

## Curriculum Vitae of Bin Wang

### EDUCATION

<u>Degrees</u>	<u>Granting Institutions</u>	<u>Dates</u>
Ph.D.	Ohio State University, Columbus, OH	2000
M.S.	University of Louisville, Louisville, KY	1994
B.E.	Zhejiang University, China	1992

### PROFESSIONAL EXPERIENCE

<u>Institution</u>	<u>Position</u>	<u>Dates</u>
Wright State University	Tenured Associate Professor	September 2005 – Present
Wright State University, Dayton, OH	Assistant Professor	September 2000 – August 2005
Panasonic Research, Princeton, NJ	Research Intern	July 1998 – September 1998
Ohio State University, Columbus, OH	Research Associate	September 1996 – August 2000
University of Wisconsin, Madison, WI (Moved to OSU with adviser in 1996)	Research Associate	September 1994 – August 1996
University of Louisville, Louisville, KY	Research Assistant	September 1992 – August 1994

### ACADEMIC AWARDS

<u>Title of Award</u>	<u>Granting Association</u>	<u>Date</u>
Outstanding Faculty Member Award College of Engineering and Computer Science WSU		2004 – 2005
US Department of Energy Early Career Award		2003
NSF Grant Award in Recognition of High Quality Paper	IEEE INFOCOM, Kobe Japan	1997
The AT&T Network Systems ISDN Award	AT&T Network Systems, Inc.	1993
Guanghua Fellowship	Zhejiang University	1991

### PROFESSIONAL MEMBERSHIPS

Member                    IEEE, IEEE Communication Society, ACM

### TEACHING

Courses Taught and Developed at Wright State University

- CEG434/634, Concurrent Software Design,
- CEG402/602, Introduction to Computer Communication Design
- CEG702 (developed), Advanced Computer Communications
- CEG790 (developed), Emerging Networks

## SCHOLARSHIP

### Book Chapters

- [1] Y. Pei and Bin Wang, "Integrated source-channel coding, power control and routing for QoS multimedia ad-hoc wireless networks." In *Security and Routing in wireless networks*, Nova Science Publishers, ISBN: 1-59454-316-X, 2005.

### Refereed Journal Articles (\* current or former students)

- [1] Bin Wang and Jennifer C. Hou, "Multicast Routing and Its QoS Extension: Problems, Algorithms, and Protocols." *IEEE Network*, Vol., No. pp., January/February 2000, IEEE Press. (R)
- [2] Bin Wang, Jennifer C. Hou, and Ching-Chih Han, "On Dynamically Establishing and Terminating Isochronous Message Streams in WDM-based Networks." *Journal of High Speed Networks*, Vol. 11, No. 1, pp. 45-66, 2002, IOS Press. (R)
- [3] Hung-Ying Tyan, Jennifer C. Hou, Bin Wang, and Ching-Chih Han, "On Supporting Time-Constrained Communications on WDM-based Light-wave Networks." *IEEE Transactions on Computers*, Vol. 50, No. 3, pp., March 2001, IEEE Press. (R)
- [4] Hung-Ying Tyan, Jennifer C. Hou, and Bin Wang, "Many-to-Many Multicast Routing with Delay and Delay Jitter Requirements." *IEEE Transactions on Computers*, Vol. 52, No.6, pp. 826-832, June 2003, IEEE Press. (R)
- [5] Yang Xiao, Philip Chen, and Bin Wang, "Bandwidth Degradation QoS Provisioning for Adaptive Multimedia in Wireless/Mobile Networks." *Computer Communications Journal*, Vol. 25, No., pp. 1153-1161, 2002, Elsevier Science. (R)
- [6] Bin Wang, Xu Su\*, and P. C. L. Chen, "A Bandwidth Guaranteed Integrated Routing and Wavelength Assignment Algorithm in IP over WDM Optical Networks." *Photonic Network Communications*, Vol. 5, No., pp. 227-246, May 2003, Kluwer Academic Publishers. (R)
- [7] A. R. B. Billah\*, Bin Wang, and A. A. S. Awwal, "Effective Traffic Grooming Algorithms for SONET/WDM Ring Networks." *Photonic Network Communications*, Vol. 6, No. 2, pp. 119-138, September 2003, Kluwer Academic Publishers. (R)
- [8] Bin Wang, Jennifer C. Hou, and Ching-Chih Han, "Design and Analysis of a WDMA Protocol for Single-Hop Light-wave Networks." *Photonic Network Communications*, Vol. 6, No. 3, pp. 289-308, 2003, Kluwer Academic Publishers. (R)
- [9] Bin Wang and Jennifer C. Hou, "An Efficient QoS Routing Algorithm for Quorumcast Communication." *Computer Networks Journal*, Vol. 44, No. 1, pp. 43-61, January 2004, Elsevier Science. (R)

