

BRETT D. FLEISCH
National Science Foundation

Last Updated 8/24/06

EDUCATION

Ph.D., Computer Science, University of California, Los Angeles, 1989
M.S., Computer Science, Columbia University, 1983
B.A., Computer Science, University of Rochester, 1981

PROFESSIONAL EXPERIENCE

National Science Foundation (NSF) Program Director, Computer and Information Science and Engineering Computer and Network Systems Division Distributed Systems and Operating Systems	April 2004-present
University of California, Riverside Associate Professor of Computer Science ¹ Assistant Professor of Computer Science ² Taught CS 260/263, Seminar in Distributed Systems, Seminar on Internet and Web, CS12, Intro to Computer Science for CS202, Advanced OS, CS287 Colloquium in Computer Science, CS160, Concurrent & Parallel Systems, CS165 Computer Security, CS153 Operating Systems	July 1997-present 1992-1997
University of Illinois, Chicago Sabbatical Visitor, Computer Science Department	Jan-April 2003
Hewlett-Packard Laboratories Sabbatical Visitor, Operating Systems Research Department	April-June 1996
Tulane University Assistant Professor of Computer Science Taught CPSC 655, Graduate Operating Systems, CPSC 103, Introduction to Pascal, CPSC 695, Graduate Seminar, CPSC 720, Distributed Systems, CPSC 118, Data Structures, CPSC 101, Introduction to Computing via FORTRAN	1989 - 1992
University of California, Los Angeles Research Assistant Participant in Locus operating system research group; research in IPC paradigms and distributed shared memory Teaching Assistant: Introductory Operating System course	1984-89 1983-84
Locus Computing Corporation Systems Programmer Design and implementation of communication mechanisms; UNIX System V IPC	1984-85
IBM Thomas J. Watson Research Center Summer Student Design and implementation of host-to-host communication facility for VM/370 in the programming language NIL	1983
Carnegie-Mellon University Summer Research Programmer, Department of Computer Science Design and implementation of Pascal (PERQ) programs for Distributed Sensor Network project and the SPICE project	1981
Xerox Corporation, Summer Student, Webster Research Center	1979-80

¹ Step I July 97-June 98; Step II July 98-June 01; Step III July 01-June 04, Step IV July 04-

² Step III: July 92-June 94, Step IV: July 94-June 96, Step V: July 96-June 97.

CONSULTING AND SERVICE TO THE PROFESSION

External Advisory Board, National Institute of Standards (NIST), March 2006.
National Science Foundation, Division of Computer and Network Systems, Feb 2004-Mar 2004
The College Board, AP Consultant Computer Science, August 2001-2004
Meshworx, Inc., Corona, CA, July 2000
State of California, Department of Motor Vehicles, January 1995-June 1995
Educational Testing Service, Advanced Placement in Computer Science, 1993-2004
Xerox Corporation, Webster Research Center, 1979-81
University of Rochester, Department of Pediatrics, 1979-81

HONORS

Recognition Award, Service to the 19th IEEE International Conference on Distributed Computing Systems (ICDCS '99), June 1999.
Regents Faculty Fellow, University of California, Riverside, 1995-1996
Dean's Commendation for Teaching Excellence, Tulane University, 1991
Best Student Paper Award,
ACM SIGCOMM '86 Symp. on Communications Architectures & Protocols
Upsilon Pi Epsilon

PUBLICATIONS

Youngang Song and Brett D. Fleisch, Utilizing Binary Rewriting for Improving End-host Security, *submitted to IEEE Transactions on Parallel and Distributed Systems*, August 3, 2006.

Fleisch, Brett D., Program Director's column, ACM SIGOPS Operating Systems Review Volume 40 , Issue 3 (July 2006) , pp. 6-7.

Youngang Song, Ying Xu and Brett D. Fleisch, Design and Performance Evaluation of a Proxy-based Java Rewriting Security System, *proceedings of the 26th IEEE International Conference on Distributed Computing Systems* , (ICDCS 26) Lisboa, Portugal, July 4-7, 2006.

Y. Xu and Brett D. Fleisch, NFS-cc: Tuning NFS for Concurrent Read Sharing, *International Journal of High Performance Computing and Networking (IJHPCN)*, Inderscience Publishing, Vol. 1, No. 4, pp. 203-213, 2004.

Y. Song and Brett D. Fleisch, Rico: a Security Proxy for Mobile Code, *Computers and Security*, Volume 23, Issue 4, June 2004, Elsevier Press, pp.338-351.

B. D. Fleisch, Grand Challenges in IT Security and Assurance, *International Workshop on Frontiers of Information Technology*, Islamabad, Pakistan, December 23-34, 2003.

Y. Xu and Brett D. Fleisch, Cooperative Caching in Linux Clusters, *Proceedings of the Fourth LCI International Conference on Linux Clusters 2003*, San Jose, CA, Jun 23-25, 2003, San Jose, CA.

Watson, Y. Luo, and Brett D. Fleisch, The Oasis+ Dependable Distributed Storage System, *Proceedings of the IEEE Cluster Computing Conference*, October 2001, Newport Beach, CA.

Watson, Y. Luo, and Brett D. Fleisch, The Oasis+ Dependable Distributed Storage System (FastAbstract), *Proceedings of the 2000 Pacific Rim International Symposium on Dependable Computing*, December 18-19, 2000, Los Angeles, CA.

S. K. Shah, B. D. Fleisch, Heiko Michael, O. E. Theel, Fault Tolerance and Scalability in DSM Coherence Protocols, *IEEE Concurrency*, Volume 8, No. 2, April-June 2000, pp. 10-21.

PUBLICATIONS (cont.)

W. Zhu, B. D. Fleisch, Performance Evaluation of Soft Real-Time Scheduling on a Multicomputer Cluster, *Proceedings of the 20th IEEE International Conference on Distributed Computing Systems (ICDCS)*, Taipei, Taiwan, Republic of China, April 10-13, 2000, pp. 610-

K. Doering, E. Will, W. Zhu, E. Parsons, B. D. Fleisch, A Design Summary of the Oasis+ Distributed Shared Memory System, *10th IEEE International Symposium on Software Reliability Engineering*, Boca Raton, Florida, November 1999, pp. 29-30.

