

Dhabaleswar K. Panda
Vita
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Communication Address

Dhabaleswar K. Panda
Dept. of Computer Science and Engineering
Dreese Lab 785
The Ohio State University
Columbus, OH 43210-1277, USA
Tel: (614)-292-5199, Fax: (614)-292-2911
E-mail: panda@cse.ohio-state.edu
<http://www.cse.ohio-state.edu/~panda>

Education

- Ph. D. in Computer Engineering
University of Southern California, Los Angeles, December 1991.
Thesis: *Vectorized Interprocessor Communication and Data Movement in Shared-memory Multiprocessors*
- M. S. in Electrical and Communication Engineering
Indian Institute of Science, Bangalore, India, 1986, **Gold Medalist**.
- B. S. in Electrical Engineering
Indian Institute of Technology, Kanpur, India, 1984.

Employment

2001-	Professor	Dept. of Computer and Information Science, Ohio State University, Columbus, OH.
1997-2001	Associate Professor	Dept. of Computer and Information Science, Ohio State University, Columbus, OH.
1998-99	Academic Visitor	IBM T.J. Watson Research Center, NY
1991-97	Assistant Professor	Dept. of Computer and Information Science, Ohio State University, Columbus, OH.
1988-91	Research and Teaching Assistant	University of Southern California, Los Angeles, CA.
1986-88	Senior Hardware Engineer	WIPRO Information Technology (R & D), Bangalore, India.
1984-86	Research and Teaching Assistant	Indian Institute of Science, Bangalore, India.
1984	Scientist/Engineer-SB	Indian Space Research Satellite Center, Bangalore, India.

Research Interests

Parallel computer architecture, high performance networking, network-based computing, cluster computing, interprocessor communication, active network interface, high performance file/storage systems, efficient LAN-WAN interfacing and communication, and resource management.

Awards, Honors, and Recognitions

- **Plenary Speaker**, Int'l Cluster Computing Conference, (Cluster '08), Tsukuba, Japan, Oct. 2008.
- **Best Paper**, Int'l Cluster Computing Conference, (Cluster '08), Tsukuba, Japan, Oct. 2008.
- **Keynote Speaker**, Int'l Workshop on System Management Techniques, Processes and Services (SMPTS), April 2008.
- **IEEE Fellow**, IEEE, Nov 2007.
- **Best Paper**, Int'l Cluster Computing Conference, (Cluster '07), Austin, Sept. 2007.
- **Keynote Speaker**, Int'l Conference on Parallel and Distributed Systems (ICPADS), July 2006.
- **Outstanding Teaching Award**, Department of Computer Science and Engineering, The Ohio State University, May 2006.
- **Lumley Research Award**, College of Engineering, The Ohio State University, May 2006.
- **Invited visit to Capitol Hill**, Washington, DC, Demonstration of InfiniBand Research and its Benefits to High-End Computing, June 2004.
- **Best Paper in Software Track** (jointly with Dr. Jarek Nieplocha and Vinod Tipparaju from PNNL), Int'l Parallel and Distributed Processing Symposium (IPDPS), April 2003.
- **Keynote Speaker**, Int'l Workshop on High Speed Local Area Networks (HSLN), Nov. 2002.
- **Lumley Research Award**, College of Engineering, The Ohio State University, May 2001.
- **Keynote Speaker**, Scientific Computing Workshop, NASA Glenn Research Center, Apr. 2000.
- **Keynote Speaker**, Int'l Conference on Parallel and Distributed Computing and Systems (PDCS '98), Oct. 1998.
- **Ameritech Faculty Fellow Award**, Ameritech Corporation, 1998.
- **IEEE Chapter Tutorials Program Speaker**, IEEE Computer Society, 1997-2000.
- **IEEE Distinguished Visitors Program Speaker**, IEEE Computer Society, 1997-2000.
- Listed in **Who'sWho in America**, 1997-current.

- Listed in **American Men & Women of Science (AMWS)**, 1997-current.
- **Lumley Research Award**, College of Engineering, The Ohio State University, May 1997.
- **Faculty Early CAREER Development Award**, National Science Foundation, 1995–1998.
- **Outstanding Faculty Recognition Award** by Mortar Board and Sphinx Honor Society, The Ohio State University, February 1992.
- **Graduate Student Recognition Award, Best Teaching Assistant** at the University of Southern California, 1988-89.
- J. Watumull Scholarship, 1988, One of four TOP students enrolled at the University of Southern California from Eastern India.
- Prof. S. V. C. Aiya **Gold Medal, Best M. S. student**, 1984-85, Department of Electrical and Communication Engineering, Indian Institute of Science, Bangalore, India.
- Certificate of Merit, Senate of the Indian Institute of Technology, Kanpur, 1979, **12th rank in the All India Joint Entrance Examination** (taken by over 60,000 candidates) for admission to undergraduate programs at the I. I. Ts.

Research Grants

1. PI, *Creating Petascale File Systems using Application-Aware Network Offloading*, STTR Phase II, Department of Energy, \$275,000, Sept 09–Aug 11.
2. PI, *Designing QoS-Aware MPI and File Systems Protocols for Emerging InfiniBand Clusters*, National Science Foundation, \$491,570, Sept 09–Aug 12.
3. PI, *Topology-Aware MPI Communication and Scheduling for Petascale Systems*, in collaboration with K. Schulz and B. Barth (TACC) and Amitava Majumdar (SDSC), National Science Foundation, \$1,840,000, (OSU share: \$920,000), Oct 09–Sept 12.
4. PI, *Extending One-Sided Communication in MPI Programming Model for Next-Generation Ultra-Scale HEC*, in collaboration with K. Schulz (TACC) and Amitava Majumdar (SDSC), National Science Foundation, \$797,000, (OSU share: \$399,000), Sept 08–Sept 10.
5. PI, *Design and Optimization of MVAPICH2 over QLogic InfiniBand Adapter*, QLogic, \$52,930, Sept. 08– Aug. 09.
6. PI, *Creating Petascale File Systems using Network Offloading*, DOE STTR Phase I Grant with RNet Technologies, \$33,000, June '08–Dec '08.
7. PI, *Research on High Performance and Scalable MPI over InfiniBand*, Mellanox Technologies, Inc., \$112,599, April 08–March 09.
8. PI, *Open Solaris pNFS-RDMA over InfiniBand*, Sun Microsystems, \$150,000, Jan. 08–Dec. 08.

9. PI, *Designing Next Generation Communication and I/O Subsystems with Multi-Core Architecture*, with P. Balaji (Co-PI) Univ. of Chicago, National Science Foundation, \$462,512, (OSU share: \$375,000), May 07–April 10.
10. PI, *Design and Optimization of MVAPICH over QLogic InfiniBand Adapter*, QLogic, \$50,000, Feb. 07–Jan 08.
11. Co-PI, *High Performance and Scalable Data-Centers with Multi-core Architectures and Emerging Networking Technologies*, jointly with Stu Zweben (PI), Wright Center for Innovation (WCI) on Advanced Data Management (ADMA) Equipment Grant, State of Ohio, \$600,000, Jan 07–June 09.
12. PI, *Accelerator for Off-loading Services of Next Generation Data-Centers*, STTR Phase I, National Science Foundation, \$74,999, Jan. 07–Dec. 07.
13. PI, *Open Solaris pNFS-RDMA over InfiniBand*, Sun Microsystems, \$150,000, Jan. 07–Dec. 07.
14. PI, *On-site Technical Assistance for Computer Cluster*, Central State University, \$5,000, Jan. 06–May 07.
15. PI, *Center for Programming Models for Scalable Parallel Computing*, part of the *Center for Programming Models for Scalable Parallel Computing* project with four other universities and two National Labs, Department of Energy, OSU Share: \$1,500,000, OSU Co-PI: P. Sadayappan, Sept. 06 – August 11.
16. PI, *Coordinated Fault Tolerance for High Performance Computing*, part of the *Coordinated Fault Tolerance for High Performance Computing* project with three other universities and three National Labs, Department of Energy, OSU Share: \$1,000,000, Sept. 06 – August 11.
17. PI, *Center for Performance Evaluation of Cluster Networking and I/O Technologies (PEC-NIT)*, DICE/AVETEC, \$749,996, July 06 – June 09.
18. PI, *Open Solaris NFS-RDMA over InfiniBand*, Sun Microsystems and Network Appliance, \$150,000, Dec. 05–Nov. 06.
19. PI, *High Performance Implementation of Cluster OpenMP over InfiniBand*, Intel, \$53,000, Nov 05–Oct 06.
20. PI, *Scalable, Fault-Tolerant and High Performance MPI over Multi-thousand node InfiniBand Clusters*, Cisco Systems, \$96,596, Dec. 05–Nov. 06.
21. PI, *Clustered and Distributed File Systems over InfiniBand and iWARP for PetaByte Storage*, Cisco Systems, \$96,596, Dec. 05–Nov. 06.
22. PI, *Efficient and Scalable Checkpoint Restart Scheme in MVAPICH*, Linux Networx, \$50,000, Sept. 05–Aug 06.
23. PI, *Multi-Gigabit OSbypass Systems for Grid Computing*, Department of Energy (SBIR Phase II), \$339,570, July 05–June 07.