- [10] Abdur Billah\*, Bin Wang, and Abdul A. S. Awwal, "Efficient Traffic Grooming in SONET/WDM BLSR Networks." *Optical Engineering Journal*, Vol. 43, No. 5, pp. 1101-1114, May, 2004, SPIE. (R)
- [11] Hung-Ying Tyan, Jennifer C. Hou, and Bin Wang, "QoS Extension to Core-based Multicast Routing." Accepted for publication in *IEEE/ACM Transactions on Networking*, (in press), IEEE/ACM. (R)
- [12] Y. Xiao, H. Li, B. Wang, C. Chen, and Y. Pan, "Proportional Degradation Areas for Wireless Adaptive Multimedia Network." Accepted for publication in *Journal of Wireless Communications and Mobile Computing (WCMC)*, Vol., No., pp., 2004 (in press), Wiley InterScience. (R)
- [13] Tianjian Li\* and Bin Wang, "Cost Effective Shared Path Protection for WDM Optical Mesh Networks with Partial Wavelength Conversion." *Photonic Network Communications Journal*, Vol. 8, Issue 3, pp. 251-266, November 2004, Kluwer Academic Publishers. (R)
- [14] Tianjian Li\* and Bin Wang, "Efficient Online Algorithms for Dynamic Shared Path Protection in Optical WDM Networks." Accepted for publication in *Photonic Network Communications Journal*, 2004, (in press) Kluwer Academic Publishers. (R)
- [15] Tianjian Li\* and Bin Wang, "Minimizing Wavelength Conversion Costs in WDM Optical Networks with  $p$ -Cycles based Protection." *OSA Journal of Optical Networking*, Vol. 3, No. 11, pp. 769-786, November 2004, Optical Society of America. (R)
- [16] Bin Wang, Badri Kasthurirangan\*, and Jun Xu "Subsidized RED: An Active Queue Management Mechanism for Short-Lived Flows." *Computer Communications Journal*, Vol. 28, No. 5, pp. 540-549, 2005, Elsevier Science. (R)
- [17] Qi Qu, Yong Pei, James W. Modestino, Xusheng Tian, and Bin Wang, "Cross-Layer QoS Control for Video Communications over Wireless Ad-hoc Networks", *EURASIP Journal on Wireless Communications and Networking*, special issue on "Ad Hoc Networks: Cross-Layer Issues", May 2005.
- [18] B. Wang and A. Deshmukh\*, "An All Hops Optimal Algorithm for Dynamic Routing of Sliding Scheduled Traffic Demands," accepted for publication in *IEEE Communications Letters*.

### Conference Articles

- [1] C. Xin, B. Wang, X. Cao, and J. Li, "Logical Topology Design for Multi-Hop Dynamic Traffic Grooming in WDM Optical Networks," *Proceedings of IEEE Workshop on Traffic Grooming in WDM Networks*, Boston, MA, October 3-7, 2005. (R).
- [2] C. Xin, B. Wang, X. Cao, and J. Li, "Formulation of Multi-Hop Dynamic Traffic Grooming in WDM Optical Networks." *Proceedings of IEEE Workshop on Traffic Grooming in WDM Networks*, Boston, MA, October 3-7, 2005. (R)