J. Turk, B. D. Fleisch, DBRpc: A Highly Adaptable Protocol for Reliable DSM Systems, *19th IEEE International Conference on Distributed Computing Systems*, Austin, TX, May 31-June 4, 1999, pp. 340-348..

R. Hyde, B. D. Fleisch, A Case for Virtual Distributed Objects *Parallel and Distributed Computing Practices*, Volume 1, Number 3, September 1998.

B. D. Fleisch, Mark Allan Co, Workplace Microkernel and OS: A Case Study, *Software – Practice and Experience*, Volume 28, No. 6, May, 1998, pp. 569-591.

B. D. Fleisch, R. L. Hyde, High Performance Distributed Objects Using Distributed Shared Memory and Remote Method Invocation, *21st Annual Hawaii International Conference on Systems Science*, December 1997.

Sachin K. Shah, Brett D. Fleisch, A Comparison of DSM Coherence Protocols using Program Driven Simulations, *Volume 3 of the Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'98)*, June 30 - July 2, 1998, pp. 1546-1553, Las Vegas, Nevada, CSREA Press, ISBN-1-892512-06-8..

B. D. Fleisch, The Failure of Personalities to Generalize, *Proceedings of the 6th IEEE HOT-OS Workshop*, Cape Cod, MA, May 4-6 1997, pp. 8-13.

B.D. Fleisch and G.J. Popek, "Mirage: A Coherent Distributed Shared Memory Design", *reprinted in Distributed Shared Memory: Concepts and Systems* by Jelica Protic, Milo Tomasevic, and Veljko Milutinovic, IEEE Computer Society Press, 1997.

O. E. Theel, B. D. Fleisch, The Boundary-Restricted Coherence Protocol for Scalable and Highly Available Distributed Shared Memory Systems, *The Computer Journal*, Vol. 39, No. 6, 1996, pages 496-510, Oxford Press.

O. Theel, B. D. Fleisch, A Dynamic Coherence Protocol for Distributed Shared Memory Enforcing High Data Availability at Low Costs, *IEEE Trans. on Parallel & Distributed Systems*, Vol. 7, No. 9, September 1996, pp. 915-930.

W. Schroeder, B. D. Fleisch, The Architecture of the Oasis Mobile Distributed Shared Memory System, Available as UCR Technical Report UCR-CS-96-4, June 1996.

D. Choweller, B. D. Fleisch, Fault Resilience for Distributed Locking. UCR Technical Report UCR-CS-96-3, April 1996.

R. L. Hyde, B. D. Fleisch, An Analysis of Degenerate Sharing and False Coherence, *Journal on Parallel and Distributed Systems*, Vol. 34, No. 2, June 1996, pp. 183-195.

O. E. Theel, B. D. Fleisch, Analysis of a Fault-Tolerant Coherence Protocol for Distributed Shared Memory under Heavy Write Load, *Proceedings of the Pacific Rim Conference on Fault Tolerance*, Newport Beach, CA, December 1995.

O. E. Theel, B. D. Fleisch, Design and Analysis of Highly Available and Scalable Coherence Protocols for Distributed Shared Memory Systems based on Stochastic Modeling, *Proceedings of the 24th International Conference on Parallel Processing*, Oconomowoc, Wisconsin, August 1995, pp. I:126-130..

PUBLICATIONS (continued)

N.C. Juul, B. D. Fleisch, A Memory Approach to Consistent, Reliable DSM, *Proceedings of the Fifth IEEE Workshop on Hot Topics in Operating Systems (HotOS-V)*, May 4-5, 1995.

O. E. Theel, B. D. Fleisch, Design and Analysis of Highly Available and Scalable Coherence Protocols for Distributed Shared Memory Systems based on Stochastic Models, Technical Report THD-BS-1995-02, University of Darmstadt, Department of Computer Science, Institute for System Architecture, Germany, January, 1995. Also available as Technical Report UCR-CS-95-1, April 1995.

B.D. Fleisch, N.C. Juul, R. C. Hyde, "Mirage+: A Kernel Implementation of Distributed Shared Memory for a Network of Personal Computers", *Software Practice and Experience*, Volume 23, No. 10, October, 1994. Also available as Computer Science Department Technical Report UCR-CS-94-2, April 1994.

R. L. Hyde, B. D. Fleisch, Degenerate Sharing, *Proceedings of the 23rd International Conference on Parallel Processing*, Chicago, Illinois, August 15-19, 1994, pp. 267-270.

R. L. Hyde, B. D. Fleisch, An Analysis of Degenerate Sharing and False Coherence, Computer Science Department Technical Report UCR-CS-94-1, January 1994.

B. D. Fleisch, The Role of Distributed Shared Memory in Future Distributed Systems, Invited Paper, *Proceedings on the Fourth Symposium on Experiences with Distributed and Multiprocessor Systems*, San Diego, CA, , pp. 273-278, September 1993.

B.D. Fleisch, N.C. Juul, R. C. Hyde, "Moving Distributed Shared Memory to the Personal Computer: The Mirage+ Experience", UCR Technical Report UCR-CS-93-6.

M. Rawdon, H. Delery, R. Driskill, E. Blakes and B.D. Fleisch, "Evaluation Tools for Distributed Shared Memory", *IEEE Proceedings of the SOUTHEASTCON '91*, Williamsburgh, VA, pp 198-204, Apr 7-10, 1991.

S. Novak, T. Green, J. Lamb, L. Weldon, B.D. Fleisch, "Performance Evaluation for a Loosely Coupled Parallel Processing Environment", *IEEE Proceedings of the SOUTHEASTCON '91*, Williamsburgh, VA, pp 201-204, Apr 7-10, 1991.

B.D. Fleisch, "The Evolution of Mirage for a Workstation Environment", Tulane University Technical Report TR-90-105, Aug, 1990.

B.D. Fleisch, "Reliable Distributed Shared Memory", *Proceedings of the Second IEEE Workshop on Experimental Distributed Systems*, Huntsville, AL, pp 102-105, Oct 11-12, 1990.

B.D. Fleisch, "Replicated Data Issues For DSM", Tulane University Technical Report TR-90-104, Aug 1, 1990.

