2020 BOARD NOMINEE

Timothy Pinkston

Professor, Electrical and Computer Engineering
University of Southern California

CRA
Computing Research Association

Awards and Honors and Year Received

- ACM Fellow (2019)
- IEEE Fellow (2009)
- ACM Recognition of Service Award (2018)
- IEEE CS Recognition of Service Award (2018)
- Distinguished Alumnus Award from The Ohio State University's College of Engineering and Minority Engineering Program (MEP)

Involvement in CRA Activities

- CCC/CRA Computing Innovation Fellows Selection Committee (2009, 2010)
- CRA-W/CDC Careers in High Performance Systems (CHiPS) Mentoring Workshop panelist/speaker (2009)
- CRA-W/CDC Systems Research Mentoring Workshop panelist/speaker (2008)
- CRA-W/CDC Computer Architecture Workshop panelist/speaker, (2006)

Other Relevant Experience

- ACM SIGARCH/SIGMICRO Committee to Aid Reporting on Discrimination and Harassment Policy Violations (CARES) (2018, 2019 (Co-Chair))
- IEEE Fellows Evaluation Committee for the Computer Society (2010-2015, 2018, 2019)
- IEEE Technical Committee on Computer Architecture (TCCA) Executive Committee (2010-2015)
- IEEE TCCA Young Investigator Award Selection Committee (2011, 2012 (Chair), 2013)
- IEEE Technical Committee on Parallel Processing (TCPP) Executive/Advisory Committee (2007-2012)

Research Interests

- Computer Systems Architecture
- Interconnection Networks
- Routing algorithms and architectures
- Network-on-Chip design
- Energy-efficient data movement in many-core multiprocessor systems

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Personal Statement

Timothy Pinkston is an African-American researcher and educator whose computer architecture research focuses on design and analysis of interconnection networks, routing algorithms, and data-movement architectures for many-core multiprocessor computer systems. His research contributions span formal theory, methods, and techniques for deadlock-free adaptive routing as well as energy-, resource-, and performance-efficient network-on-chip (NoC) designs. He contributed leadership in expanding computing research as founding Lead Program Director of NSF's Expeditions in Computing Program, past member of IEEE's TCCA and TCPP Executive Committees, and current co-Chair of ACM's SIGARCH/SIGMICRO CARES Committee, among other leading roles. Timothy endeavors to enhance CRA's reach and effectiveness

CURRICULUM VITAE

Timothy Mark Pinkston, Ph.D.

Ming Hsieh Department of Electrical and Computer Engineering
3740 McClintock Avenue, EEB-208
University of Southern California, LA, CA 90089-2562

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EDUCATION

Ph.D. **Stanford University,** Stanford, CA, January 1993
1986-1993 Doctor of Philosophy in electrical engineering, specializing in parallel processor interconnection networks and computer system architecture
Thesis Title: "The GLORI Strategy for Multiprocessors: Integrating Optics into the Interconnect Architecture"
Thesis Advisors: Michael J. Flynn (principle), Joseph W. Goodman (secondary)

M.S. **Stanford University,** Stanford, CA, June 1986
1985-1986 Master of Science in Electrical Engineering, with emphasis on computer system architecture and semiconductor device physics

B.S. **The Ohio State University,** Columbus, OH, June 1985
1981-1985 Bachelor of Science in Electrical Engineering, with emphasis on computer system architecture and semiconductor device physics, and a computer science option

PROFESSIONAL EXPERIENCE

07/19 – present **George Pfleger Chair in Electrical and Computer Engineering, USC Viterbi**

07/17 – 6/30/19 **Louise L. Dunn Endowed Professorship in Engineering, USC Viterbi School**

07/11 - present **Vice Dean for Faculty Affairs, USC Viterbi School of Engineering**
Responsible for faculty recruitment, appointment, promotion, mentoring, leaves, retention, retirement; postdoc and visiting scholar appointments; related policies

08/09 - 06/11 **Senior Associate Dean of Engineering, USC Viterbi School of Engineering**
Responsible for increasing the School's effectiveness in recruiting and developing outstanding faculty and students, both undergraduate and graduate; also served as **Acting Vice Dean for Research** from 10/22/09 - 12/31/09

10/07 - 12/08 **Lead Program Director, Expeditions in Computing Program, the Computer and Information Science and Engineering (CISE) Directorate at the NSF**
Responsible for managing inaugural Expeditions in Computing Program ($40M total funds) which funded center-scale research in emerging areas of computing

1/06 - 9/07 **Program Director, NSF Computer Systems Architecture Program in the Computing and Communication Foundations (CCF) Division of CISE**
Managed an award portfolio of approx. $10M (fiscal year) of research projects

9/03 - 12/05 **Director, Computer Engineering Division of Electrical Engineering-Systems, Viterbi School of Engineering, University of Southern California**
Initiated and presided over curriculum development, degree program revisions, faculty recruitment, and other significant administrative efforts

12/03 - present **Professor of Electrical and Computer Engineering of the (now) Ming Hsieh Dept. of Electrical and Computer Engineering, Univ. of Southern California**
Founded the Superior Multiprocessor Architecture (*SMART*) Interconnects Group which investigates high-performance communication architectures for parallel computer systems—interconnection networks, adaptive and reconfigurable routing algorithms, router design and implementation, energy and resource efficient NoCs

3/00 - 6/00 **Visiting Scholar:** SLOOP Research Group, led by Dr. Jean Claude Bermond, INRIA, Sophia Antipolis, France (while on sabbatical year leave)

7/99 - 3/00	**Visiting Scholar:** GAP Research Group, led by Professor José Duato, Universidad Politecnica de Valencia, Valencia, Spain, (while on sabbatical year leave)
4/99 - 12/03	**Associate Professor of Electrical Engineering-Systems, Computer Engineering Division, of the (now) Ming Hsieh Department of Electrical and Computer Engineering at the University of Southern California**
9/03 - 4/99	**Assistant Professor of Electrical Engineering-Systems, Computer Engineering Division, of the (now) Ming Hsieh Department of Electrical and Computer Engineering at the University of Southern California**
1/93 - 8/93	**Postdoctoral Researcher, Computer Systems Laboratory, Stanford University** Worked with Prof. Michael J. Flynn on research and publications related to thesis
9/89 - 8/93	**Research Staff, Hughes Research Laboratories (HRL),** Malibu, CA Worked in Dr. Uzi Efron's research group on designing and assessing the performance of analog optical processors relative to application-specific electronic processors for computing image/vision processing tasks; evaluated performance of various optical interconnect designs for Hughes' 3-D Computer
6/90 - 9/90	**Research Intern, IBM T.J. Watson Research Laboratories,** Yorktown Heights, NY
2/90 - 4/90	Worked with Dr. Yarson Hsu, Dr. Deepu Rathi, and Dr. Sandra Johnson on developing simulation tools to characterize memory reference behavior of scientific/engineering applications executed in a parallel/multiprocessor computing environment
6/89 - 9/89	**Research Assistant (RA), EE Department, Stanford University,** Stanford, CA
10/88- 6/89	Worked in research groups of Profs. Michael J. Flynn and Joseph W. Goodman
4/88 - 6/88	on studying multiprocessor interconnection networks, photonic/optical interconnects, and free-space optical clock distribution for minimizing backplane clock skew
6/88 - 9/88	**Teaching Assistant (TA) and Instructor, EE Department, Stanford University**
9/87 - 3/88	Augmented course materials and instructed the upper division undergraduate course
9/86 - 12/86	Computer Organization (EE182/CS112); assisted with teaching undergraduate courses Basic Electronics (Eng40 with Professor Fabian Pease) and Computer Organization (EE182/CS112 with Professor Daniel Weise), and the graduate course, Computer Networks: Architectures and Protocols (EE384/CS244 with Professor Fouad Tobagi)
6/85 - 10/86	**Member of Technical Staff, AT&T Bell Laboratories,** Columbus, OH Designed a pre-processor for the Fiber Interface Buffer Unit used in the Network Control Point Switch; investigated emerging CAD systems for circuit development
Summers 1980 – 1984	**Summer Intern:** Mitre Corporation, McLean, VA (1984); AT&T Bell Labs, Columbus, OH (1980, 1983); IBM General Products Division, San Jose, CA (1982); General Electric's Special Materials Department (SMD), Worthington, OH (1981)

HONORS, AWARDS, RESEARCH GRANTS, OTHER FUNDING

Professional Honors and Awards

- ACM Fellow, "*for contributions to interconnection network routing algorithms and leadership in expanding computing research*" (2019)
- IEEE Fellow, "*for contributions to design and analysis of interconnection networks and routing algorithms*" (2009)
- ACM Recognition of Service Award (2018, 2003); IEEE CS Recognition of Service Award (2018)
- USC Mellon Culture of Mentoring Award, with the Viterbi School Dean and Vice Deans (2011)
- Distinguished Alumnus Award, The College of Engineering and the Minority Engineering Program (MEP) of The Ohio State University (2005)
- Finalist (Honorable Mention), International Conference on Parallel Processing (ICPP) Best Paper Award—travel grant received (2002)
- NSF CAREER Award (1996); NSF Minority Research Initiation Award (1994)
- USC Zumburge Foundation Award (1994)

Graduate and Undergraduate Honors and Awards

- *Fellowships and Graduate Awards*: Hughes Doctoral Fellow (1989-1992), NSBE Best Technical Paper Award (1990), Outstanding Leadership and Service Award for Graduate Participation in NSBE (1989), Stanford's African American Graduate Student Association's Outstanding Student Award (1989), GTE Fellowship Award (1989), General Electric Fellowship Award (1987), AT&T Bell Labs' One-year-on-campus (OYOC) Master's funding award (1985-1986), Graduate Education for Minorities (GEM) Fellowship Award (1984-1985)
- *Undergraduate Engineering and University Awards*: OSU's College of Engineering Dean's List, Outstanding Senior Award (1985), Sphinx Senior Honorary (1985), OSU Homecoming Court (1985), Haverfield-Blackburn-Norton Resident Advisor (1984-1985), Tau Beta Pi Engineering Honorary (1984-1985), RHOME Engineering Honorary (1983-1985), Bucket and Dipper Junior Honorary (1984), OSU Outstanding Student Award (1984), Edward S. "Beanie" Drake Award (1984), General Electric's Sophomore Award (1983), Romophos Sophomore Honorary (1983), Hollaway Award (1982), Battelle's Freshman Award (1982), Phi Eta Sigma and Alpha Lambda Delta Freshman Honoraries (1982), OSU Stadium Scholarship Dormitory (1981-1982)

Sponsored Research Grants and Corporate Donations

Over $3,100,000 total funding (TP's portion); over $170,000 equipment donations (commercial value)

