

# Curriculum Vitae

As of March 8, 2007

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## RESEARCH INTERESTS

General research areas are networks and distributed systems. Research interests include network protocols and algorithms, modeling and performance evaluation, wireless ad hoc and sensor networks, and multimedia networking.

## EDUCATION

- Ph.D. in Computer Science, 2003, Boston University, Boston, Massachusetts. Dissertation title: “Scalability of multicast-based Internet streaming delivery techniques”. Advisor: Azer Bestavros.
- M.S. in Computer Science, 1994, Huazhong University of Science and Technology, China.
- B.S. in Computer Science, 1991, Huazhong University of Science and Technology, China.

## PROFESSIONAL DEVELOPMENT

- 02/2004– Present, Assistant Professor, Department of EECS, Case Western Reserve University
- 05/2003–12/2003, Postdoc Researcher, Computer Science Department, Boston University
- 05/1999–05/2003, Research Fellow, Computer Science Department, Boston University
- 05/2001–08/2001, Summer Research Intern, IBM T.J. Watson Research Center, Yorktown, NY
- 05/2000–08/2000, Summer Research Intern, IBM T.J. Watson Research Center, Yorktown, NY
- 08/1998–05/2000, Teaching Fellow, Computer Science Department, Boston University
- 06/1998–08/1998, Visiting Graduate Student, Laboratory for Computer Science, Massachusetts Institute of Technology
- 07/1994–05/1998, Research Associate, Database and Multimedia Laboratory, Huazhong University of Science and Technology, China

## HONORS AND AWARDS

- Best paper candidate, ACM Symposium on Modeling Analysis and Simulation of Wireless and Mobile Systems (MSWiM), 2005
- Research Excellence Award, Computer Science Department, Boston University, 2003
- IBM Ph.D. Research Fellowship, 2001–2002
- IBM First Patent Application Achievement, 2001

- ACM SIGMETRICS student travel award, 2000
- Research Fellowship, Boston University, 1999–2003
- Teaching Fellowship, Boston University, 1998–2000
- Numerous awards while attending college and graduate school in China; participated and awarded for both Chinese high school mathematics competition and physics competition; ranked among the top 0.05% in Chinese national college entrance exam.

## PUBLICATIONS

### Journal Papers

1. S. Jin and H. Jiang. Novel approaches to efficient flooding search in peer-to-peer networks. *Computer Networks* (Elsevier), accepted for publication, 2007.
2. H. Jiang and S. Jin. Design and analysis of adaptive strategies for locating Internet-based servers in MANETs. *Performance Evaluation* (Elsevier), Vol. 64(5): 464–479, June 2007.
3. S. Jin and A. Bestavros. Small-world Internet topology and multicast scaling. *Computer Networks* (Elsevier), Vol. 50(5): 648–666, April 2006.
4. E. Veloso, V. Almeida, W. Meira, A. Bestavros, and S. Jin. A hierarchical characterization of a live streaming media workload. *IEEE/ACM Transactions on Networking*, Vol. 14(1): 133–146, February 2006.
5. S. Jin, A. Bestavros, and A. Iyengar. Network-aware partial caching for Internet streaming media. *ACM/Springer Multimedia Systems Journal*, 9(4): 386–396, 2003.
6. S. Jin, L. Guo, I. Matta, and A. Bestavros. A spectrum of TCP-friendly window-based congestion control algorithms. *IEEE/ACM Transactions on Networking*, 11(3): 341–355, 2003.
7. A. Iyengar, S. Jin, and J. Challenger. Techniques for efficiently allocating persistent storage. *Journal of Systems and Software* (Elsevier), 68(2): 85–102, 2003.
8. S. Jin and A. Bestavros. GreedyDual\* Web caching algorithm: exploiting the two sources of temporal locality in Web request streams. *Computer Communication* (Elsevier), 24(2): 174–183, 2001.

### Peer-Reviewed Magazine Papers

9. S. Jin and A. Bestavros. GISMO: A generator of Internet streaming media objects and workloads. *ACM SIGMETRICS Performance Evaluation Review*, 29(3): 2–10, 2001.

