

Curriculum Vitae

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1 Biographical Sketch

Byrav Ramamurthy received his B.Tech. degree in Computer Science and Engineering from Indian Institute of Technology, Madras (India) in 1993. He received his M.S. and Ph.D. degrees in Computer Science from University of California (UC), Davis in 1995 and 1998, respectively. He is currently a Professor in the Department of Computer Science and Engineering at the University of Nebraska-Lincoln (UNL). He has held visiting positions at the Indian Institute of Technology-Madras (IITM), in Chennai, India and at the AT&T Labs-Research, New Jersey, U.S.A.

He is author of the book “Design of Optical WDM Networks - LAN, MAN and WAN Architectures” and a co-author of the book “Secure Group Communications over Data Networks” published by Kluwer Academic Publishers/Springer in 2000 and 2004 respectively. He has published in prestigious IEEE/ACM journals such as Proceedings of the IEEE, IEEE/ACM Transactions on Networking, IEEE/OSA Journal of Lightwave Technology and IEEE Journal on Selected Areas in Communications. He has authored over 125 peer-reviewed journal and conference publications.

He serves as an Editor for the IEEE/OSA Journal of Optical Communications and Networking, IEEE Communications Surveys and Tutorials and Elsevier Optical Switching and Networking journals. He served as the guest co-editor of the IEEE Communications magazine Feature topic on Multi-domain optical networks (June 2008 issue). He was the Feature Editor on Theses for the Optical Network Magazine. He served as a guest co-editor for a special issue of IEEE Network magazine on Optical Communication Networks.

He was elected as Chair of the IEEE ComSoc Optical Networking Technical Committee (ONTC) for a two-year term (2009-11). ONTC is IEEE ComSoc’s focal point in the area of optical networking technologies and plays an active role in stimulating/organizing leading-edge optical networking symposia, workshops, sessions and tutorials serving OFC and other premier venues.

He serves as the TPC Co-Chair for the IEEE ANTS 2011 conference and the IEEE LANMAN 2011 workshop. He also serves as the TPC Co-Chair for the IEEE MASS 2012 conference. He will serve as the General Co-Chair for the IEEE LANMAN 2013 workshop.

Dr. Ramamurthy served as the TPC Co-Chair for the IEEE INFOCOM 2011 conference held in Shanghai, China. INFOCOM is the premier computer networking conference, attracting over 1800 paper submissions. He served as a TPC member of the prestigious ACM SIGCOMM 2011 conference. He served as the INFOCOM 2008 TPC Vice Chair and Miniconference TPC Co-chair. He served as the General Co-Chair for the ICCCN 2009 conference and the Broadnets 2008 conference. He served as the TPC Co-chair for the IEEE ICC 2006 Optical Systems and Networks Symposium and as the TPC Chair for the ICCCN 2008 conference.

He is a recipient of the College of Engineering Faculty Research Award for 2000 and the UNL CSE Dept. Student Choice Outstanding Teaching Award for Graduate-level Courses for 2002-2003 and 2006-2007. He has graduated 9 Ph.D. and 36 M.S. students under his research supervision.

His research interests include optical networks, wireless sensor networks, peer-to-peer video streaming and network security. He has published peer-reviewed journal and conference papers and has had funded projects in developing the next-generation optical networks and facilitating application-driven networking in domains such as event-driven environmental sensing, P2P video streaming and secure group communications in wired and wireless networks.

His research has been supported by the U.S. National Science Foundation (NSF), the U.S. Department of Energy (DOE), the U.S. Department of Agriculture (USDA), National Aeronautics and Space Administration (NASA), AT&T Corp., Agilent Tech., HP, OPNET Inc. and the University of Nebraska-Lincoln (UNL).

2 Education

1998	Ph.D. (CS)	University of California, Davis, CA.
<i>Dissertation: Efficient Design of Wavelength Division Multiplexing (WDM) Based Optical Networks.</i>		
<i>Advisor: Prof. Biswanath Mukherjee.</i>		
1995	M.S. (CS)	University of California, Davis, CA.
1993	B.Tech (CS)	Indian Institute of Technology, Madras, India.

3 Employment

2011 – present	Professor	University of Nebraska–Lincoln, Lincoln, NE.
2003 – 2011	Associate Professor	University of Nebraska–Lincoln, Lincoln, NE.
2009	Visiting Researcher	AT&T Labs-Research, NJ.
2009	Visiting Professor	Indian Institute of Technology-Madras, Chennai, India.
1998- 2003	Assistant Professor	University of Nebraska–Lincoln, Lincoln, NE.
1995	Summer Intern	Silicon Graphics Inc, Mountainview, CA.
1994–1998	Research Assistant	Networks Laboratory, UC Davis, CA.
1993–1994	Teaching Assistant	Dept. of Computer Science, UC Davis, CA.

4 Honors and Awards

2009	Elected by the Optical Networking Technical Committee (ONTC) of IEEE Communications Society (ComSoc) to be ONTC Chair (2009-2011)
2008	Invited to serve as TPC Co-Chair for IEEE INFOCOM 2011 conference, Shanghai, P.R. China, April 2011 (the top conference in computer networking).
2007	Elected by the Optical Networking Technical Committee (ONTC) of IEEE Communications Society (ComSoc) to be ONTC Vice Chair (2007-2009)
2007	The UNL CSE Dept. Students Choice Award for Outstanding Teaching of Graduate-level Courses.
2005	Elected by the Optical Networking Technical Committee (ONTC) of IEEE Communications Society (ComSoc) to be ONTC Secretary and Online Content Chair (2005-2007)
2003	The UNL CSE Dept. Students Choice Award for Outstanding Teaching of Graduate-level Courses.
2000-2001	Outstanding Researcher Award (Assistant professor rank), College of Engineering & Technology, University of Nebraska-Lincoln.
1995–1996	Fellow, Professors for the Future Program, UC Davis.
1993–1998	Non-Resident Tuition Fellowship, UC Davis.
1989–1993	National Talent Search Scholarship awarded by the Government of India.

5 Funding Record

5.1 External Grants (Federal agencies)

5.1.1 As Principal Investigator (PI)

- G1. FIA: MobilityFirst: A Robust and Trustworthy Mobility-Centric Architecture for the Future Internet Sponsor: **NSF**; Investigators: Ramamurthy, B (Co-PI and UNL Campus PI) with Raychaudhuri, Ray (Rutgers) (PI) and researchers from U.Mass-Amherst, MIT, U.Wisconsin-Madison, U.North Carolina-Chapel Hill, Duke, U.Michigan and U.Mass-Lowell. External Funds: **\$7,500,000** (UNL Share: **\$300,000**); Start: 09/01/2010; End: 08/31/2013;
- G2. Multimedia Communications Over Interplanetary Networks; Sponsor: **NASA Nebraska Space Grant**; Investigators: Ramamurthy, B. (PI) and Xu, L. (Co-PI); External Funds: **\$25,000**; Start: 9/1/2010; End: 3/31/2011;

- G3. Dynamic optimized advance scheduling of bandwidth demands for large-scale science applications; Sponsor: **U.S. Department of Energy (DOE)**; Investigators: Ramamurthy, B. (Sole PI); External Funds: **\$449,976**; Internal Funds: **\$45,331**; Start: 10/01/2009; End: 09/30/2012;
- G4. Secure Group Communications (SGC) over Wired and Wireless Networks Sponsor: **National Science Foundation (NSF)**; Investigators: Ramamurthy, B. (PI) with X. Zou (Co-PI) and V. Variyam (Co-PI); External Funds: **\$349,990**; Start: 08/01/2003; End: 06/30/2007;
- G5. Secure Distributed Information (SDI) Infrastructure at the University of Nebraska (part of the NSF EPSCoR Research Infrastructure Improvement Grant); Sponsor: **National Science Foundation (NSF)**; Investigators: Ramamurthy, B. (PI) with Jiang, H. , Swanson, D., Finkelson, D., and Hendrickson, K (Co-PIs).; External Funds: **\$1,937,478**; Internal Funds: **\$1,126,575**; Start: 03/01/2001; End: 02/01/2004; Supported 2 Post-docs, over 35 graduate students, around 5 undergraduate students at UNL and provided research facilities for their work such as the PrairieFire Supercomputer (ranked 8th fastest among US academic institutions), Access Grid facility and storage resources.
- G6. Design of Translucent WDM Optical Networks; Sponsor: **National Science Foundation (NSF)**; Investigators: Ramamurthy, B. (Sole PI); External Funds: **\$271,023** + REU Supplement **\$15,000**; Start: 01/01/2000; End: 05/31/2004;

5.1.2 As Co-Principal Investigator (Co-PI)

- G7. GpENI: Great Plains Environment for Network Innovation; Sponsor: **NSF** (through **GENI** Project Office at BBN); Investigators: Ramamurthy, B. (Co-PI and UNL Campus PI) with Sterbenz, James (University of Kansas) (PI) and others; External Funds: \$460,000 (UNL Share: **\$110,832**); UNL Internal Funds: **\$35,000**; Start: 10/01/2008; End: 09/30/2012;
- G8. Integrated Real-Time Groundwater-Level Monitoring Network to Support Drought Impact Assessment and Mitigation Programs; Sponsor: **U.S. Department of Agriculture (USDA) - Risk Management Agency (RMA)**; Investigators: Ramamurthy, B. (Co-PI) with Burbach, Mark (PI) and others; External Funds: **\$403,293**; Start: 09/21/2005; End: 05/31/2009; Supported Ms. Yuyan Xue, Ph.D. student at UNL CSE as well as sensor equipment for a statewide groundwater monitoring network designed by Dr. Ramamurthy (over \$200K).
- G9. Next Generation Enterprise Resource Planning (ERP) Systems (part of the Nebraska EPSCoR Infrastructure Improvement Grant); Sponsor: **NSF**; Investigators: Ramamurthy, B. (Co-PI) with Choobineh, F.F. (PI) and others. External Funds: **\$1,214,937**; Internal Funds: **\$1,360,743**; Start: 03/01/2001; End: 02/01/2004;
- G10. MRI: Acquisition of High Performance Computing and Data Visualization for Scientists and Engineers; Sponsor: **NSF**; Investigators: Ramamurthy, B. (Co-PI) with Sincovec, R.F. (PI) and others; External Funds: **\$500,000**; Internal Funds (Match): **\$225,000**; Start: 08/01/2003; End: 07/31/2006;
- G11. Building the Regional Middleware Infrastructure across the Great Plains; Sponsor: **NSF** through Educause Extending the Reach Program; Investigators: Ramamurthy, B. (Co-PI and UNL Campus PI) with Apon, Amy (University of Arkansas) (PI) and others; External Funds: **\$75,000**; Start: 06/01/2004; End: 05/31/2006;
- G12. Increasing participation in computer science, engineering and mathematics through scholarships; Sponsor: **NSF**; Investigators: Ramamurthy, B. (Co-PI) with Woodward, G. (PI) and Ballard, J., Goddard, S.M., Lee, K. (Co-PIs); External Funds: **\$400,000**; Start: 09/01/2004; End: 08/31/2008; Provides scholarships of around \$3000 per year to around 30 UNL CSE, Math and Engg. undergrad students.
- G13. Increasing Participation in Computer Science, Engineering and Mathematics through Scholarship; Sponsor: **NSF**; Investigators: Ramamurthy, B. (Co-PI) with Scofield, S. (PI) and Goddard, S.M. (Co-PI); External Funds: **\$270,000**; Start: 08/01/2001; End: 07/31/2003; Provided scholarships of around \$3000 per year to around 30 UNL CSE, Math and Engg. undergrad students.