24. PI, *Designing Next Generation Data-Centers with Advanced Communication Protocols and Systems Services*, National Science Foundation, \$150,000, July 05–June 07.
25. PI, *MVAPICH on Solaris 10*, SUN Microsystems, \$129,370, April 05–Dec 05.
26. PI, *High-End Computing and Networking Research Testbed for Next Generation Data Driven, Interactive Applications*, jointly with (Co-PIs and investigators) G. Agrawal, P. Sadayappan, J. Saltz, H.-W. Shen, S. Ahalt, U. Catalyurek, H. Ferhatosmanoglu, H.-W. Jin, T. Kurc, M. Lauria, D. Lee, R. Machiraju, S. Parthasarathy, P. Sinha, D. Stredney, A. E. Stutz, and P. Wyckoff, National Science Foundation, Total: \$3,014,063 (\$1,529,997 from NSF + \$1,484,066 from Ohio Board of Regents and OSU), Sept 04–Aug 09.
27. PI, *Advanced Message Passing Algorithms for RDMA-enabled Interconnects*, Intel, \$103,000, Sept 04–Aug 06.
28. PI, *Multi-Gigabit OSbypass Systems for Grid Computing*, Department of Energy (SBIR Phase I), \$33,000, July 04–April 05.
29. PI, *Research on High Performance and Scalable MPI over InfiniBand*, Mellanox Technologies, Inc., \$416,821, April 04–March 08.
30. PI, *Designing High Performance and Scalable Communication Subsystems for Next Generation Clusters with Infiniband Architecture*, National Science Foundation, \$150,000, August 03–July 05.
31. Co-PI, *Center for Grid-Enabled Medical Image Analysis*, jointly with J. Saltz (PI), M. Knopp, J. Zweier, C. Eng, A. Friedman, J. Au, A. Stutz, D. Stredney, P. Wyckoff, P. Kuppusamy, T. Kurc, U. Catalyurek, B. Clymer, R. Lee, and R. Machiraju, National Institute of Health, \$677,298, August 03–July 04.
32. PI, *Analysis and enhancements to MVAPICH wrt IBAL, SMP, connection management, and MPICH2*, Intel, \$25,000, Aug 03–Dec 03.
33. PI, *Efficient Implementation of LA-MPI on Myrinet/GM2 and Quadrics/Elan*, Los Alamos National Laboratory, \$149,991, Aug 03–Sept. 04.
34. PI, *Designing Smart High-Speed Network Interface Card*, Department of Energy (SBIR Phase I), \$33,000, Aug 03–April 04.
35. PI, *Collective Communication and Connection Management Issues in InfiniBand-Based Clusters*, jointly with Pete Wyckoff, Los Alamos National Laboratory, \$99,989, July 03–Sept. 03.
36. Co-PI, *High Performance Computing and Biomedical Informatics at OSU*, jointly with M. Lauria (PI), Tahsin Kurc, and Daniel Janies, HP Equipment grant, \$288,054, June 03.
37. PI, *Supporting MPI Collective Communication Operations with Application Bypass*, jointly with P. Sadayappan and Pete Wyckoff, Sandia National Laboratory, \$85,000, July 03–June 04.
38. PI, *Network Interface Support for High Performance and Scalable Communication Services in Clusters*, National Science Foundation, \$260,601, July 02–June 05.

39. Co-PI, *Job Scheduling for Petaflop Systems*, jointly with P. Sadayappan (PI) and Pete Wyckoff, Sandia National Laboratory, \$145,118, July 02–Sept. 02.
40. PI, *High Performance and Scalable MPI Implementation on InfiniBand*, jointly with Pete Wyckoff, Sandia National Laboratory, \$201,340, May 02–Sept. 03.
41. PI, *Communication and Scheduling Issues in Buffered Co-Scheduling*, jointly with P. Sadayappan, Los Alamos National Laboratory, \$48,951, May 02–Sept. 02.
42. PI, *Communication Support for Programming Models for Scalable Parallel Computing*, part of the *Center for Programming Models for Scalable Parallel Computing* with six other Universities and four National Labs, Department of Energy, OSU Share: \$750,000, Sept. 01 - August 06.
43. PI, *Efficient Strategies and Implementations for One-sided Communication in Clusters*, Pacific Northwest National Laboratories, \$21,219, April 01–Sept. 2001.
44. Co-PI, *Evaluation of the Influence of Network Topology and Mapping on the Performance of Parallel Applications on Clusters*, jointly with P. Sadayappan (PI), J. Duato and P. Wyckoff. Sandia National Laboratories, \$129,724, April 01–March 02.
45. Co-PI, *Analysis of Message Passing Environments on Large Clusters, and Future Directions*, jointly with P. Wyckoff (PI), and P. Sadayappan, Sandia National Laboratories, \$150,016, Jan. 01–Dec 01.
46. Co-PI, *Low Latency Gigabit Ethernet Message Passing*, jointly with P. Wyckoff (PI), Sandia National Laboratories, \$274,028, Sept. 00–August 02.
47. PI, *Scalable Communication Support on SMP Clusters for Network-Based Computing*, jointly with P. Farrell (KSU), Ohio Board of Regents, \$85,104, July 00–June 02.
48. PI, *Network Computing Testbed for Interactive Visualization, Multimedia, and Metacomputing*, jointly with R. Crawfis, J. Duato, W.-C. Feng, P. Sadayappan, D. Stredney, and A. Stutz, National Science Foundation, (total \$350,000 = NSF \$175,000 + State of Ohio \$87,500 + University \$87,500), May 00–April 03.
49. PI, *Efficient Communication Support for Networks of Workstations Environments*, jointly with M. Banikazemi, IBM Research (Cooperative Fellowship, IBM Mentor - Dr. Rama Govindaraju), \$30,405, Oct. 99–June 00.
50. Co-PI, *Interactive Medical Data on Demand: A High-Performance Image-Based Warehouse Across Heterogeneous Environments*, jointly with D. Stredney (PI), R. Crawfis, W.-C. Feng, J. Hou, R. Miller, P. Sadayappan, and A. Stutz, National Library of Medicine, \$95,809, Sept. 1998 – June 1999.
51. PI, *Scalable Parallel Computing Over Geographically Distributed ATM-Interconnected Workstation Clusters*, Ameritech Faculty Fellowship Award, \$29,991, Oct. 1998 – March 2000.
52. PI, *Scalable Collective Communication on Network-Based Computing Systems*, jointly with F. Annexstein (UC), K. Berman (UC), and T. Page (OSU), Ohio Board of Regents Collaborative CS Research Fund, \$81,236, June 1998 – May 2000.

53. Co-PI, *Exploiting Multiple Interconnection Technologies in Networked PC Multicomputers*, jointly with T. Page (PI), P. Sadayappan, and N. Nagarajan (Systran Corporation), NSF Small Business Innovative Research (SBIR) Grant, \$100,000, Jan 1998 – Aug. 1998.
54. PI, *Scalable Collective Communication Support for Heterogeneous Networks of Workstations*. National Science Foundation, \$225,959, July 97 – Dec. 2000.
55. PI, *Collective Communication on Parallel Systems with Indirect Interconnects*, jointly with R. Sivaram, IBM Research (Cooperative Fellowship, IBM Mentor - Dr. Craig Stunkel), \$26,140, Oct. 97–June 98.
56. Co-PI, *An Imaging and Visualization System for Super High Field MR*, jointly with A. Abdujali, D. Stredney, A. E. Stutz, and R. Yagel, OSU Interdisciplinary Seed Grant, \$100,000, June 97–Dec. 98.
57. Co-PI, *vBNS Gateway for Ohio via OCARnet and OARnet*, jointly with C. Bender (PI), A. Stutz, G. Wallis, and R. Jain, National Science Foundation, \$350,000, Jan. 97–Dec. 98.
58. Co-PI, *OCARNet: Ohio Computing and Communications ATM Research Network*, jointly with R. Jain (PI) and other Ohio Universities/Institutions (OSC, OARnet, KSU, CSU, and UD), Ohio Board of Regents Investment Fund, (Total \$1,721,730, OSU share \$691,000), March 96–Feb. 99.
59. PI, *Collective Communication on Parallel Systems with Indirect Interconnects*, jointly with R. Sivaram, IBM Research (Cooperative Fellowship, IBM Mentor - Dr. Craig Stunkel), \$25,338, Oct. 96–June 97.
60. Co-PI, *ATM Testbed for Multimedia and Distributed Computing*, jointly with R. Jain (PI), A. Arora, and T. Page, National Science Foundation, (total \$400,000 = NSF \$175,300 + State of Ohio \$100,000 + University \$124,700), Feb. 96–Jan. 99.
61. PI, *Communication and Architectural Supports for Implementing Distributed Shared Memory on Wormhole Networks*, National Science Foundation Faculty Early CAREER Development Award, \$105,998, July 1995–June 98.
62. Co-PI, *Acquisition of a Mid-range Scalable Parallel Computer*, National Science Foundation Academic Research Infrastructure Grant, Co-PI, jointly with P. Sadayappan (PI), C.-H. Huang, D. N. Jayasimha, T.-H. Lai, D. Wang, R. Yagel, and F. Zhao, \$239,500, Sept 94–Aug. 97.
63. PI, *Communication and Synchronization in k-ary n-cube cluster-c Scalable Systems*, National Science Foundation Research Initiation Award (RIA), \$99,549, July 93–June 96.
64. PI, *Development of Flexible Parallel Architectures: A Unified Platform to Support Shared Memory and Message Passing Paradigms*, The Ohio State University Seed Grant, \$15,000, Jan. 92–June 93.

