

# WU-CHUN FENG

## PERSONAL

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Nickname: Wu. Birth Year: 1966.  
Gender: Male. Birth Place: Ann Arbor, Michigan, U.S.A.

## RESEARCH INTERESTS

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High-performance networking and computing, computational and data grids, low-power and power-aware computing, real-time systems, bioinformatics, and human-computer interaction.

## EDUCATION

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8/90 – 5/96 University of Illinois at Urbana-Champaign, Urbana, IL GPA: 5.00/5.00  
Ph.D. in Computer Science  
Thesis: *Applications and Extensions of the Imprecise-Computation Model*  
Advisor: Professor Jane W.-S. Liu

8/88 – 12/89 The Pennsylvania State University, University Park, PA GPA: 4.00/4.00  
M.S. in Computer Engineering  
Thesis: *A Learn-by-Example, Natural-Language Processor Based on Case-Frame Instantiation*  
Advisor: Professor Rangachar Kasturi

8/84 – 5/88 The Pennsylvania State University, University Park, PA GPA: 3.82/4.00  
B.S. in Computer Engineering & B.S. Honors in Music  
Computer Engineering  
Thesis: *A Natural-Language Interface for a Paper-Based Map Information System*  
Advisor: Professor Rangachar Kasturi

Music  
Thesis: *Compositions in Popular Music for the Piano*  
Advisor: Professor W. Bruce Trinkley

## PROFESSIONAL EXPERIENCE

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### Employment

Virginia Tech, Blacksburg, VA, USA  
January 2006 – now

1. *Associate Professor*; Department of Computer Science & Center for High-End Computing Systems; January 2006 – now.
2. *Director*; SyNeRGy Laboratory; January 2006 – now.
3. *Member*; Center for High-End Computing Systems, January 2006 – now.

Los Alamos National Laboratory, Operated by the University of California, Los Alamos, NM, USA  
October 1998 – January 2006

1. *Founder, Team Leader, and Technical Staff Member*; Research & Development in Advanced Network Technology (RADIANT); Computer & Computational Sciences Division; October 2000 – now.
  - Staff: 2-3 professionals, 2-3 postdocs, 3-5 students, 3-5 cross-team collaborators, tens of external collaborators.

- Technical lead & principal investigator on projects in the following areas: high-performance networking and computing, network traffic characterization, monitoring tools, network protocols (OS-based and OS-bypass), computational & data grids, resource management, bioinformatics, and cyber-security.
  - Director of the Advanced Summer Curriculum for Emerging Network Technologies (ASCENT), a challenging program for students interested in learning about how to do networking-related research.
2. *Technical Staff Member (tenured in September 2000)*; Network Engineering Group; Computing, Information, and Communications Division, October 1998 – October 2000.
    - Proposal writing and research in network traffic characterization, high-performance TCP, high-speed network interface cards, OS-bypass protocols, and distributed resource management.

University of Illinois at Urbana-Champaign, Urbana, IL, USA

August 1990 – May 1998

1. *Visiting Assistant Professor*; Department of Computer Science; College of Engineering; August 1996 – May 1998.
  - Teaching: computer architecture, software engineering, and computer networks.
  - Research: real-time systems, networks, and multimedia (see work at Vosaic).
2. *Research Assistant*; Department of Computer Science; College of Engineering; August 1992 – August 1996.
  - Real-time systems and networks, end-to-end scheduling, and imprecise computation.
3. *Research Assistant*; Department of Computer Science; College of Engineering; August 1991 – August 1992.
  - Performance metering & compiler optimization of concurrent object-oriented programs.
4. *Teaching Assistant*; Department of Computer Science; College of Engineering; August 1990 – August 1991.
  - Artificial intelligence, object-oriented programming, communication networks for computers.

IBM T.J. Watson Research Center, Yorktown Heights, NY, USA

January 1990 – July 1990

*Applications Research Programmer*; January 1990 – July 1990.

- Systems integration and research of speech, handwriting, and gesture recognition systems.

The Pennsylvania State University, University Park, PA, USA

July 1988 – December 1989

1. *Teaching Fellow & Assistant*; Electrical Engineering Department; College of Engineering; August 1988 – December 1989.
  - Digital design, VLSI system design, electrical circuits, power distribution.
2. *Technical Coordinator*; NSF-funded Young Scholars Academy; College of Engineering; July 1988 – August 1988.
  - Teaching, computer curriculum development, and software development & maintenance in Fortran and C.

### Consulting, Courtesy, and Other Appointments

Adjunct Associate Professor, Dept. of Electrical & Computer Engineering Virginia Tech, Blacksburg, VA, USA.

January 2006 – now

Chief Scientist, Orion Multisystems, Santa Clara, CA, USA. June 2004 – February 2006.

- Software and hardware architect for desktop cluster workstations.

Member of the Board of Directors, Compufarm, Palo Alto, CA, USA. December 2003 – now.

- Non-profit organization established to provide ubiquitous technology infrastructure (i.e., grid of clusters) to rural as well as urban (but economically disadvantaged) areas.

Institute Fellow, Los Alamos Computer Science Institute, Los Alamos National Laboratory, Los Alamos, NM, USA. November 1998 – January 2006.

- “Think tank” for fundamental and applied research in computer science.

Adjunct Assistant Professor, Dept. of Computer & Information Science, The Ohio State University, Columbus, OH, USA. April 2000 – April 2002 and August 2002 – August 2003.

- Courtesy appointment.

Adjunct Assistant Professor, Dept. of Electrical & Computer Engineering, Purdue University, W. Lafayette, IN, USA. October 1998 – October 2000.

- Courtesy appointment.

Research Scientist, Vosaic Corporation, Champaign, IL, USA. February 1997 – June 1997.

- VDP: Video Datagram Protocol (streaming of audio and video over the Internet).
- AC-3™: Java-based real-time audio decoder.

Research Consultant, Spacecraft Data Systems, NASA Ames Research Center, Mountain View, CA, USA. June 1993 – August 1993.

- Real-time scheduling on Space Station Freedom (now International Space Station).

## TEACHING EXPERIENCE

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### Virginia Tech, Blacksburg, VA, USA

January 2006 – present

1. *Associate Professor*; Department of Computer Science; College of Engineering; January 2006 – present.
  - CS 2504: Introduction to Computer Organization (Course Coordinator for ABET Accreditation)  
Content: Computer Organization & Design, Patterson & Hennessy.
  - CS 5565: Network Architecture and Protocols (Course Coordinator for ABET Accreditation)  
Content: Computer Networking: A Top-Down Approach Featuring the Internet, Kurose & Ross.  
Class Profile: 45 graduate students.  
Class Support: 1 half-time teaching assistant.
  - CS 6204: Advanced Topics in High-Performance Networking  
Content: Hardware and software architectures for high-performance networking in system- and wide-area networks in support of clusters and distributed computing, respectively.  
Class Profile: 5 graduate students.  
Class Support: None.

### University of Illinois at Urbana-Champaign, Urbana, IL, USA

August 1990 – August 1991 and August 1996 – May 1998

1. *Visiting Assistant Professor*; Department of Computer Science; College of Engineering; August 1996 – May 1998.
  - CS 105: Introduction to Computer Science  
Content: Object-oriented programming with Visual Basic.  
Class Profile: 750 undergraduate students.  
Class Support: 9 half-time teaching assistants and 9 graders.
  - CS/ECE 232: Computer Architecture II  
Content: Computer Organization & Design, Patterson & Hennessy.  
Class Profile: 145 undergraduate students and 5 graduate students.  
Class Support: 1 half-time teaching assistant, 1 quarter-time teaching assistant, 2 graders.
  - CS/ECE 338: Communication Networks for Computers  
Content: Computer Networks: A Systems Approach, Peterson & Davie.  
Class Profile: 100 undergraduate students and 60 graduate students.  
Class Support: 2 half-time teaching assistant and 2 graders.
2. *Teaching Assistant*; Department of Computer Science; College of Engineering; August 1990 – August 1991.
  - CS 105: Introduction to Computer Science
  - CS/ECE 338: Communication Networks for Computers
  - CS/ECE 348: Introduction to Artificial Intelligence

### The Pennsylvania State University, University Park, PA, USA

July 1988 – December 1989

1. *Teaching Fellow & Assistant*; Electrical Engineering Department; College of Engineering; August 1988 – December 1989.
  - CMPEN 271: Digital System Design
  - CMPEN 449: VLSI System Design
  - EE 220: Electrical Circuits and Power Distribution
2. *Technical Coordinator*; NSF-funded Young Scholars Academy; College of Engineering; July 1988 – August 1988.
  - Teaching, computer curriculum development, and software development & maintenance in Fortran and C.

