Vinod M. Vokkarane
Professor, Electrical and Computer Engineering
Director, Center of Smart Cyber-Physical Systems
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RESEARCH INTERESTS

High-Speed Networking – Next-Generation Optical Networks, Software-Defined Networks, Data Center Networking, Elastic Optical Networks, and High-Speed TCP
Next-Generation Application Services – Resilient Smart Grids, Big-Data Application Services, Anycast Service, Manycast Service, and Fault Tolerance; Biomedical and Social Science Application Workflows using SDN
Wireless Networking - Sensor Networks, Reliability, Fault Tolerance, and Security
Green Networking - Environmental Impact Reduction of Networks, Green Grooming and Survivability

EDUCATION AND ACADEMIC QUALIFICATIONS

Ph.D. in **Computer Science** The University of Texas at Dallas Jan. 2002-Aug. 2004
(**Best CS Ph.D. Dissertation Award 2003-04**)

M.S. in **Computer Science** The University of Texas at Dallas Aug. 2000-Dec. 2001

B.Eng. (with Hons) in **Computer Science and Engineering** University of Mysore, India Aug. 1995-Aug. 1999

PROFESSIONAL EXPERIENCE

Professor Sep. 2016 – Present
Electrical and Computer Engineering, University of Massachusetts, Lowell, MA

Associate Professor (with Tenure) Sep. 2013 – Aug. 2016
Electrical and Computer Engineering, University of Massachusetts, Lowell, MA

Visiting Scientist Sep. 2011 – 2014
Claude E. Shannon Communication and Network Group
Research Laboratory of Electronics (RLE), Massachusetts Institute of Technology (MIT)

Associate Professor (with Tenure) Sep. 2010 – Aug. 2013
Assistant Professor Sep. 2004 – Aug. 2010
Director, Advanced Computer Networks Laboratory
Computer and Information Science, University of Massachusetts, Dartmouth, MA

Research Assistant Jan. 2001 – Aug. 2004
Advanced Networks Research Lab and Center of Advanced Telecommunications Systems and Services (CATSS)
The University of Texas at Dallas, Richardson, Texas
(Funded through NSF CAREER award – Dr. Jason Jue)

Software Engineer Sep. 1999 – Jul. 2000
Global Wireless Software Division
Motorola, Bangalore, India

HONORS AND AWARDS

- UML ECE Department Teaching Award 2018
- IET Premium Awards 2018 for Best Paper in IET Wireless Sensor Systems (over a 2-year period)
- Best Paper Award, IEEE ANTS 2016, Bangalore, India, Nov. 2016.
- Top Paper Award, ONDM 2016, Cartagena, Spain, May 2016.
- Best Paper Award, ONDM 2015, Pisa, Italy, May 2015.
- Best Poster Award - IPDPS 2013, PhD Forum, Boston, MA, May 2013.
- Scholar of the Year Award, University of Massachusetts Dartmouth 2010-11.

- Chancellor's Innovation in Teaching Award, University of Massachusetts Dartmouth 2010-11.
- Best Paper Award Candidate – Honorable Mention, IEEE ANTS 2010, Mumbai, India, Dec. 2010.
- Best Poster Award Candidate – Honorable Mention, IEEE ANTS 2010, Mumbai, India, Dec. 2010.
- Best Poster Award Candidate – Honorable Mention, UMass Instructional Tech. Conference, Boxborough, MA, Mar. 2007.
- Best Paper Award, IEEE Global Communication Conference (GLOBECOM) 2005 – Photonic Technologies for Communications Symposium, St. Louis, MO.
- University of Massachusetts Dartmouth, Wall of Scholarship 2006-2007.
- Best Computer Science Ph.D. Dissertation Award, The University of Texas at Dallas (2003-2004).
- Texas Telecommunications Engineering Consortium (TXTEC) Fellowship (2002 - 2003).
- Texas Public Education Grant Scholarship, The University of Texas at Dallas (Jan. 2001 – Aug. 2004).