B.D. Fleisch, "Fault Tolerance Support for Distributed Shared Memory", Accepted for presentation at the *Fourth ACM European Workshop on Fault Tolerance Support in Distributed Systems*, Bologna, Italy, Sept 3-5, 1990. Also available as Tulane University Technical Report TR-90-103, June, 1990.

B.D. Fleisch, "Using Distributed Shared Memory as a Framework for a Distributed Blackboard", *Proceedings of the AAAI-90 Workshop on Blackboard Systems*, Boston, MA, July 1990.

B.D. Fleisch and G.J. Popek, "Mirage: A Coherent Distributed Shared Memory Design", *Proceedings of the Twelfth ACM Symposium on Operating Systems Principles*, published as SIGOPS Operating Systems Review, Vol 23, 5, Litchfield Park, AZ, pp. 211-222, December, 1989.

PUBLICATIONS (continued)

B.D. Fleisch, "Distributed Shared Memory in a Loosely Coupled Distributed System" (Extended Abstract), COMPCON Spring 1988, San Francisco, CA, pp 182-184, Feb-Mar 1988.

B.D. Fleisch, "Distributed Shared Memory in a Loosely Distributed System", *Proceedings SIGCOMM '87 - Workshop on Frontiers in Computer Communications Technology*, Stowe, VT, pp. 308-318, Aug 1987.

B.D. Fleisch, "Distributed System V IPC in Locus: A Design and Implementation Retrospective", *ACM SIGCOMM '86 Symposium on Communications Architectures and Protocols*, pp 386-396 Stowe, VT, Aug 1986. (Also appears in UCLA Computer Science Department Quarterly, 14, 2, pp 131-144, Spring 1986.)

B.D. Fleisch, "META-Activities: Towards Coherent Distributed Jobs", *Proceedings of the Fourth International Conference on Distributed Computing Systems*, San Francisco, CA, May 1984.

B.D. Fleisch, "Operating Systems: A Perspective on Future Trends", *Operating Systems Review*, pp. 14-17, April 1983.

B.D. Fleisch, E.J. Burke, and C.W. Parker, "Amps: An Environment for Personal Computers", Technical Report, University of Rochester, May 1981.

B.D. Fleisch, "An Architecture for Pup Services on a Distributed *Operating System*", *Operating Systems Review*, pp 26-44, Jan 1981.

JOURNAL AND BOOK REVIEWS

"Algorithms for Memory Hierarchies", Meyer U., Sanders P. (ed), Sibeyn J. (ed), Springer-Verlag New York, Inc., Secaucus, NJ, 2003. (in ACM Computing Reviews, to appear circa May 2004).

This journal switched to Ejournal format:

http://www.reviews.com/review/Review_review.cfm?review_id=129191&listname=search

"A High-Level Abstraction of Shared Accesses", Peter J. Keleher, *ACM Trans. Comp. Systems*, Vol 18, No. 1, February 2000, pp. 1-36. (in *ACM Computing Reviews*, Vol 41, No. 5, May 2000).

"UFO: A Personal Global File System Based on User-Level Extensions to the Operating System", Albert D. Alexandrov, Maximilian Ibel, Klaus Schauer, Chris J. Scheiman, *ACM Transactions on Computer Systems*, Vol. 16, No. 3, August 1998, (in *ACM Computing Reviews*, Vol 40, No. 2, February 1999).

"The CLAM Approach to Multithreaded Communication on Shared Memory Multiprocessors: Design and Experiments" Juan Carlos Gomes, Edward Mascarenhas, and Vernon Rego, *IEEE Transaction on Parallel and Distributed Systems*, Vol. 9, No. 1, January 1998, pp. 36-49. (in *ACM Computing Reviews*, Vol 39, No. 7, July 1998).

"An Implementation Framework for HPF distributed Arrays on Message Passing Parallel Computer Systems", van Reeuwijk, K, Denissen, W., Sips, H., Paalvast, E., *IEEE Parallel and Distributed Systems*, Vol, 7, No. 9, September 1996, pp. 897-914. (in *ACM Computing Reviews*, Vol. 38, No. 10, October 1997).

"Operating Systems Support for High Speed Communication", Peter Druschel, *Communications of the ACM*, Volume 39, No. 9, September 1996, pp. 41-51. (in *ACM Computing Reviews*, Vol. 38, No. 5, May 1997).

"An Empirical Study of a Wide-area Distributed File System", Spasojevic, Mirjana and Satyanarayanan, M., *ACM Trans. Comp. Systems*, Vol. 14, No. 2, May 1996, pp. 200-222. (in *ACM Computing Reviews* Vol. 38, No. 4, April 1997).

JOURNAL AND BOOK REVIEWS (cont.)

“Techniques for Reducing Consistency-Related Communication in Distributed Shared Memory Systems”, John Carter, John Bennett, and Willy Zwaenepoel, *ACM Trans. Comp. Systems*, Vol 13, No. 3, August 1995, pp. 205-243. (in *ACM Computing Reviews* Vol. 37, No. 10, October 1996, pp. 529-530).

“The Expected Lifetime of 'Single-Address-Space' Operating Systems”, David Kotz and Preston Crow, Proceedings of SIGMETRICS 94, Vol 22, No. 1, May 1994, pp. 161-170. (in *ACM Computing Reviews*, Vol. 36, No. 10, October 1995).

“Increasing Memory Bandwidth for Vector Computations”, Sally A. McKee, Steven A. Moyer, Wm. A. Wulf, *Programming Languages and System Architectures*, Proceedings of the International Conference (Zurich, Switzerland, March 2-4, 1994), J. Gutknecht (ed.), Springer Verlag, New York, NY 1994, 87-104 (in *ACM Computing Reviews*, Vol 36, No. 7, July 1995).

“An Introduction to Disk Drive Modeling”, Chris Ruemmler and John Wilkes, *IEEE Computer*, 27, 3, March 1994, pp. 17-28 (in *ACM Computing Reviews*, Vol 36, No. 2, February 1995).

“Accessing Files in an Internet: The Jade File System”, Herman C. Rao, Larry L. Peterson, *IEEE Trans. on Software Engineering* 19, 6, June 1993, pp 613-624 (in *ACM Computing Reviews*, Vol 35, No. 10, October 1994).