## PUBLICATIONS

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### *Book & Book Chapter*

1. W. Feng and J. Duato (Editors), *2005 International Conference on Parallel Processing*, Vol. 34, Los Alamitos, CA, USA, 2006. (ISBN: 0-7695-2380-3.)
2. A. Mezzacappa, J. Chen, P. Cummings, J. Dongarra, J. Drake, W. Feng, W. Gropp, J. Hack, R. Harrison, C. Johnson, D. Keyes, J. Mitchell, R. Mount, E. Ng, R. Rync, N. Samatova, R. Sugar, and W. Tang (Editors), *SciDAC 2005: Scientific Discovery through Advanced Computing*, Journal of Physics: Conference Series, Vol. 16, Institute of Physics Publishing, Temple Back, Bristol, United Kingdom, 2005. (ISSN: 1742-6588.)
3. W. Feng, "Green Destiny + mpiBLAST = Bioinformagic," Book Chapter in *Advances in Parallel Computing Series, Parallel Computing: Software Technology, Algorithms, Architectures, and Applications*, Vol. 13, G.R. Joubert, W.E. Nagel, F.J. Peters, and W.V. Walter (Editors), Elsevier, 2004.
4. R. Devon and W. Feng, *Fortran at the Keyboard*, Kendall/Hunt Publishing Company, Dubuque, IA, September 1989.

### *Report*

1. NSF Workshop Report on Petascale Computing in the Biological Sciences, August 2006. Invited Contributor.
2. DOE Science Networking Challenge: Roadmap to 2008, August 2003. Primary Contributor and Working Group Chair.
3. DOE Workshop on Ultra High-Speed Transport and Dynamic Provisioning for Large-Scale Science Applications, April 2003. Program Vice-Chair and Working Group Chair with Prof. Donald Towsley of the University of Massachusetts.
4. NSF/DOE Large-Scale Network Security Workshop, May 2003. Primary Contributor.

### *Journal & Magazine*

1. C. Hsu and W. Feng, "Embracing the Memory Wall and I/O Wall for Energy-Efficient Computing," Submitted to *ACM Transactions on Architecture and Code Optimization*, 2007.
2. A. Banerjee, W. Feng, D. Ghosal, and B. Mukherjee, "Algorithms for Integrated Routing and Scheduling for Aggregating Data from Distributed Resources on a Lambda Grid," *IEEE Transactions on Parallel & Distributed Systems*, 2006. (Accepted for publication.)
3. P. Balaji, W. Feng, and D. Panda, "Bridging the Ethernet-Ethernot Performance Gap," *IEEE Micro, Special Issue: High-Performance Interconnects*, 26(3), May-June 2006. (Acceptance Rate: 10%)
4. J. Hurwitz and W. Feng, "Analyzing MPI Performance over 10-Gigabit Ethernet," *Journal of Parallel and Distributed Computing, Special Issue: Design and Performance of Networks for Super-, Cluster-, and Grid-Computing*, Vol. 65, No. 10, October 2005.
5. X. Zhang, L. Bhuyan, and W. Feng, "Anatomy of UDP and M-VIA for Cluster Communication," *Journal of Parallel and Distributed Computing, Special Issue: Design and Performance of Networks for Super-, Cluster-, and Grid-Computing*, Vol. 65, No. 10, October 2005.
6. W. Feng, "The Importance of Being Low Power in High-Performance Computing," *Cyberinfrastructure Technology Watch*, Vol. 1, No. 3, August 2005. <http://www.ctwatch.org/quarterly/articles/2005/08/the-importance-of-being-low-power-in-high-performance-computing/>
7. C. Jin, D. Wei, S. Low, G. Buhrmaster, J. Bunn, D. Choe, R. L. Cottrell, J. C. Doyle, W. Feng, O. Martin, H. Newman, F. Paganini, S. Ravot, and S. Singh, "FAST TCP: From Theory to Experiments," *IEEE Network*, January-February 2005.
8. M. Gardner, S. Thulasidasan, and W. Feng, "User-Space Auto-Tuning for TCP Flow Control in Computational Grids," *Computer Communications, Special Issue on Network Support for Grid Computing*, 27(14): 1364-1374, September 2004.
9. M. Veeraraghavan, X. Zheng, W. Feng, H. Lee, E. Chong, and H. Li, "Scheduling and Transport for File Transfers on High-Speed Optical Circuits," *Journal of Grid Computing*, 1(4): 395-405, June 2004.
10. L. Carey, A. Darling, and W. Feng, "Takeoff with mpiBLAST: Parallel Searching," *ClusterWorld Magazine*, Vol. 2, No. 3, March 2004. (Invited Paper.)
11. M. Baker and W. Feng, "10-Gigabit Ethernet Helps Relieve Network Bottlenecks for Bandwidth-Intensive Applications," *Dell Power Solutions*, pp. 113-116, March 2004. (Invited Paper.)
12. J. Hurwitz and W. Feng, "End-to-End Performance of 10-Gigabit Ethernet on Commodity Systems," *IEEE Micro*, 24(1): 10-22, January-February 2004. (A preliminary version of this paper appeared in *IEEE Hot Interconnects: A Symposium on High-Performance Interconnects* in August 2003 and was selected as one of the best papers, and hence, invited for publication in a special issue of *IEEE Micro*.)
13. W. Feng, "Making a Case for Efficient Supercomputing," *ACM Queue*, 1(7): 54-64, October 2003.

14. W. Feng, M. Gardner, M. Fisk, and E. Weigle, "Automatic Flow-Control Adaptation for Enhancing Network Performance in Computational Grids," *Journal of Grid Computing*, 1(1): 63-74, 2003.
15. W. Feng, M. Fisk, M. Gardner, and E. Weigle, "Dynamic Right-Sizing: An Automated, Lightweight, and Scalable Technique for Enhancing Grid Performance," *Lecture Notes in Computer Science*, 2334: 69-83, 2002. (A preliminary version of this paper appeared in the 7<sup>th</sup> IFIP/IEEE Workshop on Protocols for High-Speed Networks.)
16. W. Feng, M. Gardner, and J. Hay, "The MAGNeT Toolkit: Design, Evaluation, and Implementation," *Journal of Supercomputing*, 23(1): 67-79, August 2002. (A preliminary version of this paper appeared in the 2001 Los Alamos Computer Science Institute Symposium and was invited for journal publication.)
17. A. Feng, A. Kapadia, W. Feng, and G. Belford, "Packet Spacing: An Enabling Mechanism for the Delivery of Multimedia Content," *Journal of Supercomputing*, 23(1): 51-66, August 2002. (A preliminary version of this paper appeared in the 2001 Los Alamos Computer Science Institute Symposium and was invited for journal publication.)
18. W. Feng, "Research & Development in Advanced Network Technology (RADIANT)," *In Brief Contribution, D-Lib Magazine* (<http://www.dlib.org>, ISSN 1082-9873, Vol. 8, No. 3, March 2002.
19. F. Petrini, W. Feng, A. Hoisie, S. Coll, and E. Frachtenberg, "The Quadrics Network (QsNet): High-Performance Clustering Technology" (Extended Version), *IEEE Micro*, 22(1): 46-57, January-February 2002. (A preliminary version of this paper appeared in *IEEE Hot Interconnects: A Symposium on High-Performance Interconnects* in August 2001 and was selected as one of the best papers, and hence, invited for publication in a special issue of *IEEE Micro*.)
20. F. Petrini and W. Feng, "Improved Resource Utilization with Buffered Coscheduling," *Journal of Parallel Algorithms & Applications* (Special Issue), Vol. 16, 2001.
21. F. Petrini and W. Feng, "Time-Sharing Parallel Jobs in the Presence of Multiple Resource Requirements," *Lecture Notes in Computer Science*, Vol. 1911, 2000. (A preliminary version of this paper appeared in the *Workshop on Job Scheduling Strategies for Parallel Processing*, 2000.)
22. W. Feng and J. W.-S. Liu, "Algorithms for Scheduling Real-Time Tasks with Input Error and End-to-End Deadlines," *IEEE Transactions on Software Engineering*, 23(2): 93-106, February 1997.
23. A. Chien, W. Feng, V. Karamcheti, and J. Plevyak, "Techniques for Efficient Execution of Concurrent Object-Oriented Programs," *Lecture Notes in Computer Science*, Vol. 757, 1993. (A preliminary version of this paper appeared in the *Workshop on Languages and Compilers for Parallel Computing*, 1993.)
24. R. Kasturi, R. Fernandez, M. Amlani, and W. Feng, "Map Data Processing in Geographic Information Systems," *IEEE Computer*, December 1989.