5.2 External Grants (Industry)

- G14. Multi-layer survivability in telecommunication networks; Sponsor: **AT&T** (Virtual University Research Initiative); Investigators: Ramamurthy, B. (Sole PI); External Funds: **\$20,000**; Start: 03/01/2009; End: 12/31/2012;
- G15. Routing and Wavelength Assignment Tool for Optical WDM Networks; Sponsor: **Agilent Technologies Inc.**; Investigators: Ramamurthy, B. (PI-UNL) and Mukherjee, B. (PI-UC Davis); Sponsor Funds: **\$43,241** (at UNL); Start: 06/01/2000; End: 07/31/2001

- G16. OPNET Software Licenses (for research and teaching); Sponsor: OPNET Inc.; Investigators: Ramamurthy, B. (PI); Duration: 2003-current (30 OPNET Modeler and WDMGuru licenses renewed annually); Estimated Value: **\$30,000** (annually);
- G17. HP computers for Planetlab (for research and teaching); Sponsor: Hewlett-Packard Corp. ; Investigators: Ramamurthy, B. (PI); Duration: 2008-current (2 high-end computers for UNL site); Estimated Value: **\$10,000**;

5.3 Internal Grants

5.3.1 As Principal Investigator (PI)

- G18. Academic Program Priorities Programs of Excellence (PoE) in the areas of Simulation and Computing Engineering (SCE) and Information Technology and Telecommunications (ITT); Sponsor: University of Nebraska-Lincoln; Investigators: Ramamurthy, B. (Coordinator and Co-Director) with Sincovec, R.F. (Director) and others; Internal Funds: **\$260,000** (year one), approx. **\$1.6M** over five years; Start: Fall 2002; Funds Endowed Chair faculty lines in the Department of Computer Science and Engineering and staff support for the Holland Computing Center. Funded several graduate students for research on scientific and grid computing.
- G19. Nebraska Rural Broadband project; Sponsor: State of Nebraska/UNL; Investigators: Ramamurthy, B. (PI); Sponsor Funds: **\$40,870**; Start: 2/1/2007; End: 06/30/2007;
- G20. Control and Management Framework for Next-Generation Optical WDM Networks; Sponsor: Layman Awards (UNL); Investigators: Ramamurthy, B. (PI); Sponsor Funds: **\$7,500**; Internal Funds: 0;
- G21. Architectures and Protocols for the Next-Generation Optical Networks; Sponsor: UNL Research Council (Grant-In-Aid Award); Investigators: Ramamurthy, B. (PI); Sponsor Funds: **\$4,000**; Start: 01/01/1999; End: 12/31/1999;

5.3.2 As Co-Principal Investigator (Co-PI)

- G22. High-Performance Arts Applications over Internet2; Sponsor: UNL Office of Research; Investigators: Ramamurthy, B. (Co-PI) with Richmond, John (PI) and others; External Funds: **\$20,000**; Internal Funds: 0; Start: 08/31/2005; End: 05/31/2006;
- G23. Developing a regional climate modeling facility at UNL; Sponsor: UNL Office of Research - Strategic Research Clusters program; Investigators: Oglesby, R.J. (PI), Ramamurthy, B. (Co-PI) and others; External Funds: **\$50,000**; Start: 07/01/2008; End: 06/30/2009;
- G24. Bio-Inspired Peer-to-Peer Network Symbiosis: From Competition to Cooperation; Sponsor: UNL Office of Research - Layman program; Investigators: Xu, L. (PI) and Ramamurthy, B. (Co-PI); External Funds: **\$10,000**; Start: 05/01/2008; End: 04/30/2009;
- G25. Adaptive Decision Support System for Water Management; Sponsor: UNL PoE on Water Resources Research Initiative Seed Grant; Investigators: Ramamurthy, B. (Co-PI) with Woldt, W. (PI) and others; Sponsor Funds: **\$19,900** (no indirect costs); Start: 07/1/2006; End: 06/30/2007;
- G26. Integrated Wireless Systems for Assistive Technology; Sponsor: UNL Strategic Clusters Grant Program; Investigators: Ramamurthy, B. (Co-PI) with L. Perez (PI) and others; Sponsor Funds: **\$50,000**; Matching Funds: **\$30,000**; Start: 07/01/2004; End: 06/30/2006;
- G27. Program checking infrastructure for cybersecurity applications; Sponsor: UNL Layman program; Investigators: Ramamurthy, B. (Co-PI) with V. Variyam (PI); Sponsor Funds: **\$10,000**; Start: 08/01/2004; End: 07/31/2005;
- G28. A Phenological Network for Ecological Viticulture Sponsor: ARD Interdisciplinary Research Program, UNL; Investigators: Ramamurthy, B. (Co-PI) with P.E. Read (PI) and others; Sponsor Funds: **\$39,000**; Start: 07/01/2004; End: 06/30/2006;

5.4 Other Funding

In addition, Dr. Ramamurthy has participated in the preparation of the following proposal and project activities.

- G29. Great Plains Software Initiative; Sponsor: Federal Congressional Earmark funds; Investigators: Reichenbach, S.M. (PI) and others; External Funds: **\$800,000**; Start: 2002 (Estd.);
- G30. The Water Resources Research Initiative (WRRRI); Sponsor: UNL Program of Excellence (PoE) Priority funds; Investigators: Hoagland, K. (PI) and others; Role: Member, WRRRI Steering Committee (appointed by Vice Chancellor Dr. Prem Paul, UNL) Sponsor Funds: **\$1,600,000** (approx.); Duration: 2003-current;

6 Publication Record

About the List

- All refereed (peer-reviewed) work are indicated and in general, in my field, all journal articles, conference and workshop regular papers and conference and workshop poster/short papers are rigorously reviewed by 3 independent reviewers.
- Note: Student authors are listed in *italics*.
- Citation count from Google Scholar as of August 2010.
- Impact factors are 5 year impact factors of journal from 2009 JCR Science Edition (ISI Web of Knowledge).

6.1 Books

- B1.* B. Ramamurthy, G. Rouskas, and K. Sivalingam(eds.), *Next-Generation Internet Architectures and Protocols*. Cambridge University Press, January 2011.
- B2.* X. Zou, B. Ramamurthy, and S. S. Magliveras, *Secure Group Communications Over Data Networks*. Springer, October 2004. ISBN: 0387229701. doi:10.1007/b100182. (Contribution: 40%) (Citations: 54)
- B3.* B. Ramamurthy, *Design of Optical WDM Networks - LAN, MAN and WAN Architectures*. Boston, MA: Springer, January 2001. (Citations: 14)

6.2 Book Chapters

- BC1.* C. Cavdar, S. Rai, A. Gencata, B. Ramamurthy, and B. Mukherjee, “Logical-topology design and optimization,” in *The Handbook of Graph Algorithms and Applications, Volume II: Applications* (K. Thulasiraman, A. K. Somani, and S. Vrudhula, eds.), New York, NY: Chapman & Hall/CRC Computer & Information Science Series, September 2010. ISBN: 9781584885979. (Contribution: 20%)
- BC2.* J. Feng, K. Kothamachu, L. Xu, and B. Ramamurthy, “Overlay construction in mobile peer-to-peer networks,” in *Mobile Peer-to-Peer Computing for Next Generation Distributed Environments: Advancing Conceptual and Algorithmic Applications* (B.-C. Seet, ed.), ch. 3, IGI Global, May 2009. ISBN: 9781605667157. doi:10.4018/978-1-60566-715-7.
- BC3.* Y. Wang, G. Attebury, and B. Ramamurthy, “Security in wireless sensor networks,” in *Security in Wireless Mesh Networks* (Y. Zhang, J. Zheng, and H. Hu, eds.), Auerbach Publications, CRC Press, 2008. ISBN: 9780849382505. doi:978-0849382505. (Contribution: 30%)
- BC4.* B. Ramamurthy, “Dynamic grooming algorithms,” in *Traffic Grooming for Optical Networks: Foundations, Techniques and Frontiers (Optical Networks)* (R. Dutta, A. E. Kamal, and G. N. Rouskas, eds.), Springer, August 2008. ISBN:0387745173. doi:978-0387745176.
- BC5.* K. Potharlanka, T. Antani, B. Ramamurthy, L. Sahasrabuddhe, and B. Mukherjee, “Design aspects of optical communication networks,” in *The Handbook of Optical Communication Networks (Electrical Engineering Handbook)* (M. Ilyas and H. Mouftah, eds.), ch. 3, pp. 45–66, CRC, April 2003. ISBN: 0849313333. (Contribution: 25%)
- BC6.* B. Ramamurthy, “Electro-optic and wavelength conversion,” in *IP over WDM: Building the Next Generation Optical Internet* (S. Dixit, ed.), ch. 4, Wiley-Interscience, March 2003. ISBN: 0471212482.
- BC7.* B. Ramamurthy and J. Jue, “Fiber, lasers, receivers, and amplifiers,” in *Optical WDM Networks: Principles and Practice* (K. M. Sivalingam and S. Subramaniam, eds.), pp. 27–50, Boston, MA: Kluwer Academic Publishers, 2000. ISBN: 0792378253. doi:10.1007/0-306-47021-7_2. (Contribution: 50%)
- BC8.* B. Ramamurthy, “Switches, wavelength routers, and wavelength converters,” in *Optical WDM Networks: Principles and Practice* (K. M. Sivalingam and S. Subramaniam, eds.), ch. 3, pp. 51–75, Boston, MA: Kluwer Academic Publishers, 2000. ISBN: 0792378253. doi:10.1007/0-306-47021-7_3. (Citations: 6)
- BC9.* B. Ramamurthy, L. Shen, and E. Sawma, “Connection management for wavelength-routed optical WDM networks,” in *Optical Networks: Recent Advances (Network Theory and Applications)* (L. Ruan and D.-Z. Du, eds.), pp. 187–204, Springer, September 2001. ISBN: 0792371666. (Contribution: 40%) (Citations: 3)

6.3 Journal Editorials

- JE1.* A. K. Somani and B. Ramamurthy, “Guest editorial - Optical communication networks for the next-generation Internet,” *IEEE Network*, vol. 14, no. 6, pp. 6–7, 2000. doi:10.1109/MNET.2000.885664. (Contribution: 50%)
- JE2.* B. Ramamurthy, S. Subramaniam, and A. K. Somani, “Guest editorial - Special issue on wavelength conversion,” *Optical Networks Magazine*, vol. 3, no. 2, p. 13, March 2002. doi:10.1023/A:1017404026744. (Contribution: 34%)
- JE3.* C. V. Saradhi, B. Ramamurthy, D. A. Schupke, and E. Oki, “Guest editorial - multidomain optical networks: issues and challenges,” *IEEE Communications Magazine*, vol. 46, no. 6, pp. 76–77, June 2008. doi:10.1109/MCOM.2008.4539469. (Contribution: 30%)

6.4 Edited Proceedings

1. B. Ramamurthy and V. Sivaraman, “Proceedings of the IEEE ANTS 2011 conference program,” in *ANTS 2011. The Fifth IEEE International Conference on Advanced Networking and Telecommunication Systems*, December 2011. (Contribution: 50%)
2. B. Ramamurthy and K. Steenhatu, “Proceedings of the IEEE LANMAN 2011 workshop program,” in *LANMAN 2011. The IEEE Workshop on Local and Metropolitan Area Networks*, October 2011. doi:10.1109/LANMAN.2011.6076918. (Contribution: 50%)
3. B. Ramamurthy, J. Wu, and Q. Zhang, “Proceedings of the IEEE INFOCOM 2011 conference program,” in *INFOCOM 2011. The 30th IEEE Conference on Computer Communications*, April 2011. doi:10.1109/INFCOM.2011.5934871. (Contribution: 34%)
4. K. K. Ramakrishnan and B. Ramamurthy, “Proceedings of the mini-conference program,” in *INFOCOM 2008. The 27th IEEE Conference on Computer Communications*, p. vi, April 2008. doi:10.1109/INFCOM.2008.5. (Contribution: 50%)
5. N. Ghani and B. Ramamurthy, “Message from the Chairs,” in *IEEE INFOCOM High-Speed Networks (HSN) Workshop*, (Piscataway, N.J.), April 2007. doi:10.1109/HSNW.2007.4290533. (Contribution: 50%)
6. B. Ramamurthy, “Proceedings of the ICCCN 2008 conference program,” in *ICCCN 2008. The 17th International Conference on Computer Communications and Networks*, August 2008. doi:10.1109/ICCCN.2008.ECP.4.

