Feiyi Wang

Curriculum Vitae

Contact Information

Voice:	(865) 323-0744
Fax:	(865) 241-2850
E-mail:	fwang2@ornl.gov
Visa Status:	U.S. Citizen

Education

Aug 2000	Ph.D., Computer Engineering, North Carolina State University, Raleigh, NC Dissertation: *Vulnerability Analysis, Intrusion Prevention and Detection for Link State Routing Protocols* Advisor: Prof. Felix S. Wu (now at UC Davis)
May 1995	M.S., Computer Science, Beijing JiaoTong University, Beijing, China Thesis: *A Study on Client/Server Architecture and Its Application in Information System* Advisor: Prof. Jiazhong Ding
May 1992	B.S., Computer Science, Shanghai Railway Institute, Shanghai, China

Research Interests

Large-scale file and storage systems in HPC; Large-scale data management and data integrity; System fault modeling and provisioning; Learning-based network & cyber security.

Professional Experience

2007 - present	Research Staff, National Center for Computational Science (NCCS), Oak Ridge National Laboratory, Oak Ridge, TN. Worked extensively on large scale parallel file and storage system in HPC, large-scale data management, data integrity, and system fault modeling and provisioning.
2015 - present	Joint Faculty Professor, Department of Electrical Engineering & Computer Science (EECS), University of Tennessee, Knoxville, TN.
2004 - 2006	Sr. Software Engineer, Advanced Security Management Group, Cisco Systems Inc., Austin, TX. Designed and developed next-generation Intrusion Prevent System (IPS) and its management product.
2001 - 2004	Principal Research Scientist/Team Lead, Advanced Networking Group, MCNC-RDI, Research Triangle Park, NC. Led the design and development of a 3-year, DARPA-funded research project, *SITAR*, an intrusion tolerant server architecture for distributed services.
1998 - 2001	Research Scientist, MCNC, Advanced Networking Group, Research Triangle Park, NC. A principal member and key contributor on DARPA-funded project, *GIANT*, intrusion assessment through distributed decision making.

1996 - 1998 Graduate Research Assistant, North Carolina State University.

A member of the DARPA-funded project *JiNao* team, involved in the design and development of a software system for protecting against intruders from breaking into network routers, switches and network management channels.

Honors

- HPCC'17 Best Paper Finalist, "Analysis and Modeling of the End-to-End I/O Performance in OLCF's Titan Supercomputer," to be presented in a special session in the *19th IEEE International Conference on High Performance Computing and Communications (HPCC)*, Bangkok, Thailand, December 2017.
- SBAC-PAD'16 Best Paper Finalist, "Using Balanced Data Placement to Address I/O Contention in Production Environment," the *28th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD)*, Los Angeles, CA, 2016.
- SMC'15 Best Poster Award. "Improving Large-scale Application Performance with ADIOS and BPIO," *Smoky Mountain Computational Science and Engineering Conference*, September 2015.
- CUG'15 Best Paper Finalist, "A More Realistic Way of Stressing the End-to-end I/O System," in Cray User Group Conference (CUG), Chicago, USA.
- SC'14 Best Paper Finalist (14 out of 394 submissions are selected as the best paper finalist), "Best Practices and Lessons Learned from Deploying and Operating Large-scale Data-centric Parallel File Systems," in *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis*, New Orleans, Louisiana, 2014.
- SEA (Significant Event Award), in recognition of significant contribution to the *Accelerating Data Acquisition, Reduction, and Analysis (ADARA)* project, Oak Ridge National Laboratory, 2012.
- Distinguished Employee Award of Computing and Computational Sciences Directorate, Oak Ridge National Laboratory, 2012.
- SEA (Significant Event Award), in recognition of significant contribution to the *Architecture, Development, and Deployment of The Earth System Grid Federation System*, Oak Ridge National Laboratory, 2012.
- SEA (Significant Event Award), in recognition of significant contribution to the *Spider Parallel File System Deployment and Transition to Operations*, Oak Ridge National Laboratory, 2010.
- International Electronic Technologies Scholarship for Excellent Graduate Study, Beijing Jiaotong University, 1994.
- Excellent Bachelor's Project Award (one of the three selected from 60 graduating students), Shanghai Railway Institute, 1992.
- First Prize of Excellent Undergraduate Scholarship, Shanghai Railway Institute, 1988 - 1992.