- [3] T. Li\*, B. Wang, C. Xin, and X. Zhang, "On Survivable Service Provisioning in WDM Optical Networks under a Scheduled Traffic Model," To appear in *Proceedings of IEEE Globecom '05*, St. Louis, MO USA, November/December 2005. (R)
- [4] C. Xin, J. Li, X. Cao, and B. Wang, "Computing Loss Probability for Dynamic Traffic Grooming in Optical Networks with Wavelength Conversion," To appear in *Proceedings of IEEE Globecom '05*, St. Louis, MO USA, November/December 2005. (R)
- [5] C. Xin, B. Wang, J. Li, and X. Cao, "Logical Topology Design for Multi-Hop Dynamic Traffic Grooming in WDM Optical Networks," To appear in *Proceedings of IEEE Globecom '05*, St. Louis, MO USA, November/December 2005. (R)
- [6] M. Greene\*, T. Li\*, and B. Wang, "Improving Dual Failure Performance in WDM Optical Networks Using  $p$ -Cycles Based Protection with Minimized Wavelength Conversion Costs," accepted for publication in *SPIE APOC '05*, Shanghai China, November 2005.
- [7] B. Wang, Y. Fan\*, and X. Luo\*, "Multicast Service Provisioning under a Scheduled Traffic Model in WDM Optical Networks," accepted for publication in *the third IASTED International conference on Communications and Computer Networks*, October 24-26, Marina del Rey, CA, 2005. (R)
- [8] B. Wang, T. Li\*, X. Luo\*, Y. Fan\* and C. Xin, "On Service Provisioning under a Scheduled Traffic Model in Reconfigurable WDM Optical Networks," *Proceedings of IEEE Broadnets '05*, October Boston MA USA 2005. (R)
- [9] X. Luo\* and B. Wang, "Diverse Routing in WDM Optical Networks with Shared Risk Link Group (SRLG) Failures," To appear in the *Proceedings of the 5<sup>th</sup> IEEE International Workshop on Design of Reliable Communication Networks (DRCN)*, October 16-19, 2005, Island of Ischia (Naples), Italy. (R)
- [10] T. Li\* and B. Wang, "On Optimal Survivability Design in WDM Optical Networks Under a Scheduled Traffic Model," To appear in the *Proceedings of the 5<sup>th</sup> IEEE International Workshop on Design of Reliable Communication Networks (DRCN)*, October 16-19, 2005, Island of Ischia (Naples), Italy. (R)
- [11] C. Jiang\*, G. Dong, and B. Wang, "Detection and Tracking of Region-Based Evolving Targets in Sensor Networks," *Proceedings of 14<sup>th</sup> IEEE International Conference on Computer Communications and Networks (ICCCN)*, October 17-19, San Diego CA, 2005. (R)
- [12] Q. Qu, Y. Pei, J. W. Modestino, X. S. Tian, and B. Wang, "Cross-Layer Rate-Adaptation and Joint Source-Channel Coding for Delay-Constrained Video Streaming over Wireless Ad-Hoc Networks," *International Conference on Multimedia Services Access Networks (MSAN 2005)*, Orlando, FL, June, 2005.
- [13] Q. Qu, Y. Pei, B. Wang, "Cross-layer design for delay-constrained error-resilient video communications over wireless ad-hoc networks," *Proceedings of IEEE International Conference on Image Processing*, Genoa, Italy, September, 2005.