#### Conference

1. J. Archuleta, E. Tilevich, and W. Feng, "mpiBLAST-2.0: A Maintainable Software Architecture for Fast and Modular Bioinformatics Sequence Search," 23<sup>rd</sup> IEEE International Conference on Software Maintenance, Paris, France, October 2007. (Acceptance Rate: 21% = 46/214)
2. R. Ge, X. Feng, W. Feng, and K. Cameron, "CPU MISER: A Performance-Directed, Run-Time System for Power-Aware Clusters," 36<sup>th</sup> International Conference on Parallel Processing, Xian, China, September 2007.
3. G. Narayanaswamy, P. Balaji, and W. Feng, "An Analysis of 10-Gigabit Ethernet Protocol Stacks in Multicore Environments," 15<sup>th</sup> International Symposium on High-Performance Interconnects (IEEE Hot Interconnects), Palo Alto, CA, August 2007.
4. P. Datta, W. Feng, and S. Sushant, "End-System Aware, Rate-Adaptive Protocol for Network Transport in LambdaGrid Environments," SC'06: The International Conference on High-Performance Computing, Networking, Storage, and Analysis, November 2006. (Acceptance Rate: 23% = 54/239)
5. M. Gardner, W. Feng, J. Archuleta, H. Lin, and X. Ma, "Parallel Genomic Sequence-Searching on an Ad-Hoc Grid: Experiences, Lessons Learned, and Implications," SC'06: The International Conference on High-Performance Computing, Networking, Storage, and Analysis, November 2006. Best Paper Nominee. (Acceptance Rate: 23% = 54/239)
6. A. Ching, W. Feng, H. Lin, X. Ma, and A. Choudhary, "Exploring I/O Strategies for Parallel Sequence Database Search Tools with S3aSim," 15<sup>th</sup> IEEE International Symposium on High-Performance Distributed Computing (HPDC'06), Paris, France, June 2006. (Acceptance Rate: 15% = 24/157)
7. P. Datta, S. Sharma, and W. Feng, "A Feedback Mechanism for Network Scheduling in LambdaGrids," 6<sup>th</sup> IEEE/ACM Symposium on Cluster Computing and the Grid (CCGrid'06), Singapore, May 2006. (Acceptance Rate: 24% = 61/257)
8. A. Banerjee, W. Feng, D. Ghosal, and B. Mukherjee, "RAPID: An End-System Aware Protocol for Intelligent Data-Transfer over LambdaGrids," 20<sup>th</sup> International Parallel & Distributed Processing Symposium (IPDPS'06), Rhodes, Greece, April 2006. (Acceptance Rate: 24% = 125/531)
9. H. Lin, X. Ma, W. Feng, A. Geist, and N. Samatova, "Efficient Data Handling in Comparative Genome Analysis

- Applications,” *12<sup>th</sup> SLAM Conference on Parallel Processing for Scientific Computing*, San Francisco, CA, February 2006.
10. J. Gans, W. Feng, and M. Wolinsky, “Whole Genome, Physics-Based Sequence Alignment for Pathogen Signature Design,” *12<sup>th</sup> SLAM Conference on Parallel Processing for Scientific Computing*, San Francisco, CA, February 2006.
  11. C. Hsu and W. Feng, “A Power-Aware Run-Time System for High-Performance Computing,” *ACM/IEEE SC2005: The International Conference on High-Performance Computing, Networking, and Storage*, Seattle, WA, November 2005. (Acceptance Rate: 24% = 63/260)
  12. C. Hsu and W. Feng, “A Feasibility Analysis of Power Awareness in Commodity-Based High-Performance Clusters,” *7<sup>th</sup> IEEE International Conference on Cluster Computing (IEEE Cluster)*, Boston, MA, September 2005. (Acceptance Rate: 33% = 45/138)
  13. P. Balaji, W. Feng, Q. Gao, R. Noronha, W. Yu, and D. Panda, “Head-to-TOE Evaluation of High-Performance Sockets over Protocol Offload Engines,” *7<sup>th</sup> IEEE International Conference on Cluster Computing (IEEE Cluster)*, Boston, MA, September 2005. (Acceptance Rate: 33% = 45/138)
  14. W. Feng, P. Balaji, C. Baron, L. Bhuyan, and D. Panda, “Performance Characterization of a 10-Gigabit Ethernet TOE,” *13<sup>th</sup> IEEE International Symposium on High-Performance Interconnects (IEEE Hot Interconnects)*, Palo Alto, CA, August 2005.
  15. C. Hsu and W. Feng, “Reducing Overheating-Induced Failures via Performance-Aware CPU Power Management,” *The 6<sup>th</sup> International Conference on Linux Clusters: The HPC Revolution 2005*, April 2005.
  16. S. Ayyorgun, S. Vanichpun, and W. Feng, “Q-Composer and CpR: A Probabilistic Synthesizer and Regulator of Traffic,” *24<sup>th</sup> IEEE INFOCOM*, Miami, FL, March 2005. (Acceptance Rate: 17% = 244/1419)
  17. S. Ayyorgun and W. Feng, “A Systematic Approach for Providing End-to-End Probabilistic QoS Guarantees,” *13<sup>th</sup> IEEE International Conference on Computer Communications and Networks (IC3N’04)*, Chicago, IL, October 2004. (Acceptance Rate: 35%)
  18. W. Feng, “A Multimodal Interface for the Immediate Transcription of Radiology Dictation,” *17<sup>th</sup> IEEE Symposium on Computer-Based Medical Systems (CBMS’04)*, Bethesda, MD, June 2004.
  19. W. Feng and C. Hsu, “Green Destiny and Its Evolving Parts,” Innovative Supercomputer Architecture Award, *19<sup>th</sup> International Supercomputer Conference*, Heidelberg, Germany, June 2004.
  20. A. Engelhart, M. Gardner, and W. Feng, “Re-Architecting Flow-Control Adaptation for Grid Environments,” *18<sup>th</sup> IEEE International Parallel & Distributed Processing Symposium (IPDPS’04)*, Santa Fe, NM, April 2004. (Acceptance Rate: 32% = 142/447)
  21. W. Feng and C. Hsu, “The Origin and Evolution of Green Destiny,” *IEEE Cool Chips VII: An International Symposium on Low-Power and High-Speed Chips*, Yokohama, Japan, April 2004.
  22. S. Ayyorgun and W. Feng, “A Deterministic Characterization of Network Traffic for Average Performance Guarantees,” *38<sup>th</sup> Annual Conference on Information Sciences and Systems (CISS’04)*, Princeton, NJ, March 2004.
  23. M. Gardner, W. Deng, T. S. Markham, C. Mendes, W. Feng, and D. Reed, “A High-Fidelity Software Oscilloscope for Globus,” *GlobusWORLD 2004*, San Francisco, CA, January 2004.
  24. W. Feng, J. Hurwitz, H. Newman, S. Ravot, L. Cottrell, O. Martin, F. Coccetti, C. Jin, D. Wei, and S. Low, “Optimizing 10-Gigabit Ethernet for Networks of Workstations, Clusters, and Grids: A Case Study,” *ACM/IEEE SC 2003: High-Performance Networking and Computing Conference*, Phoenix, AZ, November 2003. (Acceptance Rate: 29% = 60/207)
  25. F. Moraes and W. Feng, “Analyzing and Enhancing Parallel I/O in mpiBLAST” (poster), *ACM/IEEE SC 2003: High-Performance Networking and Computing Conference*, Phoenix, AZ, November 2003. (Acceptance Rate: 35%)
  26. W. Feng and F. Moraes, “mpiBLAST: A Tool for Interactive Bioinformatics” (poster), *NIH Symposium on Bioinformatics and Computational Biology – Digital Biology: The Emerging Paradigm*, Bethesda, MD, November 2003.
  27. K. Pattabiraman, W. Feng, and D. Reed, “Profile-Based Dynamic Voltage Scaling for I/O-Intensive Codes” (poster), *Los Alamos Computer Science Institute Symposium (LACSI’03)*, Santa Fe, NM, October 2003.
  28. M. Veeraraghavan, X. Zheng, H. Lee, M. Gardner, and W. Feng, “CHEETAH: Circuit-Switched High-Speed End-to-End Transport Architecture,” Best Paper Award, *SPIE/IEEE Optical Networking and Computer Communications Conference (OptiComm)*, Dallas, TX, October 2003. (Acceptance Rate: 35%)
  29. W. Feng, “Green Destiny + mpiBLAST = Bioinformagic,” *10<sup>th</sup> International Conference on Parallel Computing 2003 (ParCo’03)*, Dresden, Germany, September 2003.
  30. J. Hurwitz and W. Feng, “Initial End-to-End Performance Evaluation of 10-Gigabit Ethernet,” *11<sup>th</sup> IEEE International Symposium on High-Performance Interconnects (IEEE Hot Interconnects)*, Palo Alto, CA, August 2003.
  31. A. Darling, L. Carey, and W. Feng, “The Design, Implementation, and Evaluation of mpiBLAST,” Best Paper: Applications Track, *4<sup>th</sup> International Conference on Linux Clusters: The HPC Revolution 2003* in conjunction with the *ClusterWorld Conference & Expo 2003*, San Jose, CA, June 2003. (Acceptance Rate: ~40%)
  32. S. Thulasidasan, W. Feng, and M. Gardner, “Optimizing GridFTP Through Dynamic Right-Sizing,” *12<sup>th</sup> IEEE Symposium on High-Performance Distributed Computing (HPDC’03)*, Seattle, WA, June 2003. (Acceptance Rate: 20% = 25/125)

