

Himanshu Gupta

Current Employment

- Assistant Professor, Department of Computer Science, State University of New York, Stony Brook, NY (since August, 2002).

Education

- **M.S. and Ph.D., Department of Computer Science, Stanford University, 1995-1999.**
Advisor: Prof. Jeffrey D. Ullman
Dissertation: Selection and Maintenance of Views in a Data Warehouse.
- M.S., Department of Computer and Information Science, Ohio State University, 1992-1994.
- B.Tech., Dept. of Computer Science and Engineering, Indian Institute of Technology, Bombay, 1992.

Past Appointments

- Visiting Assistant Professor, Dept. of Computer Science, Univ. of Chicago. (09/01- 08/02).
- Senior Member of Technical Staff, Ezode Inc. (2/01 to 9/01).
 - Led development of an XML database query engine with appropriate optimization techniques.
- Senior Engineer, Escalate Inc. (9/99 to 2/01).
 - Involved in development of large scale web-based database applications.

Conference Publications

1. Z. Zhou, H. Gupta, S. Das, X. Zhu. Slotted Scheduled Tag Access in Multi-Reader RFID Systems. *IEEE International Conference on Network Protocols (ICNP)*, 2007.
2. A. Prabhu, H. Gupta, S. Das, M. Buddikot. Spectrum Allocation in Dynamic Spectrum Access Based Networks. *IEEE International Conference on Dynamic Spectrum (DySpan)*, 2007.
3. S. Jain, S. Das, H. Gupta. Distributed Protocols for Scheduling and Rate Control to achieve Max-Min Fairness in Wireless Mesh Networks. *IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)*, 2007.
4. A. Prabhu, H. Gupta, S. Das. Minimum-Interference Channel Assignment in Multi-Radio Wireless Mesh Networks. *IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON)*, 2007.
5. X. Zhu and H. Gupta. Fault-Tolerant Routing to Mobile Destinations in Sensor Networks. *IEEE International Conference on Communications (ICC)*, 2007.
6. B. Tang, H. Gupta, and S. Das. Benefit-based Data Caching in Ad Hoc Networks. *IEEE International Conference on Network Protocols (ICNP)*, 2006.
7. R. Maheshwari, H. Gupta, S. Das. MAC Protocol for Multiple Channels. *IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON)*, 2006.
8. B. Tang and H. Gupta. Data Caching with Number Constraint. *IEEE International Conference on Communications (ICC)*, 2006.
9. U. Kumar, H. Gupta, S. Das. A Topology Control Approach to Using Directional Antennas in Wireless Mesh Networks. *IEEE International Conference on Communications (ICC)*, 2006.

10. A. Pandit and H. Gupta. Communication-Efficient Implementation of Range-Joins in Sensor Networks. *International Conference on Database Systems for Advanced Applications (DASFAA)*, 2006.
11. H. Gupta, V. Navda, S. Das, V. Chowdhary. Energy-Efficient Gathering of Correlated Data in Sensor Networks. *ACM Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, 2005.
12. B. Tang, S. Das, H. Gupta. Cache Placement in Sensor Networks Under Update Cost Constraint. *International Conference on Ad-Hoc Networks and Wireless (AdHoc-Now)*, 2005.
13. Z. Zhou, S. Das, H. Gupta. Fault Tolerant Connected Sensor Cover with Variable Sensing and Transmission. *IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON)*, 2005.
14. V. Chowdhary, H. Gupta. Communication-Efficient Implementation of Join Operation in Sensor Networks. *International Conference on Database Systems for Advanced Applications (DASFAA)*, 2005.
15. X. Zhu, B. Tang, H. Gupta. Delay Efficient Data Gathering in Sensor Networks. *International Conference on Mobile Ad-Hoc and Sensor Networks (MSN)*, 2005.
16. Z. Zhou, S. Das, H. Gupta. Variable Radii Connected Sensor Cover in Sensor Networks. *IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON)*, 2004.
17. Z. Zhou, S. Das, H. Gupta. Connected K-Coverage Problem in Sensor Networks. *International Conference on Computer Communications and Networks (ICCCN)*, 2004.
18. H. Gupta, S. Das, Q. Gu. Connected Sensor Cover: Self-Organization of Sensor Networks for Efficient Query Execution. *ACM Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, 2003. [Over **151 citations**].
19. H. Gupta and I.S. Mumick. Selection of Views to Materialize Under a Maintenance-Time Constraint. *International Conference on Database Theory (ICDT)*, 1999. [Over **172 citations**].
20. H. Gupta and D. Srivastava. Data Warehouse of Newsgroups. *International Conference on Database Theory (ICDT)*, 1999.
21. H. Gupta. Selection of Views to Materialize in a Data Warehouse. *International Conference on Database Theory (ICDT)*, 1997. [Over **372 citations**].
22. H. Gupta and R. Wenger. Constructing Pairwise Disjoint Link Paths with Few Links. *Workshop on Algorithms and Data Structures (WADS)*, 1997.
23. H. Gupta, V. Harinarayan, A. Rajaraman, and J. Ullman. Index Selection for OLAP. *International Conference on Data Engineering (ICDE)*, 1997. [Over **341 citations**].
24. H. Gupta and P. Sadayappan. Communication-Efficient Matrix Multiplication on Hypercubes. *ACM Symposium on Parallel Algorithms and Architectures (SPAA)*, 1994.