Ph. D. Dissertations Supervised

1. Matthew Koop, *High-Performance Multi-Transport MPI Design for Ultra-Scale InfiniBand Clusters*, June 2009.
2. Gopal Santhanaraman, *Designing Scalable and High Performance One-Sided Communication Middleware for Modern Interconnects*, June 2009.
3. Lei Chai, *High Performance and Scalable MPI Intra-Node Communication Middleware for Multi-core Clusters*, February 2009.
4. Wei Huang, *High Performance Network I/O in Virtual Machines over Modern Interconnects*, August 2008.
5. Ranjit Noronha, *Designing High Performance and Scalable Clustered Network Attached Storage with InfiniBand*, August 2008.
6. Sundeep Narravul, *Designing High Performance and Scalable Distributed Datacenter Services over Modern Interconnects*, August 2008,
7. Amith Mamidala, *Scalable and High Performance MPI Collective Communication over Multicore InfiniBand Clusters*, May 2008.
8. Karthikeyan Vaidyanathan, *High Performance and Scalable Soft Shared State for Next-Generation Datacenters*, May 2008.
9. Abhinav Vishnu, *High Performance and Network Fault-Tolerant MPI with Multi-pathing over InfiniBand*, November 2007.
10. Sayantan Sur, *Scalable and High Performance MPI Design for Very Large InfiniBand Clusters*, August 2007.
11. Pavan Balaji, *High Performance Communication Support for Sockets-Based Applications over High-Speed Networks*, June 2006.
12. Weikuan Yu, *Enhancing MPI with Modern Networking Mechanisms in Cluster Interconnects*, June 2006.
13. Jiesheng Wu, *Communication and Memory Management in Networked Storage Systems*, Sept 2004.
14. Jiuxing Liu, *Designing High Performance and Scalable MPI over InfiniBand*, Sept 2004.
15. Darius Buntinas, *Improving Cluster Performance through the Use of Programmable Network Interfaces*, June 2003.
16. Mohammad Banikazemi, *Design and Implementation of High Performance Communication Subsystems for Clusters*, December 2000.
17. Donglai Dai, *Designing Efficient Communication Subsystems for Distributed Shared Memory (DSM) Systems*, February 1999.
18. Ram Kesavan, *Communication Mechanisms and Algorithms for Supporting Collective Communication on Parallel Systems*, September 1998.
19. Rajeev Sivaram, *Architectural Support for Efficient Communication in Scalable Parallel Systems*, Co-adviser: Dr. Craig Stunkel (IBM T.J. Watson Research center), August 1998.

20. Debashis Basak, *Designing High Performance Parallel Systems: A Processor-Cluster Based Approach*, July 1996.
21. Vibha A. Dixit-Radiya, *Mapping on Wormhole-routed Distributed-Memory Systems: A Temporal Communication Graph-based Approach*, Mar 1995.

M. S. Thesis Supervised

1. Karthik Gopalakrishnan, *Enhancing Fault Tolerance in MPI for Modern InfiniBand Clusters*, August 2009.
2. Jaidev Sridhar, *Scalable Job Startup and Inter-Node Communication in Multi-Core InfiniBand Clusters*, June 2009.
3. Tejus Gangadharappa, *Designing Support for MPI-2 Programming Interfaces on Modern Interconnects*, June 2009.
4. Rahul Kumar, *Enhancing MPI Point-to-point and Collectives for Clusters with Onloaded/Offloaded InfiniBand Adapters*, August 2008.
5. Sitha Bhagvat, *Designing and Enhancing the Sockets Direct Protocol (SDP) over iWARP and InfiniBand*, August 2006.
6. Weihang Jiang, *High Performance MPICH2 One-Sided Communication Implementation over InfiniBand*, June 2004.
7. Savitha Krishnamoorthy, *Dynamic Reconfigurability Support to Provide Soft QoS Guarantees in Cluster-Based Multi-Tier Data-Centers over InfiniBand*, June 2004.
8. Adam Wagner, *Static and Dynamic Processing Offload on Myrinet Clusters with Programmable NIC Support*, June 2004.
9. Adam Moody, *NIC-based Reduction on Large-Scale Quadrics Cluster*, September 2003.
10. Balasubramanian Chandrasekharan, *Micro-benchmark Level Performance Evaluation and Comparison of High Speed Cluster Interconnects*, August 2003.
11. Sushmita Kini, *Efficient Collective Communication using Multicast and RDMA Operations for InfiniBand-based Clusters*, June 2003.
12. Sandhya Senapathi, *QoS-Aware Middleware to Support Interactive and Resource Adaptive Applications on Myrinet Clusters*, Sept. 2002.
13. Rinku Gupta, *Efficient Collective Communication using Remote Memory Operations on VIA-Based Clusters*, Aug 2002.
14. Piyush Shivam, *High Performance User Level Protocol on Gigabit Ethernet*, Aug 2002.
15. Amina Saify, *Optimizing Collective Communication Operations in ARMCI*, June 2002.
16. Shreyas Desai, *Mechanisms for Implementing Efficient Collective Communication in Clusters with Application Bypass*, June 2002.
17. Vinod Tipparaju, *Optimizing ARMCI Get and Put Operations on Myrinet/GM*, September 2001.

18. Abhisekh Gulati, *A Proportional Bandwidth Allocation Scheme for Myrinet Clusters*, June 2001.
19. Vijay Kota, *Designing Efficient Inter-Cluster Communication Layer for Distributed Computing*, June 2001.
20. Sencer Kutlug, *Performance Evaluation and Analysis of User Level Networking Protocols in Clusters*, June 2000.

Open Source Software Design, Development, and Distribution

Dr. Panda and his students are involved in designing a high performance and scalable MPI (Message Passing Interface standard) for clusters with the emerging InfiniBand networking technology. Currently, there are two versions of this MPI: MVAPICH with MPI-1 semantics and MVAPICH2 implementation with MPI-2 semantics. This *open-source* software was first demonstrated at Supercomputing (SC '02) and after that it has been steadily gaining acceptance in the HPC, Cluster, Networking, and InfiniBand communities. More than 975 organizations (National Labs, Universities, and Industry) in 51 countries have downloaded this software from OSU's web site directly and are using it. As of August '09, more than 32,000 downloads have taken place from the OSU Web site. In addition, many InfiniBand and server vendors and system integrators are incorporating MVAPICH/MVAPICH2 into their software stacks and distributing it. Both MVAPICH and MVAPICH2 versions are also available with the OFED (<http://openfabrics.org>) stack for Linux and are being integrated into many Linux distros. Several InfiniBand systems using MVAPICH have obtained positions in the TOP500 ranking of supercomputers in the world (www.top500.org). More details on the MVAPICH/MVAPICH2 project, publications, users, and its impact in the community can be obtained by visiting the following URL: <http://mvapich.cse.ohio-state.edu/>

Professional Activities

- **General Chair/Program Chair/Vice Chair:**

1. Program Co-Chair (with Dimitri Stiliadis), ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS '08), 2008
2. Technical Papers Co-Chair (with Darren Kerbyson), Int'l Conference on Supercomputing (SC '08), 2008
3. Working Group Co-Chair on Network Interface (with Keith Underwood), Interconnection Networks Workshop, Department of Energy (DOE), July 2008.
4. Vice Chair (Communications and Networks), Int'l Symposium on High Performance Computing (HiPC), 2007
5. Program Co-Chair (with Ron Brightwell), IEEE Symposium on Hot Interconnects (HotI15), 2007
6. Program Chair, International Parallel and Distributed Processing Symposium (IPDPS), 2007
7. Program Co-Chair (with Dr. Tal Lavian), IEEE Symposium on Hot Interconnects (HotI14), 2006