33. M. Gardner, W. Feng, M. Broxton, J. Hurwitz, and A. Engelhart, "MAGNET: A Tool for Debugging, Analysis, and Adaptation in Computing Systems," *3<sup>rd</sup> IEEE/ACM Symposium on Cluster Computing and the Grid (CCGrid'03)*, Tokyo, Japan, May 2003. (Acceptance Rate: 34% = 39/114)
34. M. Gardner, M. Broxton, A. Engelhart, and W. Feng, "MUSE: A Software Oscilloscope for Clusters and Grids," *17<sup>th</sup> IEEE International Parallel & Distributed Processing Symposium*, Nice, France, April 2003. (Acceptance Rate: 29% = 119/407)
35. A. Darling, A. Engelhart, and W. Feng, "An Open-Source Parallelization of BLAST" (poster), *O'Reilly Bioinformatics Technology Conference (BioCon'03)*, San Diego, CA, February 2003.
36. W. Feng, and S. Vanichpun, "Ensuring Compatibility Between TCP Reno and TCP Vegas," *3<sup>rd</sup> IEEE Symposium on Applications and the Internet (SAINT'03)*, Orlando, FL, January 2003. (Acceptance Rate: 29% = 43/149)
37. W. Feng, "An Integrated Multimedia Environment for Speech Recognition Using Handwriting and Written Gestures," *36<sup>th</sup> Hawai'i International Conference on System Sciences (HICSS-36)*, Big Island, HI, January 2003.
38. A. Darling, L. Carey, and W. Feng, "mpiBLAST: Delivering Super-Linear Speedup with an Open-Source Parallelization of BLAST" (poster), *8<sup>th</sup> Pacific Symposium on Biocomputing (PSB'03)*, Lihue, HI, January 2003.
39. M. Warren, E. Weigle, and W. Feng, "High-Density Computing: A 240-Processor Beowulf in One Cubic Meter," *IEEE/ACM SC 2002: High-Performance Networking and Computing Conference*, Baltimore, MD, November 2002. (Acceptance Rate: 29% = 67/230)
40. A. Darling and W. Feng, "mpiBLAST: Parallelization of BLAST for Computational Clusters" (poster), *IEEE/ACM SC 2002: High-Performance Networking and Computing Conference*, Baltimore, MD, November 2002. (Acceptance Rate: 35%)
41. W. Feng, A. Kapadia, and S. Thulasidasan, "GREEN: Proactive Queue Management over a Best-Effort Network," *IEEE GLOBECOM*, Taipei, Taiwan, R.O.C., November 2002. (Acceptance Rate: 31% = 606/1980)
42. S. Vanichpun and W. Feng, "On the Transient Behavior of TCP Vegas," *11<sup>th</sup> IEEE International Conference on Computer Communications and Networks (IC3N'02)*, Miami, FL, October 2002. (Acceptance Rate: 29%)
43. W. Feng, "Securing Wireless Communication in Heterogeneous Environments," *IEEE MILCOM*, Anaheim, CA, October 2002.
44. W. Feng, M. Warren, and E. Weigle, "The Bladed Beowulf: A Cost-Effective Alternative to Traditional Beowulfs," *4<sup>th</sup> IEEE International Conference on Cluster Computing (IEEE Cluster)*, Chicago, IL, September 2002. (Acceptance Rate: 39%)
45. W. Feng and J. Al-Muhtadi, "A General Security Infrastructure for Wireless Communication," *IEEE International Conference on Networks (ICN'02)*, Atlanta, GA, August 2002.
46. N. Rao and W. Feng, "Performance Tradeoffs of TCP Adaptation Methods," *IEEE International Conference on Networks (ICN'02)*, Atlanta, GA, August 2002.
47. A. Darling and W. Feng, "BLASTing Off with Green Destiny" (poster), *IEEE Computer Society Bioinformatics Conference (CSB'02)*, now known as the *IEEE Computational Systems Bioinformatics Conference*, Palo Alto, CA, August 2002.
48. W. Feng, M. Warren, and E. Weigle, "Honey, I Shrunk the Beowulf!" *31<sup>st</sup> International Conference on Parallel Processing (ICPP'02)*, Vancouver, Canada, August 2002. (Acceptance Rate: 36% = 67/188)
49. M. Gardner, W. Feng, and M. Fisk, "Dynamic Right-Sizing in FTP (drsFTP): An Automatic Technique for Enhancing Grid Performance," *IEEE Symposium on High-Performance Distributed Computing (HPDC'02)*, Edinburgh, Scotland, July 2002. (Acceptance Rate: 31%)
50. E. Weigle and W. Feng, "A Comparison of TCP Automatic-Tuning Techniques for Distributed Computing," *IEEE Symposium on High-Performance Distributed Computing (HPDC'02)*, Edinburgh, Scotland, July 2002. (Acceptance Rate: 31%)
51. M. Fisk and W. Feng, "Dynamic Right-Sizing: TCP Flow-Control Adaptation" (poster), *SC 2001: High-Performance Networking and Computing Conference*, Denver, CO, November 2001. (Acceptance Rate: 35%)
52. J. Hay, W. Feng, and M. Gardner, "Capturing Network Traffic with a MAGNeT," *5<sup>th</sup> USENIX Annual Linux Showcase & Conference (ALS'01)*, Oakland, CA, November 2001.
53. E. Weigle and W. Feng, "Dynamic Right-Sizing in TCP: A Simulation Study," *IEEE International Conference on Computer Communications and Networks (IC3N'01)*, Scottsdale, AZ, October 2001. (Acceptance Rate: 31%)
54. W. Feng, J. Hay, and M. Gardner, "MAGNeT: Monitor for Application-Generated Network Traffic," *IEEE International Conference on Computer Communications and Networks (IC3N'01)*, Scottsdale, AZ, October 2001. (Acceptance Rate: 31%)
55. J. Al-Muhtadi, W. Feng, and M. Fisk, "An Inter-Realm, Cyber-Security Infrastructure for Virtual Supercomputing," *Los Alamos Computer Science Institute Symposium (LACSI'01)*, Santa Fe, NM, October 2001.
56. A. Feng, W. Feng, and G. Belford, "Packet Spacing: An Enabling Mechanism for the Delivery of Multimedia Content," *Los Alamos Computer Science Institute Symposium (LACSI'01)*, Santa Fe, NM, October 2001.
57. M. Fisk and W. Feng, "Dynamic Right-Sizing in TCP," *Los Alamos Computer Science Institute Symposium (LACSI'01)*, Santa Fe, NM, October 2001.

58. J. Hay, W. Feng, and M. Gardner, "The Design, Implementation, and Evaluation of MAGNeT," *Los Alamos Computer Science Institute Symposium (LACSI'01)*, Santa Fe, NM, October 2001.
59. F. Petrini, W. Feng, A. Hoisie, S. Coll, and E. Frachtenberg, "The Quadrics Network (QsNet): High-Performance Clustering Technology," *9<sup>th</sup> International Symposium on High-Performance Interconnects (IEEE Hot Interconnects)*, Palo Alto, CA, August 2001.
60. E. Weigle and W. Feng, "A Case for TCP Vegas in High-Performance Computational Grids," *IEEE International Symposium on High-Performance Distributed Computing (HPDC'01)*, San Francisco, CA, August 2001. (Acceptance Rate: 39%)
61. A. Kapadia, A. Feng, and W. Feng, "The Effects of Inter-Packet Spacing on the Delivery of Multimedia Content," *IEEE International Conference on Distributed Computing Systems (ICDCS'01)*, Phoenix, AZ, April 2001. (Acceptance Rate: 31%)
62. W. Feng and P. Tinnakornsriruphap, "The Failure of TCP in High-Performance Computational Grids," *IEEE/ACM SC 2000: High-Performance Networking and Computing Conference*, Dallas, TX, November 2000. (Acceptance Rate: 29%)
63. W. Feng, "Network Traffic Characterization of TCP," *IEEE MILCOM 2000*, Los Angeles, CA, October 2000.
64. W. Feng and P. Tinnakornsriruphap, "The Adverse Impact of the TCP Congestion-Control Mechanism in Heterogeneous Computing Systems," *International Conference on Parallel Processing (ICPP'00)*, Toronto, Canada, August 2000. (Acceptance Rate: 38%)
65. F. Petrini and W. Feng, "Buffered Co-Scheduling: A New Methodology for Multitasking Parallel Jobs on Distributed Systems," *IEEE International Parallel & Distributed Processing Symposium (IPDPS'00)*, Cancun, Mexico, May 2000. (Acceptance Rate: 35%)
66. P. Tinnakornsriruphap, W. Feng, and I. Philp, "On the Burstiness of the TCP Congestion-Control Mechanism in a Distributed Computing System," *IEEE International Conference on Distributed Computing Systems (ICDCS'00)*, Taipei, Taiwan, R.O.C., April 2000. (Acceptance Rate: 39%)
67. F. Petrini and W. Feng, "Scheduling with Global Information in Distributed Systems," *IEEE International Conference on Distributed Computing Systems (ICDCS'00)*, Taipei, Taiwan, R.O.C., April 2000. (Acceptance Rate: 39%)
68. F. Petrini and W. Feng, "Efficient Resource Utilization on a Massively Parallel System," *7<sup>th</sup> International Conference on Advanced Computing and Communications (ADCOM'99)*, Roorkee, India, December 1999.
69. D. Tolmie, T. M. Boorman, A. DuBois, D. DuBois, W. Feng, and I. Philp, "From HiPPI-800 to HiPPI-6400: A Changing of the Guard and Gateway to the Future," *6<sup>th</sup> International Conference on Parallel Interconnects (PI '99)*, Anchorage, AK, October 1999.
70. W. Feng, "Dynamic Client-Side Scheduling in a Real-Time CORBA System," *IEEE International Computer Software and Applications Conference (COMPSAC 99)*, Phoenix, AZ, October 1999.
71. W. Feng, "Extending CORBA for Soft Real-Time Applications," *International Conference on Networks and Communication Systems*, Pittsburgh, PA, May 1998.
72. W. Feng, "An In-Depth Study of Multimedia Traffic Control Over ATM," *International Conference on Networks and Communication Systems*, Pittsburgh, PA, May 1998.
73. D. Hull, W. Feng, and J. W.-S. Liu, "Operating System Support for Imprecise Computation," *AAAI Fall Symposium on Flexible Computation*, Cambridge, MA, November 1996.
74. W. Feng and J. W.-S. Liu, "Performance of a Congestion-Control Scheme on an ATM Switch," *International Conference on Networks*, Orlando, FL, January 1996.
75. W. Feng, D. L. Hull, and J. W.-S. Liu, "Enhancing the Performance and Dependability of Real-Time Systems," *IEEE International Computer Performance and Dependability Symposium*, Erlangen, Germany, April 1995.
76. V. Lopez-Millan, W. Feng, and J. W.-S. Liu, "Using the Imprecise-Computation Technique for Congestion Control on a Real-Time Traffic Switching Element," *IEEE International Conference on Parallel and Distributed Systems*, Hsinchu, Taiwan, R.O.C., December 1994.
77. W. Feng, "Parallel Spinodal Decomposition," *26<sup>th</sup> Annual Summer Computer Simulation Conference*, San Diego, CA, July 1994.
78. W. Feng, "An Intelligent System for Map Data Processing in Geographic Information Systems," *International Conference on Intelligent Information Management Systems*, Washington, D.C., June 1994.
79. W. Feng, "Using Handwriting and Gesture Recognition to Correct Speech-Recognition Errors," Best Paper Award, *10<sup>th</sup> International Conference on Advanced Science and Technology*, Chicago, IL, March 1994.
80. W. Feng, "A Natural Language Interface to Paper-Based Maps," *ACM International Conference on Human-Computer Interaction*, Boston, MA, September 1989.