Journal Publications

[1] L. Wan, Q. Cao, **F. Wang**, and S. Oral. "Optimizing Checkpoint Data Placement with Guaranteed Burst Buffer Endurance in Large-scale Hierarchical Storage Systems". In: *Journal of Parallel and Distributed Computing* (2017), pp. 16–29.

[2] Y. Kim, J. Lee, S. Oral, D. Dillow, **F. Wang**, and G. Shipman. "Coordinating Garbage Collection for Arrays of Solid-State Drives". In: *IEEE Transactions on Computers* 63.4 (Apr. 2014), pp. 888–901.

[3] L. Cinquini, D. Crichton, C. Mattmann, J. Harney, G. Shipman, **F. Wang**, R. Ananthakrishnan, N. Miller, S. Denvil, M. Morgan, Z. Pobre, G.M. Bell, C. Doutriaux, R. Drach, D. Williams, P. Kershaw, S. Pascoe, E. Gonzalez, S. Fiore, and R. Schweitzer. "The Earth System Grid Federation: An Open Infrastructure for Access to Distributed Geo-Spatial Data". In: *Journal of Future Generation Computer Systems* (Sept. 2013).

[4] S. Bryant and **F. Wang**. "Aspects of Adaptive Reconfiguration in Building Intrusion Tolerant Server Systems". In: *Journal of Complexity* 9.2 (Feb. 2004). Special Issue: Resilient and Adaptive Defense of Computing Networks, pp. 74–83.

[5] R. Wang, **F. Wang**, and G.T. Byrd. "Design and Implementation of Acceptance Monitor for Building Intrusion Tolerant Systems". In: *Journal of Software - Practice and Experience* 33 (2003), pp. 1399–1417.

[6] S.F. Wu, H. Chang, F. Jou, **F. Wang**, F. Gong, C. Sargor, D. Qu, and R. Cleaveland. "JiNao: Design and implementation of a scalable intrusion detection system for the OSPF routing protocol". In: *Journal of Computer Networks and ISDN Systems* (Feb. 1999).

Conference Publications

[1] **F. Wang**, H. Sim, C. Harr, and S. Oral. "Diving into Petascale Production File Systems through Large Scale Profiling and Analysis". In: *2017 2nd Joint International Workshop on Parallel Data Storage and Data Intensive Scalable Computing Systems (PDSW-DISCS)*. Nov. 2017. (Acceptance Rate: 30%).

[2] S. Neuwirth, **F. Wang**, S. Oral, and U. Bruening. "Automatic and Transparent Resource Contention Mitigation for Improving Large-scale Parallel File System Performance". In: *IEEE 23rd International Conference on Parallel and Distributed Systems (ICPADS)*. Nov. 2017.

[3] S. Vazhkudai, R. Miller, D. Tiwari, C. Zimmer, **F. Wang**, S. Oral, R. Gunasekaran, and D. Steinert. "GUIDE: A Scalable Information Directory Service to Collect, Federate, and Analyze Logs for Operational Insights into a Leadership HPC Facility". In: *International Conference for High Performance Computing, Networking, Storage, and Analysis (SC'17)*. Nov. 2017. (Acceptance Rate: 18%, 61/327).

[4] L. Wan, M. Wolf, **F. Wang**, J. Y. Choi, G. Ostrouchov, and S. Klasky. "Analysis and Modeling of the End-to-End I/O Performance in OLCF's Titan Supercomputer". In: *19th IEEE International Conference on High Performance Computing and Communication (HPCC)*. Dec. 2017.