6.5 Dissertation

1. B. Ramamurthy, *Efficient Design of Wavelength-Division Multiplexing (WDM)-Based Optical Networks*. Ph.D. Dissertation, Dept. of Computer Science, University of California, Davis, July 1998. UMI Publication No. AAT 0599745. (Citations: 16)

6.6 Journal Articles (Peer-Reviewed)

Papers Under Review and In Preparation

1. D. Xu, G. Li, B. Ramamurthy, A. Chiu, D. Wang, and R. Doverspike, “Optimal provisioning of diverse circuits in a heterogeneous multi-layer optical transport network,” December 2011. submitted to *Computer Communications* (under review).
2. *Zhipeng Ouyang*, L. Xu, B. Ramamurthy, and N. Yossef, “Partial forwarding vs. partial participating for dynamic window resizing in p2p streaming,” February 2011. submitted to *Computer Networks* (under review).
3. *Z. Ouyang*, L. Xu, and B. Ramamurthy, “Time-shifted video sharing in P2P streaming systems,” November 2011. submitted to *Peer-to-Peer: Networking and Applications* (under review).
4. *J. Mukherjee* and B. Ramamurthy, “Deep space communications and an interplanetary internet,” 2011.
5. *Miao Wang*, L. Xu, and B. Ramamurthy, “Exploring the design space of multi-channel peer-to-peer streaming systems,” August 2010. submitted to *IEEE/ACM Transactions on Networking* (under review).
6. *A. Todimala*, B. Ramamurthy, and N. V. Vinodchandran, “A dependent cost structure based heuristic for static fault-tolerant routing under shared protection in optical networks,” 2010. (in submission).
7. *X. Yang*, *A. Todimala*, *L. Shen*, *Pragatheeswaran Angu*, and B. Ramamurthy, “Dynamic and deterministic lightpath scheduling in next-generation WDM optical network,” February 2010. (in submission).

Published

- J1. Xue, Y., B. Ramamurthy, and M. C. Vuran, "SDRCS: A service-differentiated real-time communication scheme for event sensing in wireless sensor networks," *Comput. Netw.*, vol. 55, no. 15, pp. 3287–3302, 2011. doi:10.1016/j.comnet.2011.06.018. (Contribution: 30%)
- J2. Wang, M., L. Xu, and B. Ramamurthy, "Improving multi-view peer-to-peer live streaming systems with the divide-and-conquer strategy," *Comput. Netw.*, vol. 55, no. 18, pp. 4069–4085, 2011. doi:http://0-dx.doi.org.library.unl.edu/10.1016/j.comnet.2011.07.014. (Contribution: 30%)
- J3. Ouyang, Z., L. Xu, and B. Ramamurthy, "Diverse community: Demand differentiation in p2p live streaming.," *Peer-to-Peer Networking and Applications*, vol. 4, no. 1, pp. 23 – 36, 2011. (Contribution: 30%)
- J4. Z. Ouyang, L. Xu, and B. Ramamurthy, "Diverse community: Demand differentiation in P2P live streaming," *Peer-to-peer Networking and Applications*, p. 14, August 2010. (published online). doi:10.1007/s12083-010-0088-9. (Contribution: 30%)
- J5. Y. Wang, B. Ramamurthy, X. Zou, and Y. Xue, "An efficient scheme for removing compromised sensor nodes from wireless sensor networks," *Security and Communication Networks*, vol. 3, no. 4, pp. 320–333, July/August 2010. doi:10.1002/sec.89. (Contribution: 30%)
- J6. Y. Xue, B. Ramamurthy, and Y. Wang, "LTRES: A loss-tolerant reliable event sensing protocol for wireless sensor networks," *Computer Communications*, vol. 32, pp. 1666–1676, September 2009. doi:10.1016/j.comcom.2009.06.006. (Contribution: 30%) (Impact factor=**1.012**)
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6.7 Conference and Workshop Regular papers (Peer-Reviewed)

Under Review

1. Z. Ouyang, Miao Wang, L. Xu, and B. Ramamurthy, "On providing bounded delay to subscribers in a P2P live streaming system," September 2011. conference submission (under review).
2. M. Wang, L. Xu, and B. Ramamurthy, "On providing optimal quality of service in P2P streaming systems," December 2011. conference submission (under review).

Published/Accepted

- C1. Liu, L. and B. Ramamurthy, "A dynamic local method for bandwidth adaptation in bundle links to conserve energy in core networks," in *ANTS '11. Fifth IEEE International Conference on Advanced Networks and Telecommunication Systems*, pp. 1–6, 2011. (Contribution: 40%) (Acceptance rate: 33.7%)
- C2. Liu, L. and B. Ramamurthy, "Rightsizing bundle link capacities for energy savings in the core network," in *Global Telecommunications Conference (GLOBECOM 2011), 2011 IEEE*, pp. 1–6, dec. 2011. doi:10.1109/GLOCOM.2011.6134490. (Contribution: 40%)
- C3. D. Xu, G. Li, B. Ramamurthy, A. Chiu, D. Wang, and R. Doverspike, "SRLG-diverse routing of multiple circuits in a heterogeneous optical transport network," in *Design of Reliable Communication Networks (DRCN), 2011 8th International Workshop on the*, pp. 180–187, oct. 2011. doi:10.1109/DRCN.2011.6076901. (Contribution: 25%)
- C4. B. Ramamurthy, K. K. Ramakrishnan, and R. K. Sinha, "Cost and reliability considerations in designing the next-generation IP over WDM backbone networks," in *Proceedings of 20th International Conference on Computer Communications and Networks (ICCCN 2011)*, pp. 1–6, aug 2011. **Invited Paper**. doi:10.1109/ICCCN.2011.6006102. (Contribution: 40%)
- C5. Z. Ouyang, L. Xu, and B. Ramamurthy, "Providing NPR-style time-shifted streaming in P2P systems," in *Computer Communications and Networks (ICCCN), 2011 Proceedings of 20th International Conference on*, pp. 1–6, 31 2011-aug. 4 2011. doi:10.1109/ICCCN.2011.6006056. (Contribution: 30%) (Acceptance rate: 29.6%)

- C6. G. Li, M. Wang, J. Feng, L. Xu, B. Ramamurthy, W. Li, and X. Guan, "Understanding user generated content characteristics: A hot-event perspective," in *Communications (ICC), 2011 IEEE International Conference on*, pp. 1–5, June 2011. doi:10.1109/icc.2011.5963513. (Contribution: 15%) (Acceptance rate: 38.5)
- C7. Angu, P. and B. Ramamurthy, "Experiences with dynamic circuit creation in a regional network testbed," in *Computer Communications Workshops (INFOCOM WKSHPS), 2011 IEEE Conference on*, pp. 168–173, April 2011. doi:10.1109/INFCOMW.2011.5928801. (Contribution: 40%)
- C8. P. Angu and B. Ramamurthy, "Continuous and parallel optimization of dynamic bandwidth scheduling for wdm networks," in *GLOBECOM '10. IEEE Global Telecommunications Conference*, (Miami, FL, USA), December 2010. doi:10.1109/GLocom.2010.5683580. (Contribution: 40%) (Acceptance rate: 35%)
- C9. A. Ravula and B. Ramamurthy, "A tabu search approach for joint scheduling of resources in a lambda grid network," in *GLOBECOM '10. IEEE Global Telecommunications Conference*, (Miami, FL, USA), December 2010. doi:10.1109/GLocom.2010.5683836. (Contribution: 40%) (Acceptance rate: 35%)
- C10. Y. Xue, B. Ramamurthy, and M. Burbach, "A two-tier wireless sensor network infrastructure for large-scale real-time groundwater monitoring," in *Proceedings, 5th IEEE International Workshop on Practical Issues in Building Sensor Network Applications (SenseApp 2010)*, October 2010. (Contribution: 40%) (Acceptance rate: 33%)
- C11. Y. Xue, M. C. Vuran, and B. Ramamurthy, "Cost-efficiency of anycast-based forwarding in duty-cycled WSNs with lossy channel," in *IEEE Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON)*, pp. 1–9, June 2010. doi:10.1109/SECON.2010.5508263. (Contribution: 30%) (Acceptance rate: **23%**)
- C12. Z. Ouyang, L. Xu, and B. Ramamurthy, "On demand heterogeneity in P2P live streaming," in *ICC '10. IEEE International Conference on Communications*, (Cape Town, South Africa), May 2010. doi:10.1109/ICC.2010.5502423. (Contribution: 30%) (Acceptance rate: 34%)
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- C14. J. P. Sterbenz, D. Medhi, B. Ramamurthy, C. Scoglio, D. Hutchison, B. Plattner, T. Anjali, A. Scott, C. Buffington, G. E. Monaco, D. Gruenbacher, R. McMullen, J. P. Rohrer, J. Sherrell, P. Angu, R. Cherukuri, H. Qian, and N. Tare, "The great plains environment for network innovation (GpENI): A programmable testbed for future internet architecture research," in *Proceedings of the 6th International Conference on Testbeds and Research Infrastructures for the Development of Networks & Communities (TridentCom)*, (Berlin, Germany), pp. 1–14, May 2010. (Contribution: 15%) (Acceptance rate: n/a)
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- C17. M. Wang, L. Xu, and B. Ramamurthy, "A flexible divide-and-conquer protocol for multi-view peer-to-peer live streaming," in *IEEE P2P '09: Ninth International Conference on Peer-to-Peer Computing*, (Seattle, WA), pp. 291–300, September 2009. doi:10.1109/P2P.2009.5284541. (Contribution: 30%) (Citations: 5) (Acceptance rate: **19%**)
- C18. M. Wang, L. Xu, and B. Ramamurthy, "Providing statistically guaranteed streaming quality for peer-to-peer live streaming," in *The 19th ACM International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV)*, (Williamsburg, VA), pp. 127–132, June 2009. doi:10.1145/1542245.1542274. (Contribution: 30%) (Acceptance rate: **30%**)
- C19. Z. Ouyang, L. Xu, and B. Ramamurthy, "A cooperative scheme for dynamic window resizing in P2P live streaming," in *ICC '09. IEEE International Conference on Communications*, (Dresden, Germany), pp. 1–5, June 2009. doi:10.1109/ICC.2009.5198585. (Contribution: 30%) (Acceptance rate: 34%)
- C20. V. Lakshmiraman and B. Ramamurthy, "Joint computing and network resource scheduling in a Lambda Grid network," in *ICC '09. IEEE International Conference on Communications*, (Dresden, Germany), pp. 1–5, June 2009. doi:10.1109/ICC.2009.5199110. (Contribution: 40%) (Acceptance rate: 34%)

