conf. on Conceptual Modeling (*ER*) Workshop LNCS3289, pages 266-277, Nov. 2004. \*\*
16. **Changqing Li**, Shiwei Tang, Hongyan Li. Using Association to Mine the Thick-Scale E-commerce Personalized Service Information. *Journal of Computer Science*: pages 36-38, No. 1, 2002.
17. **Changqing Li**, Shiwei Tang, Hongyan Li. The Design of a Whole E-business System. *Journal of Computer Science*: pages 14-16, No. 6, 2001.
18. **Changqing Li**, Wenbing Zhao, Shiwei Tang. A Personalized Service Protocol Based on HTTP. The 11th Academic Conference on Computer Network and Data Communication of China, Oct. 2000.
19. **Changqing Li**, Shiwei Tang, et al. Improving on the Personalized Algorithm and Research on the Pertinence of Influence Index in E-Business. In Proc. of the 9th National Conf. on Multimedia Technology (*NCMT*), pages 285-289, Oct. 2000.
20. **Changqing Li**, Hongyan Li, et al. Research on Personalized Algorithm in E-business. In Proc. of the 9th National Conf. on Multimedia Technology (*NCMT*), Oct. 2000.