[5] L. Wan, M. Wolf, **F. Wang**, J. Y. Choi, G. Ostrouchov, and S. Klasky. "Comprehensive Measurement and Analysis of the User-Perceived I/O Performance in a Production Leadership-Class Storage System". In: *IEEE 37th International Conference on Distributed Computing Systems (ICDCS)*. June 2017, pp. 1022–1031.

[6] **F. Wang**, V.G. Larrea, D. Leverman, and S. Oral. "FCP: A Fast and Scalable Data Copy Tool for High Performance Parallel File Systems". In: *Cray Users Group Confernece (CUG)*. London, UK, May 2016.

[7] S.A. Klasky, H. Abbasi, M. Ainsworth, J. Choi, M. Curry, T. Kurc, Q. Liu, J. Lofstead, C. Maltzahn, M. Parashar, N. Podhorszki1, E. Suchyta1, **F Wang**, M. Wolf, C.S. Chang, M. Churchill, and S. Ethier. "Exascale Storage Systems the SIRIUS Way". In: *Journal of Physics: Conference Series*. Vol. 759. 1. 2016.

[8] S. Neuwirth, **F. Wang**, S. Oral, S. Vazhkudai, J. Rogers, and U. Bruening. "Using Balanced Data Placement to Address I/O Contention in Production Environments". In: *28th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD)*. Oct. 2016, pp. 9–17. (Acceptance Rate: 35%, 27/77. Best Paper Finalist).

[9] S. Xiong, **F. Wang**, and Q. Cao. "A Bloom Filter Based Scalable Data Integrity Check Tool for Large-Scale Dataset". In: *1st Joint International Workshop on Parallel Data Storage and Data Intensive Scalable Computing Systems (PDSW-DISCS)*. Nov. 2016, pp. 55–60. (Acceptance rate: 30%, ranked #2 among all submissions.)

[10] V.G.V. Larrea, S. Oral, D.B. Leverman, H.A. Nam, **F. Wang**, and J. Simmons. "A More Realistic Way of Stressing the End-to-end I/O System". In: *Cray Users Group Confernece (CUG)*. Chicago, IL, May 2015. (Best Paper Finalist).

[11] L. Wan, **F. Wang**, S. Oral, D. Tiwari, S.S. Vazhkudai, and Q. Cao. "A Practical Approach for Reconciling Availability, Performance, and Capacity in Provisioning Extreme-scale Storage Systems". In: *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC'15)*. Austin, TX, 2015. (Acceptance Rate: 15.9%, 57/358).

[12] M. Ezell, S. Oral, **F. Wang**, D. Tiwari, D. Maxwell, D. Leverman, J. Hill, and D. Dillow. "I/O Router Placement and Fine-Grained Routing on Titan to Support Spider II". In: *Cray User Group Workshop (CUG)*. Lugano, Switzerland, May 2014.

[13] **F. Wang**, S. Oral, S. Gupta, D. Tiwari, and S. Vazhkudai. "Improving Large-Scale Storage System Performance via Topology-aware and Balanced Data Placement". In: *The 20th IEEE International Conference on Parallel and Distributed Systems (ICPADS)*. Hsinchu, Taiwan, Dec. 2014. (Acceptance Rate: 29.8%, 96/322).

[14] S. Oral, J. Simmons, J. Hill, D. Leverman, **F. Wang**, M. Ezell, R. Miller, D. Fuller, R. Gunasekaran, Y. Kim, S. Gupta, D. Tiwari, S.S. Vazhkudai, J.H. Rogers, D. Dillow, G.M. Shipman, and A.S Bland. "Best Practices and Lessons Learned from Deploying and Operating Large-scale Data-centric Parallel File Systems". In: *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC'14)*. New Orleans, LA, 2014, pp. 217–228. (Acceptance Rate: 21%, 82/394. Best Paper Finalist).