- PI, NSF Award CCF-1619472, entitled "SHF: Small: Collaborative Research: Design of Many-core NoCs for the Dark Silicon Era," *award amount of $100,022*—TP's portion of a $450,000 collaborative grant with Professor Lizhong Chen, PI at Oregon State University (2016-2020)
- PI, NSF Award CCF-1321131, entitled "SHF: Small: Enhancing Power, Performance, and Resource Efficiency of Many-core NoCs," *award amount of $499,998* (2013-2018)
- Co-PI, NSF Award CCF-1147973, entitled "NSF Workshop on Cross-Layer Power Optimization and Management," with Professor Massoud Pedram, PI, *award amount of $76,547* (2011-2012)
- PI, NSF Award CCF-0946388, entitled "EAGER: Network-Driven Shared Resource Design and Management in Multicores," *award amount of $261,244* with supplemental funding (2009-2013)
- Project Director, NSF Subaward CIF-543 from Computing Research Association for Computing Innovation (CI) Fellows Postdoc Award, to host Dr. Yuho Jin as a CI Fellow, *subaward of $267,500* (2009-2011)
- PI, NSF Award CCF-0541417, entitled "Investigation of Reliability-Constrained On-Chip Networks," *award amount of $375,000* (2006-2011)
- PI, NSF Award CCR-0311742, entitled "High Performance Network Architecture with Speculative Scheduling for Globally Active Congestion Control," *award amount of $250,000* (2003-2007)
- PI, NSF Award CCR-0209234, entitled "Theoretical Support for Efficient Network Discovery and Reconfiguration Techniques," *award amount of $287,533* (2002-2005)
- PI, NSF Award CCR-9812137, entitled "Efficient Adaptive Techniques for Irregular Switch-based Networks," *award amount of $350,005* (1998-2002)
- Co-PI, JSEP Grant, *award amount of $15,000*, my portion (1997)
- PI, NSF CAREER Award ECS-9624251, entitled "Optically-Interconnected Fully Adaptive Network Router," *award amount of $300,000* with supplemental funding (1996-2001)
- PI, NSF Minority Research Initiation Award (RIA) ECS-9411587, entitled "System-Level Integration of Optoelectronics in Multiprocessor Interconnect Architecture," *award amount of $270,000* (1994-1998)
- USC WISE Major Support for Continuing Faculty Award, *amount totaling $22,000* (2002-2003)
- USC Zumburge Foundation Award, *award amount totaling $24,000* (1994-1995)
- USC Powell Foundation Start-up Funds Grant, *award amount totaling $75,000* (1993)
- Equipment donations from various Corporate Sponsors, *commercial value totaling over $173,000*: Intel Corp., equipment valuing $4,835 (2002); Compaq Inc., valuing $25,000 (1999); Altera Corp., valuing $70,614 and $32,470 (1997 and 1998); and Xilinx Corp., valuing $40,109 (1997)

PUBLICATIONS

Over 100 peer-reviewed publications with over 2,950 citations and an h-index of 31 (Google Scholar).

Refereed Journal Articles

1. "Providing Balanced Mapping for Multiple Applications in Many-Core Chip Multiprocessors," Di Zhu, Lizhong Chen, Siyu Yue, Timothy M. Pinkston, and Massoud Pedram in *IEEE Transactions on Computers*, Vol. 65, Issue 10, pp. 3122-3135, Oct. 2016.

2. "Simulation of NoC Power-Gating: Requirements, Optimizations, and the *Agate* Simulator," Lizhong Chen, Di Zhu, Massoud Pedram, and Timothy M. Pinkston, in *Journal of Parallel and Distributed Computing*, Special Issue on Energy Efficient Multi-Core and Many-Core Systems, Part I, Elsevier Publishers, Vol. 95, pp. 69-78, September 2016.

3. "PAIS: Parallelism-Aware Interconnect Scheduling in Multicores," Yuho Jin and Timothy M. Pinkston, in *ACM Transactions on Embedded Computing Systems*, Special Issue on Design Challenges for Many-core Processors, Vol. 13, No. 3, pp. 108:1 - 108:21, March 2014.

4. "Efficient implementation of globally-aware network flow control," Lizhong Chen, Ruisheng Wang, and Timothy M. Pinkston, in *Journal of Parallel and Distributed Computing*, Elsevier Publishers, Vol. 72, Issue 11, pp. 1412-1422, November 2012.

5. "Communication-Aware Globally-Coordinated On-Chip Networks," Yuho Jin, Eun Jung Kim, and Timothy Mark Pinkston, in *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, Vol. 23, Issue 2, pp. 242-254, February 2012.

6. "An Efficient and Deadlock-free Network Reconfiguration Protocol," Olav Lysne, José Miguel Montañana, José Flich, Timothy Mark Pinkston, José Duato, and Tor Skeie, in *IEEE Transactions on Computers*, Vol. 57, No. 6, pp. 762-779, June 2008.

7. "Characterizing the Cell EIB On-Chip Network," Thomas William Ainsworth and Timothy Mark Pinkston, in *IEEE Micro*, Special Issue on On-Chip Interconnects for Multicores, IEEE Computer Society, Vol. 27, No. 5, pp. 6-14, September/October 2007.

8. "Designing Efficient On-Chip Interconnects for Application-Specific Architectures," Wai Hong Ho and Timothy Mark Pinkston, in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 17, No. 2, pp. 174-190, February 2006.

9. "Trends Toward On-Chip Networked Microsystems," Timothy Mark Pinkston and Jeonghee Shin, in *International Journal of High Performance Computing and Networking*, Inderscience Publishers, Vol. 3, No. 1, pp. 3-18, December 2005.

10. "Distributed Resolution of Network Congestion and Potential Deadlock using Reservation-based Scheduling," Yong Ho Song and Timothy Mark Pinkston, in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 16, No. 8, pp. 686-701, August 2005.

11. "Part I: A Theory for Deadlock-free Dynamic Reconfiguration of Interconnection Networks," José Duato, Olav Lysne, Ruoming Pang, and Timothy Mark Pinkston (listed alphabetically), in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 16, No. 5, pp. 412-427, May 2005.

12. "Part II: A Methodology for Developing Dynamic Network Reconfiguration Processes," Olav

Lysne, Timothy Mark Pinkston, and José Duato, in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 16, No. 5, pp. 428-443, May 2005.

13. "Dynamic Reconfiguration of InfiniBand Networks," Bilal Zafar, Timothy Mark Pinkston, Aurelio Bermudez, and José Duato, in *International Journal of Parallel Algorithms and Applications*, Special Issue on Parallel & Distributed Algorithms, Vol. 19, No. 2-3, pp. 127-143, June-September 2004.

14. "Evaluation of Queue Designs for True Fully Adaptive Routers," Yungho Choi and Timothy Mark Pinkston, in *Journal of Parallel and Distributed Computing*, Elsevier Publishers, Vol. 64, No. 5, pp. 606-616, May 2004.

15. "A Clustering Approach for Identifying and Quantifying Irregularities in Interconnection Networks." Wai Hong Ho and Timothy Mark Pinkston, in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 14, No. 12, pp. 1222-1239, December 2003.

16. "Deadlock-free Dynamic Reconfiguration Schemes for Increased Network Dependability," Timothy Mark Pinkston, Ruoming Pang, and José Duato, in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 14, No. 8, pp. 780-794, August 2003.

17. "A Progressive Approach to Handling Message-Dependent Deadlocks in Parallel Computer Systems," Yong Ho Song and Timothy Mark Pinkston, in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 14, No. 3, pp. 259-275, March 2003.

18. "InfiniBand: The "De Facto" Future Standard for System and Local Area Networks or Just a Scalable Replacement for PCI Buses?," Timothy Mark Pinkston, Alan F. Benner, Michael Krause, Irving M. Robinson, and Thomas Sterling, invited paper in *Cluster Computing*, Special Issue on Communication Architecture for Clusters, Vol. 6, No. 2, pp. 95-104, April 2003.

19. "Characterization of Deadlocks in Irregular Networks," Sugath Warnakulasuriya and Timothy Mark Pinkston, in *Journal of Parallel and Distributed Computing*, Elsevier Publishers, Vol. 62, No. 1, pp. 61-84, January 2002.

20. "A General Theory for Deadlock-free Adaptive Routing Using a Mixed Set of Resources," José Duato and Timothy Mark Pinkston, in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 12, No. 12, pp. 1219-1235, December 2001.

21. "Evaluation of Crossbar Architectures for Deadlock Recovery Routers," Yungho Choi and Timothy Mark Pinkston, in *Journal of Parallel and Distributed Computing*, Elsevier Publishers, Vol. 61, No. 1, pp. 49-78, January 2001.

22. "A Formal Model of Message Blocking and Deadlock Resolution in Interconnection Networks," Sugath Warnakulasuriya and Timothy Mark Pinkston, in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 11, No. 3, pp. 212-229, March 2000.

23. "A New Token-based Channel Access Protocol for Wavelength Division Multiplexed Multiprocessor Interconnects," Joon-Ho Ha and Timothy Mark Pinkston, in *Journal of Parallel and Distributed Computing*, Elsevier Publishers, Vol. 60, No. 2, pp. 169-188, February 2000.

24. "Characterization of Deadlocks in k-ary n-cube Networks," Timothy Mark Pinkston and Sugath Warnakulasuriya, in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 10, No. 9, pp. 904-921, September 1999.

25. "Flexible and Efficient Routing Based on Progressive Deadlock Recovery," Timothy Mark Pinkston, in *IEEE Transactions on Computers*, Vol. 48, No. 7, pp. 649-669, July 1999.

26. "Design Issues for Core-based Optoelectronic Chips: A Case Study of the WARRP Network Router," Mongkol Raksapatcharawong and Timothy Mark Pinkston, invited paper in *IEEE Journal of Special Topics in Quantum Electronics*, Special Issue on Smart Photonics, Vol. 5, No. 2, pp. 330-339, March/April 1999.

27. "Evaluation of Design Issues for Optoelectronic Cores: A Case Study of the WARRP II Router," Mongkol Raksapatcharawong, Timothy Mark Pinkston, and Yungho Choi, invited paper in *Journal of Optics A: Pure and Applied Optics*, Vol. 1, pp. 249-254, January 1999.

28. "Modeling Free-Space Optical k-ary n-cube Wormhole Networks," Mongkol Raksapatcharawong and Timothy Mark Pinkston, in *Journal of Parallel and Distributed Computing*, Elsevier Publishers, Vol. 55, No. 1, pp. 60-93, November 1998.

29. "WARRP Core: Optoelectronic Implementation of Network Router Deadlock Handling Mechanisms," Timothy Mark Pinkston, Mongkol Raksapatcharawong and Yungho Choi, in *Applied Optics*, Special Issue on Optics in Computing, Vol. 37, No. 2, pp. 276-283, January 1998.

30. "A Smart Pixel-based Network Interface Chip," Timothy Mark Pinkston and Charles Kuznia, in *Applied Optics*, Vol. 36, No. 20, pp. 4871-4880, July 1997.