8. General Chair, Int'l Conference on Parallel Processing (ICPP '06)
9. Program Co-Chair, Int'l Workshop on High Performance Interconnect for Distributed Computing (HPI-DC '05)
10. General Co-Chair, Int'l Conference on Information Technology (CIT '05)
11. Program Co-Chair (with Prof. Jose Duato and Dr. Craig Stunkel), Workshop on Communication Architecture for Clusters (CAC '04)
12. Program Co-Chair (with Prof. Jose Duato and Dr. Craig Stunkel), Workshop on Communication Architecture for Clusters (CAC '03)
13. Program Co-Chair (with Dr. Jarek Nielplocha), DOE Workshop on Communication and Middleware for Parallel Programming Models (CMPPM '02)
14. Program Co-Chair (with Prof. Jose Duato and Dr. Craig Stunkel), Workshop on Communication Architecture for Clusters (CAC '02)
15. General Co-Chair (with Prof. Jose Duato), International Conference on Parallel Processing (ICPP '01)
16. Program Co-Chair (with Prof. Jose Duato), Workshop on Communication Architecture for Clusters (CAC '01)
17. Program Co-Chair (with Prof. Norio Shiratori), International Conference on Parallel Processing (ICPP '99)
18. Vice Chair (Architecture Track), International Conference on Parallel Processing (ICPP '98)
19. Program Co-Chair (with Dr. Craig Stunkel), Workshop on Communication, Architecture, and Applications for Network-based Parallel Computing (CANPC '98)
20. Program Co-Chair (with Dr. Craig Stunkel), Workshop on Communication and Architectural Support for Network-based Parallel Computing (CANPC '97)

• **Program Committee Member:**

1. Int'l Workshop on Storage Network Architecture and Parallel I/O (SNAPI '10)
2. Int'l Workshop on Grid Computing, Applications and Technologies (GridCAT '10)
3. Int'l Conference on Cluster Computing (Cluster '09)
4. Int'l Symposium on Architectures for Networking and Communications Systems (ANCS '09)
5. Int'l Conference on Parallel and Distributed Systems (ICPADS '09)
6. Int'l Workshop on High Performance Interconnects for Distributed Computing (HPI-DC '09)
7. Int'l Conference on Parallel Processing (ICPP '09)
8. Int'l Workshop on Data Center Converged And Virtual Ethernet Switching (DC CAVES '09)
9. Int'l Workshop on System-level Virtualization for High Performance Computing (HPCVirt 2009)

10. Int'l Conference on High Performance Computing (HiPC '09)
11. Int'l Conference on Parallel and Distributed Processing Symposium (IPDPS '09)
12. Int'l Symposium on High Performance Computer Architecture (HPCA-15, 2009)
13. Int'l Symposium on Computer Architecture and High Performance Computing (SBAC-PAD '08)
14. Int'l Workshop on Storage Network Architecture and Parallel I/O (SNAPI '08)
15. Int'l Workshop on System-level Virtualization for High Performance Computing (HPCVirt 2008)
16. Int'l Conference on Electro/Information Technology (EIT 2008)
17. Int'l Conference on Cluster Computing (Cluster '08)
18. Int'l Symposium on Parallel and Distributed Processing and Applications (ISPA '08)
19. Int'l Conference on Parallel Processing (ICPP '08)
20. Int'l Conference on Cluster Computing (Cluster '07)
21. Int'l Workshop on Storage Network Architecture and Parallel I/O (SNAPI '07)
22. Int'l Symposium on Architectures for Networking and Communications Systems (ANCS '07)
23. Int'l Workshop on System-level Virtualization for High Performance Computing (HPCVirt 2007)
24. Int'l Conference on Supercomputing (SC '07)
25. Int'l Conference on Computer Communications and Networks (ICCCN '07)
26. Int'l Workshop on RDMA Applications, Implementations, and Technologies (RAIT '06)
27. Int'l Symposium on Architectures for Networking and Communications Systems (ANCS '06)
28. Int'l Conference on Supercomputing (SC '06)
29. Int'l Symposium on High Performance Computer Architecture (HPCA-12, 2006)
30. Int'l Conference on Cluster Computing (Cluster '05)
31. Int'l Workshop on RDMA Applications, Implementations, and Technologies (RAIT '05)
32. Int'l Conference on High Performance Computing (HiPC '05)
33. Int'l Conference on Supercomputing (SC '05)
34. Int'l Conference on High Performance Distributed Computing (HPDC '05)
35. Int'l Conference on Parallel and Distributed Processing Symposium (IPDPS '05)
36. Int'l Symposium on Performance Analysis of Systems and Software (ISPASS '05)
37. Int'l Workshop on Storage Network Architecture and Parallel I/Os (SNAPI '04)
38. Int'l Workshop on RDMA Applications, Implementations, and Technologies (RAIT '04)
39. Int'l Conference on Cluster Computing (Cluster '04)
40. Int'l Conference on Supercomputing (SC '04)
41. Int'l Workshop on High-Speed Local Networks (HSLN '04)

42. Int'l Conference on Parallel and Distributed Processing Symposium (IPDPS '04)
43. Int'l Symposium on High Performance Computer Architecture (HPCA-10, 2004)
44. Int'l Conference on Cluster Computing (Cluster '03)
45. Int'l Workshop on High-Speed Local Networks (HSLN '03)
46. Int'l Conference on Parallel Processing (ICPP '03)
47. Int'l Conference on Supercomputing (SC '03)
48. Int'l Conference on High Performance Computing (HiPC '03)
49. Int'l Conference on Parallel and Distributed Processing Symposium (IPDPS '03)
50. Int'l Conference on Information Technology (CIT '02)
51. Int'l Workshop on High-Speed Local Networks (HSLN '02)
52. Int'l Conference on High Performance Computing (HiPC '02)
53. Int'l Conference on Parallel Processing (ICPP '02)
54. Int'l Conference on Information Technology (CIT '01)
55. Int'l Conference on Parallel Processing (ICPP '01)
56. Int'l Symposium on Parallel Architectures, Algorithms and Networks (I-SPAN '00)
57. Int'l Conference on Parallel Processing (ICPP '00)
58. Int'l Workshop on Communication, Architecture, and Applications for Network-based Parallel Computing (CANPC '00)
59. Int'l Workshop on Heterogeneous Computing (HCW '00)
60. Int'l Conference on High Performance Computing (HiPC '99)
61. Int'l Conference on Parallel and Distributed Computing Systems (PDCS '99)
62. Int'l Workshop on Communication, Architecture, and Applications for Network-based Parallel Computing (CANPC '99)
63. Int'l Conference on Computer Communications and Networks (IC3N '98)
64. Int'l Conference on Information Technology (CIT' 98)
65. Int'l Conference on High Performance Computing (HiPC '98)
66. Int'l Workshop on Parallel Computer, Routing, and Communication (PCRCW '97)
67. Int'l Symposium on High Performance Computer Architecture (HPCA-4, 1997)
68. Int'l Conference on Computer Communications and Networks (IC3N '97)
69. Int'l Conference on Massively Parallel Processing with Optical Interconnects (MPPOI '97)
70. Int'l Conference on Parallel Processing (ICPP '96)
71. Int'l Conference on Distributed Computing Systems (ICDCS-16, 1996)
72. Int'l Parallel Processing Symposium (IPPS '96)
73. Int'l Conference on High Performance Computing (HiPC '95)
74. Int'l Parallel Processing Symposium (IPPS '95)

75. Int'l Workshop on High-Speed Network Computing (HiNet '95)

• **Panel Moderator:**

1. *Current and Future State of HPC Interconnects*, Linux Network User Group meeting, Sept. 13, 2005.
2. *Subnet Management Features and MPI: How to Integrate them Together*, BOF, OpenIB Workshop, Feb 2005.
3. *The Emergence of Workstation Clusters: Should we Continue to Build MPPs?*, Int'l Symposium on High Performance Computer Architecture (HPCA-4), Feb 2, 1998.
4. *Designing High-Performance Communication Subsystems: Top Five Problems to Solve and Five Problems Not to Solve During the Next Five Years*, Parallel Computing, Routing, and Communication Workshop (PCRCW'97), Atlanta, June 26, 1997.

• **Panel Member:**

1. *Applications and Tools for Petascale Systems*, Petascale Summer Workshop, June 2008.
2. *Ethernet: Convergence or Schism*, Int'l Workshop on Communication Architecture for Clusters (CAC), in conjunction with IPDPS '08.
3. *The Role of Accelerators in Cluster Communication*, Int'l Workshop on Communication Architecture for Clusters (CAC), in conjunction with IPDPS '07.
4. *Data Intensive Computing*, Supercomputing 2006, Nov. 16, 2006.
5. *Challenges for Future Interconnection Networks: Power, Reliability and Performance Scalability?*, Int'l Symposium on Hot Interconnect (HotI), August 24, 2006.
6. *How will we develop and program emerging robust, low-power, adaptive multicore computing systems?*, Int'l Conference on Parallel and Distributed Computing Systems (ICPADS), July 12, 2006.
7. *Is InfiniBand Ready for Production?*, ARL Cluster Symposium, July 27, 2005.
8. *Student Pipelining Issues and Challenges*, NSF RI PI Workshop, July 25, 2005.
9. *The Future (of) RDMA*, High Performance Interconnects for Distributed Computing (HPI-DC) Workshop, July 24, 2005.
10. *How would you architect a 100,000-processor cluster?*, Communication for Clusters (CAC) Workshop, April 4, 2005.
11. *What happened to the I/O network?*, IEEE Workshop on High Speed Local Networks (HSLN '04), Nov. 16, 2004.
12. *Trends in Designing High Performance Computing*, Intel Developers Forum, Feb. 18, 2004.
13. *Top Problems in Cluster Computing and Systems and Possible Solutions*, Cluster 2003, Dec. 3, 2003.
14. *Battle of the Network Stars*, Supercomputing 2003, Nov. 21, 2003.
15. *Emerging Hardware Issues for Building Future Clusters*, Cluster 2001, Oct. 9, 2001.