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- C24. Y. Wang, B. Ramamurthy, Y. Xue, and X. Zou, "A security framework for wireless sensor networks utilizing a unique session key," in *Broadnets 2008: Fifth International Conference on Broadband Communications, Networks and Systems*, (London, U.K.), pp. 487–494, September 2008. doi:10.1109/BROADNETS.2008.4769130. (Contribution: 30%) (Citations: 2) (Acceptance rate: **30%**)
- C25. Z. Ouyang, L. Xu, and B. Ramamurthy, "A partial forwarding scheme for dynamic window resizing in live P2P streaming systems," in *GLOBECOM '08. IEEE Global Telecommunications Conference*, (New Orleans, LA, USA), p. 6, November/December 2008. doi:10.1109/GLOCOM.2008.ECP.440. (Contribution: 30%) (Citations: 2) (Acceptance rate: 36%)
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- C31. M. Li and B. Ramamurthy, "Dedicated path protection for waveband switching in WDM networks (invited paper)," in *Broadnets 2007: Fourth International Conference on Broadband Communications, Networks and Systems*, pp. 584–593, September 2007. doi:10.1109/BROADNETS.2007.4550487. (Contribution: 40%) (Citations: 2) (Acceptance rate: **30%**)
- C32. G. Attebury and B. Ramamurthy, "Router and firewall redundancy with OpenBSD and CARP," in *ICC '06. IEEE International Conference on Communications*, vol. 1, pp. 146–151, June 2006. doi:10.1109/ICC.2006.254719. (Contribution: 40%) (Acceptance rate: 38%)
- C33. S. Deshpande, A. Todimala, R.K. Balachandran, B. Ramamurthy, X. Zou, and N. V. Vinodchandran, "A new cryptographic scheme for securing dynamic conferences in data networks," in *ICC '06. IEEE International Conference on Communications*, vol. 5, pp. 2310–2315, June 2006. doi:10.1109/ICC.2006.255114. (Contribution: 30%) (Acceptance rate: 38%)
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- C36. A. Todimala and B. Ramamurthy, "Approximation algorithms for survivable multicommodity flow problems with applications to network design," in *INFOCOM 2006. 25th IEEE International Conference on Computer Communications*, pp. 1–12, April 2006. doi:10.1109/INFOCOM.2006.92. (Contribution: 40%) (Citations: 2) (Acceptance rate: **18%**)
- C37. M. Li and B. Ramamurthy, "A generic autonomous clustering-based heterogeneous waveband switching architecture in WDM networks," in *Optical Fiber Communication (OFC) Conference and Exposition and The National Fiber Optic Engineers Conference (NFOEC)*, Technical Digest (CD), pp. 1–3, Optical Society of America, March 2006. (Contribution: 40%) (Citations: 1) (Acceptance rate: **20%**)
- C38. X. Yang, L. Shen, A. Todimala, B. Ramamurthy, and T. Lehman, "An efficient scheduling scheme for on-demand lightpath reservations in reconfigurable WDM optical networks," in *Optical Fiber Communication Conference and Exposition and The National Fiber Optic Engineers Conference*, Technical Digest (CD), pp. 1–3, Optical Society of America, March 2006. (Contribution: 30%) (Citations: 7) (Acceptance rate: **20%**)
- C39. X. Zou, A. Thukral, and B. Ramamurthy, "An authenticated key agreement protocol for mobile ad hoc networks," in *Mobile Ad-hoc and Sensor Networks. Second International Conference, MSN 2006. (Lecture Notes in Computer Science Vol. 4325)*, pp. 509–520, Country of Publication: Germany: Springer-Verlag, January 2006. doi:10.1007/11943952_43. (Contribution: 30%) (Citations: 3)
- C40. A. Todimala, B. Ramamurthy, and N. V. Vinodchandran, "On computing disjoint paths with dependent cost structure in optical networks," in *BROADNETS 2005: 2nd International Conference on Broadband Networks*, vol. 1, pp. 145–154, 2005. doi:10.1109/ICBN.2005.1589610. (Contribution: 30%) (Citations: 4) (Acceptance rate: **30%**)
- C41. W. Yao, G. Sahin, M. Li, and B. Ramamurthy, "Analysis of multi-hop traffic grooming in WDM mesh networks," in *Broadnets 2005: 2nd International Conference on Broadband Networks*, pp. 165–174, 2005. doi:10.1109/ICBN.2005.1589612. (Contribution: 30%) (Citations: 7) (Acceptance rate: **30%**)
- C42. M. Li, W. Yao, and B. Ramamurthy, "Same-destination-intermediate grouping vs. end-to-end grouping for waveband switching in WDM mesh networks," in *ICC 2005: IEEE International Conference on Communications*, vol. 3, pp. 1807–1812, 2005. doi:10.1109/ICC.2005.1494653. (Contribution: 30%) (Citations: **21**) (Acceptance rate: 34%)
- C43. W. Yao and B. Ramamurthy, "Survivable traffic grooming in WDM mesh networks under SRLG constraints," in *ICC 2005: IEEE International Conference on Communications*, vol. 3, pp. 1751–1755, 2005. doi:10.1109/ICC.2005.1494642. (Contribution: 40%) (Citations: **31**) (Acceptance rate: 34%)
- C44. R.K. Balachandran, B. Ramamurthy, X. Zou, and N. V. Vinodchandran, "CRTDH: an efficient key agreement scheme for secure group communications in wireless ad hoc networks," in *ICC 2005. IEEE International Conference on Communications*, vol. 2, pp. 1123–1127, 2005. doi:10.1109/ICC.2005.1494522. (Contribution: 30%) (Citations: **16**) (Acceptance rate: 34%)
- C45. W. Yao, M. Li, and B. Ramamurthy, "Performance analysis of sparse traffic grooming in WDM mesh networks," in *ICC 2005. IEEE International Conference on Communications*, vol. 3, pp. 1766–1770, 2005. doi:10.1109/ICC.2005.1494645. (Contribution: 30%) (Citations: **16**) (Acceptance rate: 34%)
- C46. G. Hao, N. V. Vinodchandran, B. Ramamurthy, and X. Zou, "A balanced key tree approach for dynamic secure group communication," in *ICCCN 2005: 14th International Conference on Computer Communications and Networks*, pp. 345–350, 2005. doi:10.1109/ICCCN.2005.1523882. (Contribution: 25%) (Citations: 7) (Acceptance rate: **25%**)
- C47. A. Todimala and B. Ramamurthy, "Least-cost disjoint paths with dependent cost structure in wavelength continuous optical WDM networks," in *ICCCN 2005: 14th International Conference on Computer Communications and Networks*, pp. 311–316, 2005. doi:10.1109/ICCCN.2005.1523875. (Contribution: 40%) (Citations: 3) (Acceptance rate: **25%**)
- C48. B. Lekkala and B. Ramamurthy, "Discontinuous waveband switching in WDM optical networks," in *IEEE International Conference on Electro Information Technology (EIT)*, pp. 1–5, 2005. doi:10.1109/EIT.2005.1626979. (Contribution: 40%) (Citations: 4)
- C49. S. Anumalla, B. Ramamurthy, D. C. Gosselin, and M. Burbach, "Groundwater monitoring using smart sensors," in *IEEE International Conference on Electro Information Technology*, pp. 1–6, 2005. doi:10.1109/EIT.2005.1626962. (Contribution: 30%) (Citations: 2)
- C50. M. Li, W. Yao, and B. Ramamurthy, "A novel cost-efficient on-line intermediate waveband-switching scheme in WDM mesh networks," in *GLOBECOM '05: IEEE Global Telecommunications Conference*, vol. 4, pp. 1–5, 2005. doi:10.1109/GLOCOM.2005.1578020. (Contribution: 30%) (Citations: 3) (Acceptance rate: 47%)

- C51. M. Li and B. Ramamurthy, “Survivable waveband switching in WDM mesh networks under dedicated path-protection,” in *GLOBECOM '05. IEEE Global Telecommunications Conference*, vol. 4, pp. 1–5, 2005. doi:10.1109/GLOCOM.2005.1577992. (Contribution: 30%) (Citations: **15**) (Acceptance rate: 47%)
- C52. A. Todimala and B. Ramamurthy, “A heuristic with bounded guarantee to compute diverse paths under shared protection in WDM mesh network,” in *GLOBECOM '05. IEEE Global Telecommunications Conference*, vol. 4, pp. 1915–1919, 2005. doi:10.1109/GLOCOM.2005.1578000. (Contribution: 30%) (Citations: 4) (Acceptance rate: 47%)
- C53. P. Adusumilli, X. Zou, and B. Ramamurthy, “DGKD: Distributed group key distribution with authentication capability,” in *IAW '05. Information Assurance Workshop at the Sixth Annual IEEE Systems, Man and Cybernetics SMC Conference*, pp. 286–293, 2005. doi:10.1109/IAW.2005.1495965. (Contribution: 30%) (Citations: **14**)
- C54. X. Zou and B. Ramamurthy, “A simple group Diffie-Hellman key agreement protocol without member serialization,” in *Computational and Information Science, Lecture Notes in Computer Science (LNCS)*, vol. 3314/2005, pp. 725–731, Springer, 2005. (Contribution: 30%) (Citations: 1) (Acceptance rate: **25%**)
- C55. W. Yao, M. Li, and B. Ramamurthy, “Design of sparse grooming networks for transporting dynamic multi-granularity sub-wavelength traffic,” in *Optical Fiber Communication Conference and Exposition and The National Fiber Optic Engineers Conference*, Technical Digest (CD), pp. 1–3, Optical Society of America, March 2005. (Contribution: 30%) (Citations: 2) (Acceptance rate: **20%**)
- C56. L. Shen, X. Yang, and B. Ramamurthy, “A load-balancing spare capacity reallocation approach in service-rich SONET metro mesh networks,” in *Broadnets 2004: First International Conference on Broadband Networks*, pp. 269–278, 2004. doi:10.1109/BROADNETS.2004.6. (Contribution: 30%) (Citations: 3) (Acceptance rate: **30%**)
- C57. A. Todimala and B. Ramamurthy, “Survivable virtual topology routing under shared risk link groups in WDM networks,” in *Broadnets 2004: First International Conference on Broadband Networks*, pp. 130–139, 2004. doi:10.1109/BROADNETS.2004.81. (Contribution: 40%) (Citations: **18**) (Acceptance rate: **30%**)
- C58. W. Yao and B. Ramamurthy, “Survivable traffic grooming with path protection at the connection level in WDM mesh networks,” in *Broadnets 2004: First International Conference on Broadband Networks*, pp. 310–319, 2004. doi:10.1109/BROADNETS.2004.80. (Contribution: 40%) (Citations: **31**) (Acceptance rate: **30%**)
- C59. V. Kasarekar and B. Ramamurthy, “Distributed hybrid agent based intrusion detection and real time response system,” in *Broadnets 2004: First International Conference on Broadband Networks*, pp. 739–741, 2004. doi:10.1109/BROADNETS.2004.33. (Contribution: 40%) (Citations: 4) (Acceptance rate: 30%)
- C60. M. Li and B. Ramamurthy, “A graph model for dynamic waveband switching in WDM mesh networks,” in *ICC 2004. IEEE International Conference on Communications*, vol. 3, pp. 1821–1825, 2004. doi:10.1109/ICC.2004.1312822. (Contribution: 40%) (Citations: **16**) (Acceptance rate: **29%**)
- C61. A. Todimala and B. Ramamurthy, “IMSH: an iterative heuristic for SRLG diverse routing in WDM mesh networks,” in *ICCCN 2004: 13th International Conference on Computer Communications and Networks*, pp. 199–204, 2004. doi:10.1109/ICCCN.2004.1401627. (Contribution: 40%) (Citations: **15**) (Acceptance rate: **27%**)
- C62. W. Yao and B. Ramamurthy, “Rerouting schemes for dynamic traffic grooming in optical WDM mesh networks,” in *GLOBECOM '04: IEEE Global Telecommunications Conference*, vol. 3, pp. 1793–1797, 2004. doi:10.1109/GLOCOM.2004.1378291. (Contribution: 40%) (Citations: **22**) (Acceptance rate: 37%)
- C63. X. Zou, B. Ramamurthy, and S. S. Magliveras, “A GCD attack resistant CRTHACS for secure group communications,” in *ITCC 2004. International Conference on Information Technology: Coding and Computing*, vol. 2, pp. 153–154, 2004. doi:10.1109/ITCC.2004.1286618. (Contribution: 30%) (Citations: **54**)
- C64. W. Yao and B. Ramamurthy, “Survivable traffic grooming with differentiated end-to-end availability guarantees in WDM mesh networks,” in *LANMAN 2004. The 13th IEEE Workshop on Local and Metropolitan Area Networks*, pp. 87–90, 2004. doi:10.1109/LANMAN.2004.1338407. (Contribution: 40%) (Citations: **19**)
- C65. X. Zou, S. Magliveras, and B. Ramamurthy, “Key tree based scalable secure dynamic conferencing schemes,” *International Conference on Parallel and Distributed Computing and Systems (PDCS 2004)*, pp. 61–65, November 2004. (Contribution: 30%) (Citations: 7)
- C66. W. Yao and B. Ramamurthy, “Dynamic traffic grooming using fixed-alternate routing in WDM mesh optical networks,” in *First Workshop on Traffic Grooming in WDM Networks, Co-located with Broadnets 2004*, October 2004. (Contribution: 40%) (Citations: **18**) (Acceptance rate: **28%**)