[15] L. Wan, Z. Lu, Q. Cao, **F. Wang**, S. Oral, and B. Settlemyer. "SSD-optimized Workload Placement with Adaptive Learning and Classification in HPC Environments". In: *30th Symposium on Mass Storage Systems and Technologies (MSST)*. June 2014, pp. 1–6. (Acceptance Rate: 18.5%, 23/124).

[16] M. Brim, D. Dillow, S. Oral, B. Settlemyer, and **F. Wang**. "Asynchronous Object Storage with QoS for Scientific and Commercial Big Data". In: *Proceedings of the 8th Parallel Data Storage Workshop (PDSW)*. Denver, Colorado: ACM, 2013, pp. 7–13.

[17] **F. Wang**, M. Nelson, S. Oral, S. Atchley, S. Weil, B.W. Settlemyer, B. Caldwell, and J. Hill. "Performance and Scalability Evaluation of the Ceph Parallel File System". In: *Proceedings of the 8th Parallel Data Storage Workshop (PDSW)*. PDSW'13. Denver, CO: ACM, 2013, pp. 14–19.

[18] S. Oral, D.A. Dillow, D. Fuller, J. Hill, D. Leverman, S.S. Vazhkudai, **F. Wang**, Y. Kim, J. Rogers, J. Simmons, et al. "OLCF's 1 TB/s, Next-Generation Lustre File System". In: *Cray User Group Workshop (CUG)*. Napa Valley, CA, May 2013.

[19] J. Lee, Y. Kim, S. Oral, G. Shipman, D. Dillow, and **F. Wang**. "Comparing Coordinated Garbage Collection Algorithms for Arrays of Solid-state Drives". In: *Annual Non-Volatile Memories Workshop (NVMW)*. California, Mar. 2012.

[20] **F. Wang**, J. Harney, G. Shipman, D. William, and L. Ciquini. "Building a Large-Scale Climate Data Systems for HPC Environment". In: *IEEE 7th International Conference on Next Generation Web Service Practices (NWeSP)*. Salamanca, Spain, 2011.

[21] Y. Kim, S. Oral, G. Shipman, J. Lee, D. Dillow, and **F. Wang**. "Harmonia: A Globally Coordinated Garbage Collector for Arrays of Solid-state Drives". In: *Proceedings of the IEEE Symposium on Massive Storage Systems and Technologies (MSST'11)*. Denver, Colorado, May 2011. (Acceptance Rate: 18.9%, 61/327).

[22] J. Lee, Y. Kim, G. Shipman, S. Oral, **F. Wang**, and J. Kim. "A Semi-Preemptive Garbage Collector for Solid State Drives". In: *IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS)*. Austin, TX, Apr. 2011.

[23] S. Oral, **F. Wang**, D. Dillow, G. Shipman, R. Miller, and O. Drokin. "Efficient Object Storage Journaling in a Distributed Parallel File System". In: *8th USENIX Conference on File and Storage Technologies (FAST)*. USENIX Association. San Jose, CA, Feb. 2010.

[24] S. Oral, **Feiyi Wang**, D. Dillow, R. Miller, G. Shipman, D. Maxwell, D. Henseler, J. Becklehimer, and J. Larkin. "Reducing Application Runtime Variability on Jaguar XT5". In: *Cray Users Group Workshop (CUG)*. Edinburgh, United Kingdom, May 2010.

[25] G. Shipman, D. Dillow, S. Oral, and **F. Wang**. "The Spider Center Wide File System: From Concept to Reality". In: *Cray User Group Workshop (CUG)*. Atlanta, GA, May 2009.

[26] L. Miao, H. Qi, and **F. Wang**. "Biologically-inspired Self-deployable Heterogeneous Mobile Sensor Networks". In: *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. Alberta, Canada, Aug. 2005.