“Chores: Enhanced Run-Time Support for Shared-Memory Parallel Computing”, Derek L. Eager, John Zahorjan, *ACM Trans. Comp. Syst* 11, 1, February 1993, pp 1-32 (in *ACM Computing Reviews*, Vol 35, No. 4, April 1994).

“User-Level Interprocess Communication for Shared Memory Multiprocessors”, Brian Bershad, Thomas Anderson, et al., *ACM Trans. Comp. Syst.* 9, 2, May 1991, pp 175-198 (in *ACM Computing Reviews*, Vol 33, No. 10, October, 1992)

“An Empirical Study of the Reliability of UNIX Utilities”, Barton P. Miller, Louis Fredriksen, Bryan So, *Communications of the ACM*, 33, 12, Dec 1990, pp 32-44 (in *ACM Computing Reviews*, Vol 32, No. 12, Dec 1991).

“Lightweight Remote Procedure Call”, Brian Bershad, Thomas Anderson, et al., *ACM Trans. Comp. Syst.* 8,1, Feb 1990, pp 37-55 (in *ACM Computing Reviews*, Vol 32, No. 2, Feb 1991, pp 103-104)

“A Heuristically-Aided Algorithm for Mutual Exclusion in Distributed Systems”, Mukesh Singhal, *IEEE Trans. Comp.* 38, 5, May 1989, pp 651-662 (in *ACM Computing Reviews*, Vol 31, No. 3, Mar 1990, pp 159)

FUNDED RESEARCH AND DONATIONS

Principal Investigator, National Science Foundation, IPA Assignment, CISE/CNS, Operating Systems and Distributed Systems, 1/07-9/07, \$94,506 (estimated amount)

Principal Investigator, National Science Foundation, IPA Assignment, CISE/CNS, Operating Systems and Distributed Systems, 4/06-12/06, \$94,506 (estimated amount).

Principal Investigator, Measurement and Analysis of Spyware in Government Systems, Academic Senate Research Funds, 7/1/05 - 6/30/06, \$1366.

FUNDED RESEARCH AND DONATIONS (cont.)

Principal Investigator, National Science Foundation, IPA Assignment, CISE/CNS, Operating Systems and Distributed Systems, 3/05-4/06, \$126,008.

Principal Investigator, A Security Testbed for Trusted Privacy Preserving Data Mining, Academic Senate Research Funds, 7/1/04 - 6/30/05, \$1300.

Principal Investigator, National Science Foundation, IPA Assignment, CISE/CNS, Operating Systems and Distributed Systems, 4/04/-3/05, \$117,261.

Principal Investigator, Riverside Division, Academic Senate, Student Migrant, \$250.

Principal Investigator, Academic Senate Research Funds, "A Mobile Code Security Management Platform for Embedded and Wireless Systems", 7/1/03 - 6/30/04, \$500.

Principal Investigator, Academic Senate Research Funds, "Mobile Code", 7/1/02 - 6/30/03, \$1300.

Principal Investigator, UC Leeds Program, "Student Supervision Minigrant", 7/1/02 - 6/30/03, \$500.

Principal Investigator, with Deganit Armon, University of California College Preparatory Initiative Program, "Proposal for Advanced Placement Computer Science Course", \$25,000, 7/1/01-6/30/02.

Principal Investigator, Academic Senate Research Funds, "Power Management for Computing Clusters", \$1,200, 11/1/01-10/31/02.

Co-PI with Michael Franz, UC Irvine (PI), Office of Naval Research, A Comprehensive Context for Mobile-Code Deployment, 5/01/01-4/30/04, \$1,075,833, (subcontract: \$187,921).

Principal Investigator, Academic Senate Research Funds, "Operating Systems Source Code Quality Assessment", 7/1/00 - 6/30/01, \$1300.

Principal Investigator, Sun Microsystems, Operating Systems Source Code Quality Assessment, 3/15/00-3/14/01, \$109,486 plus equipment valued at \$64,735.

Principal Investigator, National Science Foundation, "Power Management for Computing Clusters", \$67,670, 11/1/00-10/31/01.

Principal Investigator, National Science Foundation, REU Supplement, "High Availability, Reliability and False Sharing Reduction Techniques for Workstation Clusters," \$5,000 May 12, 1999- May 11, 2000.

Principal Investigator, Academic Senate Research Funds, "Highly Available DSM for Backbone Server Systems", 7/1/99 - 6/30/00, \$1250.

Principal Investigator, Nortel Networks, "Reliable DSM Toolkit", \$36,693, March 1, 1999- December 31, 1999.

Award Recipient, Academic Senate Research Funds for 97/98, \$700.00, June 1, 1998.

Co-Investigator, Graduate Assistance in Areas of National Need Program, US Department of Education, with Thomas H Payne, Vassilis J Tsotras, Marek Chrobak and Mart Molle, \$304,388, 8/15/98-2/15/01.

FUNDED RESEARCH AND DONATIONS(cont.)

Principal Investigator, National Science Foundation, REU Supplement, "High Availability, Reliability and False Sharing Reduction Techniques for Workstation Clusters," \$5,000 December 1, 1997- November 30, 1998.

Principal Investigator, National Science Foundation, "High Availability, Reliability and False Sharing Reduction Techniques for Workstation Clusters," \$170,030 Sept 1, 1997- August 31, 2000.

Principal Investigator, UC Micro Program, "High Availability and High Reliability for Clusters of Workstations", \$17,846, July 1, 1997-June 30, 1998.

Award Recipient, Academic Senate Research Funds for 97/98, \$800.00, June 1, 1997.

Principal Investigator, Hewlett-Packard Corporation, "High Availability and High Reliability for Clusters of Workstations," \$212,794 (in equipment), March 1997.

Donation Recipient, Microsoft Corporation, 2 copies, MS Office(7.0) Professional with Bookshelf & Access 95, \$579 x 2, \$1078.

Donation Recipient, Magnon Associates, \$500.

Donation Recipient, Computer Marketplace Incorporated, \$6030.

Principal Investigator, UC Micro Program, "Distributed Shared Memory for Mobile Computing", July 1995-June 1996, \$26,790.

Award Recipient, Regents Faculty Fellowship Stipend, \$1200.00.

Donation Recipient, Locus Computer Corporation, \$1500 in equipment.