31. "SPEED DMON: Cache Coherence on an Optical Multichannel Interconnect Architecture," Joon-Ho Ha and Timothy Mark Pinkston, in *Journal of Parallel and Distributed Computing*, Elsevier Publishers, Vol. 41, No. 1, pp. 78-91, February 1997.

32. "OMNI: An Optoelectronic Multichannel Network Interface Based on Hybrid CMOS-SEED Technology," Timothy Mark Pinkston, in *Optical Review*, Vol. 3, No. 6A, pp. 376-378, December 1996.

33. "Applying Optical Interconnects to the 3-D Computer: A Performance Evaulation," Timothy Mark Pinkston, Uzi Efron and Michael Campbell, in *Journal of Parallel and Distributed Computing*, Elsevier Publishers, Vol. 30, No. 1, pp. 23-37, October 1995.

34. "Design of an Optical Reconfigurable Shared-Bus Hypercube Interconnect," Timothy Mark Pinkston and Joseph W. Goodman, in *Applied Optics*, Vol. 33, No. 8, pp. 1434-1443, March 1994

Refereed Conference Articles

These articles received full-length peer reviews from at least 3 reviewers, in most cases 4 to 5 peer reviewers. Acceptance rates for most of the highly selective conferences typically fall in range of 15-20% (*ISCA*, *MICRO*, *HPCA*) to 20-25% (*DATE, IPDPS, IPPS, ISPLED, ICS, HiPC, ICPP, NoCS*).

35. "Power Punch: Towards Non-blocking Power-gating of NoC Routers," Lizhong Chen, Di Zhu, Massoud Pedram, and Timothy M. Pinkston, in *Proceedings of 21st IEEE International Symposium on High-Performance Computer Architecture (HPCA)*, San Francisco, pp. 378-389, February 2015.

36. "TAPP: Temperature-Aware Application Mapping for NoC-Based Many-Core Processors," Di Zhu, Lizhong Chen, Timothy M. Pinkston and Massoud Pedram, in *Proceedings of Design, Automation & Test in Europe Conference & Exhibition (DATE)*, pp. 1241-1244, Grenoble, France, March 2015.

37. "Smart Butterfly: Reducing Static Power Dissipation of Network-on-Chip with Core-State-Awareness," Siyu Yue, Lizhong Chen, Di Zhu, Timothy M. Pinkston, and Massoud Pedram, in *Proceedings of the ACM/IEEE International Symposium on Low Power Electronics and Design (ISPLED)*, La Jolla, CA, pp. 311-314, August 2014.

38. "Balancing On-Chip Network Latency in Multi-Application Mapping for Chip-Multiprocessors," Di Zhu, Lizhong Chen, Siyu Yue, Timothy M. Pinkston, and Massoud Pedram, in *Proceedings of the 28th IEEE International Symposium on Parallel and Distributed Processing (IPDPS)*, Phoenix, pp. 872-881, May 2014.

39. "MP3: Minimizing Performance Penalty for Power-gating of Clos Network-on-Chip," Lizhong Chen, Lihang Zhao, Ruisheng Wang, and Timothy M. Pinkston in *Proceedings of the 20th IEEE International Symposium on High Performance Computer Architecture (HPCA)*, Orlando, 12 pages, February 2014.

40. "Bubble Coloring: Avoiding Routing- and Protocol-induced Deadlocks with Minimal Virtual Channel Requirement," Ruisheng Wang, Lizhong Chen, and Timothy Mark Pinkston, in *Proceedings of the 27th ACM International Conference on Supercomputing (ICS)*, Eugene, OR, pp. 193-202, June 2013.

41. "An Analytical Performance Model for Partitioning Off-Chip Memory Bandwidth," Ruisheng Wang, Lizhong Chen, and Timothy Mark Pinkston, in *Proceedings of the 27th IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, Boston, pp. 166-176, May 2013.

42. "RAIR: Interference Reduction in Regionalized Networks-on-Chip," Lizhong Chen, Kai Hwang, and Timothy M. Pinkston, in *Proceedings of the 27th IEEE International Symposium on Parallel and Distributed Processing (IPDPS)*, Boston, pp. 154-164, May 2013.

43. "Worm-Bubble Flow Control," Lizhong Chen and Timothy M. Pinkston, in *Proceedings of the 19th IEEE International Symposium on High Performance Computer Architecture (HPCA)*, Shenzhen, China, 12 pages, February 2013.

44. "NoRD: Node-Router Decoupling for Effective Power-gating of On-Chip Routers," Lizhong Chen and Timothy M. Pinkston, in *Proceedings of the 45th Annual ACM/IEEE International Symposium on Microarchitecture (MICRO)*, Vancouver, BC, pp. 270-281, December 2012.

45. "Critical Bubble Scheme: An Efficient Implementation of Globally-aware Network Flow Control," Lizhong Chen, Ruisheng Wang, and Timothy Mark Pinkston, in *Proceedings of the 25th IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, Anchorage, pp. 592-603, May 2011.

46. "Cubic Ring Networks: A Polymorphic Topology for Network-on-Chip," Bilal Zafar, Jeff Draper, and Timothy M. Pinkston, in *Proceedings of the International Conference on Parallel Processing (ICPP)*, San Diego, pp.443-452, September 2010.

47. "A Proactive Wearout Recovery Approach for Exploiting Microarchitectural Redundancy to Extend Cache SRAM Lifetime," Jeonghee Shin, Victor Zyuban, Pradip Bose, and Timothy M. Pinkston, in *Proceedings of the 35th ACM/IEEE International Symposium on Computer Architecture (ISCA),* Beijing, China, pp. 353–362, June 2008.

48. "A Lightweight Fault-Tolerant Mechanism for Network-on-Chip," Michihiro Koibuchi,

Hiroki Matsutani, Hideharu Amano, and Timothy Mark Pinkston, in *Proceedings of the 2nd ACM/IEEE International Symposium on Networks-on-Chips (NoCS)*, Newcastle upon Tyne, UK, pp. 13-22, April 2008.

49. "On Characterizing Performance of the Cell Broadband Engine Element Interconnect Bus," Thomas William Ainsworth and Timothy Mark Pinkston, in *Proceedings of the First IEEE International Symposium on Networks-on-Chips (NoCS)*, Princeton, pp. 18–29, May 2007.

50. "Performance Analysis of Unstructured Schemes in Wired and Wireless Network Environments," Lan Quan, Kyung Geun Lee, and Timothy Mark Pinkston, in *Proceedings of the 11th International Conference on Parallel and Distributed Systems (ICPADS)*, Fukuoka, Japan, 7 pages, July 2005.

51. "Peer-to-Peer Caching Schemes for Integrated Wired and Wireless Network Environments," Lan Quan, Kyung Geun Lee, and Timothy Mark Pinkston, in *Proceedings of the 7th International Conference on Advanced Communication Technology (ICACT)*, Phoenix Park, South Korea, pp. 1231-1236, February 2005.

52. "Simple Deadlock-Free Dynamic Network Reconfiguration," Olav Lysne, José Miguel Montañana, Timothy Mark Pinkston, José Duato, Tor Skeie, and José Flich, in *Proceedings of the International Conference on High Performance Computing (HiPC)*, Bangalore, India, Vol. 3296 of book series *Lecture Notes in Computer Science (LNCS)*, pp. 504–515, Dec. 2004.

53. "On the InfiniBand Subnet Discovery Process," Aurelio Bermudez, Rafael Casado, Francisco J. Quiles, Timothy M. Pinkston and José Duato, in *Proceedings of the IEEE International Cluster Computing Conference,* Hong Kong, China, 6 pages, December 2003.

54. "Evaluation of a Subnet Management Mechanism for InfiniBand Networks," Aurelio Bermudez, Rafael Casado, Francisco J. Quiles, Timothy M. Pinkston and José Duato, in *Proceedings of the IEEE International Conference on Parallel Processing (ICPP)*, Kaohsiung, Taiwan, 8 pages, October 2003.

55. "A Methodology for Developing Dynamic Network Reconfiguration Processes," Olav Lysne, Timothy Mark Pinkston, and José Duato, in *Proceedings of the IEEE International Conference on Parallel Processing (ICPP)*, Kaohsiung, Taiwan, 10 pages, October 2003.

56. "The Performance of Routing Algorithms under Bursty Traffic Loads," Jeonghee Shin and Timothy Mark Pinkston, in *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'03)*, Las Vegas, pp. 737-743, June 2003.

57. "A Method for Applying Double Scheme Dynamic Reconfiguration over InfiniBand," Timothy Mark Pinkston, Bilal Zafar, and José Duato, in *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'03)*, Las Vegas, pp. 793-800, June 2003.

58. "A Methodology for Designing Efficient On-Chip Interconnects on Well-behaved Communication Patterns," Wai Hong Ho and Timothy Mark Pinkston, in *Proceedings of the 9th IEEE International Symposium on High Performance Computer Architecture (HPCA)*, Anaheim, pp. 377-388, February 2003.

59. "Evaluation of Queue Designs for True Fully Adaptive Routers," Yungho Choi and Timothy Mark Pinkston, in *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'03)*, Las Vegas, pp. 1746-1752, June 2002.

60. "A New Mechanism for Congestion and Deadlock Resolution," Yong Ho Song and Timothy Mark Pinkston, in *Proceedings of the IEEE International Conference on Parallel Processing (ICPP)*, Vancouver, Canada, pp. 81-90, August 2002.

61. "Enhanced Clustering Algorithm and Performance-Correlated Metrics for Irregular Networks," Wai Hong Ho and Timothy Mark Pinkston, in *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'01)*, Las Vegas, pp. 1107-1113, June 2001.

62. "Dynamic Reconfiguration of Networks with Distributed Routing: The Single Scheme," Timothy Mark Pinkston, Ruoming Pang, and José Duato, in *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'03)*, Las Vegas, pp. 2042-2048, June 2001.

63. "Efficient Handling of Message-Dependent Deadlock," Yong Ho Song and Timothy Mark Pinkston, in *Proceedings of the 15th IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, 8 pages, April 2001.

64. "On Message-Dependent Deadlocks in Multiprocessor/Multicomputer Systems," Yong Ho Song and Timothy Mark Pinkston, in *Proceedings of the 7th International Conference on High Performance Computing (HiPC)*, Springer Lecture Notes in Computer Science (LNCS), Vol. 1970, pp.345-354, December 2000.

65. "The Double Scheme: Deadlock-Free Dynamic Reconfiguration of Cut-Through Networks," Ruoming Pang, Timothy Mark Pinkston, and José Duato, in *Proceedings of the IEEE International Conference on Parallel Processing (ICPP)*, Toronto, Canada, pp. 439-448, August 2000.