[27] L. Miao, H. Qi, and **F. Wang**. "Self-deployable Mobile Sensor Networks for On-demand Surveillance". In: *Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Security and Homeland Defense IV, at SPIE Defense and Security Symposium*. Vol. 5778. Orlando (Kissimmee), FL, Apr. 2005, 12 pages.

[28] **F. Wang**. *Trustworthy Computing: A Position Paper*. Proceedings for Trustworthy Software Systems Workshop. Naval Postgraduate School, Monterey, CA. Apr. 2004.

[29] **F. Wang** and H. Qi. "A Cognitive Information Processing Framework for Distributed Sensor Networks". In: *Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Security and Homeland Defense III, SPIE Defense and Security Symposium*. Orlando, Florida, 2004.

[30] **F. Wang**, F. Gong, F. Jou, and R. Wang. "Foundations of Intrusion Tolerant Systems (OASIS'03)". In: IEEE Computer Society Press, Dec. 2003. Chap. SITAR: A Scalable Intrusion Tolerance Architecture for Distributed Service.

[31] **F. Wang**, R. Upalli, and C. Killian. "Analysis of Intrusion Tolerant Techniques for Distributed Server Systems". In: *Military Communication Conference (MILCOM)*. Boston, MA, Oct. 2003.

[32] S. Bryant and **F. Wang**. "Design and Implementation of Adaptive Reconfiguration for Intrusion Tolerant Systems". In: *International Conference on Dependable Systems and Networks: Fast Abstract Volume*. June 2002.

[33] **F. Wang** and C. Killian. "Design and Implementation of SITAR Architecture: A Status Report". In: *Intrusion Tolerant System Workshop, Supplemental Volume on International Conference on Dependable System and Networks*. June 2002.

[34] R. Uppalli and **F. Wang**. "Design and Implementation of Ballot Voting for Intrusion Tolerant Systems". In: *International Conference on Dependable Systems and Networks (DSN)*. Fast Abstract. June 2002.

[35] **F. Wang**, F. Gong, F. Jou, and R. Wang. "SITAR: A Scalable Intrusion Tolerance Architecture for Distributed Service". In: *IEEE Workshop on Information Assurance and Security*. United States Military Academy, West Point, New York, June 2001, pp. 38–45.

[36] **F. Wang**, S.F. Wu, F. Gong, and H. Qi. "Design and Implementation of a New Intrusion Detection Approach: Property-oriented Detection". In: *Proceedings of the 2001 IEEE Workshop on Information Assurance and Security*. United States Military Academy, West Point, New York, June 2001, pp. 91–99.

[37] K. Goseva-Postojanova, **F. Wang**, R. Wang, F. Gong, K. Vaidyanathan, K. Trivedi, and B. Muthusamy. "Characterizing Intrusion Tolerant System Using State Transition Model". In: *DARPA DISCEX II Conference*. 2001.

[38] H. Qi and **F. Wang**. "Optimal Itinerary Analysis for Mobile Agents in Ad Hoc Wireless Sensor Networks". In: *The 13th International Conference on Wireless Communications (WiCOM)*. Calgary, Canada, July 2001, pp. 147–153.

[39] R. Wang and **F. Wang**. "Design and Implementation of Acceptance Monitor for Building Scalable Intrusion Tolerant System". In: *Proceedings Tenth International Conference on Computer Communications and Networks (IC3N)*. Phoenix, AZ, Oct. 2001.

[40] **F. Wang**, F. Gong, and S.F. Wu. "A Property Oriented Fault Detection Approach for Link State Routing Protocol". In: *IEEE 9th International Conference on Computer Communications and Networks (ICCCN)*. Ed. by T. Engbersen and E.K. Park. Las Vegas, NV, Oct. 2000, pp. 114–119. (Acceptance Rate: 30%).