## Workshop

1. W. Feng, A. Ching, and C. Hsu, "Green Supercomputing in a Desktop Box," *3<sup>rd</sup> IEEE Workshop on High-Performance, Power-Aware Computing (in conjunction with the 21<sup>st</sup> International Parallel & Distributed Processing Symposium)*, Long Beach, CA, March 2007.
2. W. Feng, "Real-Time Transcription of Radiology Dictation: A Case Study for Multimedia TabletPCs," *Microsoft eScience Workshop*, Baltimore, MD, October 2006. (Invited Talk)
3. W. Feng, "Global Climate Warming? Yes ... In the Machine Room," *Clusters and Computational Grids for Scientific Computing*, Flat Rock, NC, September 2006. (Invited Talk)
4. S. Sharma, C. Hsu, and W. Feng, "Making a Case for a Green500 List," *2<sup>nd</sup> IEEE Workshop on High-Performance, Power-Aware Computing (in conjunction with the 20<sup>th</sup> International Parallel & Distributed Processing Symposium)*, Rhodes, Greece, April 2006.
5. A. Banerjee, W. Feng, B. Mukherjee, and D. Ghosal, "End-System Performance-Based Transportation Adaptation for Data Transfer over Lambda Grids," *IEEE INFOCOM High-Speed Networking Workshop: The Terabits Challenge (in conjunction with the 25<sup>th</sup> IEEE INFOCOM)*, Barcelona, Spain, April 2006.
6. V. Vishwanath, P. Balaji, W. Feng, J. Leigh, and D. Panda, "A Case for UDP Offload Engines in LambdaGrids," *4<sup>th</sup> International Workshop on Protocols for Fast Long-Distance Networks (PFLDnet'06)*, Nara, Japan, February 2006.
7. C. Hsu, W. Feng, and J. Archuleta, "Towards Efficient Supercomputing: A Quest for the Right Metric," *1<sup>st</sup> IEEE Workshop on High-Performance, Power-Aware Computing (in conjunction with the 19<sup>th</sup> International Parallel & Distributed Processing Symposium)*, Denver, CO, April 2005.
8. A. Banerjee, W. Feng, D. Ghosal, and B. Mukherjee, "Routing and Scheduling Large File Transfers over Lambda Grids," *3<sup>rd</sup> International Workshop on Protocols for Fast Long-Distance Networks (PFLDnet'05)*, Lyon, France, February 2005.
9. C. Hsu and W. Feng, "Effective Dynamic Voltage Scaling through CPU-Boundedness Detection," *4<sup>th</sup> IEEE/ACM Workshop on Power-Aware Computer Systems (in conjunction with the 37<sup>th</sup> IEEE/ACM International Symposium on Microarchitecture)*, Portland, OR, December 2004.
10. M. Veeraraghavan, X. Zheng, W. Feng, H. Lee, E. Chong, and H. Li, "Scheduling and Transport for File Transfers on High-speed Optical Circuits," *2<sup>nd</sup> International Workshop on Protocols for Fast Long-Distance Networks*, Argonne, IL, February 2004.
11. W. Feng, M. Fisk, M. Gardner, and E. Weigle, "Dynamic Right-Sizing," *7<sup>th</sup> IFIP/IEEE Workshop on Protocols for High-Speed Networks*, Berlin, Germany, April 2002.
12. M. Gardner, W. Feng, and J. Hay, "Monitoring Protocol Traffic with a MAGNeT," *3<sup>rd</sup> Passive & Active Measurement Workshop*, Ft. Collins, CO, March 2002.
13. E. Weigle and W. Feng, "TICKETing High-Speed Traffic with Commodity Hardware and Software," *3<sup>rd</sup> Passive & Active Measurement Workshop*, Ft. Collins, CO, March 2002.
14. E. Frachtenberg, F. Petrini, S. Coll, and W. Feng, "Gang Scheduling with Lightweight User-Level Communication," *Workshop on Scheduling and Resource Management for Cluster Computing (in conjunction with the International Conference on Parallel Processing)*, Valencia, Spain, September 2001.
15. F. Petrini, A. Hoisie, W. Feng, and R. Graham, "Performance Evaluation of the Quadrics Interconnection Network," *IEEE Workshop on Communication Architectures for Clusters (in conjunction with the IEEE International Parallel & Distributed Processing Symposium)*, San Francisco, CA, April 2001.
16. E. Weigle, W. Feng, and M. Gardner, "Why TCP Will Not Scale for the Next-Generation Internet," *IEEE Workshop on Local and Metropolitan Area Networks (LANMAN 2001)*, Boulder, CO, March 2001.
17. W. Feng, "The Future of High-Performance Networking," *Workshop on New Visions for Large-Scale Networks: Research & Applications*, Invited Paper, Vienna, VA, March 2001. (Sponsors: Federal Large-Scale Networking Working Group, DARPA, DOE, NASA, NIST, NLM, and NSF.)
18. W. Feng, "The Design of an Open Real-Time System Using CORBA," *IEEE Workshop on Multimedia Network Systems (in conjunction with the International Conference on Parallel Processing)*, September 1999.
19. W. Feng, U. Syid, and J. W.-S. Liu, "Providing for an Open Real-Time CORBA," *IEEE Workshop on Middleware for Distributed Real-Time Systems and Services (in conjunction with the IEEE Real-Time Systems Symposium)*, December 1997.
20. W. Feng and J. W.-S. Liu, "Time-Constrained Speech Processing and Generation," *IEEE Workshop on Real-Time Applications*, New York, NY, May 1993.
21. A. Chien and W. Feng, "Efficient Implementation of Concurrent Object-Oriented Programs," *Workshop on Languages and Compilers for Parallel Computing*, May 1992.
22. A. Chien and W. Feng, "GST: Grain-Size Tuning for Efficient Execution of Symbolic Programs," *Workshop on Compilation of Symbolic Languages for Parallel Computers*, San Diego, CA, October 1991.

## PATENTS

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1. Buffered Co-Scheduling: A New Methodology for Multitasking Parallel Jobs on Distributed Systems, 2006. U.S. Patent No. 6,993,764. Issued January 31, 2006.
2. Real-Time, Software-Based Optimization for Energy-Efficient Computing, 2005. Pending.
3. Probabilistic Synthesis and Regulation of Traffic for Probabilistic QoS Guarantees, 2004. Pending.