- C67. W. Yao and B. Ramamurthy, "Constrained dynamic traffic grooming in WDM mesh networks with link bundled auxiliary graph model," in *IEEE Workshop on High Performance Switching and Routing (HPSR)*, (Phoenix, AZ, USA), pp. 287–291, April 2004. doi:10.1109/HPSR.2004.1303491. (Contribution: 40%) (Citations: 44)
- C68. L. Shen, X. Yang, and B. Ramamurthy, "A load-balancing shared-protection-path reconfiguration approach in WDM wavelength-routed networks," in *Optical Fiber Communication Conference*, Technical Digest (CD), pp. 1–3, Optical Society of America, February 2004. doi:10.1109/OFC.2004.1362128. (Contribution: 30%) (Citations: 3) (Acceptance rate: 19%)
- C69. X. Yang, L. Shen, and B. Ramamurthy, "Maximizing resource sharing in WDM mesh networks with path-based protection and sparse oeo regeneration," in *Optical Fiber Communication Conference*, Technical Digest (CD), pp. 1–3, Optical Society of America, February 2004. doi:10.1109/OFC.2004.1362129. (Contribution: 30%) (Citations: 8) (Acceptance rate: 19%)
- C70. X. Zou and B. Ramamurthy, "A block-free TGDH key agreement protocol for secure group communications," in *International Conference on Parallel and Distributed Computing and Networks, PDCN 2004*, January 2004. ISBN: 0889863695. (Contribution: 40%) (Citations: 3)
- C71. M.K. Chirumamilla and B. Ramamurthy, "Agent based intrusion detection and response system for wireless LANs," in *ICC '03: IEEE International Conference on Communications*, vol. 1, pp. 492–496, 2003. doi:10.1109/ICC.2003.1204225. (Contribution: 40%) (Citations: 21) (Acceptance rate: 37%)
- C72. K. Ganesan and B. Ramamurthy, "Priority-based lambda scheduler," in *ICC '03. IEEE International Conference on Communications*, vol. 2, pp. 1479–1483, 2003. doi:10.1109/ICC.2003.1204637. (Contribution: 40%) (Acceptance rate: 37%)
- C73. X. Yang and B. Ramamurthy, "Inter-domain dynamic routing in multi-layer optical transport networks," in *GLOBECOM '03. IEEE Global Telecommunications Conference*, vol. 5, pp. 2623–2627 vol.5, 2003. doi:10.1109/GLOCOM.2003.1258711. (Contribution: 40%) (Citations: 31) (Acceptance rate: 36%)
- C74. X. Yang and B. Ramamurthy, "Inter-domain dynamic routing in translucent optical transport networks," in *IEEE INFOCOM High-Speed Networks (HSN) Workshop*, pp. 1–4, April 2003. (Contribution: 40%) (Citations: 4)
- C75. X. Zou, B. Ramamurthy, N. V. Vinodchandran, and R. K. Balachandran, "Algorithms for unified hierarchy based access control," in *International Conference on Communications, Internet, and Information Technology (CIIT)*, January 2003. (Contribution: 30%) (Citations: 2)
- C76. A. Todimala and B. Ramamurthy, "Congestion-based algorithms for online routing in optical WDM mesh networks," in *International Conference on Communications, Internet, and Information Technology (CIIT)*, January 2003. (Contribution: 40%) (Citations: 5)
- C77. L. Shen, X. Yang, and B. Ramamurthy, "Shared-risk link group (SRLG)-diverse path provisioning under hybrid service level agreements in wavelength-routed optical mesh networks: formulation and solution approaches," in *SPIE OptiComm 2003: Optical Networking and Communications*, vol. 5285, (Country of Publication: USA), pp. 126–138, SPIE-Int. Soc. Opt. Eng, January 2003. (Contribution: 30%) (Citations: 74) (Acceptance rate: 35%)
- C78. S. Zhang and B. Ramamurthy, "Dynamic traffic grooming algorithms for reconfigurable SONET over WDM networks," in *GLOBECOM '02. IEEE Global Telecommunications Conference*, vol. 3, pp. 2716–2720, November 2002. doi:10.1109/GLOCOM.2002.1189123. (Contribution: 40%) (Citations: 44) (Acceptance rate: 30%)
- C79. N. Mohamed, A. Davis, X. Liu, and B. Ramamurthy, "JOR: A Java object router," in *Parallel and Distributed Computing and Systems (PDCS)*, no. 208, (Cambridge, MA), pp. 625–630, November 2002. (Contribution: 30%) (Citations: 4)
- C80. X. Yang and B. Ramamurthy, "An analytical model for virtual topology reconfiguration in optical networks and a case study," in *ICCCN 2002: Eleventh International Conference on Computer Communications and Networks*, pp. 302–308, October 2002. doi:10.1109/ICCCN.2002.1043082. (Contribution: 40%) (Citations: 18) (Acceptance rate: 26%)
- C81. A. Todimala and B. Ramamurthy, "A dynamic partitioning sub-path protection routing technique in WDM mesh networks," in *ICCC '02: International Conference on Computer Communications*, (Mumbai, India), pp. 327–340, August 2002. (Contribution: 40%) (Citations: 18) (Acceptance rate: 21%)

- C82. X. Yang and B. Ramamurthy, "An analysis model for virtual topology reconfiguration in optical networks," in *HSN 2002. IEEE INFOCOM Workshop on High-Speed Networking*, June 2002. (Contribution: 40%)
- C83. L. Shen and B. Ramamurthy, "Centralized vs. distributed connection management schemes under different traffic patterns in wavelength-convertible optical networks," in *ICC 2002. IEEE International Conference on Communications*, vol. 5, pp. 2712–2716, April/May 2002. doi:10.1109/ICC.2002.997336. (Contribution: 40%) (Citations: **11**) (Acceptance rate: 41%)
- C84. X. Yang and B. Ramamurthy, "Dynamic routing in translucent WDM optical networks," in *ICC 2002. IEEE International Conference on Communications*, vol. 5, pp. 2796–2802, April/May 2002. doi:10.1109/ICC.2002.997352. (Contribution: 40%) (Citations: **77**) (Acceptance rate: 41%)
- C85. X. Zou, S. Magliveras, and B. Ramamurthy, "A dynamic conference scheme extension with efficient burst operation," *Thirty-Third Southeastern International Conference on Combinatorics, Graph Theory and Computing, Congressus Numerantium*, vol. 158, pp. 83–92, Mar. 2002. (Contribution: 30%)
- C86. X. Zou, B. Ramamurthy, and S. Magliveras, "Routing techniques in wireless ad hoc networks-classification and comparison," in *6th World Multiconference on Systemics, Cybernetics and Informatics*, vol. vol.4, pp. 84–89, January 2002. (Contribution: 30%) (Citations: **48**)
- C87. X. Zou, B. Ramamurthy, and S. Magliveras, "Efficient key management for secure group communications with bursty behavior," in *International Conference on Communications, Internet, and Information Technology (CIIT)*, January 2002. (Contribution: 30%) (Citations: **10**)
- C88. G. Rao and B. Ramamurthy, "DiffServer: application level differentiated services for web servers," in *ICC 2001. IEEE International Conference on Communications*, vol. 5, pp. 1633–1637, 2001. doi:10.1109/ICC.2001.937196. (Contribution: 40%) (Citations: **15**)
- C89. J. C. Birget, X. Zou, G. Noubir, and B. Ramamurthy, "Hierarchy-based access control in distributed environments," in *ICC 2001. IEEE International Conference on Communications*, vol. 1, pp. 229–233, 2001. doi:10.1109/ICC.2001.936308. (Contribution: 25%) (Citations: **31**)
- C90. L. Zhong and B. Ramamurthy, "Optimization of amplifier placements in switch-based optical networks," in *ICC 2001. IEEE International Conference on Communications*, vol. 1, pp. 224–228, 2001. doi:10.1109/ICC.2001.936307. (Contribution: 40%) (Citations: **10**)
- C91. B. Ramamurthy, S. Yaragorla, and X. Yang, "Translucent optical WDM networks for the next-generation backbone," in *GLOBECOM '01. IEEE Global Telecommunications Conference*, vol. 1, pp. 60–64 vol.1, 2001. doi:10.1109/GLOCOM.2001.965080. (Contribution: 40%) (Citations: **47**)
- C92. X. Zou, B. Ramamurthy, and S. Magliveras, "Chinese remainder theorem based hierarchical access control for secure group communication," in *International Conference on Information and Communications Security (ICICS), Lecture Notes in Computer Science (LNCS)*, vol. 2229/2001, pp. 381–385, Springer, 2001. doi:10.1007/3-540-45600-7_42. (Contribution: 30%) (Citations: **42**)
- C93. X. Yang and B. Ramamurthy, "Sparse regeneration in a translucent WDM optical network," in *SPIE Asia-Pacific Optical and Wireless Communications (APOC) Conference, Optical Networking*, vol. 4585, (Country of Publication: USA), pp. 61–70, SPIE-Int. Soc. Opt. Eng SPIE., January 2001. (Contribution: 40%) (Citations: **17**)
- C94. B. Ramamurthy and A. Ramakrishnan, "Virtual topology reconfiguration of wavelength-routed optical WDM networks," in *GLOBECOM '00. IEEE Global Telecommunications Conference*, vol. 2, pp. 1269–1275, November/December 2000. doi:10.1109/GLOCOM.2000.891340. (Contribution: 60%) (Citations: **79**)
- C95. X. Gan, T. Schroeder, S. Goddard, and B. Ramamurthy, "LSMAC and LSNAT: Two approaches for cluster-based scalable web servers," in *ICC 2000. IEEE International Conference on Communications*, vol. 2, pp. 1164–1168, June 2000. doi:10.1109/ICC.2000.853680. (Citations: **26**)
- C96. B. Ramamurthy and A. Ramakrishnan, "Design of virtual private networks (VPNs) over optical wavelength-division-multiplexed (WDM) networks," in *SPIE Opticomm 2000: Optical Networking and Communications Conference*, vol. 4233, (Richardson, TX, USA), pp. 76–86, SPIE-Int. Soc. Opt. Eng, January 2000. (Citations: **18**)
- C97. M. Ali, B. Ramamurthy, and J. S. Deogun, "Routing and wavelength assignment (RWA) with power considerations in all-optical wavelength-routed networks," in *GLOBECOM 1999. IEEE Global Telecommunications Conference*, vol. 2, pp. 1433–1437, December 1999. doi:10.1109/GLOCOM.1999.830014. (Contribution: 30%) (Citations: **36**)

- C98. M. Ali, B. Ramamurthy, and J. S. Deogun, “Routing algorithms for all-optical networks with power considerations: the unicast case,” in *ICCCN 1999. Eighth International Conference on Computer Communications and Networks*, pp. 237–241, October 1999. doi:10.1109/ICCCN.1999.805525. (Contribution: 30%) (Citations: 17)
- C99. B. Ramamurthy, D. Datta, H. Feng, J. P. Heritage, and B. Mukherjee, “Simon: a simulator for optical networks,” in *Proceedings of the SPIE - All Optical Networking 1999: Architecture, Control and Management Issues*, vol. 3843, (Country of Publication: USA), pp. 130–135, SPIE-Int. Soc. Opt. Eng SPIE., September 1999. (Contribution: 30%) (Citations: 25)
- C100. B. Ramamurthy, H. Feng, D. Datta, J. P. Heritage, and B. Mukherjee, “Transparent vs. opaque vs. translucent wavelength-routed optical networks,” in *Optical Fiber Communication Conference, 1999, and the International Conference on Integrated Optics and Optical Fiber Communication. OFC/IOOC '99. Technical Digest*, vol. 1, pp. 59–61 vol.1, February 1999. doi:10.1109/OFC.1999.767791. (Contribution: 30%) (Citations: 71)
- C101. D. Datta, B. Ramamurthy, H. Feng, J. P. Heritage, and B. Mukherjee, “BER-based call admission in wavelength-routed optical networks,” in *Optical Fiber Communication Conference*, vol. 2 of 1998 OSA Technical Digest Series, pp. 1–3, Optical Society of America, February 1998. doi:10.1109/OFC.1998.657234. (Contribution: 30%) (Citations: 15)
- C102. B. Ramamurthy, J. Iness, and B. Mukherjee, “Minimizing the number of optical amplifiers needed to support a multi-wavelength optical LAN/MAN,” in *INFOCOM '97. The 16th Conference on Computer Communications*, vol. 1, pp. 261–268, 1997. doi:10.1109/INFCOM.1997.635138. (Contribution: 60%) (Citations: 23)
- C103. B. Ramamurthy, J. Iness, and B. Mukherjee, “Optical amplifier optimization in a multi-wavelength passive-star-based optical metropolitan area network,” in *Proceedings, Institute for Operations Research and the Management Sciences – INFORMS*, (Atlanta, GA), Nov. 1996. (invited paper). (Contribution: 60%)

6.8 Conference and Workshop *Poster and Short Papers*

1. M. Subedee, P. Angu, B. Ramamurthy, and K. Christensen, “GpENi@UNL: UNL contributions to a regional network testbed (poster),” in *Great Plains Network Annual Meeting*, (Kansas City, MO, USA), July 2010. **Best Student Poster Award**. (Contribution: 30%)
2. C. Rowe, R. Oglesby, B. Ramamurthy, and D. Swanson, “Regional climate change and its impacts in the Great Plains region: An end-to-end approach (poster paper),” in *Nebraska State EPSCoR Conference*, (Lincoln, NE), October 2008. (Contribution: 30%)
3. J. Ghoshal, M. Wang, B. Ramamurthy, and L. Xu, “Variable neighbor selection in live peer-to-peer multimedia streaming networks (poster paper),” in *Broadnets 2008: Fifth International Conference on Broadband Communications, Networks and Systems*, (London, U.K.), pp. 344–346, September 2008. doi:10.1109/BROADNETS.2008.4769101. (Contribution: 30%)
4. Y. Xue, B. Ramamurthy, M. Burbach, and C. Knutson, “A real-time groundwater monitoring network for drought impact assessment (poster paper),” in *Nebraska Water Colloquium*, (Lincoln, NE), September 2007. (Contribution: 30%)
5. Y. Wang and B. Ramamurthy, “A key management protocol for hybrid wireless sensor networks (poster paper),” in *Broadnets 2007: Fourth International Conference on Broadband Communications, Networks and Systems*, pp. 303–305, September 2007. doi:10.1109/BROADNETS.2007.4550443. (Citations: 5) (Contribution: 40%)
6. Y. Xue, B. Ramamurthy, and Y. Lu, “A distributed reliable data transport strategy for event based wireless sensor networks,” in *SenSys '06: 4th ACM International conference on Embedded networked sensor systems*, (New York, NY, USA), pp. 407–408, ACM, November 2006. ISBN: 1595933433. doi:10.1145/1182807.1182879. (Citations: 3) (Contribution: 30%)
7. Y. Wang and B. Ramamurthy, “A centralized group rekeying scheme for secure group communication in wireless sensor networks (poster),” in *SecureComm 2006, Second International Conference on Security and Privacy in Communication Networks*, (Baltimore, MD), August 2006. (Citations: 4) (Contribution: 40%)

6.9 Magazine Columns

Dr. Ramamurthy has authored several articles for his “Feature on Theses” column in the *Optical Networks* magazine (2000-2004).