Principal Investigator, International Business Machines Corporation (IBM), "Distributed Shared Memory for Mobile Computing", August 1995 - August 1998, \$15,000.

Principal Investigator, Computer Marketplace Corporation, "The CMP2 Project : Parallel Processing Technology for Business Applications", July 1995-September 1995, \$9,039.

Recipient, University of California, Riverside, Committee on Research, August 1995, \$500.

Principal Investigator, LAN Performance Laboratories, "High Speed 100 Megabit Ethernet", September 1994, 2 boards donated, in equipment.

Principal Investigator, Digital Equipment Corporation (DEC), "Workstation Farms Decomposition and Execution Software", March 1994, \$105,987, (equipment).

Principal Investigator, Summer Research and Instruction Support Competition, Summer 1993, Chancellor's Office University of California, Riverside, \$1400.

Donation Recipient, Microsoft, "Windows NT Software Development Kit CD and Documentation", Final Version, August 1993, several versions, \$1000.

Principal Investigator, NSF, "Reliable Distributed Shared Memory", September 15, 1992 - September 14, 1995, \$189,908.

Principal Investigator, University of California Riverside, Complement Funds, July 1, 1992- June 30, 1994, \$142,000.

FUNDED RESEARCH AND DONATIONS(cont.)

Co-Principal Investigator, LEQSF, "Research and Instruction Enhancement Through Parallel Processing", with Cris Koutsougeras, and Robert Goldman. June 1, 1991 - May 31, 1992, \$140,000.

Principal Investigator, NSF, "Distributed Shared Memory Performance" (Supplement). June 1, 1991 - May 31, 1992, \$10,000.

Principal Investigator, NSF, "Distributed Shared Memory Performance", with M. Benard & J. Hassell, June 1, 1990 - May 30, 1991, \$34,036.

Principal Investigator, International Business Machines Corporation (IBM), "Scaling Distributed Shared Memory", June 1, 1990 - May 30, 1992, \$241,130 (+ equipment).

Principal Investigator, COR, Tulane University, "The Design of A Fault Tolerant Distributed Shared Memory", Summer 1990, \$3,000.

STUDENT SUPERVISION

Sabbatical Visitor(s) Hosted:

Dr. Weiping Zhu, July-November, 1999.

PostDocs Supervised:

Peter Froelich, September 2002-July 2003
Oliver Theel, June 1994-June 1995 (NSF Funds)
Jul, N.C., January 1993- January 1994
Sims, D., April-September 1994

Ph.Ds Supervised:

Yongang Song, Fall 2002-
Karl Doering, Winter 2002-Fall 2004
Ilya Grishashvili, Fall 99-Winter 2001
Thomas Nguyen, Winter 1998 -Fall 2000
Tan Chao, Fall 1997 -Fall 1999

Ph.D. Committees:

Fang Chen, May 2003
Zach Peterson, May 2005-present, Johns Hopkins University, Baltimore MD
Chir Xin, July 14, 2005, University of California, Santa Cruz, Ph.D dissertation committee.

M.S. Theses/Projects Supervised:

Simon Peter, U of Oldenburg, "Design and Implementation of a Flexible Framework for Replication and Application on NFS Version 4.0", November 2005 - August 2006.

Ying Xu, MS completion, Fall 2001-March 2006.

Sachin Shah, Fault Tolerance and Scalability in DSM Coherence Protocols - A Simulation Approach, 1995-June 1997, 94 pages.

Mark Allan Co, Microkernel Operating Systems: Comparisons and Analysis, Fall 1995-June 1997, 100 pages.

David Choweller, Enhancements to Synchronization Mechanisms for Distributed Systems, March 1997, 102 pages.

William Schroeder, The Architecture of the Oasis Mobile DSM System, June 1996, 172 pages.

Dematteis, C., "The Design of Reliable Mirage+", March 1996, 155 pages.

Yamin, M., "Caching In Distributed Systems", December 1990

M.S. Thesis Committee:

David T. Lu, "A Multithreaded Processor for Massively Parallel Architectures", March 1994-present

Honors Theses Supervised:

Andre van Hoorn, U of Oldenburg, title to be determined, October 2006.

Driskill, R., "A Memory Resident Database for a Distributed Shared Memory System", April 1992

Green, T., "Threads: A Survey of Issues and Implementations", April 1992

Novak, S., "Performance Evaluation of Parallel Applications that Use Distributed Shared Memory", April 1991

Rawdon, M., "Tools for Distributed Shared Memory", April 1991

David Sheldon, Mikhail Markos, Mashiku Stephen, Summer 2002

James Brady, M. Morkos, Summer 2001

Ying Xu, Yan Luo, David Watson, Jaswinder S. Ahluwalia, Ilya Grishishvali, Fall 2000
Thierry Dallacrose, Summer 2000
Karl Doering, David Watson, , Jaswinder S. Ahluwalia, Summer 2000
Karl Doering, John Turk, John Chinte, Eric Will Summer, Jaswinder S. Ahluwalia, Summer 1999
John Turk, Karl Doering, Winter and Spring 1999
Sateshwar Singh, John Chinte and Karl Doering, Winter 99
Andrew Leong, Jason Blakenship, Kahn Vo, Ann Lam, Laun Le, Codrin Mihai, Rick Marshall, Fall 98
John Chinte, Summer 1998-, Fall 98
John Turk, Fall, Winter Spring 97/98, Summer 1998, Fall 98
Ken Riggio, John Turk, Summer 1997 -
Steve Hendrickson, Fall 1996
Steve Shah, Jonathan Ward, Winter 1996.
Kevin Marcus, Fall 1995 - Spring 1996.
John Mikhail, Jarrod Shields, Steve Grubbs Summer 1995
Mark Allan Co, Spring 1995
David Matsalla, Brian Olesen, Jarrod Shields Keyur Patel, Thuy Le, Fall 1994
Johnathan Ward, Lab Assistant, Summer 94- AY 94/95 (NSF funds)
Barnett Hsu, Summer 1994 - Spring 1995

Additional Supervision (cont.)