66. "Characterization of Deadlocks in Irregular Networks," Sugath Warnakulasuriya and Timothy Mark Pinkston, in *Proceedings of the IEEE International Conference on Parallel Processing (ICPP)*, pp.75-84, Aizu-Wakamatsu, Japan, 10 pages, September 1999.

67. "A Clustering Approach in Characterizing Interconnection Networks," Wai Hong Ho and Timothy Mark Pinkston, in *Proceedings of the 5th International Conference on High Performance Computing (HiPC)*, Madras, India, pp. 277-284, December 1998.

68. "Architecture and Optoelectronic Implementation of the WARRP Router," Timothy Mark Pinkston, Yungho Choi and Mongkol Raksapatcharawong, in *Symposium Record of the 5th Symposium on High Performance Interconnects (Hot Interconnects V)*, Stanford, CA, pp.181-190, August 1997.

69. "Software-based Deadlock Recovery Technique for True Fully Adaptive Routing in Wormhole Networks," J. M. Martinez, Pedro Lopez, José Duato and Timothy Mark Pinkston, in *Proceedings of the IEEE International Conference on Parallel Processing (ICPP)*, Bloomingdale, IL, pp.182-189, August 1997.

70. "On Deadlocks in Interconnection Networks," Timothy Mark Pinkston and Sugath

Warnakulasuriya, in *Proceedings of the 24th ACM/IEEE International Symposium on Computer Architecture (ISCA)*, Denver, pp. 38-49, June 1997.

71. "Characterization of Deadlocks in Interconnection Networks," Sugath Warnakulasuriya and Timothy Mark Pinkston, in *Proceedings of the 11th IEEE International Parallel Processing Symposium (IPPS)*, Geneva, Switzerland, pp. 80-86, April 1997.

72. "Crossbar Analysis for Optimal Deadlock Recovery Router Architecture," Yungho Choi and Timothy Mark Pinkston, in *Proceedings of the 11th IEEE International Parallel Processing Symposium (IPPS)*, Geneva, Switzerland, pp. 583-588, April 1997.

73. "Token-based Media Access Protocols for Wavelength Division Multiplexed Optically Interconnected Multiprocessors," Joon-Ho Ha and Timothy Mark Pinkston, in *Proceedings of the 2nd Workshop on Optics and Computer Science*, held in conjunction with the 11th IEEE International Parallel Processing Symposium (IPPS'97), Geneva, Switzerland, pp.82–90, April 1997.

74. "A Hybrid Cache Coherence Protocol for a Decoupled Multi-channel Optical Network: *SPEED DMON*," Joon-Ho Ha and Timothy Mark Pinkston, in *Proceedings of the IEEE International Conference on Parallel Processing (ICPP)*, Bloomingdale, IL, Vol. 1, pp. 164-171, August 1996.

75. "An Optical Interconnect Model for *k-ary n-cube* Wormhole Networks," Mongkol Raksapatcharawong and Timothy Mark Pinkston, in *Proceedings of the 10th IEEE International Parallel Processing Symposium (IPPS)*, Honolulu, pp. 666-672, April 1996.

76. "Generalized Theory for Deadlock-Free Adaptive Wormhole Routing and its Application to *Disha* Concurrent," Anjan K. V., Timothy Mark Pinkston and José Duato, in *Proceedings of the 10th IEEE International Parallel Processing Symposium (IPPS)*, Honolulu, pp. 537-543, April 1996.

77. "An Efficient, Fully Adaptive Deadlock Recovery Scheme: Disha," Anjan K. V. and Timothy Mark Pinkston, in *Proceedings of the 22nd ACM/IEEE International Symposium on Computer Architecture (ISCA)*, Santa Margherita Ligure, Italy, pp. 201-210, June 1995.

78. "*Disha*: A Deadlock Recovery Scheme for Fully Adaptive Routing," Anjan K. V. and Timothy Mark Pinkston, in *Proceedings of the 9th IEEE International Parallel Processing Symposium (IPPS)*, Santa Barbara, pp. 537-543, April 1995.

79. "Optical Interconnects in the 3-D Computer for Fast Parallel Sorting," Timothy Mark Pinkston, Uzi Efron and Michael Campbell, in *Proceedings of the ISMM International Conference on Parallel and Distributed Computing and Systems (PDCS'02)*, Pittsburgh, PA, pp. 241–243, October, 1992.

80. "Studies of Throughput Enhancement of Electronic Processors," Timothy Mark Pinkston, Uzi Efron and Greg Nash, in *Proceedings of the 5th IEEE International Parallel Processing Symposium (IPPS)*, Anaheim, CA, May, 1991.

81. "Parallel Processor Memory Reference Analysis: Examining Locality and Clustering Potential," Timothy Mark Pinkston and Sandra Johnson Baylor, in *Proceedings of the 5th SIAM Conference on Parallel Processing for Scientific Computing*, Philadelphia, pp. 513-518, 1991.

82. "Parallel Processor Memory Reference Behavior and Its Application to Interconnect Architecture," Timothy Mark Pinkston and Michael J. Flynn, in *Proceedings of the 5th IEEE Distributed Memory Computing Conference*, Charleston, Vol. 2, pp. 697-702, April 1990.

83. "Preliminary Studies of Throughput Enhancement of an Electronic Multiprocessor by the coupling of an Optical Co-processor," Timothy Mark Pinkston and Uzi Efron in *Proceedings of the 4th IEEE International Parallel Processing Symposium (IPPS)*, Fullerton, CA, pp. 478-483, April, 1990.

Refereed Conference Extended Abstracts and Workshop Articles

84. "Thread Criticality Support in On-Chip Networks," Yuho Jin, Ruisheng Wang, Woojin Choi, and Timothy M. Pinkston, in *Proceedings of the 3rd International Workshop on Network on Chip Architectures (NoCArc'10)*, held in conjunction with the 43rd Annual ACM/IEEE International Symposium on Microarchitecture (MICRO-43), Atlanta, pp. 5-10, December 2010.

85. "On-Chip Networked Microsystems," Timothy Mark Pinkston, in *European Optical Society Topical Meeting: Optics in Computing 2004*, pp. 99-102, Engelberg, Switzerland, April 2004.

86. "Modeling InfiniBand with OPNET," Aurelio Bermúdez, Rafael Casado, Francisco J. Quiles, Timothy M. Pinkston, and José Duato, in *Proceedings of the 2nd Workshop on Novel Uses of System Area Networks (SAN'03)*, held in conjunction with the 9th IEEE International Symposium on High Performance Computer Architecture (HPCA), Anaheim, Feb. 2003.

87. "Theoretical Support for Deadlock-free Dynamic Network Reconfiguration," Timothy Mark Pinkston, José Duato, Olav Lysne, and Ruoming Pang, in *Proceedings of the Workshop on Self-Healing, Adaptive and self-MANaged Systems (SHAMAN)*, held in conjunction with the 16th Annual ACM International Conference on Supercomputing (ICS), New York City, published in Springer-Verlag's *Lecture Notes in Computer Science (LNCS)*, June 2002.

88. "Computer Engineering using Innovative Instructional Technologies at the University of Southern California," Timothy Mark Pinkston and Peter A. Beerel, in *Proceedings of the 1998 Workshop on Computer Architecture Education (WCAE-98)*, held in conjunction with the ACM/IEEE International Symposium on Computer Architecture (ISCA), Barcelona, Spain, June 1998 (also appears in IEEE Computer Society Technical Committee on Computer Architecture Newsletter, pp. 75-79, February, 1999).

89. "WARRP II: An Optoelectronic Fully Adaptive Network Router Chip," Timothy Mark Pinkston, Mongkol Raksapatcharawong, and Yungho Choi, in *European Optical Society Topical Meetings Digest Series on Optics in Computing (OC'98)*, Vol. 3490 pp. 311-315, June 1998.

90. "Modeling Blocking and Deadlock Detection in Interconnection Networks," Sugath Warnakulasuriya and Timothy Mark Pinkston, in *Proceedings of the 2nd Workshop on Parallel Computing, Routing, and Communication (PCRCW'97)*, Atlanta, Vol. 1417 of the book series *Lecture Notes in Computer Science (LNCS)*, pp. 239-258, June 1997.

91. "Token-based Media Access Protocols for Wavelength Division Multiplexed Optically Interconnected Multiprocessors," Joon-Ho Ha and Timothy Mark Pinkston, in *Proceedings of the 2nd Workshop on Optics and Computer Science*, held in conjunction with the 11th IEEE International Parallel Processing Symposium (IPPS), Geneva, SUI, pp.82-90, April 1997.

92. "Smart-Pixel Implementation of Network Router Deadlock Handling Mechanisms," Timothy

Mark Pinkston, Mongkol Raksapatcharawong, and Yungho Choi, in *Optics in Computing Technical Digest Series (OC'97)*, Vol. 8, pp. 159-161, March 1997.

93. "A System Demonstration of Progressive Deadlock Recovery Routing using Optoelectronic VLSI Chips," Mongkol Raksapatcharawong and Timothy Mark Pinkston, in *Optics in Computing Technical Digest Series (OC'97)*, Vol. 8, pp. 239-241, March 1997.

94. "An Asynchronous Optical Token Smart Pixel Design Based on Hybrid CMOS-SEED Integration," Timothy Mark Pinkston, Mongkol Raksapatcharawong, and Charles Kuznia, in *IEEE/LEOS Summer Topical Meeting on Smart Pixels Technical Digest*, Keystone, CO, pp. 40-41, August 1996.

95. "Optical Multichannel Network Interface Design Based on Hybrid CMOS-SEED VLSI Integration," Timothy Mark Pinkston, Seelan Kumarasamy, and Charles Kuznia, in the *1996 International Topical Meeting on Optical Computing Technical Digest (OC'96)*, Vol. 1, Sendai, Japan, pp. 10-11, April 1996.

96. "Modeling Optical *k-ary n-cube* Interconnection Networks," Mongkol Raksapatcharawong and Timothy Mark Pinkston, in the *1996 International Topical Meeting on Optical Computing Technical Digest (OC'96)*, Vol. 1, Sendai, Japan, pp. 122-123, April 1996.

97. "The SPEED Cache Coherence Protocol for an Optical Multi-access Interconnect Architecture," Joon-Ho Ha and Timothy Mark Pinkston, in *Proceedings of the Second International Workshop on Massively Parallel Processing using Optical Interconnects (MPPOI'95)*, IEEE Computer Society Press, San Antonio, pp. 98-107, October 1995.

98. "Design Considerations for Optical Interconnects in Parallel Computers," Timothy Mark Pinkston, in *Proceedings of the First International Workshop on Massively Parallel Processing using Optical Interconnects (MPPOI'94)*, IEEE Computer Society Press, Cancun, Mexico, pp. 306-322, April 1994.

99. "An Optical Interconnect Strategy for Parallel Architectures," Timothy Mark Pinkston, Michael J. Flynn, and Joseph W. Goodman, in *Conference Record of The 1990 International Topical Meeting on Optical Computing (OC'90)*, Kobe, Japan, pp. 301-302, April 1990.