16. *Scalable Computing Infrastructure for Scientific and Commercial Applications*, Int'l Conference on Parallel Processing, ICPP '00, Aug. 23, 2000.
17. *Future Computing Requirements for NASA*, Scientific Computing Workshop, NASA Glenn Research Center, Cleveland, Apr. 13, 2000.

- **Editorship:**

1. Guest Editor, Special issue of *Journal of Parallel and Distributed Computing* with Best Papers from IPDPS '07 conference, August 2009.
2. Subject Area Editor, *Journal of Parallel and Distributed Computing*, March 2006–current.
3. Guest Editor (with Prof. Jose Duato), Special issue on *Communication Architecture for Clusters*, Cluster Computing Journal, 2003.
4. Associate Editor, *IEEE Transactions on Parallel and Distributed Systems*, 1998–2001.
5. Guest Editor (with Prof. Lionel Ni), Two special issues on *Workstation Clusters and Network-based Computing*, *Journal of Parallel and Distributed Computing*, one published in January 1997 and the second one in September 1997.
6. Guest Editor, Special issue on *Interconnection Networks for High Performance Computing Systems* of IEEE Technical Committee on Computer Architecture (TCCA) Newsletter, Fall 1994 and Winter 1995.
7. Co-editor, IEEE Technical Committee on Parallel Processing (TCPP) Newsletter, 1992–95. Have been awarded a **Meritorious Service Certificate**, IEEE Computer Society, 1996, for contributions as a co-editor.

- **Organizational:**

1. Session Chair, Int'l Parallel and Distributed Processing Symposium (IPDPS), 2009.
2. Session Chair, ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS), 2008.
3. Session Chair, Int'l Parallel and Distributed Processing Symposium (IPDPS), 2008.
4. Session Chair, Int'l Symposium on High Performance Computing (HiPC), 2007.
5. Session Chair, Hot Interconnect (HotI), 2007.
6. Session Chair, Int'l Parallel and Distributed Processing Symposium (IPDPS), 2007.
7. Session Chair, Hot Interconnect (HotI), 2006.
8. Session Chair, Int'l Symposium on High Performance Computing (HiPC), 2005.
9. Session Chair, Euro PVM/MPI Conference, 2005.
10. Session Chair, Int'l Conference on Parallel Processing (ICPP), 2005.
11. Session Chair, Int'l Conference on Cluster Computing (Cluster), 2004.
12. Session Chair, Int'l Parallel and Distributed Processing Symposium (IPDPS), 2004.
13. Session Chair, Int'l Conference on Cluster Computing (Cluster), 2003.

14. Session Chair, Int'l Conference on Supercomputing (SC), 2003.
15. Session Chair, Int'l Parallel and Distributed Processing Symposium (IPDPS), 2003.
16. Session Chair, Int'l Conference on Cluster Computing (Cluster '02), 2002.
17. Session Chair, Int'l Parallel and Distributed Processing Symposium (IPDPS), 2001.
18. Session Chair, Int'l Conference on Parallel Processing (ICPP), 2000.
19. Awards Chair, Int'l Conference on Parallel Processing (ICPP), 2000.
20. Session Chair, Int'l Workshop on Heterogeneous Computing (HCW), 2000.
21. Session Chair, Int'l Conference on Parallel Processing (ICPP), 1998.
22. Session Chair, Int'l Parallel Processing Symposium (IPPS), 1998.
23. Session Chair, Int'l Symposium on High-Performance Computer Architecture (HPCA-4), 1998.
24. Session Chair, Int'l Conference on Parallel Processing (ICPP), 1997.
25. Session Chair, Parallel Computer, Communication, and Routing Workshop (PCRCW), 1997.
26. Tutorial Chair, Int'l Parallel Processing Symposium (IPPS), 1998.
27. Tutorial Chair, Int'l Conference on Parallel Processing (ICPP), 1997.
28. Publications Chair, Third Int'l Symposium on High-Performance Computer Architecture (HPCA-3), 1997.
29. Session Chair, Int'l Symposium on Parallel and Distributed Processing (SPDP), 1996.
30. Session Chair, Int'l Conference on Parallel Processing (ICPP), 1996.
31. Session Chair, Int'l Parallel Processing Symposium (IPPS), 1996.
32. Session Chair, Int'l Parallel Processing Symposium (IPPS), 1995.
33. Organizing Committee Member, Int'l Conference on Parallel and Distributed Systems (ICPADS), 1996.
34. Executive Committee Member in IEEE Technical Committee on Parallel Processing (TCPP), 1992–97.
35. Organizing Committee Member, Int'l Parallel Processing Symposium (IPPS), 1994.
36. Organizing Committee Member, Int'l Workshop on Parallel Processing (IWPP), 1994.
37. Session Chair, Int'l Parallel Processing Symposium (IPPS), 1993.

- **Member of Steering Committee:**

Workshop on Communication and Architecture (CAC)

Workshop on Parallel Programming Models and Systems Software for High-End Computing (P2S2)

- **Evaluation Committee:**

IEEE Fellows Evaluation Committee, 2008

- **Proposal Review Panel:**

National Science Foundation, Architecture Panel, Mar 2008
National Science Foundation, NBD Panel, May 2007
National Science Foundation, CRI Panel, March 2007
National Science Foundation, DDDRS Panel, August 2005
National Science Foundation, SBIR Panel, Sept 2002
National Science Foundation, ITR Small-scale Panel, May 2002
National Science Foundation, Research Infrastructure Panel, Dec 2001
National Science Foundation, Operating Systems and Compilers Panel, Feb 2000
National Science Foundation, Architecture CAREER Panel, Oct 1999
National Science Foundation, Architecture Program Panel, April 1998

- **Referee:**

Funding/Grant Agencies:

- National Science Foundation (NSF), USA
- NSERC/CRSNG, Canada
- Cornell National Supercomputer Facility, USA
- Arkansas Science and Technology Authority, USA
- Research Grants Council, Hong Kong
- Norway Research Council, Norway

Journals:

- IEEE Transactions on Parallel and Distributed Systems
- IEEE Transactions on Computers
- Journal of Parallel and Distributed Computing
- Parallel Computing
- IEEE Parallel and Distributed Technology
- IEEE Computer
- ACM Computing Surveys
- Parallel Processing Letters
- Int'l Journal of Computers and Mathematics with Applications

Recognized as a member of **Senior Reviewers List** of IEEE COMPUTER by Prof. Ted Lewis, Editor-in-chief, March 1994.

Recognized as an **Outstanding Reviewer** of IEEE COMPUTER by Prof. Edward A. Parrish, Editor-in-chief, Jan 1995.

Recognized as a **Meritorious Reviewer** of IEEE Parallel and Distributed Technology by Prof. Michael J. Quinn, Summer 1995.

Conferences:

- International Symposium on Computer Architecture (ISCA)
- High Performance Computing Architecture (HPCA)
- International Conference on Parallel Processing (ICPP)
- International Parallel and Distributed Processing Symposium (IPDPS)
- Int'l Conference on High Performance Computing (HiPC)
- Supercomputing (SC)

- High Performance Distributed Computing (HPDC)
- International Conference on Parallel and Distributed Systems (ICPADS)
- International Conference on Supercomputing (ICS)
- Cluster Computing (Cluster)

- **Memberships:**

- IEEE, Fellow, special interest in Computer Society.
- ACM, special interest in computer architecture.
- Computer Society of India, special interest in hardware.

Invited Keynote Talks, Tutorials, and Presentations

- **Invited Keynote/Plenary Talks**

1. *Designing Next Generation Clusters with InfiniBand and 10GE/iWARP: Opportunities and Challenges*, Plenary Talk, Int'l Conference on Cluster Computing (Cluster '08), Oct. 2008.
2. *Fault-Tolerant/System-Management Issues in InfiniBand*, Int'l Workshop on System Management Techniques, Processes and Services (SMPTS), April 14, 2008.
3. *Emerging Networking Technologies and Protocols for Next Generation Clusters*, Int'l Conference on Parallel and Distributed Systems (ICPADS), July 13, 2006.
4. *Active Network Interface: Opportunities and Challenges*, Workshop on High-Speed Local Networks, held in conjunction with 27th Annual IEEE Conference on Local Computer Networks (LCN), Nov. 6, 2002.
5. *Network-Based Computing: Current Trends and Its Future*, Scientific Computing Workshop, NASA Glenn Research Center, Cleveland, Ohio, Apr. 13, 2000.
6. *Network-Based Computing: The Next Frontier*, Int'l Conference on Parallel and Distributed Computing and Systems (PDCS '98), Las Vegas, Oct. 30, 1998.