- [14] Chunsheng Xin and Bin Wang, "Logical Topology Design for Dynamic Traffic Grooming in Mesh WDM Optical Networks." Proceedings of *IEEE International Conference on Communications*, Seoul, South Korea, May 16-20, 2005. (R)
- [15] Bin Wang, Tianjian Li\*, Xubin Luo\*, and Yuqi Fan\*, "Traffic Grooming under a Sliding Scheduled Traffic Model in WDM Optical Networks." Proceedings of IEEE Workshop on Traffic Grooming in WDM Networks, San Jose, CA USA, October 29, 2004. (R)
- [16] Bin Wang and Nanda Lella\*, "Dynamic Contention Resolution in Optical Burst Switching Networks with Partial Wavelength Conversion and Fiber Delay Lines." Proceedings of *IEEE Globecom'04*, Dallas, TX USA, November/December 2004. (R)
- [17] Tianjian Li\* and Bin Wang, "Optimal Configuration of  $p$ -Cycles in WDM Optical Networks with Sparse Wavelength Conversion." Proceedings of *IEEE Globecom'04*, Dallas TX, USA, November/December, 2004 (R).
- [18] Y. Xiao, H. Li, C. L. P. Chen, B. Wang, and Y. Pan, "Achieving Proportional Degradation Areas for Wireless Adaptive Multimedia Networks," Proc. of IEEE GLOBECOM 2004 Workshops (AWIN'04), pp. 507-511, Dallas, TX USA, November/December 2004 (R).
- [19] Bin Wang and Towisf Mannan\*, "Online Algorithms for Dynamic Multicast Session Provisioning in WDM Optical Networks with Sparse Splitting." 2<sup>nd</sup> *IASTED International Conference on Communications and Computer Networks*, MIT, Cambridge, MA, USA, November, 2004 (R).
- [20] Tianjian Li\*, Bin Wang, and Xinhui Zhang. "Dynamic Shared Path Protection in WDM Optical Networks." 7<sup>th</sup> INFORMS Telecommunications Conference, Boca Raton, FL March 2004 (R).
- [21] Bin Wang and Towsif Mannan\*. "Dynamic Multicast Session Provisioning in WDM Optical Networks with Sparse Splitting Capability." 7<sup>th</sup> INFORMS Telecommunications Conference, Boca Raton, FL March 2004 (R).
- [22] A. R. B. Billah\*, Bin Wang, and A. A. S. Awwal. "Multicast Traffic Grooming in WDM Optical Mesh Networks." *Proceedings of IEEE Globecom: Optical Networking Symposium*, San Francisco, CA USA December 2003, IEEE. (R)
- [23] Shilpa Muniswamireddy\*, Bin Wang. "Quality of Service Provisioning for Real-Time Services in Wireless LANs." *Proceedings of SPIE ITCOM*, Orlando, FL USA, September 2003, SPIE. (R)
- [24] Bin Wang, A. R. B. Billah\*, and A. A. S. Awwal, "Effective Traffic Grooming in WDM Ring Networks." *Proceedings of IEEE Globecom: Optical Networking Symposium*, Taiwan November 2002. (R)
- [25] Bin Wang, Xu Su\*, and P. C. L. Chen, "Bandwidth Guaranteed Integrated Routing and Wavelength Assignment Algorithm in IP over WDM Optical Networks." *Proceedings of SPIE OPTICOMM*, Boston, July-August 2002. (R)

- [26] Bin Wang, Xu Su\*, and P. C. L. Chen, "A New Bandwidth Guaranteed Routing Algorithm for MPLS Traffic Engineering." *Proceedings of IEEE International Conference on Communications (ICC'2002)*, New York May 2002. (R)
- [27] A. R. B. Billah\*, Bin Wang, and A. A. S. Awwal, "Traffic Grooming in SONET/WDM Ring Networks." *12th IEEE Workshop on Local and Metropolitan Area Networks*, Stockholm, Sweden, August 11-14 2002. (R)
- [28] Bin Wang, B. Kasthurirangan\*, and J. Xu, "A New Active Queue Management Mechanism for Web Traffic." *Proceedings of SPIE ITCOM*, Boston, August 2002. (R)
- [29] Bin Wang and Jennifer C. Hou, "An Efficient QoS Routing Algorithm for Quorumcast Communication." In *Proceedings of 9-th IEEE International Conference on Network Protocols (ICNP)*, Riverside CA, November 2001. (R)
- [30] Bin Wang and Nidhi Jain\*, "Effective Bandwidth Guaranteed Routing Schemes for MPLS Traffic Engineering." *Proceedings of SPIE ITCOM'2001*, Denver CO, August 2001. (R)
- [31] Bin Wang and Jennifer C. Hou, "QoS Routing for Layered Video Distribution to Heterogeneous Receivers in Rate-based Networks." *Proceedings of IEEE INFOCOM'2000*, Tel Aviv, Israel, March 2000. (R)
- [32] Hung-Ying Tyan, Bin Wang, and Jennifer C. Hou, "On Providing Quality-of-Service Control for Core-based Multicast Routing." *19th IEEE International Conference on Distributed Computing Systems*, Austin, Texas, May 1999. (R)
- [33] Hung-Ying Tyan, Jennifer C. Hou, Bin Wang, and Yao-Min Chen, "QoS Extension to CBT." *Proceedings of 9-th International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV'99)*, June 1999. (R)
- [34] Hung-Ying Tyan, Bin Wang, and Jennifer C. Hou, "A Framework for Provisioning of Temporal QoS in Core-based Multicast Routing." *Proceedings of IEEE 20-th Real-time System Symposium (RTSS'99)*, December 1999. (R)
- [35] Hung-Ying Tyan, Bin Wang, Yi Ye, and Jennifer C. Hou, "NetSim<sup>Q</sup>: A Java-Integrated Network Simulation Tool for QoS Control in Point-to-Point High Speed Networks." *IEEE Real-Time Technology and Applications Symposium*, Denver, CO, June 1998. Also presented in *NASA Research and Education Network Workshop III*, Moffett Field, CA, August 1998. (R)
- [36] Bin Wang and Jennifer C. Hou, "Dynamic Channel Setup and Tear-down for Time-Constrained Communications on WDM-based Light-wave Networks." *Proceedings of IEEE INFOCOM'97*, Kobe Japan, April 1997. (R)
- [37] Jennifer C. Hou, Ching-Chih Han, Hung-Ying Tyan, Bin Wang, and Yi Ye, "Design and Middleware Implementation of Network Services that Provide End-to-End QoS in ATM-based Real-Time Environments." *16th Digital Avionics Systems Conference*, October 1997. (R)