100. "Throughput Enhancement of an Electronic Multiprocessor by the Coupling of an Optical Coprocessor," Timothy Mark Pinkston and Uzi Efron, presented at the *Annual Meeting of the Optical Society of America*, Boston, MA, November 1990.

101. "On the Frontier of Hybrid Electronic/Optical Computers," Timothy Mark Pinkston, presented at the *62nd Annual National Technical Association Conference*, Columbus, OH, July 1990.

Book Sections and Chapters

102. "Buses and Crossbars," Rajeev Balasubramonian and Timothy M. Pinkston, in Encyclopedia of Parallel Computing, David Padua (Editor), Springer Science+Business Media LLC, 2011.

103. "Interconnection Networks," Timothy Mark Pinkston and Jose Duato, in Computer Architecture: A Quantitative Approach, by John L. Hennessy and David A. Patterson, Elsevier Publishers, Appendix E, pp. 1-114 in the 4th edition, September 2006; and Appendix F, pp. 1-117 in 5th edition, September 2011; and Appendix F, pp. 1-117 in 6th edition, September 2017.

104. "The Performance of Routing Algorithms under Bursty Traffic Loads," Timothy Mark Pinkston and Jeonghee Shin, in Performance Evaluation of Parallel, Distributed and Emergent Systems, edited by Mohamed Ould-Khaoua and Geyong Min, Nova Science Publishers, Chapter 5 (13 pages), 2006.

105. "Deadlock Characterization and Resolution in Interconnection Networks (Chapter 13)," Timothy Mark Pinkston, in Deadlock Resolution in Computer-Integrated Systems, edited by MengChu Zhou and Maria Pia Fanti, Marcel Dekker/CRC Press, pp. 445-492, 2004.

106. "Deadlock Recovery" (Section 3.6) and "True Fully Adaptive Routing Algorithms" (Section 4.5.3) in Interconnection Networks: An Engineering Approach, by Duato, Yalamanchili and Ni, (with revised printing), Morgan Kaufmann, pp. 112-122 and pp. 177-179, 2003.

Edited Works (Special Issue Transactions, Conference Proceedings, Workshop Proceedings)

107. *Report for the NSF Workshop on Cross-layer Power Optimization and Management,* edited by Massoud Pedram, David Brooks, and Timothy Pinkston, Workshop Report, July 31, 2012.

108. *Proceedings of the 2006 International Conference on Parallel Processing Workshops,* edited by Timothy Mark Pinkston and Fusun Ozguner, IEEE Computer Society Press, August 2006.

109. *Proceedings of the 12th International Conference on Parallel and Distributed Systems (ICPDS),* edited by Timothy Mark Pinkston and Pen-Chung Yew, IEEE Computer Society Press, July 2006.

110. *IEEE Transactions on Parallel and Distributed Systems, Special Section on On-Chip Networks,* co-guest edited by LiShiuan Peh and Timothy Mark Pinkston, IEEE Computer Society, Vol. 16, No. 2, (guest editorial on pp. 97-98), February 2005.

111. *High Performance Computing--HiPC 2003 Lecture Notes in Computer Science*, edited by Timothy Mark Pinkston and Viktor K. Prasanna, LNCS-2913, Springer-Verlag, Dec 2003.

112. *Optical Networks, Special Issue on Using Optics in Parallel and Distributed Computing and Communication,* co-guest edited by Yuanyuan Yang, Timothy M Pinkston, and Qian-Ping Gu, Kluwer Academic Publishers, Vol. 4, No. 4, (guest editorial on pp. 9-10), July/August 2003.

113. *Proceedings of the 2001 International Conference on Parallel Processing Workshops,* edited by Timothy Mark Pinkston, IEEE Computer Society Press, September 2001.

114. *Proceedings of the Fourth International Conference on Massively Parallel Processing Using Optical Interconnects (MPPOI),* edited by J. Goodman, S. Hinton, T. M. Pinkston, and E. Shenfeld, IEEE Computer Society Press, June 1997.

Other Articles (Abstracts and Technical Reports)

115. "Engineering an Educational Transformation Based on Analogies with Chemical Reation and Flow Processes," Yannis C. Yortsos, Brandi P. Jones, Gisele Ragusa, and Timothy M. Pinkston, White Paper, pp. 1 – 12, January 2018.

116. "Impact of Lifetime Distribution Models on Chip Lifetime Reliability," Jeonghee Shin, Victor Zyuban, Pradip Bose and Timothy M. Pinkston, *IBM Technical Report*, 2008.

117. "A Proactive Approach of Extending Chip Lifetime Reliability with Wearout Recovery," Jeonghee Shin, Victor Zyuban, Pradip Bose and Timothy M. Pinkston, *IBM Technical Report RC24423*, February 2008.

118. "Trends Toward On-Chip Networked Microsystems," Timothy Mark Pinkston and Jeonghee Shin, *USC Technical Report CENG-2004-17*, December, 2004.

119. "The Design and VHDL Specification of the WARRP Router," Yungho Choi and Timothy M. Pinkston, *USC Technical Report*, September 1997.

120. "Implementation of Deadlock Detection in a Simulated Network Environment," Sugath Warnakulasuriya and Timothy Pinkston, *USC Technical Report CENG 97-01*, Jan 1997.

121. "Turn Selection Enhancements to Deadlock Recovery Routing," Joseph Borsody, William Kostis, and Timothy M. Pinkston, *USC Technical Report CENG 96-34*, December 1996.

122. "Deadlock-Free Adaptive Routing with Concurrent Disha," Anjan K. V., José Duato, and Timothy M. Pinkston, *USC Technical Report CENG 95-21*, November 1995.

123. "A Cache Coherence Protocol for an Optical Multichannel Interconnect Architecture," Joon-Ho Ha and Timothy M. Pinkston, in *Distributed Shared Memory Multiprocessor Workshop*, held in conjunction with the 22nd IEEE International Symposium on Computer Architecture (ISCA), June 1995.

124. "The GLORI Strategy for Multiprocessors: Integrating Optics into the Interconnect Architecture," Timothy Mark Pinkston, *Technical Report: CSL-TR-92-552* (doctoral dissertation), Stanford University, 177 pages, December 1992.

125. "Performance Evaluation of GLORI, an Optical Interconnect Strategy for Multiprocessors," Timothy Mark Pinkston, in the *23rd Annual Meeting of the Stanford Computer Forum*, Stanford University, Stanford CA, February 1991.

126. "Parallel Processor Memory Reference Analysis: Examining Locality and Clustering Potential," Timothy Mark Pinkston and Sandra Johnson Baylor, *IBM Research Report RC 15801*, 38 pages, May 1990.

127. "Increasing the Performance of Multiprocessor Computing Systems," Timothy Mark Pinkston, presented at the *16th Annual National Society of Black Engineers (NSBE) Conference*, Orlando, FL, March 1990.

128. "Optical Interconnects in Medium to Large Grained Multiprocessing Systems: A Feasibility Study," Timothy Mark Pinkston, presented at the *7th Annual CASIS Workshop Meeting*, Stanford University, March 1989.

129. "On The Threshold of Light Speed Computing," Timothy Mark Pinkston, in *Technet'88 Consortium of Papers*, NCBES Conference, Oakland, CA, pp. 86-96, October 1988.

TEACHING, MENTORING

Courses Taught

- Interconnection Networks (EE659): 1995, 1996, 1997, 1998, 1999, 2001, 2002, 2003, 2004, 2010
- Special Topics Course (EE599) on Optical Interconnects: 1994
- Computer Systems Architecture (EE557): 1993, 1994, 1995, 1996, 1997, 1998, 2002, 2003, 2004, 2005
- Basic Organization of Computer Systems (EE357): 2000, 2001
- Introduction to Digital Logic (EE101): 1995, 1996, 1997
- Digital Computer Organization (EE182/CS112): 1988 (taught at Stanford University)

Undergraduate Students Mentored in Research Experiences (* = Merit Research Scholar)

Former (in alphabetical order)

- Mark Battjes*, graduated 1999; U.S. Army Officer; went on to get an MS in management from U. of Maryland University College; currently pursuing Ph.D. on U.S. Diplomatic History at U. T. Austin
- David Brooks*, graduated 1997; later earned MS and Ph.D. degrees in electrical engineering from Princeton and subsequently joined faculty at Harvard (currently a full professor of computer science)
- Corey Johanningmeier*, graduated 1997; worked as a chip designer in industry before pursuing a J.D. from Indiana University and practicing IP law (currently an Associate at Keker & Van Nest, LLP)
- Abena Sandy-Montgomery*, graduated 1999; became a consultant at Accenture and later earned an MS in management information systems from U. of Houston-Clear Lake (currently at Stewart Title)
- Mudassir Sheikha, graduated 1999; later earned an MS in computer science from Stanford and subsequently co-founded a company based out of Dubai (currently Managing Director at Careem)

Master's Students Advised (* = supported as Research Assistants)

Former (in alphabetical order)

- Thomas Ainsworth, "The Cell Element Interconnect Bus On-Chip Network," graduated Spring 2005; continued in position at Northrop-Grumman Corp.
- Ruoming Pang*, "Dynamic Reconfiguration of Routing Algorithms," graduated Fall 2000; later earned a Ph.D. in computer science from Princeton and accepted a position at Google
- Anjan K. Venkatramani*, "Disha: A True Fully-Adaptive Routing Scheme," graduated Spring 1995; accepted a position at Juniper Networks (became VP of Product Line Management), earned an MS in economics from Stanford's School of Business, and later started his own company (Prismo Systems)

Doctoral Students Advised (* = supported as Research Assistant)

Former (in alphabetical order)

- Lizhong Chen*, dissertation titled "Design of Low-power and Resource-efficient On-chip Networks," graduated in 2014; accepted Assistant Professor position at Oregon State University
- Yung-Ho Choi*, dissertation titled "Progressive Deadlock Recovery Router Implementation," graduated May 2001; accepted position at Intel and later joined Konkuk University, Seoul, South Korea (currently full Professor);
- Joon-Ho Ha*, dissertation titled "SPEED DMON Cache Coherence," graduated May 1999; accepted position at Intel
- Wai-Hong Ho, dissertation titled "Design Methodologies for On-Chip Interconnection Networks," graduated August 2006
- Seelan Kumarasamy*, dissertation titled "Testing On-chip Multiprocessor Interconnection Networks and Switches," graduated Dec. 2004 (completed under advisement of Prof. Mel Breuer)
- Mongkol Raksapatcharawong, dissertation titled "Analysis and Implementation of Optoelectronic Network Routers," graduated Sept. 1998; at Kasetsart University, Bangkok, Thailand (full Professor)