Jerome Stewart, Jarrod Shields, Brian Olsen, Summer 1994
Joe Solinsky, Curtis Varner, Art Chan, Kevin Marcus, Alan Briscoe-Smith, Undergraduate Student,
Independent Study, Spring 94
Michael Griffith, June 1993-June 1994
Praveen Prabahaka, Graduate Student, Summer 93 (NSF funds)
Chris Formulak, Lab Assistant, Summer 93- AY 93/94 (NSF funds)
Keyur Patel, Michael Samidi, Carson Ellsworth, Mark Allan Co, Jasmina Shah, Steve Shah
Undergraduate Students, Independent Study, Summer 93
Felipe Rivera, Total Immersion Science Program Student, Summer 93
Jason Frye, Pre-College Student, Summer 93
Jim Stewart, Lab Assistant, Summer 92-Winter 92 (Complement funds)
Robert Driskill, Tammy Green, June 1991-June 1992 (NSF REU funds)
Edward Blakes, Harvey Delery, Lucy Weldon, Jennifer Lamb, Robert Driskill, Tammy Green,
Michael Rawdon, Shannon Novak, Undergraduate Students, June 1990-June 1991 (NSF REU funds)

SPECIFIC ADVISOR MENTOR RELATIONSHIP

David Choweller, Information Management Associates, Irvine, CA
Mark Allan Co, Intel Corporation
Niels C. Juul, Head Department of Communication Journalism and Computer Science, Roskild University,
Denmark
Heiko Michel, University of Kaiserslautern, Germany
W. Schroeder, Health Management Associates, San Bernadino, CA
Sachin Shah, IBM (Transarc Corporation)
Oliver E. Theel, Professor für Praktische Informatik, Carl von Ossietzky Universtät Oldenburg
Simon, Peter, Universtat Oldenburg co-advise MS Diploma
Andre van Hoorn, co-advise Bachelors thesis project Universtat Oldenburg
J. Turk, unknown position industry
E. Will, industry position unknown
Weiping Zhu, enior lecturer in the School of Computer Science at ADFa
D. Watson, IBM
Y Luo, UC Riverside
Y. Xu, UC Riverside, Veritas Software Inc.
Karl Doering, UC Riverside
P. Froelich, Johns Hopkins University
Y. Song, UC riverside (in process)

Total Graduate Students Advised: 10

Total PostDoctoral Scholars Advised: 3

COMMITTEES

Riverside Division Academic Senate, 7/92-present
Riverside Division: Campus Computing Committee, 9/03-June 2004
Riverside Division: Committee on Courses, 98-99, 99-01.
Riverside Division: Graduate Council, 7/2001-6/30/02
Scholarship Committee College of Engineering UC Riverside: Chairman, 11/01-(until sabbatical)
Computer Science Department UC Riverside: Ad Hoc Committee Assoc. Professor Merit, 9/95-2/96
Computer Science Department UC Riverside: Faculty Recruiting, 3/97-6/97, 1997/1998, 1998/1999.
Computer Science Department UC Riverside: Ad Hoc Committee Asst. Professor Merit, 9/95-2/96
Computer Science Department UC Riverside: Coordinator Clean Manufacturing Initiative, 8/95-12/95
Computer Science Department UC Riverside: Ad Hoc Committee on Equipment, 7/95-6/96.
Computer Science Department UC Riverside: Graduate Recruiting and Graduate Admissions, 9/94-present
Computer Science Department UC Riverside: Committee on Selection of Student Affairs Officer, 12/94-4/95
Computer Science Department UC Riverside: Chair Undergraduate Affairs Committee, 8/93-9/94
Computer Science Department UC Riverside: Grants Committee Chairman, 7/92-9/94
College of Engineering UC Riverside: Member Scholarship Subcommittee, 10/1/93-12/02
Dean's Task Force on Crime, Public Safety, and Emergency Services, 3/94-7/94
School of Engineering Tulane: Committee on Retention, Academic Ceremonies, 1989-1992
Computer Science Department Tulane: Graduate Studies, Colloquia, Equipment, CSD Committees, 89-92

NEW COURSES:

Computer Science 160 - *Concurrent Programming and Parallel Systems*

Study of concurrent and parallel systems. Modular structure and design. Interprocess communication, synchronization, failures and persistency, concurrency control, atomic transactions, recovery, language support, distributed interprocess communication. Implementation mechanisms. Provides preparation for the study of operating systems, databases, and computer networking.

COMPUTATIONAL ARTIFACTS:

Linux Contributions - over 25 Linux projects to be made available in the public domain (1996): includes new device drivers, kernel enhancements, hpfs improvements, filesystem compression, corestat coredump tools, network performance enhancements, code shrinkage projects, asserted modules, bug fixes, and documentation.

Fault Tolerant Locking Quarks - a version of Quarks with a more robust locking algorithm that tolerates single site failures. Available from UC, Riverside.(1996)

Oasis - a version of DSM developed for mobile computing on the DEC Alpha under OSF/1. (1996)
Also included: the Riverside Mobile DSM Suite - a suite of 5 mobile DSM applications used to benchmark and validate Oasis. Currently being prepared for public domain release.

Alpha Quarks - a ported version of Quarks that operates on the DEC Alpha under OSF/1 (1995).
Currently distributed by University of Utah as a public domain artifact.

Mirage+ - a DSM System that operates on IBM PS/2s under AIX 1.2 sponsored by IBM (1993).
A proprietary artifact property of IBM Corporation.

Mirage - a DSM System that operates on VAX/11 780 under Locus (1989).