## PANELS

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1. When Optical Networking Meets Grid Computing?, *IEEE International Conference on Computer Communications and Networks*, Arlington, VA, USA, October 2006. Panel Moderator.
2. The Six-Million Processor System, *ACM/IEEE SC2005: The International Conference on High-Performance Computing, Networking, and Storage*, Seattle, WA, USA, November 2005. Panel Moderator.
3. Tour de HPCycles, *ACM/IEEE SC2005: The International Conference on High-Performance Computing, Networking, and Storage*, Seattle, WA, USA, November 2005. Panel Moderator.
4. Ethernet vs. EtherNot, *13<sup>th</sup> IEEE Symposium on High-Performance Interconnects (IEEE Hot Interconnects)*, Palo Alto, CA, USA, August 2005.
5. How Would You Architect a 100,000-Processor Cluster?, *19<sup>th</sup> International Parallel & Distributed Processing Symposium Workshop on Communication Architecture for Clusters*, Denver, CO, USA, April 2005.
6. Optical Networking and Grid Computing, *1<sup>st</sup> IEEE/ACM International Conference on Broadband Networks*, San Jose, CA, USA, October 2004.
7. Grids: Hype, Substance, or Renaissance, *33<sup>rd</sup> International Conference on Parallel Processing*, Montreal, Quebec, Canada, August 2004. Panel Moderator.
8. Why Should Users Care About Blades?, *Server Blade Summit*, San Jose, CA, USA, March 2004.
9. Battle of the Network Stars!, *ACM/IEEE SC 2003: High-Performance Networking and Computing Conference*, Phoenix, AZ, USA, November 2003. Panel Moderator.
10. Practical Supercomputing, *ACM/IEEE SC 2003: High-Performance Networking and Computing Conference (Birds-of-a-Feather Panel)*, Phoenix, AZ, USA, November 2003.
11. High-Performance Interconnection Networks for Cluster Computing, *11<sup>th</sup> IEEE Symposium on High-Performance Interconnects (IEEE Hot Interconnects)*, Palo Alto, CA, USA, August 2003.
12. What is the Future of TCP?, *INET 2002*, Arlington, VA, USA, June 2002. Panel Moderator.
13. Applications of Server Blades, *Server Blade Summit*, San Jose, CA, USA, May 2002.
14. The Adequacy of TCP for High-Performance Computing, *IEEE/ACM SC2000: High-Performance Networking & Computing Conference*, Dallas, TX, USA, November 2000.
15. Real-Time CORBA, *IEEE Real-Time Systems Symposium (RTSS)*, San Francisco, CA, USA, December 1997.

## INVITED TALKS & COLLOQUIA

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1. *The Power in Being Low Power*, Intel Corporation, Hillsboro, OR, April 2007.
2. *The Power in Being Low Power*, Argonne National Laboratory, Argonne, IL, March 2007.
3. *The Evolution of Power-Aware Systems*, Merrill Lynch Corporation, New York, NY, March 2007.
4. *The Evolution of Power-Aware, High-Performance Clusters: From the Datacenter to the Desktop*, APC & Microsoft InfraStruXure User Group (Inaugural Meeting), Microsoft Technology Center – Silicon Valley, Mountain View, CA, November 2005.
5. *The Evolution of Power-Aware, High-Performance Computing: From the Datacenter to the Desktop*, System Research Seminar Series, North Carolina State University, Raleigh, NC, April 2005.
6. *The Evolution of Power-Aware, High-Performance Computing: From the Datacenter to the Desktop*, IEEE International Parallel & Distributed Processing Symposium (IPDPS) Workshop on High-Performance, Power-Aware Computing, Denver, CO, USA, April 2005. Keynote Talk.
7. *Frontiers in High-End Computing*, University of Texas at Dallas, Dallas, TX, March 2005. University-Wide Talk, Hosted by Provost.
8. *Green Destiny: A 240-Node Energy-Efficient Supercomputer in Five Square Feet*, University of New Mexico, Albuquerque, NM,

October 2004.

9. *Bridging the Disconnect Between the Network and Large-Scale Scientific Applications*, ACM SIGCOMM Workshop on Network-I/O Convergence: Experiences, Lessons, and Implications (NICELI), Karlsruhe, Germany, August 2003.
10. *Green Destiny: A "Cool" 240-Node Cluster in a Telephone Booth*, Future Computing Conference at the Royal United Services Institute for Defence and Security Studies, London, England, July 2003. Keynote Talk.
11. *Report from the High-Performance Networking Workshop*, DOE Science Network Workshop, Reston, VA, USA, June 2003.
12. *Green Destiny: A 240-Node Compute Cluster in One Cubic Meter*, Server Blade Summit, San Jose, CA, USA, March 2003.
13. *Green Destiny: A 240-Node Compute Cluster in One Cubic Meter*, Rocky Mountain Institute Data Center Charrette, San Jose, CA, USA, February 2003. Keynote Talk.
14. *Green Destiny: Energy-Efficient Supercomputing*, 15<sup>th</sup> Annual E-Source Forum, Colorado Springs, CO, USA, November 2002.
15. *On the Compatibility of TCP Reno & TCP Vegas*, Toyota Technological Institute at Chicago, Chicago, IL, USA, October 2002.
16. *Systems & Network Research for Grids*, Argonne National Laboratory, Argonne, IL, USA, October 2002.
17. *Green Destiny: A 240-Node Compute Cluster in One Cubic Meter*, University of Illinois at Urbana-Champaign (also broadcast over the Internet via the Access Grid), Urbana, IL, USA, October 2002.
18. *Green Destiny: A 240-Node Compute Cluster in One Cubic Meter*, Eli Lilly and Company, Indianapolis, IN, USA, September 2002.
19. *Supercomputing in Small Spaces*, Transmeta Corporation, Santa Clara, CA, USA, August 2002.
20. *Systems & Network Research at Los Alamos National Laboratory*, Oregon Graduate Institute of Science & Technology, Beaverton, OR, May 2002.
21. *The Future of High-Performance Networking*, Rice University, Houston, TX, January 2002.
22. *High-Performance Networking Research: Issues for Today's & Tomorrow's High-Performance Computing Environments*, DOE Scientific Discovery through Advanced Computing, Reston, VA, January 2002.
23. *High-Speed Network Monitoring and Measurement with Commodity Parts*, DARPA Next-Generation Internet, McLean, VA, USA, January 2002.
24. *High-Speed Measurement and Monitoring with Commodity Parts*, Rice University, Houston, TX, January 2002.
25. *The Software Metaphor for LAN PHY ≠ WAN PHY: Why High-Speed Networking in Clusters ≠ High-Speed Networking in Grids*, 10-Gigabit Ethernet Workshop, San Diego Supercomputing Center, San Diego, CA, USA, October 2001.
26. *A Failure Model for Large-Scale Computers and an Infrastructure for Enabling Fault Tolerance*, Workshop on Fault Tolerance, Sandia National Laboratory, Livermore, CA, USA, April 2001.
27. *The Future of High-Performance Networking*, Workshop on New Visions for Large-Scale Networks: Research & Applications, Vienna, VA, March 2001. (Sponsors: Federal Large Scale Networking Working Group, DARPA, DOE, NASA, NIST, NLM, NSF.)
28. *The Failure of TCP over High-Performance Computational Grids*, U. of Illinois at Urbana-Champaign, Urbana, IL, January 2001.
29. *Buffered Coscheduling: A New Methodology for Multitasking Parallel Jobs on Distributed Systems*, U. of Oregon, Eugene, OR, June 2000.
30. *Network Traffic Characterization of TCP in Distributed Computational Grids*, U. of Oregon, Eugene, OR, June 2000.
31. *High-Performance Networking in Parallel Computing Systems*, Ohio State U., Columbus, OH, January 2000.
32. *Buffered Coscheduling: A New Methodology for Multitasking Parallel Jobs on Distributed Systems*, U. of Utah, Salt Lake City, UT, USA, January 2000.
33. *High-Performance Networking in Distributed Computational Grids*, U. of Illinois at Urbana-Champaign, Urbana, IL, USA, November 1999.
34. *Network Interface Cards as First-Class Citizens*, Ohio State U., Columbus, OH, USA, November 1999.
35. *Applications & Extensions to the Imprecise-Computational Model*, U. of Virginia, Charlottesville, VA, January 1998.

## PROFESSIONAL ACTIVITIES

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### *Appointments & Memberships*

Senior Member (2004-now), Member (1998-2004), and Student Member (1988-1998), IEEE and IEEE Computer Society.  
Member (1998-now) and Student Member (1989-1998), ACM.  
Program Board Member, Network Control Policy Board, Los Alamos National Laboratory, 2004-2006.  
Distinguished Speaker, IEEE Distinguished Visitors Program, 2003-2005.  
Member, Director's Colloquium Advisory Board, 2002-2006.  
Member, Accelerated Strategic Computing Initiative (ASCI) Tri-Lab Sponsor Team (TST) – Lawrence Livermore National

Laboratory, Los Alamos National Laboratory, and Sandia National Laboratory, 2001-2006.  
Member, Computer & Computational Sciences Division Search Committee, Los Alamos National Laboratory, 2001.  
Member, Steering/Transitional Committee for a New Computer & Computational Sciences Division, Los Alamos National Laboratory, 2000.  
Undergraduate Advisor, Dept. of Computer Science, University of Illinois at Urbana-Champaign, 1993-1996.  
Coordinator of *Engineering Envoys for Computer Engineering*, 1988.  
Founder & Coordinator of the *Fortran Lecture Series*, 1988.  
Vice-President of *Eta Kappa Nu* Honor Society, Penn State University branch, 1987-1988.