- **Invited Tutorials**

1. *InfiniBand and 10-Gigabit Ethernet for Dummies*, jointly with P. Balaji and M. Koop, Int'l Conference on Supercomputing (SC '09), Nov. 2009, to be presented.
2. *Designing High-End Computing Systems with InfiniBand and 10-Gigabit Ethernet*, jointly with P. Balaji and M. Koop, Int'l Conference on Supercomputing (SC '09), Nov. 2009, to be presented.
3. *Designing High-End Computing Systems with InfiniBand and 10-Gigabit Ethernet*, jointly with P. Balaji and M. Koop, IEEE Cluster (Cluster '09), September 2009, to be presented.
4. *InfiniBand and 10-Gigabit Ethernet for Dummies*, jointly with P. Balaji and M. Koop, Hot Interconnect (HotI '09), August 25, 2009.
5. *Designing High-End Computing Systems with InfiniBand and 10-Gigabit Ethernet*, jointly with P. Balaji and M. Koop, Hot Interconnect (HotI '09), August 25, 2009.

6. *InfiniBand and 10-Gigabit Ethernet Architecture for Emerging HPC Clusters and Enterprise Datacenters*, jointly with P. Balaji, Int'l Conference on High Performance Computing Architecture (HPCA), Feb. 14, 2009.
7. *InfiniBand and 10-Gigabit Ethernet for Dummies*, jointly with P. Balaji and M. Koop, Int'l Conference on Supercomputing (SC '08), Nov. 16, 2008.
8. *Designing High-End Computing Systems with InfiniBand and 10-Gigabit Ethernet*, jointly with P. Balaji and M. Koop, Int'l Conference on Supercomputing (SC '08), Nov. 16, 2008.
9. *Designing HPC Clusters and Enterprise Datacenters: The InfiniBand and 10GE Way*, jointly with P. Balaji, Int'l Symposium on Hot Interconnect (HOTI), August 26, 2008.
10. *High-Speed Network Architectures for Clusters: Designs and Trends*, jointly with P. Balaji, Int'l Conference on High Performance Computing Architecture (HPCA), Feb. 17, 2008,
11. *Designing High-End Computing Systems with InfiniBand and iWARP Standards*, jointly with P. Balaji and S. Sur, Int'l Conference on Supercomputing (SC '07), Nov. 12, 2007.
12. *Designing High-End Computing Systems with InfiniBand and 10-Gigabit Ethernet*, jointly with P. Balaji, Int'l Conference on IEEE Cluster (Cluster'07), Sept. 17, 2007.
13. *Designing Clusters and Grid Computing Systems with InfiniBand and iWARP*, jointly with P. Balaji, Int'l Conference on Cluster Computing and Grid (CCGrid'07), May 14, 2007.
14. *Storage Networks, Protocols and File Systems: Latest Trends?*, jointly with W. Yu, Hot Interconnect, August 25, 2006.
15. *Designing Next Generation High-End Computing Systems with InfiniBand*, Proctor and Gamble, Cincinnati, July 19, 2006.
16. *State of InfiniBand in Designing Next Generation Clusters, File/Storage Systems and Datacenters*, Int'l Conference on High Performance Computing (HiPC '05), Dec 21, 2005.
17. *State of InfiniBand in Designing Next Generation Clusters, File/Storage Systems and Datacenters*, Int'l Conference on Supercomputing (SC '05), Nov. 13, 2005.
18. *State of InfiniBand in Designing Next Generation Clusters, File/Storage Systems and Datacenters*, Int'l Cluster Symposium (Cluster '05), September 26, 2005.
19. *State of InfiniBand in Designing Next Generation Clusters, File/Storage Systems and Datacenters*, Commodity Cluster Symposium (CCS), July 28, 2005.
20. *Designing Next Generation HPC Clusters, Storage/File Systems, and Datacenters with InfiniBand: Opportunities and Challenges*, Int'l Conference on High Performance Computing (HiPC '04), Dec. 22, 2004.
21. *State of InfiniBand in Designing HPC Clusters, Storage/File Systems, and Datacenters*, Int'l Conference on Supercomputing (SC '04), Nov. 7, 2004.
22. *State of InfiniBand in Designing Next HPC Clusters, Storage/File Systems, and Datacenters*, Int'l Conference on Cluster Computing (Cluster '04), Sept, 20, 2004.
23. *State of InfiniBand in Designing Next Generation Clusters, Cluster-based Servers and Datacenters*, Int'l Conference on Cluster Computing and Grid (CCGrid'04), April 19, 2004.

24. *Designing Next Generation Clusters with InfiniBand: Opportunities and Challenges*, Int'l Conference on Cluster Computing (Cluster '03), Hong Kong, Dec 1, 2003.
25. *InfiniBand Architecture and Its Impact on High Performance Computing*, Int'l Conference on Parallel Processing (ICPP), Kahosiung, Taiwan, Oct 6, 2003.
26. *Designing Next Generation Clusters, Cluster-based Servers and Datacenters with InfiniBand: Opportunities and Challenges*, Hot Interconnect (HotI 11), Stanford, August 22, 2003.
27. *InfiniBand Architecture: Is it Ready for Prime Time?*, DOE InfiniBand Workshop, Jan 20, 2003.
28. *InfiniBand Architecture and Where is it Headed*, Systran Corporation, Dayton, Dec 9, 2002.
29. *InfiniBand Architecture and Its Impact on High Performance Computing*, Supercomputing (SC '02), Nov. 17, 2002.
30. *InfiniBand Architecture: Where is it Headed and What will be the Impact on Cluster Computing*, Cluster Computing (Cluster '02), Sept.23, 2002.
31. *InfiniBand Architecture and Its Impact on Designing Next Generation Networked Computing Systems*, Int'l Conference on Parallel and Distributed Computing Systems (PDCS '02), Sept. 19, 2002.
32. *InfiniBand Architecture and Where it is Headed?*, Dell, Austin, August 30, 2002.
33. *InfiniBand Architecture and Where it is Headed?*, Hot Interconnect (HotI 10), Stanford, August 23, 2002.
34. *InfiniBand Architecture and Its Impact on High Performance Computing*, Int'l Conference on Supercomputing (ICS '02), New York, June 22, 2002.
35. *InfiniBand Architecture and Its Impact on High Performance Computing*, Supercomputing '01, Denver, Nov. 12, 2001.
36. *InfiniBand Architecture*, Cluster 2001, Newport Beach, October 8, 2001.
37. *InfiniBand Architecture*, Spanish Parallel Computing Conference, Valencia, Spain, September 4, 2001.
38. *InfiniBand Architecture*, Hot Interconnect (Hot 9), Stanford, August 24, 2001.
39. *Network-Based Computing: Current Trend, Challenges, and the Future*, MASCOTS 2001, Cincinnati, August 15, 2001.
40. *VIA and InfiniBand Architecture*, Int'l Symposium on Computer Architecture (ISCA), Gotberg, Sweden, June 30, 2001.
41. *VIA and InfiniBand Architecture*, Int'l Symposium on High Performance Computer Architecture (HPCA-7), Monterrey, Mexico, Jan 22, 2001.
42. *Network-Based Computing: Issues, Trends, and Challenges* (Under the IEEE CTP Program), IEEE Computer Society Chapter, San Jose, Costa Rica, July 19, 1999.
43. *Network-Based Computing: Issues, Trends, and Challenges* (Under the IEEE CTP Program), IEEE Computer Society Chapter, Halifax, Nova Scotia, Canada, Oct 3, 1998.

44. *Network-Based Computing: Issues, Trends, and Challenges* (Under the IEEE CTP Program), IEEE Computer Society Chapter, Salvador, Brazil, August 27, 1998.

• **Invited Presentations**

1. *Designing Fault Resilient and Fault Tolerant Systems with InfiniBand*, jointly with Abhinav Vishnu (PNNL) and K. Gopalakrishnan (OSU), Invited Poster Presentation at 2009 National Workshop on Resiliency, August 12, 2009.
2. *Staging Capabilities with High Performance Networking (InfiniBand)*, Oak Ridge ADIOS Meeting, Oak Ridge, July 8, 2009.
3. *Supporting Fault-Tolerance in Modern High-End Computing Systems with InfiniBand*, Dagstuhl Seminar on Fault-Tolerance in High Performance Computing, Dagstuhl, Germany, May 21, 2009.
4. *MVAPICH/MVAPICH2 Update*, Open Fabrics Sonoma Workshop, March 24, 2009.
5. *Designing Next Generation Clusters with InfiniBand and 10GE/iWARP*, Intel, Bangalore, India, Dec. 19, 2008.
6. *Research on Network-Based Computing*, TATA CRL Laboratory, India, Dec. 18, 2008.
7. *Overview of MVAPICH/MVAPICH2 Project*, TATA CRL Laboratory, India, Dec. 18, 2008.
8. *MVAPICH2 Project: Latest Status and Future Plans*, BOF on MPICH2, in conjunction with Supercomputing (SC '08), Nov 20, 2008.
9. *Extending One-Sided Communication in MPI Programming Model for Next Generation HEC*, BOF on HECURA, in conjunction with Supercomputing (SC '08), Nov 18, 2008.
10. *FTB Framework for InfiniBand*, BOF on CIFTs, in conjunction with Supercomputing (SC '08), Nov 18, 2008.
11. *MVAPICH/MVAPICH2 Project: Latest Status and Future Plans*, Presentation at Mellanox Booth, Supercomputing Conference (SC '08), Nov. 18, 2008.
12. *High Performance, Scalable and Fault-Tolerant MPI over InfiniBand: An Overview of MVAPICH/MVAPICH2 Project*, Tsukuba University, Japan, Oct. 2, 2008.
13. *Center for Performance Evaluation of Cluster Networking and I/O Technologies (PEC-NIT): Overview and Performance Results*, DICE Alliance Workshop, May 7, 2008.
14. *MVAPICH/MVAPICH2 Update*, Open Fabrics Sonoma Workshop, April 08, 2008.
15. *Trends in MPI Libraries and Potential Benefits from the SIF Architecture*, jointly with W. Huang and G. Santhanaraman, SUN SIF Workshop, March 10, 2008.
16. *Emerging Networking Technologies and Protocols for Next Generation Clusters*, Florida State University, Nov. 26, 2007.
17. *MVAPICH with XRC: Early Experiences*, Open Fabrics Developers Summit, Nov 16, 2007.
18. *MVAPICH/MVAPICH2 Update*, Open Fabrics Developers Summit, Nov 15, 2007.
19. *MVAPICH2 Project: Latest Status and Future Plans*, BOF on MPICH2, in conjunction with Supercomputing (SC '07), Nov 15, 2007.