- Jeonghee Shin*, dissertation titled "Lifetime Reliability Studies for Microprocessor Chip Architecture," graduated 2008; accepted research staff position at IBM T. J. Watson Research Labs
- Yong Ho Song*, dissertation titled "Architectural Support for Efficient Utilization of Network Resources," graduated August 2002; accepted position at Hanyang University, Seoul, South Korea (currently full Professor)
- Ruisheng Wang*, dissertation titled "Efficient Techniques for Sharing On-Chip Resources in CMPs," graduated August 2017; accepted position at Futurewei Technologies, Santa Clara, CA
- Sugath Warnakulasuriya*, dissertation entitled "Deadlock Characterization in Interconnection Networks," graduated May 1999; accepted position at McKinsey & Co., later started his own consulting company
- Bilal Zafar*, dissertation entitled "Dynamically Reconfigurable On- and Off-Chip Networks," graduated 2011 (completed under advisement of Prof. Jeff Draper); accepted a position at QualComm

External (International) Doctoral Thesis Committees

- *Faculty Opponent*: "High performance fiber-optic interconnection networks for real-time computing systems," Magnus Jonsson, Ph.D. student, School of Information Science, Computer and Electrical Engineering, Halmstad University, Halmstad, Sweden, November 1999
- *Guest Member of Thesis Committee:* "Deseno de Mechanismos Eficientes para la Gestion de Subredes InfiniBand (The Design of Efficient Mechanisms for InfiniBand Subnet Management)," Aurelio Bermudez Marın, Ph.D. student, Computer Science Department of the University of Castilla- La Mancha, Albacete, Spain (advised by Professor Rafael Casado Gonzalez), September 2004
- *Guest Member of Thesis Committee:* "Impacto del Subsistema de Comunicacin en el Rendimiento de los Computadores Paralelos: desde el Hardware hasta las Aplicaciones (Impact of the Communication Subsystem within the Interconnection Network of Parallel Computers: from the Hardware to the Applications)," Valentin Puente Varona, Ph.D. student, E.T.S.I. Industriales y de Telecomunicacin at the University of Cantabria, Spain (advised by Professor Ramon Beivide), February 2000
- *Guest Member of Thesis Committee:* "Routing and Flow Control in Networks of Workstations," Federico Silla Jimenez, Ph.D. student, Universidad Politecnica de Valencia, Valencia, Spain (advised by Professor José Duato), March 1999
- *Guest Member of Thesis Committee:* "Arquitecturas de Altas Prestaciones para Circuitos de Encaminamiento (High-Performance Circuit-Switched Routers)," Juan Manuel Orduna Huertas, Ph.D. student, Universidad Politecnica de Valencia, Valencia, Spain (advised by Prof. José Duato), July 1998

Postdoctoral Scholars Mentored

- Lizhong Chen, Postdoctoral Scholar--Research Associate, June 2014 to December 2014; accepted an Assistant Professor faculty position at Oregon State University starting Jan. 2015
- Yuho Jin, CI Fellow Postdoctoral Scholar--Fellowship Trainee, August 2009 to August 2011; accepted an Assistant Professor faculty position at New Mexico State University starting Aug. 2011

Visiting Scholars Hosted

- Michihiro Koibuchi, Assistant Professor, Infrastructure Systems Research Division, National Institute of Informatics, Tokyo, Japan, March - August 2006 (currently Associate Professor)
- Kyung Geun Lee, Associate Professor, Department of Information & Communications Engineering, Sejong University, Seoul, Korea, December 2003 to February 2005 (currently full Professor)
- Aurelio Bermudez, Assistant Professor in the Computer Science Department, Universidad de Castilla la Mancha, Albacete, Spain, from August, 2002, to October, 2002 (currently full Professor)
- Rafael Casado, Associate Professor in the Computer Science Department, Universidad de Castilla la Mancha, Albacete, Spain, August - November 2001 (currently full Professor)
- Ingebjørg Theiss, Ph.D. student in Computer Engineering, University of Oslo, Norway, Sept - Dec 2000

- JongIn Chung, Assistant Professor, Department of Computer Engineering, Kongju National University, Korea, August 1999 to July 2000
- Federico Silla Jimenez, Assistant Professor in the Computer Engineering Department, Universidad Politecnica de Valencia, Valencia, Spain, July - October 1998 (currently Associate Professor)

PROFESSIONAL SERVICE ACTIVITIES

Keynotes

- "An Exciting Time to Be an Engineer" keynote speech at The OSU College of Engineering's Annual Minority Engineering Program (MEP) Minnie M. McGee Recognition and Awards Banquet (now named after its former Assist. Dean, Minnie McGee), Columbus, OH, April 2019
- "Shades of Engineering: Using Diversity to Foster Excellence" keynote speech at The OSU College of Engineering's Annual MEP Awards Banquet, Columbus, OH, April 2005
- "Developments in Dependable and On-Chip Interconnection Networks" keynote speech at the *4th IEEE International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT'03)*, Chengdu, China, August 2003
- "Developments in High-Performance Interconnection Networks for Parallel and Distributed Systems" keynote speech at the semiannual *Yugoslavian National Symposium on Computing and Information Technology*, Kopaonik, Yugoslavia, March 2000

Tutorials

- "Riding the Next Wave of Computing," two-hour tutorial at the *20th Annual Summer School for Informatics: Present and Future of Computer Systems*, Albacete, Spain, June 21-23, 2010
- "NoC at the Age of Six: Advanced Topics, Current Challenges and Trends," with Axel Jantsch, Luca Benini, Kees Goossens, Pieter van der Wolf, Alain Fanet Arteris, Marcello Coppola; full-day tutorial at *10th Design, Automation and Test in Europe Conference & Exhibit (DATE)*, Nice, France, April 2007
- "Multicore and Multiprocessor Interconnection Networks," week-long invited tutorial at the *2nd International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems (ACACES)*, associated with the Network of Excellence on High Performance and Embedded Architecture and Compilation (HiPEAC), L'Aquila, Italy, July 23-29, 2006
- "High-Performance Router Architectures for Network Computing," half-day tutorial at the *9th IEEE International Conference on Parallel and Distributed Systems (ICPADS),* National Central University, Taiwan, ROC, December 2002
- "Flexible and Efficient Routing: A Tutorial," half-day tutorial at the semiannual *Yugoslavian National Symposium on Computing and Information Technology*, Kopaonik, Yugoslavia, March 2000

Consultant and Scientific Advisory Board Member:

- Various international companies in the computer and networking industries

Invited Seminar Speaker (in alphabetical order):

- Aerospace Corporation, Los Angeles, CA (1998)
- Bull Corporation, Versailles, France (1993)
- California State University at San Diego, San Diego, CA (2006)
- Colorado State University, Fort Collins, CO (2006)
- Compaq (DEC Alpha 21364 Group), Boston, MS (1999)
- DEC Western Research Laboratory, Palo Alto, CA (1995)
- Duke University, Durham, NC (2006)
- Fayetteville State University (2006)

- Harvey Mudd College Computer Science Colloquium, CA (1999)
- Hughes Research Laboratories (HRL), Malibu, CA (1993)
- IBM T. J. Watson Research Laboratory, Yorktown Heights, NY (2006)
- USC Information Sciences Institute, Marina Del Ray, CA (1996)
- INRIA Research Center, Sophia Antipolis, France (2000)
- NASA Ames Research Center, Moffett Field, CA (1993)
- North Carolina State University, Raleigh, NC (2006)
- Olivetti Corporate R & D, Ivrea, Italy (1993)
- Pennsylvania State University, State College, PA (2006)
- Pyramid Technology Corporation, San Jose, CA (1995)
- San Diego State University (2006)
- Siemens Corporate R & D, Munich, Germany (1993)
- Southern University, Baton Rouge, LE (1993)
- Stanford University, Palo Alto, CA (1996)
- State University of New York at Buffalo, Buffalo, NY (1995)
- State University of New York at Stony Brook, Stony Brook, NY (2006)
- The Ohio State University, Columbus, OH (1999)
- Universidad de Cantabria, Santander, Spain (1998)
- Universidad Politecnica de Valencia, Valencia, Spain (1997)
- Universidad Politecnica de Catalunya, Barcelona, Spain (1999)
- Universidad de Murcia, Murcia, Spain (1999)
- University of Oslo, Oslo, Norway (1999)
- University of Halmstad, Halmstad, Sweden (1999)
- Chalmers University, Gottenburg, Sweden (1999)
- University of Belgrade, Belgrade, Yugoslavia (2000)
- University of California at Santa Barbara, Santa Barbara, CA (1996)
- University of California at Riverside, Riverside, CA (2006)
- University of California at Irvine, Irvine, CA (2006)
- University of California at San Diego, San Diego, CA (2006)
- University of Colorado, Boulder, CO (1993, 2006)
- University of Hong Kong, Hong Kong (1996)
- University of Maryland, College Park, Maryland (1993)
- University of Pittsburgh, Pittsburgh, PA (2006)
- University of Texas at Austin, Austin, TX (1993)
- University of Virginia, Charlottesville, VA (1993)

Editorial Boards, Conference Committees, Workshop Committees, other Professional Service

Guest Editor:
- *IEEE Transactions on Parallel and Distributed Systems,* Special Section on On-Chip Networks, with Professor Li-Shiuan Peh, Vol. 16, No. 2, February 2005 issue
- *SPIE Optical Networks Magazine,* Special Issue on Using Optics in Parallel and Distributed Computing and Communication, Vol. 4, No. 4, July/August 2003 issue

Associate Editor:
- *IEEE Transactions on Parallel and Distributed Systems* (TPDS), 1999–2002

IEEE Search, Evaluation, and Advancement Committees:
- IEEE Technical Committee on Computer Architecture (TCCA) Young Investigator Award (YIA) Selection Committee, 2011-13; Committee Chair in 2012
- IEEE Fellows Evaluation Committee for the Computer Society, 2010-2015 and 2018-2019

- IEEE Senior Member Review Panel (IEEE Application & Advancement Committee) 2007
- IEEE TPDS Editor-in-Chief Search Committee for new appointment 2005
- IEEE TPDS Editor-in-Chief Reappointment Evaluation Committee 2003

Steering, Selection, and Executive/Advisory Committees or Boards:
- ACM SIG on Architecture (SIGARCH) and Microarchitecture (SIGMICRO), inaugural Committee to Aid Reporting on Discrimination and Harassment Policy Violations (CARES), 2018 - present
- ACM/IEEE International Symposium on Computer Architecture (ISCA), Steering Committee, 2018 - present
- Academic and Research Leadership Network (ARLN), Executive Advisory Board, 2015 - present
- The Ohio State University's Department of Electrical & Computer Engineering, Advisory Board, 2015 - 2018
- IEEE International Workshop on High-Performance Interconnection Networks in the Exascale and Big-Data Era (HiPINEB), Steering Committee, 2014 - present
- IEEE Technical Committee on Computer Architecture (TCCA), Executive Committee, 2010-2015
- IEEE International Symposium on High Performance Computer Architecture (HPCA), Steering Committee, 2009-2012
- CCC/CRA Computing Innovation Fellows (CI Fellows), Selection Committee, 2009, 2010
- IEEE Technical Committee on Parallel Processing (TCPP), Executive/advisory, 2007 - present
- IEEE International Parallel and Distributed Processing Symposium (IPDPS), Steering Committee, 2007-2009
- Network of Excellence on High Performance and Embedded Architecture and Compilation (HiPEAC), Steering Committee, 2006, 2007
- Workshop on On- and Off-Chip Interconnection Networks for Multicores, Steering Cmte, 2006
- IEEE International Conference on High Performance Computing (HiPC), Steering Committee 2003-2005