### Book Chapters

10. S. Jin and A. Bestavros. Generating Internet streaming media access workloads. Invited book chapter in *Recent Advances on Web Content Delivery*, S. Chanson, X. Tang, J. Xu ed., Springer/Kluwer Academic Publishers, ISBN: 0-387-24356-9 (HB), 2005.

### Referred Conference Papers (with acceptance rates)

11. H. Jiang and S. Jin. Scalable and robust aggregation techniques for extracting statistical information in sensor networks. In *Proceedings of IEEE International Conference on Distributed Computing Systems (ICDCS)*, July 2006, Lisboa, Portugal. Acceptance rate = 13.9%.
12. H. Jiang and S. Jin. Exploiting dynamic querying like flooding techniques for unstructured peer-to-peer networks. In *Proceedings of IEEE International Conference on Network Protocols (ICNP)*, November 2005, Boston, Massachusetts. Acceptance rate = 16.9%.

13. H. Jiang and S. Jin. Adaptive strategies for efficiently locating Internet-based servers in MANETs. In Proceedings of IEEE/ACM Symposium on Modeling Analysis and Simulation of Wireless and Mobile Systems (MSWiM), October 2005, Montreal, Quebec, Canada. Acceptance rate = 21.8%, best paper candidate.
14. Shudong Jin and L. Wang. Content and service replication in multi-hop wireless mesh networks. In Proceedings of IEEE/ACM Symposium on Modeling Analysis and Simulation of Wireless and Mobile Systems (MSWiM), October 2005, Montreal, Quebec, Canada. Acceptance rate = 21.8%.
15. S. Jin . Replication of partitioned media streams in wireless ad hoc networks. In Proceedings of ACM International Conference on Multimedia, October 2004, New York, NY.
16. S. Jin and A. Bestavros. Characteristics of small-world Internet topologies and implications on multicast scaling. In Proceedings of IEEE/ACM International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS), October 2003, Orlando, FL.
17. E. Veloso, V. Almeida, W. Meira, A. Bestavros, and S. Jin. A hierarchical characterization of a live streaming media workload. In Proceedings of ACM SIGCOMM Internet Measurement Conference (IMC), November 2002, Marseille, France. Full paper acceptance rate = 24.6% .
18. S. Jin and A. Bestavros. Scalability of multicast delivery for non-sequential streaming access. In Proceedings of ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS), June 2002, Marina del Rey, California. Acceptance rate: 13.5%.
19. S. Jin, A. Bestavros, and A. Iyengar. Accelerating Internet streaming media delivery using network-aware partial caching. In Proceedings of IEEE International Conference on Distributed Computing Systems (ICDCS), July 2002, Vienna, Austria. Acceptance rate: 18.1%.
20. S. Jin, L. Guo, I. Matta, and A. Bestavros. TCP-friendly SIMD congestion control and its convergence behavior. In Proceedings of IEEE International Conference on Network Protocols (ICNP), November 2001, Riverside, California. Acceptance rate: 22.9%.
21. A. Iyengar, S. Jin, and J. Challenger. Efficient algorithms for persistent storage allocation. In Proceedings of IEEE Symposium on Mass Storage Systems (MSS), April 2001, San Diego, California.
22. S. Jin and A. Bestavros. Temporal locality in Web request streams: sources, characteristics, and caching implications (an extended abstract). In Proceedings of ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS) poster session, June 2000, Santa Clara, California. Acceptance rate (both full and short papers): 23.6%.
23. S. Jin and A. Bestavros. Sources and characteristics of Web temporal locality. In Proceedings of IEEE/ACM International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS), August 2000, San Francisco, California.
24. S. Jin and A. Bestavros. Popularity-aware GreedyDual-Size Web proxy caching algorithms. In Proceedings of IEEE International Conference on Distributed Computing Systems (ICDCS), April 2000, Taipei, Taiwan.