20. *FTB Framework for InfiniBand*, BOF on CIFTs, in conjunction with Supercomputing (SC '07), Nov 13, 2007.
21. *Handling Reliability at the MPI layer*, BOF on Reliability of High-Speed Networks, in conjunction with Supercomputing (SC '07), Nov 13, 2007.
22. *Center for Performance Evaluation of Cluster Networking and I/O Technologies (PEC-NIT): Overview and Performance Results*, DICE/SC '07 Event, Nov 13, 2007.
23. *Challenges in Scaling to Large Fabrics for Making Efficient Communication Libraries*, SUN Microsystems, Norway, Nov 1, 2007.
24. *Performance Evaluation of Intel Connects Cable for InfiniBand*, Intel HPC Roundtable Conference, Washington, DC, Oct 9, 2007.
25. *Center for Performance Evaluation of Cluster Networking and I/O Technologies (PEC-NIT): Overview and Performance Results*, DICE Alliance Workshop, May 8, 2007.
26. *Designing Next Generation Clusters and Data-Centers with InfiniBand and iWARP*, HP, Palo Alto, May 2, 2007.
27. *HPC with Virtual Machines: Experiences with Xen InfiniBand and MPI*, OpenFabrics Sonoma Workshop, May 1, 2007.
28. *MVAPICH/MVAPICH2 Update*, OpenFabrics Sonoma Workshop, April 30, 2007.
29. *Emerging Networking Technologies and Protocols for Next Generation Clusters*, Kent State University, March 7, 2007.
30. *Designing Multi-core Aware Middleware for HPC and Data-Centers*, Multi-cores/Many-cores Workshop, March 2, 2007.
31. *OSU MPI (MVAPICH and MVAPICH2): Latest Status, Performance Numbers and Future Plans*, OpenFabrics Developers Summit, November 17, 2006.
32. *Benchmarking for Clusters with High Performance Networks*, Wright Patterson Airforce Base, October 15, 2006.
33. *Memory Architecture for High Performance Computing Optimization*, Intel Developers Forum, September 26, 2006.
34. *HPC with Virtual Machines: Experiences with Xen and InfiniBand*, Virtualization Workshop, organized by Oak Ridge National Laboratory, September 20, 2006.
35. *An InfiniBand Message Passing Model for Multicore Clusters*, Interactive Cinema Summit, held in conjunction with SigGraph, August 2, 2006.
36. *Optimizing InfiniBand on Bensley Platforms*, Intel Developers Forum, March 08, 2006.
37. *OSU MPI (MVAPICH and MVAPICH2): Latest Status, Performance Numbers and Future Plans*, OpenIB Workshop, February 07, 2006.
38. *Designing High Performance DSM Support over InfiniBand*, Intel Tele-Seminar, Dec 08, 2005.
39. *InfiniBand: Where is it Headed?*, Ohio Supercomputing Center Statewide Users Group, Nov. 19, 2005.
40. *OSU MPI over InfiniBand (MVAPICH): Latest Status, Performance Numbers and Future Plans*, Datacenter Fabric Workshop, August 22, 2005.

41. *Network-Centric Designs for High-End I/O and File Systems*, IHEC-IWG File Systems and I/O R&D Workshop, August 16, 2005.
42. *High Performance MPI for InfiniBand Cluster*, Central State University, Aug. 4, 2005.
43. *Designing Next Generation High Performance Clusters and Datacenters with InfiniBand*, Microsoft, July 18, 2005.
44. *Designing High Performance MPI-1 and MPI-2 on RDMA-Enabled Interconnects*, Intel Tele-Seminar, May 17, 2005.
45. *InfiniBand: An Emerging Networking Technology for Designing Next Generation High Performance Clusters, File/Storage Systems and Datacenters*, Central Ohio ACM Chapter, April 20, 2005.
46. *Designing Next Generation High Performance Clusters and Datacenters with InfiniBand*, Oak Ridge National Laboratory, March 18, 2005.
47. *Emerging Clusters and Data-Centers with InfiniBand Networking for Supporting Next Generation Data-Intensive Applications*, Imaging Workshop, Columbus, Feb 16, 2005.
48. *OSU MPI (MVAPICH) over InfiniBand: Latest status, Performance Numbers, and Results*, OpenIB Workshop, Feb 7, 2005.
49. *InfiniBand: A Modern Networking Technology*, WIPRO Information Technology, Dec 20, 2004.
50. *Designing Next Generation High Performance Clusters and Datacenters with InfiniBand*, Livermore National Laboratory, Dec. 6, 2004.
51. *Designing High Performance Distributed Data-Centers for Security Applications*, National Security and Defense-Related Research Meeting, Columbus, Oct 7, 2004.
52. *Designing Next Generation High Performance Clusters and Datacenters with InfiniBand*, IBM TJ Watson Research Center, Sept. 9, 2004.
53. *High Performance MPI for InfiniBand-based Clusters*, Central State University, Aug. 11, 2004.
54. *Designing Next Generation High Performance Clusters and Datacenters with InfiniBand*, ARL Cluster Symposium, July 28, 2004.
55. *MPI, File Systems, Storage, and Datacenter Research with InfiniBand: Latest Research Results and Plans*, Second annual DOE InfiniBand Workshop, January 20, 2004.
56. *Designing Next Generation High Performance Clusters with InfiniBand*, ARL Cluster Symposium, July 22, 2003.
57. *InfiniBand: Is it Ready for Prime-Time High Performance Computing?*, Univ. of Cincinnati, May 7, 2003.
58. *InfiniBand: Is it Ready for Prime-Time High Performance Computing?*, Los Alamos National Laboratory, Apr 8, 2003.
59. *Efficient Support for Programming Models on Modern Interconnects*, Intel KAI Lab, Urbana, Oct 16, 2002.
60. *Active Network Interface Support for Efficient Communication, Synchronization, and QoS in Clusters*, University of Texas, Austin, Aug 29, 2002.

61. *Designing High Performance Communication Subsystems for Clusters*, HP Labs, California, Aug 21, 2002.
62. *Cluster Computing: Where are We Headed?*, Fermi National Laboratory, June 4, 2002.
63. *Active Network Interface Support for Efficient Communication and Synchronization*, DOE Workshop on Communication and Middleware for Parallel Programming Models, April 14, 2002.
64. *Network-Based Computing and InfiniBand*, Paceline Systems, Cambridge, MA, Feb 5, 2002.
65. *Designing High Performance Communication Subsystems for Clusters with VIA and InfiniBand*, IBM Almaden, August 24, 2001.
66. *Designing High Performance Communication Subsystems for Clusters*, Fujitsu Research Laboratory, San Jose, August 23, 2001.
67. *End-to-end QoS Support for Collaborative Networked Computing*, Windows on the Future Conference, Internet 2 Technology Evaluation Center (ITEC), Columbus, March 30, 2001.
68. *Designing High Performance Communication Subsystems for Clusters*, Argonne National Laboratories, Feb 8, 2001.
69. *Network-Based Computing Research at OSU*, Sandia National Laboratories, Dec 12, 2000.
70. *Network-Based Computing: Issues, Trends, and Challenges* ACM Chapter, Columbus, Nov. 21, 2000.
71. *Supporting Efficient Communication in Network-Based Computing Systems*, Mississippi State University, Oct 2, 2000.
72. *Experiences on Implementing VIA and Higher Layers on Modern Interconnects*, Intel Corporation, Portland, July 28, 2000.
73. *Cluster Computing: Where are We Headed?*, Pacific Northwest National Laboratory, Pasco, July 27, 2000.
74. *Network-Based Computing: Issues, Trends, and Challenges* (Under the IEEE DVP Program), IEEE Calumet Section, Chicago, March 21, 2000.
75. *Experiences with Network-Based Computing Research and Beowulf Cluster at OSU-CIS*, Beowulf Focus Group Meeting, Ohio Supercomputer Center, Columbus, Sept. 28, 1999.
76. *Trends in Parallel Architecture and Communication*, Computational Chemistry Workshop IV, Columbus, June 18, 1999.
77. *Network-Based Computing: Issues, Trends, and Challenges* (Under the IEEE DVP Program), University of Nevada, Reno, April 1, 1999.
78. *Network-Based Computing: Issues, Trends, and Challenges* (Under the IEEE DVP Program), Drexel University, March 18, 1999.
79. *Network-Based Computing: Issues, Trends, and Challenges* (Under the IEEE DVP Program), IEEE Computer Society Chapter, Dayton, July 16, 1998.