RESEARCH GRANTS

External Grants: (Grand Total > $6 Million)

1. **PI:** Software-Defined Cyber-Physical Microgrids (SDCPM) for Agile Adaptation to High-Impact-Low-Probability (HILP) Disturbances (UML), ONR, **$300K**, 10/21-09/24.
2. **PI:** Flexible Spectrum Allocation in Next-Generation Optical Networks, NSF CNS Core, **$350K**, 10/20-09/24.
3. **Co-PI:** Resilient Sensing and Communication Architecture for Naval Energy Infrastructure Monitoring, ONR, **$360K**, 10/20-09/23.
4. **PI:** REU supplement, Flexible Spectrum Allocation in Next-Generation Optical Networks, NSF CNS Core, **$16K**, 10/20-09/21
5. **PI**: "Network Cyberinfrastructure (CI) for Biomedical Informatics Innovation," NSF CC*DNI, **$1.016 Million**, 09/2015-08/2019.
6. **Co-PI: "**Information Sharing and Its Effect on Tracking Sex Offenders and Community Awareness: Examining a Key Function of the Sex Offender Registration and Notification Act (SORNA)," National Institute of Justice, Lead-PI: Andrew Harris, Criminology & Justice Studies; Co-Investigator – Joshua Dyck, Political Science, **$1 Million,** 01/01/2015-12/31/2019.
7. **PI**: "PROPER: Parallel Resource-Optimized Provisioning of End-to-End Requests," DOE Big Data-Aware Terabits Networking, DE-FOA-0000883, **$401,000**, 06/2014-06/2018.
8. **Co-PI: "**Command & Control Display Equipment (CCDE) Requirements Specification," US Air Force, Lead-PI: Kavitha Chandra, **$865,352**, 07/2017-07/2018
9. **PI:** "Coordinated Advance Reservation for Grid over Optical Networks (CARGONET)," NSF NeTS Small, **$325,169**, 09/01/2012 - 08/31/2017. Includes REU-Supplement of **$40,000.**
10. **Co-PI**: "FLowell: Accelerating Data-Driven Scientific Research at the University of Massachusetts Lowell," NSF CC*IIE Networking Infrastructure, **$500,000**, 10/01/2014-09/30/2017, **Lead-PI**: Dr. Yan Luo.
11. **Co-PI**: "Bridging Reliability Analysis and Reality in Sensor Systems: Theories and Applications," NSF CSR Small, **$441,000 (UMass share: $277,616)**, 07/01/2011 - 06/31/2015, **Lead-PI**: Dr. Liudong Xing (UMassD), Yan Sun (URI). Includes REU-Supplement of **$16,000**.
12. **PI**: "Coordinated Multi-Layer Multi-Domain Optical Network (COMMON)," Department of Energy (DOE), Office of Science, **$524,991**, 09/01/2010 - 08/31/2013.
13. **PI**: "SOON: Service-Oriented Optical Networks," NSF NeTS Small, **$476,000 (UMass share: $240,488)**, 09/01/2006-08/31/2011. Other PI: Jason Jue (UT Dallas). Includes REU-Supplement of **$36,000**.
14. **PI:** "Teaching Computer Networks Through Simulation Experiments and Animation Library (The NET-SEAL Project)," NSF CCLI-Phase 1 (Exploratory), **$168,024**, **(UMass share: $127,207**) 02/15/2006-07/31/2010. Co-PI: Silvino Ferreira (BCCC).
15. **PI**: "MASCOT: Manycast Architecture for Service-Oriented Tactical Operations," Phase I, United States Marine Corps (USMC), **$49,909**, 06/01/2008-09/30/2008. Co-PI: Ramprasad Balasubramanian (CIS).
16. **PI**: "Analyzing and Testing Network Layer 2/Layer 3 Functionality," Enterasys Networks Inc, **$23,188**, 08/20/2007-01/25/2008.
17. **PI**: "Student Travel Support for INFOCOM 2008 Conference," NSF, 03/15/2008-03/14/2009, **$20,000**.
18. **PI**: "Student Travel Support for BroadNets 2006 Conference," NSF, 09/01/2006-08/31/2007, **$10,000**.