- [38] Hung-Ying Tyan, Jennifer C. Hou, Bin Wang, and Sean Ho. "On Equipping the Core-based Tree Protocol with QoS Capability." *IEEE Workshop on Middleware for Distributed Real-Time Systems and Services*, San Francisco, CA, December 1997. (R)
- [39] Jennifer C. Hou, Bin Wang, and Ching-Chih Han, "Design and Analysis of a WDMA Protocol for Passive Star-Coupled Light-wave Networks." *Proceedings of IEEE INFOCOM'96*, San Francisco, March 1996. (R)
- [40] Hung-Ying Tyan, Jennifer C. Hou, Bin Wang, and Ching-Chih Han, "On Supporting Time-Constrained Communications on WDMA-based Lightwave Networks." *Proceeding of 17-th IEEE Real-time System Symposium*, Washington DC, December 1996. (R)
- [41] Bin Wang, D. M. Rose, Aly A. Farag, and Edward J. Delp, "Local Estimation of Gaussian-Based Edge Enhancement Filters Using Fourier Analysis." *IEEE International Conference on ASSP. Proceedings of ICASSP*, April 1993. (R)
- [42] Bin Wang and Aly A. Farag, "Wavelet Image Representation and Application in Computer Vision." *Proceedings of the International Society for Optical Engineering; SPIE*, Vol.2025: Intelligent Robotics and Computer Vision XII, November 1993. (R)

#### **Internet Engineering Task Force Contribution**

- [1] Jennifer C. Hou, Hung-Ying, Bin Wang, and Yao-Min Chen, "QoS Extension to Core-based Tree Routing." Work in progress, Internet Draft draft-hou-cbt-qos-00.txt, March 1999. (N)

#### **Invited Lectures, Colloquia, Symposia, and Seminars**

- [1] Bin Wang, "Bandwidth Scheduling and Provisioning in Access and Wide Area Networks," DoE Brookhaven National Lab, Upton, NY, November 15, 2004.
- [2] Bin Wang, "Towards Cost-Effective Provisioning and Survivability in Ultra High Speed Networks," DoE Oak Ridge National Lab, Oak Ridge, TN, September 9, 2004.
- [3] Bin Wang, "Towards Cost-Effective Provisioning and Survivability in Ultra High Speed Networks," DoE Chicago Fermi Lab, Chicago, IL, September 15, 2004.
- [4] Bin Wang, "Resource Management for Multiple Classes of Service Provisioning in WDM Optical Networks." *Internet2 Networking Research Workshop*, Chicago IL, April 18-19, 2001.
- [5] Bin Wang, "QoS Provisioning in WDM Optical Networks," *ITEC-Ohio Windows on the Future, Columbus OH*, November 2001.
- [6] Bin Wang, "Subsidized RED: A New Active Queue Management Mechanism for Web Traffic." Air Force Institute of Technology, Wright-Patterson AFB, OH, October 2002.
- [7] Bin Wang, "Effective Traffic Grooming Algorithms in SONET/WDM Ring Networks." University of Louisville, Louisville, KY, March 7, 2003.