### *Chairmanships*

International Liaisons Co-Chair, *36<sup>th</sup> International Conference on Parallel Processing (ICPP)*, 2007.  
Program Vice-Chair: Networking, *18<sup>th</sup> ACM/IEEE SC 2006: The International Conference on High-Performance Computing, Networking, and Storage*, 2006.  
Program Co-Chair, *15<sup>th</sup> IEEE International Conference on Computer Communications and Networks*, 2006.  
Program Vice-Chair: Optical and High-Speed Networking, *15<sup>th</sup> IEEE International Conference on Computer Communications and Networks*, 2006.  
Awards Co-Chair, *35<sup>th</sup> International Conference on Parallel Processing (ICPP)*, 2006.  
Program Vice-Chair: Networking, *17<sup>th</sup> ACM/IEEE SC 2005: The International Conference on High-Performance Computing, Networking, and Storage*, 2005.  
Program Co-Chair, *34<sup>th</sup> International Conference on Parallel Processing (ICPP)*, 2005.  
General Chair, *1<sup>st</sup> IEEE/ACM International Workshop on Provisioning and Transport for Hybrid Networks (PATHNets) at the 1<sup>st</sup> IEEE/ACM International Conference on Broadband Networks (BroadNets)*, formerly Opticomm, 2004.  
Program Vice-Chair, *DOE Workshop on Ultra High-Speed Transport Protocols and Dynamic Network Provisioning for Large-Scale Scientific Applications*, May 2003.  
Program Vice-Chair: Real-Time Systems, *28<sup>th</sup> International Conference on Parallel Processing (ICPP)*, 1999.

### *Organizing & Steering Committees*

IEEE Workshop on High-Performance, Power-Aware Computing (held in conjunction with the IEEE International Parallel & Distributed Processing Symposium), 2005-2007.  
DOE Scientific Discovery through Advanced Computing (SciDAC) Conference, 2005.

### *Program Committees*

IEEE International Symposium on High-Performance Interconnects (IEEE Hot Interconnects), 2007.  
International Conference on High-Performance Computing (HiPC), 2007.  
IEEE Global Communications Conference (GLOBECOM), 2007.  
ACM/IEEE SC: The International Conference on High-Performance Computing, Networking, Storage, and Analysis, 2000, 2006, 2007 (posters).  
IEEE International Symposium on High-Performance Distributed Computing (HPDC), 2001, 2003, 2005, 2007.  
International Workshop on Protocols for Fast Long-Distance Networks (PFLDnet), 2004, 2007.  
IEEE International Workshop on High-Performance, Power-Aware Computing (held in conjunction with the IEEE International Parallel & Distributed Processing Symposium), 2005-2007.  
IEEE International Workshop on Communication Architectures for Clusters (held in conjunction with the IEEE International Parallel & Distributed Processing Symposium), 2001-2007.  
IEEE Workshop on Application-Oriented High-Performance Systems (held in conjunction with the IEEE International Symposium on High-Performance Computer Architecture), 2007.  
International Conference on High-Performance Computing and Communications (HPCC), 2006-2007.  
IEEE/ACM International Workshop on Cluster Security (held in conjunction with the IEEE/ACM International Symposium on Cluster Computing and the Grid), 2006.  
IEEE International Parallel & Distributed Processing Symposium (IPDPS), 2003 and 2006.  
IEEE International Conference on Distributed Computing Systems (ICDCS), 2006.  
IEEE International Workshop on High-Performance Computational Biology (held in conjunction with the IEEE International Parallel & Distributed Processing Symposium), 2006.  
IEEE International Conference on Computer Communications and Networks (IC3N), 2005.  
IEEE/ACM International Conference on Broadband Networks (Area: Broadband Optical Networking), 2005.  
IEEE Workshop on High Performance Interconnects for Distributed Computing (held in conjunction with the IEEE International Symposium on High-Performance Distributed Computing), 2005.  
IEEE/ACM Workshop on Grids and Advanced Networks (held in conjunction with the IEEE/ACM International Symposium on Cluster Computing and the Grid), 2004-2005.

IEEE International Workshop on Networks for Grid Applications (GridNets) (held in conjunction with the IEEE International Conference on Broadband Networks, formerly Opticomm), 2004.  
High-Performance Computing Symposium, 2004.  
IEEE International Conference on Local Computer Networks (LCN), 2001-2003.  
International Conference on Parallel Processing (ICPP), 2001.  
Workshop on Scheduling and Resource Management for Cluster Computing (held in conjunction with the 30<sup>th</sup> International Conference on Parallel Processing), 2001.

#### *Proposal Reviewing*

DOE Early Career Principal Investigator, 2002-2004.  
DOE Small Business Innovation Research (SBIR) & Small Business Technology Transfer (STTR), 2002-2006.  
NSF CISE, CCR, 2001.  
DOE Laboratory-Directed Research & Development (Directed Research), Los Alamos National Laboratory, 2001-2002.  
DOE ASCI Alliance Tri-Lab Strategic Team, DOE ASCI, 2000-2003.  
DOE Laboratory-Directed Research & Development (Exploratory Research), Computer Science & Software Engineering, Los Alamos National Laboratory, 1999.  
NSF CISE, EIA, 1998.

#### *Journal & Additional Conference Reviewing*

ACM Journal of Experimental Algorithmics, 2006.  
International Journal of High-Performance Computing Applications (IJHPCA), 2006.  
IEEE Spectrum, 2005.  
International Journal of High-Performance Computing and Networking (IJHPCN), 2005.  
Journal of Parallel & Distributed Computing, 2004.  
IEEE Computer Graphics & Applications, 2002.  
IEEE Communications Letters, 2002-2003.  
IEEE Transactions on Parallel & Distributed Systems, 2000-2004, 2007.  
IEEE Network, 2001-2003.  
IEEE Transactions on Computers, 1995, 2000, and 2001.  
IEEE Transactions on Software Engineering, 1997. (See January 1998 issue.)  
IEEE Computer, 1996. (Senior Referee Designation. See December 1996 issue.)  
IEEE/ACM SC (2003), IEEE ICC (2003), IEEE INFOCOM (2002-2004), IEEE WCNC (2002), IEEE Real-Time Systems Symposium (1994-1996), IEEE Real-Time Technology & Applications Symposium (1995-1996), IEEE International Conference on Distributed Computing Systems (1995), IEEE Workshop on Real-Time Applications (1994).

#### THESIS SUPERVISION & COMMITTEES

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1. Song Huang, *Holistic Power-Aware Scheduling in Multicore Environments*, Virginia Tech, Ph.D. expected, 2010.
2. Yifei Ma, *Accelerating Sequence Search via Database Pruning*, Virginia Tech, Ph.D. expected, 2009.
3. Sushant Sharma, *On a New Approach for Transport Protocol Design*, Computer Science, Virginia Tech, Ph.D. expected, 2009.
4. Ashwin Aji, *Mapping Fixed-Parameter Topology Algorithms Onto Bioinformatics*, Virginia Tech, M.S. expected, 2008.
5. Ajit Kulkarni, *A Service-Oriented Architecture with Virtual Machines on Arbitrary Computing Back-Ends*, Virginia Tech, M.S. expected 2008.
6. Ganesh Narayanaswamy, *Next-Generation Architectures for Network Adapters with Protocol Offload Engines*, Virginia Tech, M.S. expected, 2008.
7. Harshil Shah, *MAGNET: Monitoring Apparatus for General kernel-Event Tracing*, M.S. expected, 2008.
8. Chris Goddard, *A Framework for General Search in Ad-Hoc Grid Environment*, Virginia Tech, M.S. expected, 2007.
9. Xuan Zheng, *CHEETAH: Circuit-Switched End-to-End Transport Architecture*, Electrical & Computing Engineering, University of Virginia, Ph.D., 2003. (Postdoctoral Research Associate, University of Virginia, 2004-now.)
10. Peerapol Tinnakornsrisuphap. *The Design of an Integrated TCP*, Electrical & Computer Engineering, University of Wisconsin at Madison, M.S. Project, 2000. (Research Scientist, Qualcomm, 2004-now.)
11. Umar Syid. *An Open Real-Time CORBA*, Computer Science, University of Illinois at Urbana-Champaign, M.S., 1998. (Staff Member, Hughes Network Systems, 1998-now.)

