

Jin Li

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Research Interest

I am interested in large-scale stream processing such as clickstream monitoring and stock-ticker monitoring. More broadly, I am interested in designing and building next-generation, data-intensive systems.

Education

Ph.D. candidate in Computer Science and Engineering, Portland State University, Oregon 01/2005 – present

Advisor: Prof. David Maier

Thesis: Windowed Queries over Data Streams

Expected graduation date: Summer 2008

Ph.D. student in Computer Science and Engineering, Oregon Graduate Institute, Oregon 09/2002 – 12/2004

Advisor: Prof. David Maier

M.S. in Computer Science and Engineering, Shanghai Jiaotong University, Shanghai, China 09/1997 – 03/2000

Thesis: Chinese Information Retrieval

B.S. in Computer Science and Engineering, Xi'an Institute of Technology, Xi'an, China 09/1993 – 07/1997

Experience

Portland State University, Portland, OR (and previously at Oregon Graduate Institute, Beaverton, OR)

Research Assistant, 09/2002 – present

NiagaraST: one of the very first research data stream systems. It is extended from the Niagara Internet Query system developed at University of Wisconsin-Madison. My main contributions:

- Defined explicit semantics for windowed operators over streams, such as window aggregation and window join; designed and implemented these operators.
- Proposed a new, more scalable and often more efficient architecture for stream-processing systems, OOP (Out-of-Order Processing), and implemented it in NiagaraST. My experiments in NiagaraST show significant performance improvements of OOP over the existing architecture, IOP (In-Order Processing), in terms of memory usage and latency.

Latte: a project on stream+archive processing, extended from NiagaraST. (Stream processing may require integrating or comparing streaming data with relevant archived historical data in real-time.) My contributions:

- Developed the core part of Latte, and presented a demo based on Latte in SIGMOD 2007, Beijing.

AT&T Shannon Research Lab, Florham Park, NJ

Summer Intern, 07/2007 – 09/2007

Extended Gigascope to support OOP and experimentally compared OOP to IOP. The experimental result shows the performance benefits of OOP, in terms of memory and throughput.

National Instruments Shanghai R&D, Shanghai, China

Software Engineer, 04/2000 – 08/2002

I worked on building LabVIEW toolkits, including implementation, debugging and performance tests.

Selected Publications

- [1] Jin Li, Kristin Tufte, Vladislav Shkapenyuk, Vassilis Papadimos, Theodore Johnson, David Maier. Out-of-Order Processing: A New Architecture for High-Performance Stream Systems. *Technical Report*. Computer Science Department, Portland State University, November, 2007.
- [2] Jin Li, David Maier, Kristin Tufte, Vassilis Papadimos, and Peter A. Tucker. Semantics and Evaluation Techniques for Window Aggregates in Data Streams. In *Proc. of the 24th ACM International Conference on Management of Data (SIGMOD)*, June 2005.
- [3] Jin Li, David Maier, Kristin Tufte, Vassilis Papadimos, and Peter A. Tucker. No Pane, No Gain: Efficient Evaluation of Sliding-Window Aggregates over Data Streams. In *SIGMOD Record*, 34(1), March 2005.
- [4] David Maier, Jin Li, Peter Tucker, Kristin Tufte, and Vassilis Papadimos. Semantics of Data Streams and Operators. In *Proc. of the 10th of International Conference on Database Theory*, January, 2005.
- [5] Kristin Tufte, Jin Li, David Maier, Vassilis Papadimos, Robert Bertini. Travel Time Estimation Using NiagaraST and Latte. In *the 26th ACM SIGMOD International Conference on Management of Data (Demo)*, June, 2007.

Professional Activities

VLDB Journal Reviewer 2005
ICDE 2007 External Reviewer
Student Member of ACM SIGMOD

References

Professor David Maier

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