General Chair:
- 45th ACM/IEEE International Symposium on Computer Architecture (ISCA), Co-chair with Professor Murali Annavaram, Los Angeles, June 2018
- 21st IEEE International Parallel and Distributed Processing Symposium (IPDPS), Long Beach, April 2007

Co-Organizer:
- Academic Careers Workshop for Underrepresented Junior Faculty and Senior Graduate Students, (funded by NSF since 2007, hosted by CMD-IT), 2010-present

Program Chair:
- 15th IEEE International Symposium on High-Performance Computer Architecture (HPCA), Raleigh, North Carolina, February 2009
- 12th IEEE International Conference on Parallel and Distributed Systems (ICPADS), Minneapolis, July 2006
- 10th ACM/IEEE International Conference on High Performance Computing (HiPC'03), Hyderabad, India, December 2003
- 4th International Conference on Massively Parallel Processing using Optical Interconnects (MPPOI), Montreal, June 1997

Program Vice-Chair:
- 10th IEEE International Conference on Parallel and Distributed Systems (ICPADS), Communication Networks and Systems Track, Newport Beach, CA, July 2004
- Euro-Par 2003 Topic 14: Routing and Communication in Interconnection Networks, Klagenfurt, Austria, August 26-29, 2003

Workshops Chair:

- 13th ACM Richard Tapia Celebration of Diversity in Computing Conference, Technical Workshops and Tutorials, Co-Chaired with William Halfond, San Diego, CA, September 2019
- 35th International Conference on Parallel Processing (ICPP), co-chaired with Professor Yuanyuan Yang, Columbus, OH, August 2006
- 30th International Conference on Parallel Processing (ICPP), Valencia, Spain, September 2001

Tutorials Chair:

- 31st ACM/IEEE International Symposium on Computer Architecture (ISCA), Munich, Germany, June 2004

Publicity Co-Chair:

- 34th International Conference on Parallel Processing (ICPP), Oslo, Norway, June 2005

Finance Chair:

- 12th IEEE International Conference on Cluster Computing, Heraklion, Crete, Sept. 2010
- 3rd IEEE International Conference on Cluster Computing, Newport Beach, October 2001

Technical Conference Panel Moderator:

- "Challenges for Future Interconnection Networks: Power, Reliability, Performance Scalability?", Hot Interconnects'06 Panel, Stanford University, Palo Alto, August 2006
- "What Will Have the Greatest Impact in 2010: Processor, Memory, or Interconnnect Architecture?", 8th IEEE International Symposium on High Performance Computer Architecture (HPCA'02) Panel, Boston, Feb. 2002
- "InfiniBand: The De Facto Future Standard for System and Local Area Networks or Just a Scalable Replacement for PCI Buses?", Communication Architectures for Clusters (CAC'01) Workshop Panel, held in conjunction with the 7th IEEE International Symposium on High Performance Computer Architecture (HPCA'01)), San Francisco, February 2001

Technical Conference and Workshop Panelist or Speaker:

- "EU-US Funded Research Opportunities and Trends in Computing Systems," Special Panel Session at the 41st Annual ACM/IEEE International Symposium on Microarchitecture (MICRO-41), Lake Como, Italy, November 10, 2008
- "Which of the QUAD Pillars Needs Most Attention in the Late CMOS Design Era?," panel at the Workshop on Quality-Aware Design (W-QUAD), held in conjunction with 35th ACM/IEEE International Symposium on Computer Architecture (ISCA-35), Beijing, China, June 21, 2008
- "Proliferating the Use and Acceptance of NoC Benchmark Standards" panel presentation at the 1st IEEE International Network-on-Chip Symposium (NOCS'07), Princeton, NJ, May 7, 2007
- "Parallel Processing–the First 35 Years, the Next 35 Years" panel presentation at the 35th International Conference on Parallel Processing (ICPP'06), Columbus, OH, August 2006
- NSF Workshop on Linking Teachers to Research Experiences, sponsored by the NSF Engineering Directorate, 2003
- NSF Workshop on Free-Space Optoelectronics, sponsored by AFOSR for DARPA, ONR and AFRL, 1994

Outreach Efforts: Diversity and Inclusion Panels and Presentations (external):

- Dean's Panel for the Early-Career Faculty Symposium, HENAAC Conference, Pasadena, Oct 2018
- Viterbi Adopt-a-School, Adopt-a-Teacher (VAST): Invited Moderator of the "EE Spotlight Alumni Panel", March 2018
- "Best Practices in Diversity and Inclusion in Graduate Engineering Education for African American Students," invited talk at the Changing the Face of Engineering and the African American Experience Workshop, held at the ASEE Annual Conference in Columbus, OH, June 2017

- "How do Proposals Get Funded and Why?", "Writing Competitive Proposals", "Funding Agencies", "Alternative Career Choices", "Applying and Interviewing for Academic Positions", "Launching an Effective Research Program", "Demystifying Promotion and Tenure", "Promotion to Full Professor Rank", "Mock Proposal Panel Review", "The Joys and Pains of Administration" presentations and panels at the near-annual Academic Careers Workshop for Underrepresented Junior Faculty and Senior Graduate Students, in Portland, Los Angeles, Chicago, and Houston, in April or May of 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2019
- "In Pursuit of Excellence" panel presentation at The OSU College of Engineering's Annual MEP Minnie M. McGee Recognition and Awards Banquet, Columbus, OH, April 2016
- "Funding Your Research Program" and "Engaging Your Chair and Dean Effectively" panels at the Academic Research and Leadership Network (ARLN) Symposium, held in conjunction with the NSBE National Conference in Anaheim and Boston, March 2015 and 2016, respectively
- "Communicating Scientific Research to a Specific Audience" and "Developing an Effective Graduate Student-Advisor Relationship" panels for SHPE Workshop, Los Angeles, April 2015
- "Engineering Our Future" panel presentation for Vigil Middle School's College and Career Fair (Vigil is an English as a second language or ESL school), Los Angeles, April 2011
- "What Does It Mean to Earn a PhD? Perspectives from Successful Researchers", "How Do I Apply for Graduate School and What Grants Are Available to Me?", and "HPC Hot Topics – High Performance Interconnects" presentations and panels at the CRA-W/CDC Careers in High Performance Systems (CHiPS) Mentoring Workshop, Urbana-Champaign, July 24-26, 2009
- "What is Research?" and "Opportunities for Students of Underrepresented Groups," panel presentations at the CRA-W/CDC Systems Research Mentoring Workshop, Newark, Delaware, June 16, 2008
- "How to Write a Successful Proposal" and "Presentation and Communication Skills" panel presentations at the CRA-W/CDC Computer Architecture Workshop, Princeton, NJ, July 2006

Other Outreach Efforts: Diversity and Inclusion Organizing and Judging Activities (external and internal):

- Founding organizer of the Viterbi School's annual *REACH* (*R*ecruitment of *E*ngineering *ACH*ievers) PhD Preview event that targets highly qualified underrepresented minority (URM) junior, senior, and master's students to visit USC's campus to meet faculty and students, find out about research opportunities, and learn about doctoral programs in the USC Viterbi School, 2010 – present
- Judge for undergraduate and graduate poster sessions at Tapia conferences (2016, 2017, 2018, 2019); SACNAS conferences in Los Angeles, Long Beach, Salt Lake City, San Antonio, Honolulu (2014, 2016, 2017, 2018, 2019); HENAAC conference in Pasadena (2015)
- Organized graduate recruitment efforts at Johnson C. Smith University (JCSU), a Historically Black College or University (HBCU), and at the University of Puerto Rico at Mayaguez (UPRM), a Hispanic-serving institution (HSI) that produces the largest number of engineering bachelor's degrees awarded to Hispanic Americans by any university in the U.S.; the JCSU event was attended by over 20 URM (African American) students, at least a third of whom were women, and the UPRM event was attended by around 70 URM (Puerto Rican) students, about 30% of whom were women, 2010
- Organized a Graduate Studies Outreach panel and Distinguished Lecture Series event, co-sponsored by Computing Research Association-Women and Coalition to Diversify Computing (CRA-W/CDC), targeting women and URM undergraduate engineering students to inform them about opportunities for graduate studies in computing-related fields and prepare them to be successful in graduate pursuits; students from USC and nearby minority-serving institutions (MSIs), including Cal State LA and Cal State Long Beach, were invited with 76 students and faculty in attendance—21 (27.6%) and 14 (18.4%) female and URM, respectively, 2010
- Co-organized, with the Los Angeles Urban League, a "Crenshaw to College Day" event in which ten USC faculty and senior staff (Director of our MESA program) gave 30-minute mini-lectures to Crenshaw High School freshman, introducing them to engineering and the importance of pursuing post-secondary education (Crenshaw enrolls 60% African-American and 30% Hispanic-American students, and 50% of the students would be first-generation college students), 2010

- NSF CISE Broadening Participation in Computing Strategic Planning Committee 2007-2008
- NSF CISE Broadening Participation in Computing Working Group 2007

Technical Program Committee Membership (Conferences and Workshop):
- ACM/IEEE International Symposium on Computer Architecture (ISCA) 2001, 2012
- Workshop on Interconnection Network Architectures: On-Chip, Multi-Chip 2009
- IEEE International Conference on Computer Design (ICCD), 2008, 2009
- IEEE International Networks-on-Chips Symposium (NoCS) 2007, 2009
- IEEE International Symposium on High Performance Computer Architecture (HPCA) 2003, 2005, 2008
- ACM/IEEE International Workshop on Network on Chip Architectures (NoCArc) 2008
- IEEE International Symposium on High Performance Computing (HiPC), 2007, 2008
- International Conference on Architecture of Computing Systems (ARCS) 2006
- Int'l Conference on Parallel Processing (ICPP) 1998, 2000, 2001, 2002, 2003, 2005, 2006
- Workshop on Communication Architecture for Clusters (CAC) 2001, 2002, 2003, 2004, 2005, '06
- IEEE International Parallel and Distributed Processing Symposium (IPDPS) 1998, 2003, 2004
- Workshop on System Area Networks (SAN), held in conjunction with HPCA, 2003, 2004
- Workshop on Storage Network Architecture and Parallel I/Os (SNAPI) 2003
- Workshop on Optical Networks (WON) 2001, 2002
- Int'l Conference on Computer Science and Informatics (CS&I) 2002
- Int'l Conference on Distributed Computing Systems (ICDCS-21) 2001
- Workshop on Optics in Computer Science 1998, 1999, 2000
- Optics in Computing (OC) Conference 1998, 1999
- LEOS Summer Topical Meeting on Smart Pixels 1998
- Supercomputing Conference 1998
- Workshop on Parallel Computing, Routing, and Communication (PCRCW-2) 1997
- MPPOI-3 Conference 1996, and LEOS Annual Meeting 1995