#### ADVISEES (INTERNS & POSTDOCS)

---

1. Jalal Al-Muhtadi, Cybersecurity for Grids, 2<sup>nd</sup>-Year M.S./Ph.D. Student, Dept. of Computer Science, Univ. of Illinois at

- Urbana-Champaign, 2001. (Still at the Univ. of Illinois at Urbana-Champaign.)
2. Jeremy Archuleta, Systems & Applications Support for Clusters, Post-B.S. student, Dept. of Electrical Engineering & Computer Science, Univ. of California at Berkeley, 2003-now. (Currently at Los Alamos National Laboratory.)
  3. Mustafa Arisoylu, Active Queue Management, 3<sup>rd</sup>-Year M.S./Ph.D. Student, Dept. of Electrical & Computer Engineering, Univ. of California at San Diego, 2004. (Still at the Univ. of California at San Diego.)
  4. Sami Ayyorgun, Traffic Characterization, Postdoctoral Research Associate, Dept. of Electrical & Computer Engineering, Univ. of California at San Diego, 2003-2005. (Still at Los Alamos National Laboratory.)
  5. Christopher Baron, High-Performance Networking, 1<sup>st</sup>-Year M.S. Student, Dept. of Computer Science, Univ. of California at Riverside, 2004-2005. (Still at Los Alamos National Laboratory.)
  6. Michael Broxton, Systems Support for Clusters & Grids, Undergraduate Senior, Dept. of Elec. Engg. & Comp. Sci., Massachusetts Institute of Technology, 2002. (Whereabouts unknown.)
  7. Lucas Carey, Bioinformatics, Post-B.S. Student, Center for Developmental Genomics, SUNY at Stony Brook, 2003. (Still at SUNY at Stony Brook.)
  8. Aaron Darling, Bioinformatics, Computer Sciences Dept., 1<sup>st</sup>-3<sup>rd</sup> Year M.S./Ph.D. Student, Univ. of Wisconsin-Madison, 2002-2004. (Still at the Univ. of Wisconsin-Madison.)
  9. Adam Engelhart, Systems Support for Clusters & Grids, Post-B.S. Student, Computer Sciences Dept., Univ. of Wisconsin-Madison, 2002-2003. (Working at a software company in Minnesota.)
  10. Michael Hoisie, High School Senior, Los Alamos High School, 2003. (Undergraduate at the Univ. of California at Berkeley.)
  11. Chung-Hsing Hsu, Power-Aware Computing Systems, Postdoctoral Research Associate, Dept. of Computer Science, Rutgers University, 2003-now. (Still at Los Alamos National Laboratory.)
  12. Justin (Gus) Hurwitz, High-Performance Networking, Undergraduate Junior & Senior, Liberal Arts, Santa Fe College, 2002-2004. (Currently a law student at the Univ. of Chicago.)
  13. Apu Kapadia, Network Protocols and Routers, 1<sup>st</sup>-Year M.S./Ph.D. Student, Dept. of Computer Science, Univ. of Illinois at Urbana-Champaign, 2000 & 2002. (Still at the Univ. of Illinois at Urbana-Champaign.)
  14. Houssain Kettani, Traffic Characterization, Electrical & Computer Engineering Dept., Univ. of Wisconsin-Madison, 1999. (Currently an assistant professor at Jackson St. Univ.)
  15. Fernando Moraes, Bioinformatics, 1<sup>st</sup>-Year M.S. Student, Dept. of Computer Science, Columbia University, 2003. (Currently at Goldman Sachs.)
  16. Karthik Pattabiraman, Profiling & Adaptation for Power-Aware Systems, Univ. of Illinois at Urbana-Champaign, 2003. (Still at the Univ. of Illinois at Urbana-Champaign.)
  17. Fabrizio Petrini, High-Performance Networking and Resource Management, Postdoctoral Research Associate, Dept. of Computer Science, University of Pisa, 1999-2000. (Currently a technical staff member at Los Alamos National Laboratory.)
  18. Sunil Thulasidasan, High-Performance Networking, Post-M.S. Student, Computer Science Dept., University of Southern California, 2001-2002. (Currently at Los Alamos National Laboratory.)
  19. Peerapol Tinnakornsriruphap, Traffic Characterization, 1<sup>st</sup>-Year M.S. Student, Electrical & Computer Engineering Dept., Univ. of Wisconsin-Madison, 1999. (Currently a research scientist at Qualcomm.)
  20. Sarut Vanichpun, Traffic Characterization, 1<sup>st</sup> & 3<sup>rd</sup>-Year M.S./Ph.D. Student, Electrical & Computer Engineering Dept., Univ. of Maryland, 2001 & 2003. (Currently a research scientist at Qualcomm.)
  21. Eric Weigle, Systems Support for Clusters & Grids, Computer Sciences Dept, Univ. of Wisconsin-Madison, 2000-2003. (Currently a graduate student at the Univ. of California at San Diego.)
  22. Xiao Zhang, High-Performance Networking, 2<sup>nd</sup>-Year Ph.D. Student, Dept. of Computer Science, Univ. of California at Riverside, 2004.

## AWARDS & RECOGNITION

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1. Award for Excellence in Technology Transfer for *10-Gigabit Ethernet Adapter: Speed Really Changes Everything*, Presented by the Federal Laboratory Consortium for Technology Transfer, May 2005.
2. Award for Excellence in Technology Transfer for *Green Destiny & mpiBLAST: Hardware & Software for Super-Efficient Supercomputing*, Presented by the Federal Laboratory Consortium for Technology Transfer, May 2005.
3. R&D 100 Award for *10-Gigabit Ethernet Adapter: Speed Really Changes Everything*, October 2004. Joint entry with Intel Corporation.
4. R&D 100 Award for *mpiBLAST: A High-Speed Software Catalyst for Genetic Research*, October 2004.

5. International Supercomputer Conference Award (ISC Award): Innovative Supercomputer Architecture Category for “Green Destiny and Its Evolving Parts,” June 24, 2004. <http://www.isc2004.org/speaker.php?speaker=Feng>.
6. IEEE Outstanding Young Engineer of the Year, Achievement Award, IEEE Los Alamos Section, May 18, 2004.
7. HPCwire’s Top People & Organizations to Watch List, March 18, 2004. <http://www.tgc.com/hpcwire/features/topwatch04.html>.
8. On the Road to a Gigabit Award: Partnership Category for “Ultralight Partnership,” Sponsored by Corporation of Education Network Initiatives in California (CENIC) and California Institute for Telecommunications and Information Technology, Cal-(IT)2, March 15, 2004.
9. Asian-American Engineer of the Year Award, *Chinese Institute of Engineers, USA @ National Engineers Week*, February 2004.
10. Sustained Bandwidth Award (a.k.a. “Moore’s Law Move Over!” Award) for “Bandwidth Lust: Distributed Particle Physics Analysis Using Ultra High-Speed TCP on the Grid,” SC2003 Bandwidth Challenge, November 2003. <http://www.gridtoday.com/breaking/982.html>.
11. R&D 100 Award for *Green Destiny: A 240-Processor Supercomputer in a Telephone Booth*, October 2003.
12. Best Paper Award, SPIE/IEEE Optical Networking and Computer Communications Conference (OptiComm), October 2003.
13. Distinguished Performance Award, September 2003.
14. Distinguished Mentor Performance Award, August 2003.
15. Achievement Award for the *Internet2 Land Speed Record*, Los Alamos Awards Program, July 2003.
16. Guinness World Book of Records, Internet2 Land Speed Record, Achieved February 2003, Listed Electronically July 2003. <http://www.guinnessworldrecords.com/index.asp?id=58445>.
17. Best Paper: Applications Track, ClusterWorld Conference & Expo in conjunction with the 4<sup>th</sup> International Conference on Linux Clusters: The HPC Revolution 2003, June 2003.
18. On the Road to a Gigabit Award: Biggest, Fastest in the West for “High-Performance Trans-Atlantic Network Testbed,” Sponsored by Corporation of Education Network Initiatives in California (CENIC) and California Institute for Telecommunications and Information Technology, Cal-(IT)2, May 7, 2003.
19. Internet2 Land Speed Record, 2.38 Gbps single-stream TCP/IP over a WAN between Sunnyvale, California and Geneva, Switzerland. Achieved: February 27, 2003. Certified: March 27, 2003. Awarded Formally at Internet2 Member Meeting: April 11, 2003. (Note: This achievement also served as the multi-stream Internet2 Land Speed Record. More formally, 23,888,060,000,000,000 meters-bits/second.)
20. Achievement Award for *Green Destiny*, Los Alamos Awards Program, July 2002.
21. Certificate of Appreciation, Women's Career Development Mentoring Award, 2000.
22. Outstanding Mentor Award, 2000.
23. International Who’s Who in Information Technology, 1998.
24. Senior Referee Designation, IEEE Computer Society, 1996. (See December 1996 issue of IEEE Computer)
25. Conference Travel Grant Award, Fall 1994.
26. Conference Travel Grant Award, Spring 1994.
27. Best Paper Award, 10<sup>th</sup> Annual International Conference on Advanced Science and Technology, 1994.
28. Outstanding Teaching Assistant Award, 1991.
29. The Pennsylvania State University Dean’s Fellowship, 1988-1989.
30. Lance Stafford Larson Award, IEEE Computer Society, 1988.
31. Student Marshal (Magna Cum Laude) in Computer Engineering, 1988.
32. Best Student Paper, IEEE Pennsylvania Beta Chapter, 1988.
33. National Finalist in the Clara Wells Piano Competition, 1983.

## SELECTED PRESS COVERAGE

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### Feature Story

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## HONOR SOCIETIES

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*Phi Kappa Phi* Honor Society

*Tau Beta Pi* Engineering Honor Society

*Eta Kappa Nu* Electrical & Computer Engineering Honor Society

*Golden Key* Honor Society

National Society of Professional Engineers

## HOBBIES

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*Sports:* cycling, ultimate frisbee, weightlifting, snowboarding, skiing (x-c & downhill), and running.

*Music:* piano – performance and composition.