[41] **F. Wang**, F. Gong, S.F. Wu, and R. Narayan. "Intrusion Detection for Link State Routing Protocol through Integrated Network Management". In: *IEEE 8th International Conference on Computer Communications and Networks (ICCCN)*. Oct. 1999.

[42] **F. Wang** and S.F. Wu. "Intrusion Detection through Integrated Network Management". In: *IEEE 8th International Conference on Computer Communications and Networks (ICCCN)*. Boston, MA, Oct. 1999. (Acceptance Rate: 30%).

[43] Y.F. Jou, F. Gong, C. Sargor, X. Wu, S.F. Wu, H.C. Chang, and **F. Wang**. "Design and Implementation of a Scalable Intrusion Detection System for the Protection of Network Infrastructure". In: *DARPA Information Survivability Conference and Exposition*. Hilton Head Island, SC, Jan. 1999, pp. 422–434.

[44] **F. Wang** and S.F. Wu. "On the Vulnerabilities and Protection of OSPF". In: *IEEE 7th International Conference on Computer Communications and Networks (ICCCN)*. Oct. 1998. (Acceptance Rate: 30%).

[45] D. Qu, B.M. Vetter, **F. Wang**, R. Narayan, S.F. Wu, Y.F. Jou, F. Gong, and C. Sargor. "Statistical-based Intrusion Detection for OSPF". In: *The 6th IEEE International Conference on Network Protocols*. Austin, TX: IEEE Computer Society, Oct. 1998, pp. 62–70. (Acceptance Rate: 33%, 36/108).

[46] B.M. Vetter, **F. Wang**, and S.F. Wu. "An Experimental Study of Insider Attacks on the OSPF". In: *The 5th IEEE International Conference on Network Protocols (ICNP)*. Atlanta, GA, Oct. 1997, pp. 293–300. Acceptance Rate: 39%, 32/81.

Patents

1. "Coordinated Garbage Collection for RAID Array of Solid State Disks", United States US 8713268, Issued on April 29, 2014. Online: http://patft.uspto.gov/netacgi/nph-Parser?patentnumber=8713268

   Inventors: (In alphabetical order) David A. Dillow, Youngjae Kim, Hakki S. Oral, Galen M. Shipman, Feiyi Wang.

2. "Intrusion Tolerant Server System", United States US7076801, Issued on July 11, 2006. Online: http://patft.uspto.gov/netacgi/nph-Parser?patentnumber=7076801.

   Inventors: (In alphabetical order) Fengmin Gong, Chandramouli Sargor, Feiyi Wang

Program Development Activities and Grants

- Co-PI, "UNIFYCR: A Checkpoint/Restart File System for Distributed Burst Buffers," Department of Energy, Exascale Computing Program (ECP), Jan. 2017 - Jan. 2020. $3,073,090.
- Co-PI, "SIRIUS: Science-driven Data Management for Multi-tiered Storage," Department of Energy, Office of Advanced Scientific Computing Research Storage Systems and Input/Output (SSIO) for Extreme Scale Science. Oct. 2015 - Sept. 2018. $3,750,000.
- Co-PI, "A Scalable, Resilient, and Efficient Data Service for Exascale Computing," ORNL's Director's R&D, Jul. 2015 - Sept. 2017. $727,000.
- Co-PI, "Towards a Scalable and Resilient Infrastructure for Big Data," ORNL's Director's R&D, Jul. 2012 - Sept. 2014. $817,000.
- PI, "Intrusion Tolerance for Grid Services," MCNC IRAD Funds, Feb. 2004 - Dec. 2004. $46,500.
- PI,"SITAR: A Scalable Intrusion Tolerant Architecture For Distributed Services", Funded by DARPA ITO OASIS Program. Subcontractor: Duke University (Prof. Kishor Trivedi). Jul. 2000 - Aug. 2003. $2,351,319.
- Investigator, "Ferret: Workflow based Intrusion Detection System", Funded by Advanced Research and Development Activity (ARDA) of NSA. Jul. 2003 - Dec. 2004. $750,000.
- Investigator, "GIANT: Global Intrusion Assessment Through Distributed Decision Making", Funded by DARPA and U.S. Air Force Rome Laboratory under contract F30602-96-C-0325. May 1998 - Jun. 2000. $1,330,103.
- Investigator, "JiNao: Scalable Intrusion Detection System for Emerging Network Infrastructure. Funded by DARPA under contract F30602-96-C0325. Jun. 1996 - Jul. 1999.