INVITED PRESENTATIONS (Those not Appearing in Publications list)

- Panel Co-Chair, CISE Geni Town Hall Meeting, Distributed Systems and Applications, Mark Hopkins Intercontinental Hotel, San Francisco, CA, July 13-14, 2006.
- Invited Speaker, University of Connecticut, CSE Department, "Current Developments in the Computer and Network Systems Division of the Computer and Information Science and Engineering (CISE) Directorate", Computer Science Department, Storrs, CT, April 14, 2006.
- Panel Co-Chair, CISE Geni Town Hall Meeting, Distributed Systems and Applications, Hyatt Regency Rosslyn, Arlington, VA, March 10, 2006.
- Invited Speaker, Principles of Distributed Computing Systems 2005 (PDCS2005), Current Developments in the NSF Directorate for Computer and Information Science and Engineering(CISE), Phoenix, AZ, November 16, 2005.
- Invited Speaker, University of Illinois, Chicago, Computer Science Department, Funding Opportunities and Initiatives in the NSF Directorate for Computer and Information Science and Engineering(CISE), Chicago, Ill, November 9, 2005.
- Invited Speaker, Workshop on Software Assessment 2005 (WOSA 2005), Quality Analysis of Operating System Kernel Source Code, Gleacher Center, University of Chicago, Chicago, Ill, November 8, 2005.
- Invited Panelist, 20th Symposium on Operating Systems Principles (SOSP-25), Birds of a Feather Session (BOF), The GENI Initiative, The Grant Hotel, Birghton, England, UK, Oct 24, 2005.
- Special Focus Briefings (individually and in groups), UC Riverside, Dean Reza Abbaschian, Chairman Thomas Payne, Networking Research Group, and Computer Science Department Members, Grand Challenges for Computer Systems Research, October 11, 2005.
- Invited Speaker, MIT Grand Challenges in Computer System Research Workshop, MIT Stata Center, September 29-30, 2005.
- Invited Speaker, Texas A&M, Computer Science Department, Current Developments in the NSF Directorate for Computer and Information Science and Engineering(CISE), College Station, Texas, September 16, 2005.
- Invited Speaker, UT Dallas, NSF Outreach Day, Current Developments in the NSF Directorate for Computer and Information Science and Engineering(CISE), Dallas, Texas, September 15, 2005.
- Invited Speaker, Steering Committee, "Distributed Systems: Planning Initiative Overview, MIT, Stata Center, July 2005.
- Presented Position Stated, "Top 10 Things *Not* to Focus Systems Proposals on", Hot OS IX, Santa Fe, New Mexico, June 12-15, 2005..
- Invited Speaker (by Invitation), Honors 20 Class, University of California, Riverside, ""Understanding The National Science Foundation and its National Mission"., Riverside, April 26, 2005.
- Moderator(**by invitation**), Panel on Emerging Frontiers of Parallel and Distributed Computing Paradigms, 17th International Conference on Parallel and Distributed Computing Systems (PDCS 2004), San Francisco, CA, September 16 2004.
- Keynote Speaker(**by invitation**), NSF-RPI Workshop on Pervasive Computing and Networking, RPI Campus, Troy, New York, April 29-30, 2004
- Presented Lecture (**by invitation**), with Yougang Song, Sandboxing Mobile Code from Outside the OS, *19th ACM Symposium on Operating Systems Principles*, Work in Progress Session, The Sagmore, Bolton Landing (Lake George), New York, October, 2003.
- Presented Lecture (**by invitation**), "Research in Operating Systems and Distributed Systems", National Science Foundation, Arlington, VA, November 2002.
- Presented Lecture (**by invitation**), "Cooperative Caching in Linux Clusters", ClusterWorld, San Jose, CA June 2003.
- Presented Lecture (**by invitation**), "Improving Flexibility for Mobile Code Security", Penn State University, College Park, Pennsylvania, July 2002.
- Presented Lecture (**by invitation**) entitled "Computer Science AP Exam and the Move to Java", College Board Consultant Class, Riverside, CA, 04/02
- Presented Lecture (**by invitation**) entitled "Computer Science AP Exam and the Move to Java", College Board Consultant Class, Alhambra, CA, 02/02
- Presented Lecture (**by invitation**), "Mobile Code", Florida Institute of Technology, Melbourne, Florida, January 2002.
- Presented Lecture (**by invitation**) entitled "Computer Science AP Exam and the Move to Java", College Board Consultant Class, San Bernadino, CA, 10/01

INVITED PRESENTATIONS (cont.) (Those not Appearing in Publications list)

- Presented Lecture (**by invitation**) entitled “Research in Operating Systems and Distributed Systems: An Overview for Honors 20”, Honors 20 class, 5/01.
Quality Analysis of Operating System Kernel Source Code, Sun Microsystems, Menlo Park, CA
3/01
Operating Systems Source Code Software Quality Assessment, Hewlett Packard, Cupertino, CA
3/01
Presented Lecture, (by invitation) entitled “Evaluating the Quality of Operating Systems and Large Software Systems”, University of California, Riverside, Industry Day, November 30, 2000.
Operating Systems Source Code Software Quality Assessment,
4th Symposium on Operating Systems Design and Implementation, Work-in-Progress (WiP),
Paradise Point Resort, San Diego, CA, 10/2000.
Operating Systems Source Code Software Quality Assessment, Sun Microsystems, Menlo Park, CA,
12/99
Reliable Distributed Shared Memory Building High-Availability Services University of California,
Los Angeles, 8/99
An Overview of Operating System and Distributed Systems Research at UCR
University of California, Riverside, 6/99
Reliable Mirage+: A Recoverable DSM System
Hewlett-Packard Labs, 5/96
Reliable, Consistent Distributed Shared Memory
University of Nevada, Las Vegas, Las Vegas, NV, 3/95
University of New Orleans, New Orleans, LA, 2/95
Mirage+: A Coherent Distributed Shared Memory System
University of California, Riverside, CA, 11/93
Jet Propulsion Laboratory, 4/94
California State University, San Bernadino, 3/94
The Future of Experimental Distributed Systems Research (Invited Panelist)
Fourth Symposium on Experiences with Distributed and Multiprocessor Systems (SEDMS IV),
San Diego, CA, 9/93
The Impact of Single Address Space 64-bit Architectures on Operating System Evolution
University of California, Riverside, CA, 10/92
Mirage+: A Coherent Distributed Shared Memory Design
University of California, Riverside, CA, 5/92
Aspects of Reliability for Mirage+: A Coherent Distributed Shared Memory System for a
Workstation Environment, Florida International University, Miami, FL, 11/91
Mirage+: A Coherent Distributed Shared Memory Design for a Workstation Environment,
Hewlett-Packard Laboratories, Palo Alto, CA, 9/91
Second Symposium On Experiences With Distributed and Multiprocessor Systems,
Atlanta, GA, 3/91
An Introduction to Trusted Computer System Design (Invited Lecturer),
Sixth Annual Computer Security Applications Conference, Tuscon, AZ, 12/90
Support for Transparent Computing in UNIX
Tulane University, Computer Science Review Board, New Orleans, LA, 2/90
Tulane University, Computer Science Department, New Orleans, LA, 4/90, 1/90
Mirage: A Coherent Distributed Shared Memory Design
Purdue University, Computer Science Department, West Lafayette, IN, 4/89
Tulane University, Computer Science Department, New Orleans, LA, 4/89
University of Virginia, Computer Science Department, Charlottesville, VA, 4/89
The Ohio State University, Computer Science Department, Columbus, OH, 4/89