80. *Network-Based Computing: Issues, Trends, and Challenges* (Under the IEEE DVP Program), IEEE Computer Society Chapter, Dallas, May 28, 1998.
81. *Network-Based Computing with OCARNET*, OCARNET State-level Meeting, Columbus, Jan 30, 1998.
82. *Challenges in Designing Communication Subsystems for High-Performance Computing Systems*, Univ. of Nebraska, Omaha, Jan 22, 1998.
83. *Network-Based Computing: Issues, Trends, and Challenges* (Under the IEEE DVP Program), Univ. of Nebraska, Lincoln, Jan 21, 1998.
84. *Networks of Workstations (NOW): An Emerging Trend for Cost-Effective Parallel Computing*, Center for Materials Research (CMR) Faculty Seminar Series, Ohio State University, May 29, 1997.
85. *Fast and Scalable Collective Communication in Wormhole Systems: Unicast or Multidestination Message-Passing?*, Univ. of Minnesota, Minneapolis, August 17, 1996.
86. *Fast and Scalable Collective Communication in Wormhole Systems: Unicast or Multidestination Message-Passing?*, Georgia Institute of Technology, Atlanta, May 17, 1996.
87. *Fast and Scalable Collective Communication in Wormhole Systems: Unicast or Multidestination Message-Passing?*, Univ. of Texas, San Antonio, April 2, 1996.
88. *Fast and Scalable Collective Communication in Wormhole Systems: Unicast or Multidestination Message-Passing?*, Texas A&M University, April 1, 1996.
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A. Journal Articles

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B. Invited Papers (Book Chapters/Conference/Workshop)

1. D. K. Panda, P. Balaji, S. Sur and M. Koop, Commodity High Performance Interconnects, Book Chapter in *Attaining High Performance Communication: A Vertical Approach*, Edited by Ada Gavrilovska, CRC Press, Sept. 2009.
2. K. Vaidyanathan, S. Narravula, P. Balaji and D. K. Panda, Designing Efficient Systems Services and Primitives for Next-Generation Data-Centers, Workshop on NSF Next Generation Software (NGS) Program; held in conjunction with IPDPS, Long Beach, 2007.
3. P. Balaji, K. Vaidyanathan, S. Narravula, H.-W. Jin and D. K. Panda, Designing Next-Generation Data-Centers with Advanced Communication Protocols and Systems Services, Workshop on NSF Next Generation Software (NGS) Program; held in conjunction with IPDPS, Greece, 2006.
4. D. K. Panda, Network-Based Computing: Current Trend, Challenges, and the Future, Int'l Conference on Information Technology, Dec. 2000, pp. 17-18.
5. D. K. Panda, Distributed Memory Parallel Systems, Wiley Encyclopedia of Electrical and Electronics Engineering, John Wiley and Sons, Vol. 5, Feb. 1999, pp. 714-720.
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C. Refereed Conference/Workshop Papers

1. X. Ouyang, K. Gopalakrishnan, T. Gangadharappa D. K. Panda, Fast Checkpointing by Write Aggregation with Dynamic Buffer and Interleaving on Multicore Architecture, Int'l Conference on High Performance Computing (HiPC '09), Dec. 2009.
2. P. Lai, H. Subramoni, S. Narravula, A. Mamidala and D. K. Panda, Designing Efficient FTP Mechanisms for High Performance Data-Transfer over InfiniBand, Int'l Conference on Parallel Processing (ICPP '09), Sept. 2009.
3. X. Ouyang, K. Gopalakrishnan and D. K. Panda, Accelerating Checkpoint Operation by Node-Level Write Aggregation on Multicore Systems, Int'l Conference on Parallel Processing (ICPP '09), Sept. 2009.
4. R. Gupta, P. Beckman, H. Park, E. Lusk, P. Hargrove, A. Geist, D. K. Panda, A. Lumsdaine and J. Dongarra, CIFTs: A Coordinated Infrastructure for Fault-Tolerant Systems, Int'l Conference on Parallel Processing (ICPP '09), Sept. 2009.
5. T. Gangadharappa, M. Koop and D. K. Panda, Designing and Evaluating MPI-2 Dynamic Process Management Support for InfiniBand, Int'l Workshop on Parallel Programming Models and Systems Software for High-End Computing (P2S2 '09), in Conjunction with ICPP '09, Sept. 2009.
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8. M. Koop, M. Luo and D. K. Panda, Reducing Network Contention with Mixed Workloads on Modern Multicore Clusters, Int'l Conference on Cluster Computing (Cluster '09), Sept. 2009.
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12. P. Lai, P. Balaji, R. Thakur and D. K. Panda, ProOnE: A General Purpose Protocol Onload Engine for Multi- and Many-Core Architectures, Int'l Supercomputing Conference (ISC), June 2009.
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14. K. Kandalla, H. Subramoni, G. Santhanaraman, M. Koop and D. K. Panda, Designing Multi-Leader-based AllGather Algorithms for Multicore Clusters, International Workshop on Communication Architecture for Clusters (CAC), held in conjunction with IPDPS '09, May 2009.
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16. J. Sridhar, M. Koop, J. Perkins and D. K. Panda, ScELA: Scalable and Extensible Launching Architecture for Clusters, Int'l Symposium on High Performance Computing (HiPC), Dec. 2008.
17. R. Noronha, X. Ouyang and D. K. Panda, Designing High Performance pNFS With RDMA on InfiniBand, Int'l Symposium on High Performance Computing (HiPC), Dec. 2008.
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22. R. Noronha and D. K. Panda, IMCa: A High Performance Caching Frontend for GlusterFS on InfiniBand, Int'l Conference on Parallel Processing (ICPP '08), Sept. 2008.
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37. P. Balaji, W. Feng, S. Bhagvat, D. K. Panda, R. Thakur and W. Gropp, Analyzing the Impact of Supporting Out-of-Order Communication on In-order Performance with iWARP, Supercomputing (SC), Nov. 2007.

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40. M. Koop, S. Sur and D. K. Panda, Zero-Copy Protocol for MPI using InfiniBand Unreliable Datagram, IEEE Cluster 2007, Austin, TX, Sept. 2007.
41. W. Huang, Q. Gao, J. Liu and D. K. Panda, High Performance Virtual Machine Migration with RDMA over Modern Interconnects, IEEE Cluster 2007, Austin, TX, Sept. 2007. **Selected as a BEST Paper.**
42. K. Vaidyanathan, L. Chai, W. Huang and D. K. Panda, Efficient Asynchronous Memory Copy Operations on Multi-Core Systems and I/OAT, IEEE Cluster 2007, Austin, TX, Sept. 2007.
43. Q. Gao, W. Huang, M. Koop, and D. K. Panda, Group-based Coordinated Checkpointing for MPI: A Case Study on InfiniBand, Int'l Conference on Parallel Processing (ICPP'07), XiAn, China, Sept. 2007
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53. K. Vaidyanathan and D. K. Panda, Benefits of I/O Acceleration Technology (I/OAT) in Clusters, International Symposium on Performance Analysis of Systems and Software (ISPASS), San Jose, April 2007.
54. R. Noronha and D. K. Panda, Improving Scalability of OpenMP Applications on MultiCore Systems Using Large Page Support, International Workshop on Multithreaded Architectures and Applications (MTAAP), held in conjunction with IPDPS '07, March 2007.
55. A. Vishnu, B. Benton and D. K. Panda, High Performance MPI on IBM 12x InfiniBand Architecture, International Workshop on High-Level Parallel Programming Models and Supportive Environments (HIPS), held in conjunction with IPDPS '07, March 2007.
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59. K. Vaidyanathan, S. Narravul and D. K. Panda, DDSS: A Low-Overhead Distributed Data Sharing Substrate for Cluster-Based Data-Centers over Modern Interconnects, Int'l Conference on High Performance Computing (HiPC), December 2006.
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Dhabaleswar K. Panda Vita June 2015 Communication Address Dhabaleswar K. Panda Dept. of Computer Science and Engineering
Dreese Lab 785 The Ohio State University Columbus, OH , USA Tel: (614).
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Dhabaleswar K. Panda[1] is a professor of Computer Science in the Department of Computer Science and Engineering at The Ohio
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