Professional Services

- Guest Editor, Special Issue on High Performance Computing for Big Data, Scientific Programming (SCIE) Journal, 2017.
- Session Co-Chair on Data Runtime and Software Stack, DOE Data Benchmarking Workshop, Lawrence Berkeley National Laboratory, July 25-26, 2017.
- Reviewer for Cluster Computing Journal, 2017
- Reviewer for the 32nd International Conference on Massive Storage Systems (MMST), 2016.
- Reviewer for the 46th Annual IEEE/IFIP International Conference on Dependable Systems and Networks, 2016.
- Reviewer for IEEE Transaction on Parallel and Distributed Systems (TPDS), 2011, 2015
- Reviewer for the 10th IEEE International Conference on Networking, Architecture, and Storage (NAS), 2015.
- TPC Member, Lustre User Group, 2015

- Reviewer, IEEE Transactions on Computers, 2012, 2014.
- Session Chair, the 20th IEEE International Conference on Parallel and Distributed Systems, 2014.
- DOE SBIR/STTR Technical Reviewer, 2010.
- Reviewer, IEEE Transactions on Dependable and Secure Computing (TDSC), 2006.
- TPC Member, Workshop on Large Scale Attack Defense (LSAD), 2006.
- Reviewer, 1st IEEE/CREATE-NET Workshop on Security and QoS in Communications Networks, 2005.
- TPC Member, International Symposium on Wireless Local and Personal Area Networks, part of WirelessCom 2005.
- TPC Member, Special Issues on Security for the IEEE Transaction on Industrial Informatics, 2005.
- TPC Member, IEEE International Conference on Computer Communication and Networks (ICCCN), 2001, 2002, 2004, 2005, 2007.
- TPC Member, IEEE Workshop on Multi-hop Wireless Networks 2004, held in conjunction with the 23rd IEEE International Performance Computing and Communications Conference.
- Ad Hoc Networking Session Chair, IEEE International Conference on Computer Communication and Networks (ICCCN), 2002
- Editorial Review: Journal of Computer Networks, Discovery Grant from Natural Sciences and Engineering Councils of Canada
- Reviewer for Information Assurance Program, Army Research Office, 2001.

Professional Organizations

- IEEE Senior member

Personnel Management and Advisees

Over the years, I have mentored the following students and junior staff members.

- Hyogi Sim (Staff member, Oak Ridge National Laboratory), 2017
- Sarah Neuwirth (Intern, Ph.D. candidate from Heidelberg University, Germany), 2015, 2016
- Ahana Roy Choudhury (Intern, Ph.D. candidate from Florida State University), 2017
- Sisi Xiong (Intern, Ph.D. candidate from University of Tennessee), 2015
- Lipeng Wan (Intern, Ph.D. candidate from University of Tennessee, Lipeng is now my post-doc at Scientific Data Group, ORNL), 2014
- Yandong Wang (Intern, Ph.D. candidate from Auburn University), 2013
- Yizheng Jiao (Intern, Ph.D. candidate from Auburn University), 2012
- Tag Groff (Intern, Oak Ridge High School), 2011
- Matthew Evans (Ph.D. candidate from University of Georgia), 2011
- John Harney (Past Post-doc, current staff member at Oak Ridge National Laboratory), 2009
- Chip Killian (Intern, undergrad from Duke University), 2004
- Stephanie Bryant (Staff member at MCNC), 2003