Journal Publications

1. A. Prabhu, H. Gupta, S. Das. Minimum-Interference Channel Assignment in Multi-Radio Wireless Mesh Networks. To appear in *IEEE Transactions on Mobile Computing* (subject to major revision).
2. Z. Zhou, S. Das, H. Gupta. Variable Radii Connected Sensor Cover in Sensor Networks. To appear in *ACM Transactions on Sensor Networks* (subject to minor revision).
3. B. Tang, H. Gupta, and S. Das. Benefit-based Data Caching in Ad Hoc Networks. *IEEE Transactions on Mobile Computing*, 7 (3), 2008.
4. H. Gupta, V. Navda, S. Das, V. Chowdhary. Energy-Efficient Gathering of Correlated Data in Sensor Networks. *ACM Transactions on Sensor Networks*, 4(1), 2008.

5. H. Gupta and R. Wenger. Constructing Pairwise Disjoint Link Paths with Few Links. *ACM Transactions on Algorithms*, 3(3), 2007.
 6. V. Chowdhary, H. Gupta. Communication-Efficient Implementation of Join Operation in Sensor Networks. Elsevier's *Ad Hoc Networks*, 5(6), 2007.
 7. B. Tang, S. Das, H. Gupta. Cache Placement in Sensor Networks Under Update Cost Constraint. *Journal of Discrete Algorithms*, 5(3), 2007.
 8. H. Gupta, S. Das, Q. Gu, Z. Zhou. Connected Sensor Cover: Self-Organization of Sensor Networks for Efficient Query Execution. *ACM/IEEE Transactions on Networking (TON)*, 14(1), 2006.
 9. H. Gupta and I.S. Mumick. Incremental Maintenance of Aggregate and Outerjoin Expressions. In *Information Systems*, 31(6), 2006.
 10. H. Gupta, I. Mumick. Selection of Views to Materialize in a Data Warehouse. *IEEE Transactions of Knowledge and Data Engineering (TKDE)*, 17(1), 2004.
 11. H. Gupta and R. Wenger. Constructing Piecewise Linear Homeomorphisms in Simple Polygons. *Journal of Algorithms*, 22(1), 1997.
 12. H. Gupta and P. Sadayappan. Communication-Efficient Matrix Multiplication on Hypercubes. *Parallel Computing*, 22(1), 1996.
- B. Tang and H. Gupta. Data Caching in Networks with Reading, Writing, and Storage Costs. Under review.
 - Z. Zhou, H. Gupta, S. Das, X. Zhu. Slotted Scheduled Tag Access in Multi-Reader RFID Systems. Under submission.

Other Notable Publication

- J.L. Wiener, H. Gupta, W. Labio, Y. Zhuge, H. Garcia-Molina, J. Widom. A System Prototype for Warehouse View Maintenance. *ACM Workshop on Materialized Views: Techniques and Applications*, 1996. [Over **92 citations**].

NSF Awards

1. III-COR: Deductive Framework for Programming Sensor Networks. (**PI: Gupta**, Co-PIs: S. Das, D. Warren). \$450k. Personal share of money: 90%.
2. NOSS: Declarative Framework for Learning and Evaluating Probabilistic Models of Events in Sensor Networks (**PI: Gupta**; Co-PIs: S. Das, C Ramakrishnan, IV Ramakrishnan, D. Warren). \$350k. Personal share of money: 50%.
3. NOSS: Airborne Video Sensor Networks for Surveillance and Emergency Response (**PI: Gupta**; Co-PIs: G. Nejat, D. Samaras, C. Ramakrishnan). \$500k. Personal share of money: 40%.

Graduated Students

- Bin Tang (**Ph.D.**, Assistant Professor., Wichita State University)
- Zongheng Zhou (**Ph.D.**, Ask.com; co-advised with S. Das)
- Vishal Chowdhary (M.S., Microsoft)
- Aditi Pandit (M.S., Informatica)
- Umesh Kumar (M.S., Amazon)
- Pramod Addidam (M.S., Google)

Current Ph.D. Students

- Xianjin Zhu (expected graduation 2008), Anand Prabhu (co-advised with S. Das), Mahmoud Al-ayyoub, Xiang Xu, Shang Yang, Navid Azimi.

Courses Taught

- Analysis of Algorithms (undergraduate)
- Principles of Databases (undergraduate)
- Theory of Database Systems (graduate)
- Advanced Database Systems (graduate)
- Topics in Ad Hoc and Sensor Networks (graduate)
- Seminar on Wireless Ad Hoc Networks (graduate)

University Service

- Chair, Committee for Building Renovations and Quality of Life
- Organizer of CS Distinguished Lecturer Series
- Member, Committee for CS Graduate Admissions
- Member, Committee for Ph.D. Qualifiers
- Member, Web Committee
- Faculty Advisor to SUNY ACM Chapter and UPE Society

Professional Service

- **Program Committee Member:** International Conference on Parallel Processing (ICPP) 2008, IEEE International Workshop on Sensor Networks Technologies for Information Explosion Era (SeNTIE) 2008, International Workshop on Data Intensive Sensor Networks (DISN) 2007, IEEE Globecom 2007, IEEE Vehicular Technology Conference 2006, ACM Conference on Information and Knowledge Management (CIKM) 2006, International VLDB Workshop on Data Management for Sensor Networks (DMSN) 2006, Mobiquitous 2006, MHNET 2006, CIKM 2004, CIKM 2003, Design and Management of Data Warehouses (DMDW) 2003, DMDW 2002.
- I have reviewed papers for many top journals and conferences over the years.
- Judge, Davidson Fellows Scholarship (for high school students)
- Contributing Author to *Encyclopedia of Database Systems*