### **Referred Workshop Papers**

25. M. Allman, S. Jin, D. Liu, and L. Wang. Congestion control without a startup phase. In Proceedings of International Workshop on Protocols for FAST Long-Distance Networks (PFLDnet), February 2007, Marina Del Rey, California.
26. S. Jin and D. Liu. Decoupling end-to-end efficiency and fairness control in high bandwidth-delay product networks. To appear in Proceedings of International Workshop on Protocols for FAST Long-Distance Networks (PFLDnet), February 2007, Marina Del Rey, California.
27. H. Jiang and S. Jin. NSYNC: Network synchronization for peer-to-peer streaming overlay construction. In Proceedings of ACM Workshop on Network and Operating System Support for Digital Audio and Audio (NOSS-DAV), May 2006, Newport, Rhode Island.

28. S. Jin and A. Bestavros. Cache-and-relay streaming media delivery for asynchronous clients. In Proceedings of International Workshop on Networked Group Communication (NGC), October 2002, Boston, Massachusetts.
29. S. Jin and A. Bestavros. GreedyDual\* Web caching algorithm: exploiting the two sources of temporal locality in Web request streams. In Proceedings of Web Caching Workshop (WCW), May 2000, Lisbon, Portugal.

### **Invited Papers**

30. A. Bestavros and S. Jin. OSMOSIS: Scalable delivery of real-time streaming media in ad-hoc overlay networks. In Proceedings of IEEE International Conference on Distributed Computing Systems (ICDCS) Workshops, April 2003, Providence, Rhode Island.

### **Papers Under Review**

31. S. Jin. Optimal replacement policies for cooperative storage systems and impact of selfish behavior: inferences from a capacity allocation problem.
32. H. Jiang, Z. Ge, and S. Jin. Understanding and exploiting traffic behavior at network-level.
33. H. Jiang, A. Moore, Z. Ge, and S. Jin. Exploration into traffic classification using NetFlow records.

## **PATENTS**

- US Patent PAT. NO 6851034: System and method for persistent and robust storage allocation. February 1, 2005, with IBM Research.

## **SELECTED SYSTEM IMPLEMENTATIONS**

- GISMO toolset: Generating Internet Streaming Media Objects and workloads. <http://csr.bu.edu/gismo>
- A persistent storage management system for high-volume Web servers and proxies, with IBM T.J. Watson Research Center.
- A content delivery simulation system that integrates various network models and traffic models, and implements many techniques (caching, streaming, multicast, and overlay construction).

## **PROFESSIONAL AFFILIATIONS**

- Member of ACM: Association for Computing Machinery.
- Member of ACM SIGCOMM (Special Interest Group in Data Communication)
- Member of ACM SIGMETRICS (Special Interest Group in Measurement and Evaluation)
- Member of IEEE Computer Society
- Member of IEEE Communication Society

## **PROFESSIONAL SERVICES**

- Program Committee member, IEEE International Conference on Network Protocols (ICNP), 2007.
- Program Committee member, IEEE International Conference on Computer Communications and Networks (ICCCN), 2007.
- Program Committee member, IEEE International IEEE/Create-Net Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities (TridentCom), 2007.

- Program Committee member, IEEE International Conference on Network Protocols (ICNP), 2006.
- Session chair, IEEE International Conference on Network Protocols (ICNP), 2006.
- Program Committee member, IEEE International Conference on Computer Communications and Networks (ICCCN), 2006.
- Program Committee member, IEEE International Workshop on Multimedia Systems and Networking (WMSN), 2006.
- Program Committee member, IEEE International Conference on Network Protocols (ICNP), 2005.
- Poster Committee member, IEEE International Conference on Network Protocols (ICNP), 2005.
- Session chair, IEEE International Conference on Network Protocols (ICNP), 2005.
- External reviewers for numerous conferences and journals. A partial list: IEEE INFOCOM, ACM SIGMETRICS, ACM NOSSDAV, Web Caching Workshop, IEEE WIAPP, IEEE/ACM MASCOTS, IEEE Globecom, IEEE Global Internet Symposium, IEEE/ACM Transactions on Networking, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Multimedia, ACM Transactions on Internet Technology, Computer Networks (Elsevier).