1. B. Ramamurthy, “Review of Laxman Sahasrabudde’s thesis,” *Optical Networks Magazine*, vol. 2, no. 1, pp. 23–25, January 2001. doi:10.1023/A:1017267230889.
2. B. Ramamurthy, “Review of Jonathan P. Lang’s thesis,” *Optical Networks Magazine*, vol. 2, no. 2, pp. 16–17, March 2001. doi:10.1023/A:1017288014960.
3. B. Ramamurthy, “Review of Hui Zang’s thesis,” *Optical Networks Magazine*, vol. 3, no. 3, p. 109, May 2002. doi:10.1023/A:1017413816330.

6.10 Invited Articles

Dr. Ramamurthy has contributed invited articles for E-newsletters.

1. M. Wang, Z. Ouyang, L. Xu, and B. Ramamurthy, “Multi-channel peer-to-peer multimedia streaming,” *E-Letter of IEEE Multimedia Communications Technical Committee*, vol. 6, no. 9, pp. 35–37, September 2011. (invited article).

6.11 Tutorials

1. Byrav Ramamurthy. Optical Networks for Future Internet. In *Proceedings, IEEE ANTS 2011 Conference*, Bangalore, India December 2011.
2. Biswanath Mukherjee and Byrav Ramamurthy. Wavelength-routed optical networks - a tutorial. In *Proceedings, Photonics 2000 Conference*, Calcutta, India, December 2000.
3. Byrav Ramamurthy. Wavelength-routed optical WDM networks. In *Proceedings, Opticomm 2001 Conference*, Denver, Colorado, August 2001.

6.12 Invited Conference and Workshop Presentations

1. Byrav Ramamurthy and K.K. Ramakrishnan and Rakesh K. Sinha. Cost and Reliability Considerations in Designing the Next-Generation IP over WDM Backbone Networks. In *The 20th International Conference on Computer Communications and Networks (ICCCN 2011)*, Maui, HI, August 2011.
2. Byrav Ramamurthy. “Security for High-Confidence Software Platforms for Cyber-Physical Systems,” at the “National Workshop on High Confidence Software Platforms for Cyber-Physical Systems: Research Needs and Roadmap” organized by The High Confidence Software and Systems Coordinating Group Federal Networking and Information Technology Research & Development – National Science and Technology Council, Alexandria, VA, November/December 2006.
3. Byrav Ramamurthy and Xukai Zou. Secure Group Communications,” In *Third Annual Regional Workshop in the Mathematical Sciences*, University of Nebraska-Lincoln, Lincoln NE, October 2000.
4. Byrav Ramamurthy. Virtual private networks (VPNs) over optical WDM wavelength-routed networks. In *IEEE Computer Communications Workshop (CCW) 2000*, Captiva Island, FL, October 2000.
5. Byrav Ramamurthy, Debasish Datta, Helena Feng, Jonathan P. Heritage, and Biswanath Mukherjee. SIMON: A Simulator for Optical Networks. In *IEEE Computer Communications Workshop (CCW) 1999*, (Estes Park, CO), October 1999.

6.13 Invited Talks

Dr. Ramamurthy has given invited talks at the following institutions/venues.

1. “Optical core networks for MobilityFirst architecture,” NSF PI meeting, Rutgers Univ., New Brunswick, NJ, 2011.
2. “UNL contributions to GpENI testbed and research,” GPN Annual Meeting, Kansas City, MO. 2011.
3. “GpENI project presentation,” GEC12 GENI project meeting, Kansas City, MO. 2011.
4. “GpENI connectivity to MAX through ProtoGENI,” GEC8 GENI conference, San Diego, July 2010.
5. “Application-driven Internet design,” Temple University, April 2010.
6. “Redesigning the Carrier Backbone” at AT&T Labs-Research, Florham Park, New Jersey, May 2009.

7. "Application-driven Networking" at Indian Institute of Technology-Madras, Chennai, India, February 2009.
8. "Security in Wireless Sensor Networks" at Defence Research Development Organization (DRDO), Bangalore, India, February 2009.
9. "Optical Grid networks" North Carolina State University, January 2009.
10. "Dynamic Lightpath Scheduling in Optical WDM Grid Networks" at Beijing University of Posts and Telecommunications, Beijing, China, May 2008.
11. "Optical Grid Networks" at Dept. of Computer Science and Technology, Tsinghua University, Beijing, China, May 2008.
12. "Security in Wireless Sensor Networks (WSNs): Attacks and countermeasures" to the NSF-CSEMS Scholarship Recipients, UNL, Fall 2006.
13. "Security in Wireless Sensor Networks," Lucent Bell Labs, Bangalore, India, July 2006.
14. "Security in Wireless Sensor Networks," Indian Institute of Technology-Madras, Chennai, India, July 2006.
15. "WLAN Security," Special presentation to NSF-CSEMS Scholarship Recipients, Lincoln, NE, 2005.
16. "Wireless Local Area Networks (WLANs): Security Concerns and Solutions" at the Lincoln Downtown Tech Fair, April 2004.
17. "Secure Group Communications" at the Nebraska Information Technology Security Day, Lincoln, Nebraska, November 2004.
18. "Wireless Local Area Networks (WLAN) Security," UNL-CSE Graduate recruiting talk at Nebraska Wesleyan University, Lincoln NE, March 2004.
19. "CSE Graduate Program and Facilities," Special presentation to NSF-CSEMS Scholarship Recipients, Lincoln, NE, October 2003.
20. "UNL Access Grid Node Facilities," UNL PRISM Priority Initiative sponsored CSE Research Facility Open House, September 2003.
21. "CSE Graduate Program and Facilities," Special presentation to Dr. Zlatuska, President, Masaryk University, Brno, The Czech Republic, Lincoln, NE, September 2003.
22. "Grid Computing at UNL," Lincoln MENSA club meeting, September, 2002.
23. "Scalable enterprise systems," J.D. Edwards Co., Denver, CO, August 2001.
24. "Simulation and Modeling of Optical WDM Networks", OPNET Technologies Inc., Washington, DC, August 2000.
25. "Design of wavelength-routed optical WDM networks," Department of Computer Science & Engineering, Indian Institute of Technology (IIT-M), Chennai, India, January 2001.
26. "Design of Optical WDM Networks with Power Considerations", Nokia Research Lab, Boston, MA, Oct. 1999.
27. "Efficient design of Wavelength Division Multiplexed Optical Networks," University of Nebraska-Lincoln (Lincoln, NE), 1998.
28. "On the amplifier placement problem in optical networks using WDM," Department of Computer Science & Engineering, Indian Institute of Technology, Madras, India, April 1997.
29. Seminar, Case Western Reserve University, Cleveland, OH, 1997.
30. Seminar, University of Arizona, Tucson, AZ, 1997.
31. Seminar, University of Delaware, Newark, DE, 1997.
32. Seminar, University of Pennsylvania, Philadelphia, PA, 1997.
33. "Wavelength conversion in WDM networking," Pacific Bell, San Ramon, CA, 1997.
34. "Impact of transmission impairments on teletraffic performance of wavelength-routed optical networks," Lawrence Livermore National Laboratory, Livermore, CA, 1997.
35. "Helping TA's in enabling computer usage for classes — Information dissemination/retrieval," *Professors for the Future* ceremony, University of California-Davis, CA, 1996.
36. "On the scalability of the Interactive TV System," Interactive Digital Solutions Unit, Silicon Graphics Inc., Mountain View, CA, Sept. 1995.

7 Teaching Record

7.1 Students

7.1.1 Current Students

Student Name	Topic	Degree
Lin Liu	Optical networks	Ph.D.
Pan Yi	Future Internet	Ph.D.
Adrian Lara	High-speed Networks	Ph.D.
Zhipeng Ouyang	Peer-to-peer Networks	Ph.D. (co-advisor with Dr. Xu)
Hui Ding	Optical networks	Ph.D. (BUPT, China, UNL visitor)
Joyeeta Mukherjee	Mobile networks	M.S.
Anisha Kolasani	Interplanetary networks	M.S.

7.1.2 Ph.D. Dissertations Supervised

Student Name	Title	Degree	Term
Xukai Zou	Secure Group Communications and Hierarchical Access Control (co-advisor with Prof. Spyros Magliveras, FAU) Job:Associate Professor, Purdue University-Indianapolis	Ph.D. (CS)	Fall 2000
Xi Yang	Efficient Design and Operation of Translucent Optical WDM Networks Job: Research Scientist, USC ISI-East, Arlington, VA	Ph.D. (CS)	Summer 2004
Wang Yao	Traffic Grooming in Next-Generation Optical WDM Mesh Networks Job:Blade Networks	Ph.D. (CS)	Summer 2005
Mengke Li	Cost-Efficient Design of Waveband Switching in Optical Wavelength Division Multiplexed Networks Job:Microsoft, Seattle, WA	Ph.D. (CS)	December 2005
Lu Shen	Resource Allocation in Wavelength-Routed WDM Mesh Networks Job:Juniper Networks, San Jose, CA	Ph.D. (CS)	May 2006
Ajay Kumar Todimala	Fault-tolerance using Shared Path Protection in Wavelength Division Multiplexing Optical Transport Networks Job:AT&T Labs-Research, Florham Park, NJ	Ph.D. (CS)	December 2006
Yong Wang	Key management protocols for Hybrid Wireless Sensor Networks Job: Asst. Prof., Dakota State Univ., Madison, SD	Ph.D. (CS)	December 2007
Yuyan Xue	Service-Differentiated And Reliable Communication In Event-Based Wireless Sensor Networks co-advisor: Prof. M. Can Vuran Job: Microsoft, Fargo, ND	Ph.D.(CE)	Spring 2010
Miao Wang	Multi-Channel Peer-to-Peer Streaming Systems as Resource Allocation Problems co-advisor with Prof.Lisong Xu Job: A10 Networks, San Jose CA	Ph.D.(CS)	Spring 2011

7.1.3 M.S. Theses Supervised

Student Name	Abbreviated Title	Term
Jong-Tae Lee	Wavelength Converter Placement in Optical Networks	Spring 1999
Ashok Ramakrishnan	Virtual Topology Reconfiguration in Optical Networks	Spring 2000
Srinath Yaragorla	Sparse Regeneration in a Translucent Network	Summer 2000
Ling Zhong	Optimizing of Amplifier Placements in Switched Optical Networks	Spring 2000
Shu Zhang	Dynamic traffic grooming for reconfigurable WDM networks	Spring 2001
Lu Shen	Signaling Schemes for in GMPLS-based WDM Mesh Networks	Spring 2002
Kalpana Ganesan	P-Lambda Scheduler for WDM Optical Packet Switching	Spring 2003
Ajay Kumar Todimala	Fault-Tolerance in Optical WDM Mesh Networks	Spring 2003
Siva Sunkavalli	Scatternet Formation in Bluetooth Networks	Summer 2003
Ravi Balachandran	Secure Group Communication over Wireless Ad Hoc Networks	Fall 2004
Garhan Attebury	Federated Network Management through Attribute Access Control	Summer 2006
Lin Liu	Distributed Algorithms for Energy Savings in the Core Network	Fall 2011