PROFESSIONAL ACTIVITIES AND SERVICE

Memberships

Association for Computing Machinery (ACM)
The Institute of Electrical and Electronics Engineers, Inc. (IEEE) & Computer Society IEEE
Promoted to Senior Member, IEEE, 2005
USENIX Association, USENIX Faculty Site Representative

Positions

Publicity Chair, 27th IEEE International Conference on Distributed Computing Systems (ICDCS 26) Toronto, Canada, July, 2007.

Panel Co-Chair, CISE Geni Town Hall Meeting, Distributed Systems and Applications, Mark Hopkins Intercontinental Hotel, San Francisco, CA, July 2006.

Panel Co-Chair, CISE Geni Town Hall Meeting, Distributed Systems and Applications, Hyatt Regency Rosslyn, Arlington, VA, March 10, 2006.

NSF Participant, ICER Workshop, Stanford University, Palo Alto, CA January 2006.

NSF Observer, Bourns College of Engineering Retreat, Del Mar, CA, January 2006.

Program Committee, 26th IEEE International Conference on Distributed Computing Systems (ICDCS 26) Lisboa, Portugal, July 4-7, 2006.

WIP Session Program Committee Member, The 26th IEEE Real-Time Systems Symposium, December 5-8, 2005, Miami, Florida, USA

Founder's Steering Committee, Max Planck Institute (MPI) Strategic Directions Workshop, Kaiserslautern, Germany, Sept 22-23, 2005.

Program Committee for IEEE International Performance Computing and Communications Conference (IPCCC), 2006.

Program Committee, NSF Grand Challenges Workshop on Computer Systems Research, 9/2005.

Steering Committee, NSF Grand Challenges in Computer Systems Research, 7/2005-present.

Member, HCSS Working Group, Networking and Information Technology Research and Development (NITRD), part of The Federal Networking and Information Technology and Research Development (NITRD) Program, March 2005-present

Program Committee, 25th International Conference on Distributed Computing Systems (ICDCS 2005), Columbus, OH, June 2005.

Session Chair, 25th International Conference on Distributed Computing Systems (ICDCS 2005), Columbus, OH, June 2005.

Session Chair, 17th International Conference on Parallel and Distributed Computing Systems (PDCS 2004), San Francisco, CA, September 15-17 2004.

Program Committee, 17th International Conference on Parallel and Distributed Computing Systems (PDCS 2004), San Francisco, CA, September 15-17 2004.

Program Committee, International Workshop on Frontiers of Information Technology, Islamabad, Pakistan, July 22-24, 2003.

Session Chair, IEEE International Conference on Cluster Computing, Newport Beach, CA, 2001.

Program Committee, 20th IEEE International Performance, Computing and Communications Conference 2001, Feb 2001

Nominations Committee, IEEE Technical Committee on Operating Systems, September 2000.

Program Committee, 19th IEEE International Performance, Computing and Communications Conference 2000, Feb 2000

National Science Foundation Grant Review Panel, March 1999.

Tutorials Chair, The 19th IEEE International Conference on Distributed Computing Systems (ICDCS '99).

Publicity Chair, The 17th IEEE Symposium on Reliable Distributed Systems (SRDS '98).

USENIX Association Faculty Campus Representative, July 1996 - present

Treasurer, IEEE Technical Committee on Operating Systems, November 1993-present

Session Chair, *SEDMIS-IV*, San Diego, CA September 1993.

Program Committee, *Fourth Symposium On Experiences With Distributed and Multiprocessor Systems*, September, 1993.

Session Chair, *Southeastcon* 1991, Williamsburg, VA April 1991.

Session Chair, *Eleventh International Conference on Distributed Computing Systems*, Arlington, TX, May, 1991.

Professional Service by Refereeing

Funding Agencies:

University of California MICRO program, External Referee, July 2005.

Review Panelist, U.S. Department of Energy, Operating/Runtime Systems for Extreme Scale Scientific Computation Panel, June 2004.

Review Panelist, California Technology Trade & Commerce Agency, State of California, 2004.

University of California MICRO program, External Referee, June 2003.

California Technology, Trade and Commerce Agency, 2002.

University of California UC Communications Research Program (CoRe), 2002.
Review Panelist, The Aerospace Corporation, June 2000.
National Science Foundation, External and Internal Referee
National Science Foundation Review Panelist, March 1999, April 2001, Oct 2002.
Fellowship Reviewer for Oak Ridge Junior Faculty Enhancement Award, April 1996

Monographs

John Wiley and Sons(paid)
Pearson Publications, [November 2000]
Brooks Cole Publications, [February 2002]

Journals

ACM Computing Surveys
ACM Transactions on Computer Systems
IEEE Computer
Software Practice and Experience
IEEE Computer Society Press Manuscripts
IEEE Transactions on Parallel and Distributed Systems
Journal of Parallel and Distributed Computing
The Computer Journal, Oxford Press
IEEE Parallel and Distributed Technology: Systems and Applications
IEEE Transactions on Computers
IEEE Concurrency

Conferences (partial list)

IEEE Symposium of Reliable Distributed Systems (SRDS-19)
Hawaii International Conference on Systems Sciences
IEEE Symposium of Reliable Distributed Systems (SRDS-15)
Fault Tolerant Computing Systems, 1996.
24rth International Conference on Parallel Processing, 1995
First Symposium on Operating Systems Design and Implementation, 1994
23rd International Conference on Parallel Processing, 1994
Fourth Symposium On Experiences With Distributed & Multiprocessor Systems, 1993.
ACM SIGMETRICS '93
ACM SIGMETRICS '91
Eighth Symposium on Operating Systems Principles, December 1981
HPCA-9

Reviewer:

ACM Computing Reviews