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RESEARCH INTERESTS

Distributed systems with constrained resources; sensor networks; distributed, heterogeneous database systems; distributed query optimization with expensive predicates. Tentative thesis topic: *Distributed Query Processing for Sensor Data Integration*.

RESEARCH EXPERIENCE

Research Assistant September 2005 – present
University of Pennsylvania, Philadelphia, PA
Computer and Information Science Department

Involved in the ASPEN research project at the Database group:

- Routing and distributed joins and data integration in sensory networks
- Developed efficient network communication and power management algorithms and distributed query optimizer for joins in sensor networks.
- Implemented above algorithms on Imote2 and Mica-Z wireless devices and integrated with a federated query optimizer.
- Distributed optimization of recursive queries with expensive predicates.

Research Intern Summer 2005
NEC Laboratories, Princeton, NJ

- Involved in design of a scalable high-throughput publish-subscribe system.
- Performed cache-profiling and testing of the system against expected workloads.

Research Assistant 2003 – 2005
Polytechnic University (presently NYU Poly), New York, NY

- Developed algorithms for remote file synchronization.
- Implemented network communication-efficient file synchronization server.

SELECTED PUBLICATIONS

Dynamic Join Optimization in Multi-Hop Sensor Networks
with Marie Jacob, Zachary Ives and Sudipto Guha, *to appear*, VLDB, 2010

SmartCIS: Integrating Digital and Physical Environments
with Mengmeng Liu, Zhuowei Bao, Marie Jacob, Rahul Iyer, Easwaran Subbaraman, Zachary Ives, Boon Thau Loo and Sudipto Guha, SIGMOD demo, 2009

A Substrate for In-network Data Integration
with Marie Jacob, Zachary Ives and Sudipto Guha, VLDB Workshop on Data Management for Sensor Networks, 2008

Efficient Query Subscription Processing for Prospective Search Engines
with Utku Irmak, Torsten Suel, Samrat Ganguly and Rauf Izmailov, USENIX, 2006

Improved Single-Round Protocols for Remote File Synchronization
with Torsten Suel and Utku Irmak, IEEE Infocom, 2005

EDUCATION *Ph.D. candidate*, Computer Science September 2005 – present
University of Pennsylvania, Philadelphia, PA
Database Group, Computer and Information Science Department
Advisors: Zachary Ives, Sudipto Guha.
Major GPA: 3.9/4.0; Overall GPA: 3.9/4.0
Anticipated graduation: June 2011.

Bachelor of Science, Computer Science 2001 – 2005
Polytechnic University, New York, NY
Department of Computer Science.
Major GPA: 3.9/4.0; Overall GPA: 3.9/4.0 (summa cum laude)

AWARDS **June 2009**: SIGMOD 2009 demonstration competition – honorable mention for the demonstration **SmartCIS: Integrating Digital and Physical Environments**.
February 2005: University of Pennsylvania – research fellowship.
June 2004: Polytechnic University – outstanding academic achievement in computer science.
September 2001 - June 2005: Polytechnic University – dean’s list for all semesters.
March 2001: Polytechnic University – international scholarship award.

COURSEWORK • Implementation of Database Management Systems
• Networked Systems and Protocols
• Web Protocols and Web Search Engines
• Data Integration Algorithms
• Approximation Algorithms
• Scientific Computing

TEACHING EXPERIENCE *Teaching Assistant* Fall 2006
University of Pennsylvania, Database Systems
Instructor: Val Tannen

Teaching Assistant Spring 2007
University of Pennsylvania, Internet and Web Systems
Instructor: Zachary Ives

SKILLS C/C++, SQL, NesC, Python, MATLAB, PHP, Java.
Experienced with TinyOS, Oracle, MySQL, Red Hat Linux.