7.1.4 M.S. Projects Supervised

Student Name	Abbreviated Title	Term
Xuehong Gan	A Prototype of a Web Server Clustering System	Spring 1999
Qingyuan Lou	Sparse Multicasting Simulator for Optical Networks	Fall 1999
Xingchun Chen	IP Multicast Experiments in a Campus Network	Spring 2000
Chandrakant Yemparala	Integrated Simulation Environment for SIMON	Summer 2000
Gautam Rao	Application Level Differentiated Services for Web Servers	Spring 2000
Elie Sawma	Connection Management in Optical Networks	Fall 2000
Sree Rama Nomula	ARTHUR: An RWA Tool for Optical Networks	Fall 2000
Mir Hussain Ali	Static vs. Dynamic Routing in WDM Networks	Fall 2001
Aditya Srinivasa Ivaturi	Transcoding Proxy for Wireless Web	Summer 2002
Lai Lim	Challenges in deploying Access Grid at UNL	Summer 2002
Mohan Krishna Chirumamilla	An Intrusion Detection System for Wireless LANs	Fall 2002
Jun Li	Integrated Distributed Simulation using Visual SIMON	Spring 2003
Daneal Tesse Fekersillassie	Design of a Sensor Network for Irrigation Management	Spring 2003
Vaidehi Ajit Kasarekar	Distributed Intrusion Detection for Wireless LANs	Fall 2003
Sarang Deshpande	A Scalable Scheme for Secure Dynamic Conferencing	Spring 2004
Mukesh Babu Raghuraman	Implementation of a system for the visually impaired	Summer 2004
Bhavana Lekkala	Waveband Routing with Non-uniform Wavebands	Summer 2004
Ashok Janardhanan	Implementation of a Secure Group Communication Protocol	Summer 2004
Srikanth Anumalla	Groundwater Monitoring using Smart Sensors	Summer 2004
John Hodges	Wireless Mesh Networking: A Solution for Broadband Access	Fall 2007
Jagannath Ghoshal (Co-advisor: Prof. L. Xu)	Neighbor-Selection in Live Peer-to-Peer Multimedia Streaming Networks	Fall 2007
Srikanth Mallu (Co-advisor: Prof. Vuran)	A Secure Group Key Management (SGKM) Scheme for Wireless Sensor Networks	Spring 2008
Vaidhehi Lakshmiraman	Joint Scheduling in a Lambda Grid Network	Summer 2008
Anusha Ravula	A Tabu Search Approach for Joint Scheduling of Resources in a Lambda Grid Network	Spring 2010
Mukesh Subedee	Co-scheduling of Resources in a Lambda Grid/Cloud Environment	Summer 2010

7.1.5 Supervisory Committee Activities

Student	Assignment	Level	Term
Bhagat, Deepankar	Member	MS	Spring 1999
Liu, Fang	Member	MS	Spring 1999
Tang, Xiaolin	Member	MS	Spring 1999
Wang, Yili	Member	MS	Summer 1999
Xu, Hui	Member	MS	Summer 1999
Dang, Hui	Member	MS	Fall 1999
Dondeti, Lakshminath	Reader	PhD	Fall 1999
Fan, Hanchang	Member	MS	Fall 1999
Kulkarni, Amit	Member	MS	Fall 1999
Sarkar, Amartya	Member	MS	Fall 1999
Thiruchendur, Sankar	Member	MS	Fall 1999
Yalavarthi, Seshu	Member	MS	Fall 1999
Ali, Maher	Member	PhD	Fall 1999
Malladi, Sada	Member	MS	Fall 1999
Kong, Yan	Reader	PhD (EE)	Fall 1999
Ci, Song	Member	PhD (EE)	Spring 2000
Wang, Yang	Reader	PhD (EE)	Spring 2000
Cusack, Charles	Reader	PhD	Fall 2000
Subramani, Kavitha	Member	MS	Fall 2000
Wei, Caina	Member	MS	Fall 2000
Narla, Smita	Member	MS	Spring 2001
Gable, David	Member	MS	Spring 2001
Yang, Guangsheng	Member	MS	Fall 2001
Li, Lin	Member	PhD	Spring 2002
Liu, Xin	Member	MS	Spring 2002
Fu, Jing	Member	MS	Summer 2002
Wu, Tao	Member	PhD reading committee (Iowa State Univ-ECE)	Summer 2003
Newbold, Stefan	Member	MS	Summer 2003
Qin, Xiao	Member	PhD	Summer 2003
Gao, Jun	Member	PhD	Summer 2003
Ramanathan, Visu	Member	MS	Fall 2003
Anderson, Scot	Member	MS	Fall 2003
Liu, Xin	Member	PhD	Spring 2004
Nkwocha, Fidel	Member	MS	Spring 2004
Lueninghoener, Cory	Member	MS	Spring 2004
Krishnapura, Rohini	Member	MS	Fall 2004
Nathan, Ahalya	Member	MS	Spring 2005
Al-Nahas, Huzaifa	Member	PhD	Fall 2005-2008
Gerard, Jeffrey	Member	BS	Spring 2006
Jayanavula, Sumanth	Member	PhD	2005-2007
Feng, Jie	Member	PhD	Fall 2006-present
Sunkara, Vandana	Member	MS	Fall 2008
William, Peter	Reader	PhD (EE)	Fall 2007-present
Anonymous	Member	PhD external examiner (IIT Kanpur, IIT Madras, NUS Singapore)	2006-2008
De Leenheer, Marc	Member	PhD Jury (University of Ghent, Belgium)	Fall 2008

Student (contd.)	Assignment	Level	Term
Phani Kiran Vabbina	Member	MS (EE)	Summer 2009
Deli Qiao	Member	PhD (EE)	Fall 2009-present
Agnelo Silva	Member	MS	Spring 2010
Ranjini Srinivas	Member	MS	Summer 2010
Xin Dong	Member	PhD	Fall 2010
Shuai Xie	Member	MS	Fall 2011

7.1.6 Independent Study Supervisor

Students: Chin-Kiat Chim, Chon Ming Lee, Srimi Utpala, Xin Liu

(Note: This list does not include students currently doing M.S. work under my supervision.)

7.1.7 Undergraduate Senior Design Supervisor

Students: Pavel Patino, John Steinbach, Anthony Foster, Alex Baruth (CompEng-2011 with Prof. S. Reichenbach).

7.1.8 Undergraduate Honors Project/Course Supervisor

Students: Ryan Shuck, Roger Perry, Daniel Geschwender, Michael Rogers, Keegan Lunn

7.1.9 Undergraduate Thesis Committee Member

Student: Mark Smith

7.1.10 REU and UCARE Students

Madeline Hardojo (UCARE), Francis Ridder (REU), Jeremiah Wessels (REU), Ray Perry (UCARE), Zachary Berns (UCARE).

7.1.11 Internship Supervisor

Students: Kenson Goo (Fall 2004)

7.2 Courses and Curriculum Development

- **Teaching Awards:** Dr. Ramamurthy has twice won the UNL CSE Dept. Students Choice Award for Outstanding Teaching of Graduate-level Courses (for 2006-2007 and 2002-2003).
- Dr. Ramamurthy's courses at the Computer Science and Engineering Department at UNL provide a good mix of the theoretical and practical aspects of computer networks. He has taught at both the graduate and undergraduate levels and on topics such as computer networks, network security and optical networks.
- Taught the undergraduate graduate course in Networking (CSCE 462/862) for 7 years.
- NEW COURSE: Optical Communication Networks (CSCE953) Designed a new graduate-level course on Optical Communication Networks (Spring 1999).
- NEW COURSE: Data and Network Security (CSCE496/896) Designed a new undergraduate/graduate-level course on Data and network security (Spring 2006).
- Networks Systems Seminar (CSCE990) Co-developed this graduate-level seminar course (1 credit) that brings together graduate student and faculty researchers in the areas of Computer Networks and Distributed Systems (jointly run with Prof. S. Goddard). Has run for 20 consecutive semesters.
- ABET Review: Responsible for CSCE462 course: description, goals, sample work, evaluation.
- Together with Drs. Xu and Vuran, Dr. Ramamurthy is developing a Networking Teaching Lab at the newly-built Schorr Center at UNL.

- Since his arrival at UNL in 1998, he has taught the following courses:

Course Number	Name	Credit Hours	Approx. Enrollment	Term
CSCE 952	Advanced Computer Networks	3 credits	9-44	Fall 1998-2010
CSCE 462/862	Communication Networks	3 credits	34-50	Spring 1999-2005
CSCE 496/896	Data and Network Security	3 credits	10-22	Spring 2006-2010
CSCE 953	Optical Communication Networks	3 credits	8-31	Spring 1999-2008
CSCE 990	Networks Systems Seminar	1 credit	3-8	Spring 1999-2008
CSCE 310	Data Structures and Algorithms	3 credits	25	Fall 2008-2009, Spr/Fall 2011
CSCE 150E	Introduction to Computer Programming	3 credits	72	Fall 2010
CSCE 488/489	Senior Design (Comp. Engg)	3 credits	4	Spring/Fall 2011

8 Service Record

8.1 External Service

1. Community Leadership

- **Chair**, IEEE Communications Society Optical Networks Technical Committee (ONTC) (2009-2011).
- **Vice Chair**, IEEE Communications Society Optical Networks Technical Committee (ONTC) (2007-2009).
- **Online Content Chair**, IEEE Communications Society Optical Networks Technical Committee (2004-2010).
- **Secretary**, IEEE Communications Society Optical Networks Technical Committee (2005-2007).
- **Founding Secretary**, IEEE Communications Society Optical Networks Technical Committee (2002-2004).

2. Editorships

- **Editor**, Elsevier Optical Switching and Networking (OSN), 2011-present.
- **Editor**, IEEE/OSA Journal of Optical Communications and Networking (JOCN), Feb. 2008-current.
- **Editor**, IEEE Communications Surveys and Tutorials (ComST) (2002-present).
- **Editor**, Elsevier Computer Networks journal (ComNet), 2011.
- **Editor**, *IEEE Communications Magazine: Optical Communications Supplement (OCS)*, 2004-2007.
- **Editor**, SPIE/Kluwer Optical Networks magazine (2002-2004).
- **Guest Co-editor**, IEEE Communications - Feature topic on Multi-domain optical networks, April 2008.
- **Guest Co-editor**, *IEEE Network* magazine – Special issue on “Optical Communication Networks,” November/December 2000.
- **Guest Co-editor**, *Optical Networks* magazine – Special issue on “Wavelength Conversion,” March/April 2002.
- **Feature Editor on Theses**, *Optical Network Magazine* (2000 - 2004).

3. Conference/Workshop Chair

- **TPC Co-Chair**, IEEE ANTS 2011 conference, Bangalore, India, December 2011.
- **TPC Co-Chair**, IEEE INFOCOM 2011 conference, Shanghai, P.R. China, April 2011.
- **TPC Co-Chair**, IEEE LANMAN 2011, Chapel Hill, NC, USA, October 2011.
- **General Co-Chair**, ICCCN 2009 conference, San Francisco, USA, August 2009.
- **General Co-Chair**, Opticomm 2009 conference, Dallas, TX, June 2009.
- **General Co-Chair**, Broadnets 2008 conference, London, UK, September 2008.
- **General Co-Chair**, INFOCOM 2008 High Speed Networks (HSN) workshop, Phoenix, AZ, USA, April 2008.
- **TPC Chair**, ICCCN 2008 conference, US Virgin Islands, USA, August 2008.
- **TPC Vice Chair for Information Systems (EDAS) and Mini-Conference Co-Chair**, IEEE INFOCOM 2008, Phoenix, Arizona, April 2008, 2007-2008.
- **TPC Vice Chair**, ICCCN 2007 conference, Hawaii, USA, October 2007.
- **Technical Program Committee Co-chair**, The Third International Conference on Broadband Networks (BroadNets): Symposium on Optical Networks, Communications and Systems, (San Jose, CA), 2006.
- **Technical Program Committee Co-Chair**, IEEE International Conference on Communications (ICC) - Symposium on Optical Systems and Networks, (Istanbul, Turkey), 2006.
- **Workshops Co-Chair**, ICST/IEEE BroadNets Conference, (Boston, MA), 2005.