External Review Committee/Reviewer (Conferences):
- ACM/IEEE ISCA 2013 - 2015, 2019, 2020
- IEEE HPCA 2010, 2013, 2015
- ACM/IEEE International Symposium on Microarchitecture (MICRO) 2008, 2009, 2011, 2012

Conference Session Chair:
- HiPEAC'19, Networks
- HPCA'09, On-Chip Networks-I
- HPCA'08, Power and Thermal Management Session
- HPCA'05, Communication Architectures Session
- HPCA'04, I/O Session
- ICPADS'04, Routing in Optical Networks Session
- 31st ICPP'02, Network Routing I Session
- 30th ICPP'01, Architecture Session
- 29th ICPP'00, Optical Networks Session
- 28th ICPP'99, Architecture Support and Performance Evaluation Session
- HiPC'98, Scheduling and Load Balancing Session
- LEOS Smart Pixels'98 Topical Meeting, Optoelectronic Architectures Session
- HPCA'02, Pipelining and Microarchitecture Session
- ICPP'01, Routing in Direct Networks Session
- IPPS/SPDP'98, Networks Session
- ISCA'97, Issues in Shared Memory Systems Session

- IPPS'97, Networks Session
- PCRCW'97, Routing Session
- OC'96, Applications of Smart Pixels Session
- HPCA'96, Interconnection Networks Session
- MPPOI'96 Conference, Interconnection Networks and System Architecture Session
- MPPOI'95 Conference, Session VI Chair

Publications Reviewer:
- ACM Transactions on Architecture and Code Optimization (TACO)
- ACM Transactions on Computer Systems (TOCS)
- IEEE Computer Architecture Letters
- IEEE Transactions on Parallel and Distributed Systems (TPDS)
- IEEE Transactions on Very Large Scale Integration Systems (TVLSI)
- IEEE Transactions on Computers (TC)
- IEEE Journal of Selected Topics in Quantum Electronics (JSTQE)
- IEEE Micro
- IEEE Design & Test of Computers Journal
- Journal of Parallel and Distributed Computing (JPDC)
- Journal of Performance Evaluation
- International Journal on Computers & Electrical Engineering
- Journal of the European Optical Society, part A - Pure and Applied Optics
- Applied Optics
- Technical Digest for Optics in Computing Conference
- Digest of the LEOS Summer Topical Meeting on Smart Pixels
- IEEE International Parallel and Distributed Processing Symposium (IPDPS)
- IEEE International Conference on Parallel Processing (ICPP)
- IEEE International Conference on Parallel Architectures and Compilation Techniques (PACT)
- ACM/IEEE International Symposium on Computer Architecture (ISCA)
- ACM/IEEE International Symposium on High Performance Computer Architecture (HPCA)
- ACM/IEEE International Conference on High Performance Computing (HiPC)
- ACM International Conference on Supercomputing (ICS)
- International Conference on Massively Parallel Processing using Optical Interconnects (MPPOI)
- Parallel Computing, Routing, and Communication Workshop (PCRCW)
- Workshop on Communication, Architectures and App's for Network-based Parallel Computing
- European Conference on Parallel Processing (Europar)
- Globecom Conference
- Hawaii International Conference on System Sciences
- Book proposals for Johns Hopkins University Press, Morgan & Claypool Publishers, Cambridge University Press, Prentice Hall Publishers, IEEE Computer Society Press, Morgan Kaufmann, and Chapman and Hall/CRC Press including the following books: *Changing the Face of Engineering: The African American Experience*, edited by John Brooks Slaughter, Yu Tao, and Willie Pearson, Jr. (Chapter 2); *High Performance Networks: from Supercomputing to Cloud Computing*, by Dennis Abts and John Kim, in Synthesis Lectures on Computer Architecture; *On Chip Networks*, by Natalie Enright-Jerger and Li-Shiuan Peh, in Synthesis Lectures on Computer Architecture (2009); *Interconnection Networks: An Engineering Approach*, by Duato, Yalamanchili and Ni; *Principles and Practices of Interconnection Networks*, by Bill Dally and Brian Towles; and *Computer Organization and Design*, by David A. Patterson and John L. Hennessy (Chapter 6)

Proposal Reviewer or Panelist:
- NSF grant proposal panel: CCF Division of CISE Directorate, 1999, 2004, 2009, 2010, 2013, 2019
- Canadian Natural Sciences and Engineering Research Council (NSERC) proposal reviewer, 2009

- Army Research Office (ARO) grant proposal reviewer for Math Sciences Division, 2000, 2004, 2006, 2008
- USC Zumberge grant proposal reviewer, 2004
- NSF CAREER award proposal review panel for the CCR Division of CISE Directorate, 1998
- NSF grant proposal panel for PFET program in ECS Division of Engineering Directorate, 1997
- NSF grant proposal panel for Lightwave Technology—ECS Division of Engineering, 1994
- NSF SBIR proposal panel for Lightwave Technology—ECS Division of Engineering, 1993

Professional Memberships

- IEEE Computer Society: IEEE Fellow since 2009, IEEE Senior Member 1999-2008
- Association for Computing Machinery: ACM Fellow since 2019, ACM Senior Member 2009-2019
- American Association for the Advancement of Science: AAAS regular member since 2012
- American Society for Engineering Education: ASEE member since 2009

University Service:

- *University Service*: Honorary Degrees Committee (2014 – present); Deadlines and Leaves Committee (2019 – present); Joint Provost/Academic Senate Task Force on Research Faculty (2019-2020); University Club Board Member and Chair of Faculty & Staff Recognition Committee (2017 – 2019); Disciplinary Hearing Appeals Panel for USC Graduate School (2015, 2019); Mellon Mentoring Forum Co-Chair and member (2011-2012, 2013-2014); USC Diversity Review Committee (2009–2014); Faculty and Academic Affairs Subcommittee for USC Strategic Planning (2011); "Preparing and Submitting NSF Proposals" invited presenter for USC's Center for Excellence in Research (CER) (November 2011); "Perspectives on Earning a Doctorate Degree" invited presenter for USC's Center for Black Cultural and Student Affairs (CBCSA) (October 2009); USC Academic Senate Faculty Representative from Viterbi School of Engineering (2004-2005); Provost's Task Force on Graduate Education and Diversity (2005-2006); Academic Senate USC Faculty Service Award Subcommittee (2005); WiSE Advisory Board (2003-2005); Fellowships, Prizes, and Awards (1997-2005); Athletic Department Grievance Hearing Panel (2005); Review Panel (1997-1998)
- *School Service*: "Fellowships and Personal Statement Workshop" invited presenter for Viterbi's annual REACH Ph.D. Preview event (2010 – present); GEM GRAD Lab invited opening speaker, hosted by the Viterbi School's GAPP (2018); Viterbi's Academic Careers Mentoring Panel Moderator (F'09, F'10, S'12, F'13, S'15, F'16, S'18, F'19); PhD Fellowship Committee (2009-2017); "Earning Your Ph.D. at USC" panel presenter at Viterbi's GAPP Ph.D. Welcome event (2013, 2014, 2015); "NSF Funding and Proposal Writing" invited panel presentation for Viterbi's Faculty Mentoring Workshop (October 2013); Chair of Viterbi's Website Taskforce (2010); Chair of Engineering Faculty Council (EFC) (2004-2005); Dean's Ad Hoc Committee to Promote Diversity in Graduate Programs (2005); Dean's Delegation to CIRTL Conference (2005); Dean's Delegation to the NACME Symposium and Awards Gala (2005, '13, '15, '17); Dean's Evaluation Subcommittee of the EFC (2004-2005); EE- Systems Department Representative to the EFC (2002-2005); Appointments, Promotions, Tenure (APT) Committee (2002-2004); Joint APT/EFC Merit Review Subcommittee (2003, 2004); Undergraduate Retention Committee (2001-2002)
- *Department Service:* EE-Systems Executive Committee (2003-2005); Chair, Promotion Cases for T/TT and RTPC faculty (2004, 2005); EE-Systems Placement Exam Coordinator (2003-2004); Liaison to the Provost Office for EE Faculty Searches (2001-2002); Faculty Search Committee (2000-2004); EE-Systems Annual Faculty Review Committee (2001, 2004)
- *CENG Division Service:* Director of Computer Engineering Division (2003-2005); Coordinator of the CENG Screening Exam (2000-2003); CECS Curriculum Committee (2003-2005)
- *Organizer*: Computer Engineering Graduate Student Seminar Series (1994-1999)
- *Chairperson*: African-American Faculty Group at USC (1994-1996)
- *Advisor*: USC's student chapter of the National Society of Black Engineers (NSBE) (1994-2006);

USC's student chapter of the National Association for the Advancement of Colored People (NAACP) (2005); Integrated Media Systems Center (IMSC) Student Council (1997-2002); USC's African-American Graduate Students' Association (AAGSA) (1994-1997)

- *Advisory Board Member*: USC Viterbi Center for Engineering Diversity (CED) Faculty Advisory Board (2010 - 2015); USC's Center for Black Cultural and Student Affairs (CBCSA) (1994-1999)
- *Panelist/Invited Speaker*: Trustee and Presidential Scholarship Interview Panel (1996, 1997, 2001-2005, 2015-2019); Undergraduate Research Panel for USC's NSBE student chapter (2016)
- Preview USC Program (1997, 2001-2005, 2019); NSBE Major of the Month Series (2001-2005); Viterbi's Summer Bridge Program (2001); NSBE PCI Day Program (1997)
- *Mentor:* School of Engineering's Merit Scholars (1994-1999) and Protege Program (1998); USC CBCSA's Protege-Plus program (1994-1999); USC McNair Scholars Program (1996)
- *Other Service and Honors:* Faculty participant in NSBE's An Evening with the Faculty (2003-2005, 2013-2018); Recipient of the Distinguished Gentleman Award by Delta Sigma Theta, Epsilon chapter sorority (2005); Faculty participant in the Black Graduate Student Network (BGSN) Thanksgiving Event with faculty and staff (2004); Judge for the FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition (2002); Panelist for 7th Annual California Minority Graduate Education Forum's Workshop for Engineering (1997, 2001); USC Commencement Marshall (1996), USC Black Baccalaureate Ceremony Faculty Rep (1994-1997)