Internal Grants: (Total: $74,000)

1. **PI**: "Interactive Textbook," Chancellor's Innovation in Teaching Award, **$3,000**, 12/20/2010-12/31/2012.
2. **PI**: "Advance Reservation for Next-Generation Optical Networks (ARGON)," The Chancellor's Research Fund / UMASS Healey Endowment, **$10,000**, 07/01/2010-6/31/2011.
3. **Co-PI**: "Smart Autonomous Fault-Tolerant Environments (SAFE) Cluster," COE, UMass Dartmouth, **$25,000**, 09/2008-08/2010. PI: Ramprasad Balasubramanian (CIS) and other Co-PIs.
4. **PI: "**iLearn: Internet-based Active Environment," UMass Dartmouth, Center of Teaching Excellence, Other PI: Ramprasad Balasubramanian, **$7,000**, 07/01/2007-06/30/2008.
5. **PI**: "Research Topics in Optical and Wireless Networking," College of Engineering (CoE) Faculty Startup Grant, **$34,000**, 09/01/2004-09/01/2006.

6. **PI**: "Secure Sensor Networks Application to Safety and Maintenance of Railways," CoE Research Seed Initiative 2005-06, Others: E. Aboelela (CIS), W. Edberg and C. Papakonstantinou (CEN), **$20,000**, 06/01/2005-05/31/2006.
7. **PI**: "Design and Analysis of New Optical Burst Transport Architectures for Next-Generation GridNets," The Chancellor's Research Fund/UMASS Healey Endowment, **$5,600**, 06/01/2005-12/31/2006.

RESEARCH PUBLICATIONS (publications: 178, citations: 5,173, h-index: 34, i10-index: 73, source: scholar.google.com)

[* represents UMass Student Author; all authors are listed in the manner they appear in the publications]

http://scholar.google.com/citations?user=EIIbTe8AAAAJ

BOOK

1. J.P. Jue and V.M. Vokkarane, Optical Burst Switched Networks, ***Springer, Optical Networks Series***, 2005, ISBN:0-387-23756-9.

BOOK CHAPTERS

1. Yan Cui* and Vinod M. Vokkarane, "Analytical Modeling of Survivable Anycast Communication in Optical Networks," IFIP International Federation for Information Processing 2020, Published by Springer Nature Switzerland AG 2020, A. Tzanakaki et al. (Eds.): ONDM 2019, LNCS 11616, pp. 1–13, 2020. https://doi.org/10.1007/978-3-030-38085-4_28.
2. L Mandava, L Xing, VM Vokkarane, and O Tannous, "Reliability Analysis of Multi-State Cloud-RAID with Imperfect Element-Level Coverage," CRC Reliability Engineering: Theory and Applications, 2018.
3. V. M. Vokkarane, and B.G. Bathula*, "Manycast Service in Optical Burst/Packet Switched (OBS/OPS) Networks," Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, 1, Volume 2, Networks for Grid Applications, Pages 231-242, Oct. 2008.