4. Conference/Workshop Organizing Committee

- **Panels and Invited Speakers Co-chair**, Broadnets Conference, 2004.
 - **Panels Chair**, Optical Networks and Communications Conference (OptiCom 2000), Dallas, TX, October 2000.
 - **Panels Chair**, Optical Networks and Communications Conference (OptiCom 2001), Denver, CO, October 2001.
 - **Co-organizer, Optical networks session** for the IEEE 14th Annual Computer Communications Workshop (CCW), Estes Park, Colorado, October 17-20, 1999.
5. Proposal/Dissertation Reviewer/Panelist
- **External Dissertation Committee member**, PhD Committee, National University of Singapore, 2010.
 - **Proposal Reviewer**, Kuwait Foundation for the Advancement of Sciences, 2010.
 - **Proposal Review Panelist**, National Science Foundation, 2009.
 - **Proposal Review Panelist**, Department of Energy, 2009.
 - **External Dissertation Committee member**, PhD Committee, Indian Institute of Technology-Madras (IIT-M), 2008.
 - **Proposal Reviewer**, US Department of Energy, 2008.
 - **Proposal Reviewer**, National Science Foundation (NSF), 2007.
 - **Proposal Reviewer**, Chilean Research Fund Council (FONDECYT), 2007.
 - **External Dissertation Committee member**, PhD Committee, National University of Singapore, 2007.
 - **External Dissertation Committee member**, PhD Committee, Indian Institute of Technology-Kanpur (IIT-K), 2007.
 - **Proposal Reviewer**, NSERC, Canada, 2006-2007, 2008.
 - **External Dissertation Committee member**, PhD Committee, National University of Singapore, 2006.
 - **Proposal Review Panelist**, National Science Foundation, 2004.
 - **Proposal Review Panelist**, National Science Foundation, 2002.
 - **Proposal Reviewer**, National Science Foundation, 2001.
6. Technical Program Committee Member
- **Area TPC Chair, Technical Program Committee**, “IEEE INFOCOM 2012 Conference”, Orlando, FL, March 2012.
 - **Member, Technical Program Committee**, “ACM SIGCOMM 2011 Conference”, Toronto, Canada, August 2011.
 - **Area TPC Chair, Technical Program Committee**, “IEEE INFOCOM 2010 Conference”, San Diego, CA, March 2010.
 - **Member, Technical Program Committee**, “IEEE INFOCOM 2009 Conference”, Rio de Janeiro, Brazil, April 2009.
 - **Member, Technical Program Committee**, “IEEE INFOCOM 2007 Conference”, Alaska, USA, May 2007.
 - **Member, Technical Program Committee**, International Conference on Communication, Convergence and Broadband Networking (ICCBN), Bangalore, India, June 2008.
 - **Member, Technical Program Committee**, “IEEE GLOBECOM 2005 (General Conference)”, November 2005.
 - **Member, Technical Program Committee**, “IEEE GLOBECOM 2005 (Symposium on Photonics Systems and Technologies)”, November 2005.
 - **Member, Technical Program Committee**, “IEEE High Performance Switching and Routing 2005 (HPSR 2005)”, Hong Kong, May 2005.
 - **Member, Technical Program Committee** for the Optical Networks Symposium (part of the IEEE ICC 2005 Conference), Seoul, Korea, May 2005.
 - **Member, Technical Program Committee**, ICST/IEEE BroadNets Conference: Optical Symposium, (Boston, MA), 2005.
 - **Member, Technical Program Committee**, “IEEE INFOCOM 2004 Conference”, Hong Kong, March 2004.
 - **IEEE ComSoc TCCC representative** to the IEEE GLOBECOM conference (with Drs. S. Kota and E. Al-Shaer) (2002-present).
 - **Member, Technical Program Committee**, “The 23rd IEEE International Conference on Distributed Computing Systems (ICDCS 2003),” Providence, Rhode Island, May 19–22, 2003.
 - **Member, Technical Program Committee**, “IEEE INFOCOM 2003 Conference”, San Francisco, CA (USA), April 1-3 2003.
 - **Member, Technical Program Committee** for the Optical Networks Symposium (part of the IEEE ICC 2003 Conference), Anchorage, Alaska (USA), May 11 – 15, 2003.

- **Member, Technical Program Committee**, Optical Networks and Communications Conference (OptiComm 2002), Boston, MA (USA), July 29 – August 1, 2002.
- **Member, Technical Program Committee**, “IEEE INFOCOM 2001 Conference”, Anchorage, Alaska (USA), April 22-26 2001.
- **Member, Technical Program Committee** for the Symposium on High Speed Networks (part of the IEEE GLOBECOM 2000 Conference), San Francisco, CA, November 27 – December 1, 2000.
- **Member, Technical Program Committee** for the Optical Networks Workshop (ONW), Richardson, TX, 2000.
- **Member, Technical Program Committee** for the IEEE GLOBECOM’99 Symposium on High Speed Networks, Rio de Janeiro, Brazil, 1999.
- **Member, Technical Program Committee** for the IEEE International Conference On Networks (ICON’99) Conference, Brisbane, Australia, 1999.
- **Member, Technical Program Committee** for the Eighth IEEE International Conference on Computer Communications and Networks (ICCCN), Boston-Natick, Massachusetts, U.S.A., October 11-13, 1999.

7. Other External Service

- Served as Reviewer for leading journals such as IEEE/ACM Transactions on Networking, IEEE Transactions on Computers, Computer Networks and ISDN Systems, IEEE/OSA Journal of Lightwave Technology, IEEE Communications Surveys, IEEE Communications Letters, IEEE Network, Photonic Network Communications and conferences such as INFOCOM ’97-’99, ICC ’99, Singapore International Conference on Networks (SICON ’97), ICC 2003, INFOCOM 2003.
- Was **interviewed** as a Wireless networks security expert for a local TV segment on “Wardriving” (*KLKN TV, Lincoln, NE*), July 14-15, 2004.
- Was **interviewed** as an Optical networks expert for an *IEEE Computer* article (March 2000).
- Was **interviewed** as an Optical networks expert for an online industry magazine (*LightReading*) article (2000).

8.2 University Level Service

- **Member**, UNL Telecommunications Advisory Committee, 2007-present.
- **Judge**, SigmaXi Student Poster Competition, Computer Science, Engineering, Math & Statistics area, UNL Research Fair, April 2007.
- **Co-organizer and Fundraising Chair**, “The 2007 ACM North Central North America Regional Programming Contest (Lincoln site),” November 2006-present.
- **Co-organizer and Chief Judge**, “The 2006 ACM North Central North America Regional Programming Contest (Lincoln site),” November 2006.
- **Member**, UNL Water Resources Research Initiative (WRRI) Faculty Search Committee on Hydrological Information Systems, 2006-2007.
- **Member**, UNL Water Resources Research Initiative (WRRI) Steering Committee, 2003-present.
- **Co-organizer and Chief Judge**, “The 2005 ACM North Central North America Regional Programming Contest (Lincoln site),” November 2005.
- **Co-organizer and Chief Judge**, “The 2003 ACM North Central North America Regional Programming Contest (Lincoln site),” November, 2003.
- **Co-organizer and Chief Judge**, “The 2002 ACM North Central North America Regional Programming Contest (Lincoln site),” November, 2002.
- **Co-organizer**, “The 2004 ACM North Central North America Regional Programming Contest (Lincoln site),” November, 2004.
- **Co-organizer and Track co-chair**, NSF-EPSCoR conference on “Diversity of Informatics,” April 4-5, 2002, Lincoln, NE.
- **Co-organizer and Computer Science Track Chair**, “Fourth Annual Regional Workshop in the Mathematical Sciences”, University of Nebraska-Lincoln, November 2-3, 2001.
- **Co-organizer and Chief Judge**, “The 2001 ACM North Central North America Regional Programming Contest (Lincoln site),” November 10, 2001.
- **Co-organizer**, “The NSF-EPSCoR funded workshop on Secure Distributed Information (SDI) and Bioinformatics Research Laboratories (UNL),” November 11, 2001.

- **Co-organizer and Computer Science Track Chair**, “Third Annual Regional Workshop in the Mathematical Sciences”, University of Nebraska-Lincoln, October 27-28, 2000.
- **Co-organizer and Chief Judge**, “The 2000 ACM North Central North America Regional Programming Contest (Lincoln site),” November 11, 2000.
- **Judge**, “The 1999 ACM North Central North America Regional Programming Contest,” Lincoln, NE, 1999.
- **Speaker**, **UNL Red Letter Day**, Student Union, UNL City Campus, Lincoln, NE, 1999.

8.3 College Level Service

- **Member**, UNL College of Arts and Sciences Promotion and Tenure Committee, 2011-current.
- **Principal Coordinator**, College of Engineering and Technology, Priority program on Information Technology and Telecommunications (Director: Prof. R.F. Sincovec), University of Nebraska-Lincoln, 2002.
- **Principal Coordinator**, College of Engineering and Technology, Priority program on Simulation and Computing Engineering (Director: Prof. R.F. Sincovec), University of Nebraska-Lincoln, 2002.
- **Member**, “New Equipment Grants Committee,” College of Engineering and Technology, University of Nebraska-Lincoln, 2000.

8.4 Department Level Service

1. Committee Chair

- **Chair**, “Nebraska Hall of Computing Committee and Awards Committee,” 2011-current.
- **Graduate Collaborative Programs Chair**, Department of Computer Science and Engineering, University of Nebraska-Lincoln, Fall 2009 - current.
- **Fundraising Chair**, “ACM Programming Contest Committee,” 2006-current.
- **Graduate Admissions Chair**, Department of Computer Science and Engineering, University of Nebraska-Lincoln, Fall 2007 - 2008.
- **Chair**, “CSE Graduate Recruiting Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, Fall 2006 - 2008.
- **Chair**, “CSE Faculty Search Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, Spring 2004.
- **Chair**, “Priority Area Faculty Search Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, 2003-2004.

2. Committee Member

- **Member**, “ACM Programming Contest Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, 2000-present.
- **Graduate Admissions Committee Member**, Department of Computer Science and Engineering, University of Nebraska-Lincoln, Fall 2006 - 2010.
- **Member**, “Nebraska Hall of Computing Committee and Awards Committee,” 2010-current.
- **Member**, “CSE Faculty Search Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, Fall 2006 - Fall 2007.
- **Member**, “CSE Facilities and Space Planning Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, 2006 - 2008.
- **Member**, “Industry Advisory Panel Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, 2003-2004.
- **Member**, “CSE Department Advisory Committee,” 2003-2005.
- **Member**, “Graduate Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, 2003-04.
- Designed (with Ms. Melissa Dunne, Publications & Photography) the CSE Graduate recruitment poster for 2004 and mailed it to 260 CS departments in U.S. and Canada.
- **Member**, “PhD Qualifying Exams Committee (CS) – Systems Track,” 1998-present.
- **Member**, “PhD Qualifying Exams Committee (CS) – Applications Track: Communications and Networking,” 1998-present.
- **Member**, “PhD Qualifying Exams Committee (CE) – Telecommunications and Networking,” 2003-present.

- **Member**, “Industry Advisory Panel Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, 2003-2004.
- **Member**, “Ad Hoc committee for Contests and special events,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, 2002.
- **Member**, “Services Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, 2002-2003.
- **Member**, “Graduate Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, 2000,2001,2002.
- **Member**, “Undergraduate Committee,” Department of Computer Science and Engineering, University of Nebraska-Lincoln, 2000-2001.

8.5 Professional Memberships and Affiliations

Member, Institute of Electrical and Electronics Engineers (IEEE).

Member, IEEE Communications Society (IEEE ComSoc).

Chair, Optical Networking Technical Committee (ONTC) of IEEE ComSoc.

Member, Technical Committee on Computer Communications (TCCC) of IEEE Communications Society (IEEE ComSoc).

Member, Technical Committee on High Speed Networks (TCHSN) of IEEE Communications Society (IEEE ComSoc).

Member, IEEE Technical Committee on Scalable Computing (TCSC).

Member, Discrete, Experimental and Applied Mathematics (DEAM), UNL.

Founding Co-director, Advanced Networking and Distributed Experimental Systems (ANDES) Laboratory, UNL.