## RESEARCH COLLABORATORS

Mark Allman (ICSI Center for Internet Research), Virgilio Almeida (UFMG, Brazil), Azer Bestavros (Ph.D. thesis advisor, Boston University), Jim Challenger (IBM Research), Zihui Ge (AT&T Research), Liang Guo (Motorola), Arun Iyengar (IBM Research), Hongbo Jiang (Case Western Reserve University), Vincenzo Liberatore (Case Western Reserve University), Dan Liu (Case Western Reserver University), Ibrahim Matta (Boston University), Wagner Meira (UFMG, Brazil), Andrew W. Moore (University of Cambridge, UK), Michael (Misha) Rabinovich (Case Western Reserve University), Eveline Veloso (UFMG, Brazil), Jia Wang (AT&T Research), Limin Wang (Bell Labs)

## TEACHING ACTIVITIES

- Spring 2007: EECS 233—Introduction to Data Structures, Case Western Reserve University
- Fall 2006: EECS 428—Advanced Computer Networks, Case Western Reserve University
- Fall 2006: EECS 338—Introduction to Operating Systems, Case Western Reserve University
- Spring 2006: EECS 338—Introduction to Operating Systems, Case Western Reserve University
- Fall 2005: EECS 325/425—Computer Communication Network, Case Western Reserve University
- Spring 2005: EECS 600—Special Topics on Computer Networks, Case Western Reserve University
- Fall 2004: EECS 325/425—Computer Communication Network, Case Western Reserve University
- Spring 2004: EECS 425—Computer Communication Network, Case Western Reserve University

## STUDENT ADVISING ACTIVITIES

### PhD Students

- Hongbo Jiang, 2004–2007. Hongbo Jiang is a PhD candidate working on peer-to-peer networks, wireless ad hoc and sensor networks, Internet traffic measurement and characterization.
- En Cheng, 2006–2007. En Cheng is a PhD student working on wireless ad hoc networks, in particular, network protocols such as TCP/IP in such networks.

### **Master's Students**

- Nikitha Kondapally, 2005-2007. Nikitha Kondapally is a Master's student working on traffic monitoring and active queue management schemes.
- Dan Liu, 2004–2007. Dan Liu is a Master's student working on protocol design (TCP) for high-speed networks.
- Brian Lauber (co-advised with Rabinovich), 2006–2007. Brian Lauber is a BS/MS student working on flexible configurable-metric routing protocols for mobile ad hoc networks.

### **Undergraduate Senior Projects**

- Daniel Rischer, Alex Maskovyak, and Michael Konecny (co-advised with Rabinovich), Spring 2006. The senior project focused on energy-aware routing protocols in mobile ad hoc networks.

### **Graduate Thesis Committees**

- Dan Liu, Master thesis defense, 2007
- Nikitha Kondapally, Master thesis defense, 2007
- Zhihao Guo, PhD dissertation, 2007
- Abhijit Jejurkar, Master project defense, 2007
- Wenhui Zhang, PhD dissertation, 2006
- Hussein Alzoubi, Master thesis defense, 2006
- Adam Troy, PhD dissertation proposal, 2006
- Qingbo Cai, PhD dissertation proposal, 2006
- John Kotwicki, Master thesis defense, 2005
- Ivan Thomas, Master thesis defense, 2005
- Brian Barrit, Master thesis defense, 2005
- Brian Robinson, Master thesis defense, 2004

### **PhD Qualifying Exams**

- Operating Systems session exams in Spring 2006 and Fall 2006

## **SCHOOL AND DEPARTMENT COMMITTEE SERVICES**

- Case School of Engineering (CSE) Graduate Study Committee, 2005–2007
- CS Graduate Study Committee, EECS Department, 2004–2007
- CS undergraduate student advisor, 2004–2007
- University Undergraduate Faculty (UUF) Committee on Academic Computing and Information Resources, 2005–2006