Zhiyuan Chen's Curriculum Vitae

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Research Interests

Database systems in general. Specific interests include database compression, physical database design, E-Commerce, XML, and data warehousing.

Education

Ph.D. Cornell University, Computer Science — Aug 2002 (expected)
Dissertation: Compressed Database Systems
Advisor: Prof. Johannes Gehrke
GPA: 4.01/4.0

M.S. Fudan University, China, Computer Science — Aug 1997
GPA: 4.0/4.0

B.S. Fudan University, China, Computer Science — Aug 1995
GPA: 3.9/4.0

Research Experience

Research Assistant, Cornell University — Jan 1998 - present
Advisor: Prof. Johannes Gehrke and Prof. Praveen Seshadri

For my thesis research, I worked on development of *compressed database systems* that use compression techniques to overcome the exponentially increasing gap between CPU speed and disk access speed. My thesis has the following four contributions: (1) I proposed strategies to select appropriate compression methods; (2) I developed compression-aware query optimization algorithms that choose optimal query execution strategies for queries on compressed data; (3) I proposed a general automatic physical database design approach that designs algorithms for a particular physical design problem based on investigation of the shape of the search space of the problem; (4) I applied this approach to solve the problem of selecting what attributes to compress in compressed database systems given a query workload.

Research Intern, AT&T Laboratories — Aug 1999 - Sep 2000
Mentor: Dr. Flip Korn and Dr. Nick Koudas

I proposed techniques that use succinct summary structures to give quick and accurate estimation of the result size of queries on string or hierarchical data (e.g., XML) that is abundant in E-Commerce applications.

Research Intern, IBM T.J. Watson Research Center May 1998 - Aug 1998
Mentor: Dr. Murray Campbell.

I worked on mining long sequence patterns.

Teaching Experience

Teaching Assistant, Cornell University Aug 1997 - Dec 1997
Designed and set up assignments and projects, held office hours, and graded projects for a senior level introductory class on database systems (CS432).

Teaching Assistant, Fudan University Aug 1997 - Dec 1997
Graded homework and held discussion sessions for a Calculus class.

Referred Conference Papers

Zhiyuan Chen, Johannes Gehrke, and Flip Korn. Query optimization in compressed database systems. In *Proc. of ACM SIGMOD International Conference on Management of Data (SIGMOD'2001)*, 2001. (Acceptance rate: 15%.)

Zhiyuan Chen, H.V. Jagadish, Flip Korn, Nick Koudas, S. Muthukrishnan, Raymond Ng, and Divesh Srivastava. Counting twig matches in a tree. In *Proc. of the 17th International Conference on Data Engineering (ICDE'2001)*, 2001. (Acceptance rate: 17%.)

Zhiyuan Chen, Flip Korn, Nick Koudas, and S. Muthukrishnan. Selectivity estimation for Boolean queries. In *Proc. of the 19th ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS'2000)*, pages 216–225, 2000. Also invited to the *Journal of Computer and System Sciences (JCSS)*. (Acceptance rate: 22%.)

Zhiyuan Chen and Praveen Seshadri. An algebraic compression framework for query results. In *Proc. of the 16th International Conference on Data Engineering (ICDE'2000)*, 2000. Preliminary version: Zhiyuan Chen and Praveen Seshadri. A compression framework for query results. *Computer Science Dept, Cornell University, Technical Report TR98-1720, Sep 1998.* (Acceptance rate: 14%.)

Philippe Bonnet, Kyle Buza, Zhiyuan Chen, Victor Cheng, Randolph Chung, Takako M. Hickey, Ryan Kennedy, Daniel Mahashin, Tobias Mayr, Ivan Oprencak, Praveen Seshadri, and Hubert Siu. The cornell jaguar system: Adding mobility to predator. In *Proc. of ACM SIGMOD International Conference on Management of Data (SIGMOD'1999)*, pages 580–581, 1999.

Patents

Zhiyuan Chen, Flip Korn, Nick Koudas, and S. Muthukrishnan: "Multi-dimensional Substring Selectivity Estimation". US patent pending.

Zhiyuan Chen, Flip Korn, Nick Koudas, S. Muthukrishnan: "Method and Apparatus for Estimating the Selectivity of Boolean Queries". US patent pending.

Zhiyuan Chen, H.V. Jagadish, Flip Korn, Nick Koudas, S., Muthukrishnan, Raymond Ng, and Divesh Srivastava: "Counting Twig Matches in a Tree". US patent pending.

Professional Activity

Reviewer for submissions to SIGMOD'2001, the Journal of Computer and System Sciences (JCSS), and the Journal Informatica.

Visa Status

Citizen of China, currently on F1 visa.

References

References are available upon request from:

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