#### **SERVICE**

- Department Committee
  - Faculty Search Committee, September 2002 - present
  - Graduate Admissions Committee, September 2000 - present
  - Ph.D. Qualifier Exam Committee, Spring 2001 - present
  - Teaching and GTA Committee, January 2001 – present
- University Committee
  - University Honors Committee 2003-2004
- Department of Energy, SBIR/STTR Panelist, 2003,2005; ECPI Panelist, 2005
- NSF Information and Intelligent Systems Panelist, 2005
- Reviewer for following conferences  
 IEEE INFOCOM (The Conference on Computer Communications), IEEE International Conference on Network Protocols (ICNP), IEEE International Conference on Distributed Computing Systems (ICDCS), SPIE Optical Networking and Communications Conference (OPTICOMM), International Workshop on Network and Operating System Support for Digital Audio and Video (NOSSDAV), IEEE Real-Time Systems Symposium (RTSS), IEEE Real-Time/Embedded Technology and Applications Symposium (RTAS), IEEE International Conference on Computer Communications and Networks (ICCCN), IEEE International Conference on Communications (ICC), IEEE Global Communications Conference (Globecom), IEEE International Conference on Local Area Networks (LCN), International Conference on Dependable Systems and Networks (FTCS), International Conference on Parallel Processing (ICPP), International Conference on Real-Time Computing Systems and Applications (RTCSA), IEEE VTC
- Reviewer for following journals  
 IEEE/ACM Transactions on Networking, Computer Networks, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Computers, IEEE Network, IEEE Multimedia, IEEE Transactions on Knowledge and Data Engineering, IEEE Communications Magazine, IEEE Communications Letters, Journal of VLSI and Signal Processing, International Journal of Computers and Math with Application, EURASIP Journal on Wireless Communications and Networking, Journal Parallel and Distributed Computing, Computer Communications Journal, INFORMS Journal on Computing
- Network Architecture Committee of the Ohio Third Frontier Innovation Network (a.k.a. Ohio Dark Fiber Project).
- TPC, IEEE Fourth Annual Conference on Communication Networks and Services Research (CNSR), May 23-26, Moncton, New Brunswick, Canada.
- TPC, IEEE ICC 2006
- TPC, 2<sup>nd</sup> IEEE Broadnets'05 Traffic Grooming Workshop, 2005.
- TPC IEEE 20th International Conference on Advanced Information Networking and Applications (AINA), April 18-20, 2006, Vienna, Austria.
- Technical Program Committee (TPC) of the First IEEE International Symposium on Wireless Quality-of-Service (WiQoS) as a part of WirelessCom Conference:  
<http://www.ece.queensu.ca/hpages/faculty/safwat/wirelesscom/05/>  
 June 13-16, 2005. Maui, Hawaii, USA.
- Program Committee Member: Broadnets 2005 2<sup>nd</sup> Annual Conference on Broadband Networks, Boston MA.

- Program Committee Member: IEEE ICC 2005
- Program Committee Member: IEEE ICDCS 2005
- Program Committee Member: IEEE International Workshop on Multimedia Systems and Networking (WMSN'05) in conjunction with [The 24th IEEE International Performance Computing and Communications Conference \(IPCCC 2005\)](#) April 7-9, 2005 - Phoenix, Arizona
- Program Committee Member and session chair: IEEE INFOCOM 2004
- Program Committee Member: "Traffic Grooming in WDM Networks" workshop at the BroadNets 2004 conference (formerly, Opticomm conference)
- Program Committee Member in the "Networking and Protocols" area for the 2003 International Conference on Parallel Processing
- IEEE INFOCOM 2003 session chair
- ITCOM 2002, session chair; Program Committee Member: ITCOM 2003 Internet Quality of Service