

YONGQIANG (JOHN) HUANG

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INTERESTS:

Distributed systems, databases and information systems, and operating systems.

EDUCATION:

1997 - present **Stanford University**, Stanford, CA. Ph.D. in Computer Science, expected summer 2003.
Advisor: Professor Hector Garcia-Molina.

1992 - 1996 **Stanford University**, Stanford, CA. M.S. and B.S. (with distinction) in Computer Science,
June 1996.

DISSERTATION:

"Enhanced Publish/Subscribe Systems." This thesis identifies several limitations with traditional publish/subscribe systems, and proposes enhancements along three dimensions. First, we extend system architectures to include replication and partitioning. Replication and workload partitioning increase system robustness and scalability, but introduce consistency and load balancing issues which are addressed in the thesis. Second, we introduce a systematic way to allocate and maintain state information in publish/subscribe servers, in order to efficiently handle a large class of stateful subscriptions. Finally, we extend the publish/subscribe scheme to mobile and wireless ad-hoc operating environments.

RESEARCH AND WORK EXPERIENCE:

5/99 – present **Research Assistant**, Database Group, Computer Science Department, Stanford University. Conduct research in distributed information delivery and monitoring systems, in particular publish/subscribe systems. Study consistency and performance issues in new system architectures. Design enhanced publish/subscribe protocols to operate in mobile and wireless ad-hoc environments, or to provide strong delivery guarantees. Improve upon existing language and algorithms to allow more expressive subscriptions. Prove the correctness of new algorithms or validate them through detailed simulation.

6/00 – 11/01 **Member of Technical Staff**, Radik Software Inc., San Mateo, CA. Designed and created Kidmin, a web application that provides a uniform interface to graphically administer, maintain, and query different vendors' RDBMS products. Participated in the development of the Kidar open source RDBMS and the Radik Model Repository Manager.

5/99 – 6/01 **Research Assistant**, Digital Libraries Project, Computer Science Department, Stanford University. Developed, maintained, and provided support for DietORB, a public-domain lightweight CORBA ORB for the PalmOS platform.

9/97 – 5/99 **Research Assistant**, Operating Systems Group, Computer Science Department, Stanford University. Participated in the design and implementation of the Cellular Disco prototype, a virtual machine based scalable fault containing kernel for large-scale multiprocessor systems. Ported the SGI IRIX kernel and boot prom for the Stanford FLASH multiprocessor.

10/96 – 9/97 **Software Design Engineer**, General Systems Solutions Lab, Enterprise Systems Division, Hewlett-Packard Company, Cupertino, CA. Participated in the core ServiceGuard team responsible for the design, implementation, and testing of HP's High Availability software product. Investigated and designed HP's new software offering on remote data mirroring.

- 3/96 - 6/96 **Research Assistant**, HiveOS Team, Computer Science Department, Stanford University. Optimized RPC performance for the fault-contained Hive Operating System targeted at the massively parallel Stanford FLASH architecture project.
- 1/96 - 6/96 **Independent Service Provider**, I. Consulting Corporation, Menlo Park, CA. Participated in the full development cycle of a commercial software that automatically synchronizes client Web directories with remote servers.
- 1/96 - 6/96 **Consultant**, Terman Engineering Computer Cluster, Stanford University. Administered and provided consulting for the School of Engineering's public cluster of 20 HP workstations, 8 Sun Sparc workstations, 9 Power Macintoshes and 1 PC.
- 6/95 - 9/95 **Software Development Summer Intern**, Wolfram Research Inc., Champaign, IL. Designed and implemented the EZLink compiler that automates the linking of C numerical libraries into Mathematica. Ported the program to Unix, PC and Macintosh platforms. First intern in company history to independently produce a fully functional application tool.

TEACHING EXPERIENCE:

- 1/95 - 6/02 **Teaching Assistant**, Computer Science Department, Stanford University. Assisted instructors in teaching various courses. Led discussion sections, designed and graded assignments, and taught occasional lectures. Adapted a distributed transactional travel reservation system as a new term-long programming project for CS347 (Distributed Databases and Transaction Processing). Designed and programmed an automatic testing framework for grading.
- 10/93 - 6/96 **Tutor**, Center for Teaching and Learning and Tau Beta Pi Engineering Society, Stanford University. Tutored Stanford students in the areas of computer science, engineering, math, and natural sciences.

HONORS AND

- AWARDS:**
- Henry Ford II Award for Highest Academic Achievement in the School of Engineering, Stanford University.
 - President's Award for Academic Excellence, Stanford University.
 - F. E. Terman Award for Scholastic Achievement in Engineering, Stanford University.
 - School of Engineering Fellowship, Stanford University.
 - Member, Tau Beta Pi Engineering Society.
 - Member, Phi Beta Kappa Honors Society.

PUBLICATIONS:

Papers in journals

- Yongqiang Huang and Hector Garcia-Molina. Publish/Subscribe in a Mobile Environment. *ACM/Baltzer Wireless Networks Journal (WINET)*, to appear.
- Kinshuk Govil, Dan Teodosiu, Yongqiang Huang and Mendel Rosenblum. Cellular Disco: resource management using virtual clusters on shared-memory multiprocessors. *ACM Transactions on Computer Systems (TOCS)*, 18(3), August 2000.

Papers in conferences and workshops

- Yongqiang Huang and Hector Garcia-Molina. Publish/Subscribe Tree Construction in Wireless Ad-Hoc Networks. In *Proceedings of the 4th International Conference on Mobile Data Management (MDM)*, Melbourne, Australia, January 2003.
- Yongqiang Huang and Hector Garcia-Molina. Assignment-Based Partitioning in a Condition Monitoring System. In *Proceedings of the 16th International Symposium on*

Distributed Computing (DISC), Toulouse, France, October 2002. (Winner of the best student paper award.)

- Yongqiang Huang and Hector Garcia-Molina. Replicated Condition Monitoring. In *Proceedings of the 20th ACM Symposium on Principles of Distributed Computing (PODC)*, Newport, Rhode Island, August 2001.
- Yongqiang Huang and Hector Garcia-Molina. Publish/Subscribe in a Mobile Environment. In *Proceedings of the 2nd ACM International Workshop on Data Engineering for Wireless and Mobile Access (MobiDE)*, Santa Barbara, California, May 2001.
- Yongqiang Huang and Hector Garcia-Molina. Exactly-once Semantics in a Replicated Messaging System. In *Proceedings of the 17th International Conference on Data Engineering (ICDE)*, Heidelberg, Germany, April 2001.
- Kinshuk Govil, Dan Teodosiu, Yongqiang Huang and Mendel Rosenblum. Cellular Disco: resource management using virtual clusters on shared-memory multiprocessors. In *Proceedings of the 17th ACM Symposium on Operating System Principles (SOSP)*, Kiawah Island Resort, South Carolina, December 1999. (Winner of one of four best-in-conference paper awards.)

Papers in submission

- Yongqiang Huang and Hector Garcia-Molina. Parameterized Subscriptions in Publish/Subscribe Systems. *Technical Report*, Stanford University, 2003.

REFERENCES:

Professor Hector Garcia-Molina

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