JOURNAL PAPERS

1. S. N. Edib, Y. Lin, V. M. Vokkarane, F. Qiu, Y. Zhang and P. Du, "Situation-Aware Load Restoration Considering Uncertainty and Correlation," in ***IEEE Transactions on Power Systems***, 2023, doi: 10.1109/TPWRS.2023.3278266.
2. S. N. Edib, Y. Lin, V. M. Vokkarane, F. Qiu, R. Yao, and B. Chen, "Cyber Restoration of Power Systems: Concept and Methodology for Resilient Observability," in ***IEEE Transactions on Systems, Man, and Cybernetics: Systems***, 2023, doi: 10.1109/TSMC.2023.3258412.
3. M. Z. Islam, Y. Lin, V. M. Vokkarane, and V. Venkataramanan, "Cyber-physical cascading failure and resilience of power grid: A comprehensive review," ***Frontiers in Energy Research***, 09 February 2023, Sec. Smart Grids, Volume 11, 2023, https://doi.org/10.3389/fenrg.2023.1095303
4. M. Z. Islam, S. N. Edib, V. M. Vokkarane, Y. Lin and X. Fan, "A Scalable PDC Placement Technique for Fast and Resilient Monitoring of Large Power Grids," in ***IEEE Transactions on Control of Network Systems***, 2023 doi: 10.1109/TCNS.2023.3240200.
5. J. Zhao and V. Vokkarane, "Static multi-sourced data retrieval in elastic optical networks," ***IEEE/OSA Journal of Optical Communications and Networking***, 14 (10), 792-804, 2022.
6. S. N. Edib, Y. Lin, V. M. Vokkarane and X. Fan, "A Cross-Domain Optimization Framework of PMU and Communication Placement for Multi-Domain Resiliency and Cost Reduction," in ***IEEE Internet of Things Journal***, 2022, doi: 10.1109/JIOT.2022.3184946.
7. P Afsharlar, A Deylamsalehi, and VM Vokkarane, "Delayed spectrum allocation in elastic optical networks with anycast traffic," **OSA Continuum** 4 (8), 2118-2132, 2021.
8. S.N. Edib, Y. Lin, V.M. Vokkarane, F. Qiu, R. Yao, and D. Zhao, "Optimal PMU Restoration for Power System Observability Recovery After Massive Attacks," accepted***, IEEE Transactions on Smart Grid***, Sep. 2020.
9. Dylan AP Davis* and V.M. Vokkarane, "Failure-Aware Protection for Many-to-Many Routing in Content Centric Networks," ***IEEE Transactions on Network Science and Engineering***, Jan. 2019. DOI: 10.1109/TNSE.2019.2892976.
10. Arash Deylamsalehi*, Dylan AP Davis*, Pegah Afsharlar*, Mehdi Bahrami, Wei-Peng Chen, and Vinod M. Vokkarane, "Using Machine Learning to Balance Energy Cost and Emissions in Optical Networks," ***IEEE/OSA Journal of Optical Communications and Networking (JOCN)***, vol. 10, no. 10, Oct. 2018.
11. C. Liu, Y. Cao, Y. Luo, G. Chen, V.M. Vokkarane, Y. Ma, S. Chen, and P. Hou, "A New Deep Learning-based Food Recognition System for Dietary Assessment on an Edge Computing Service Infrastructure," ***IEEE Transactions on Services Computing***, Vol: 11, Iss: 2, 249–261, Mar-Apr 2018.
12. L Xing, M Tannous*, V.M. Vokkarane, H Wang, J Guo, "Reliability Modeling of Mesh Storage Area Networks for Internet of Things," ***IEEE Internet of Things Journal*** 4 (6), 2047-2057, Dec. 2017.
13. G. Levitin, L. Xing, Y. Dai, and V. M. Vokkarane, "Dynamic Checkpointing Policy in Heterogeneous Real-Time Standby Systems," ***IEEE Transactions on Computers***, Volume: 66, Iss: 8, 1449 – 1456, Aug. 2017.

14. Pegah Afsharlar*, Arash Deylamsalehi*, J. Plante*, Juzi Zhao, and Vinod M. Vokkarane, Routing and Spectrum Assignment with Delayed Allocation in Elastic Optical Networks," ***IEEE/OSA Journal of Optical Communications and Networking (JOCN)***, vol. 9, no. 2, Mar. 2017.
15. Arash Deylamsalehi*, Yan Cui*, Pegah Afsharlar*, and Vinod M. Vokkarane, Minimizing Electricity Cost and Emissions in Optical Multilayer Core Networks," ***IEEE/OSA Journal of Optical Communications and Networking (JOCN)***, vol. 9, no. 2, Mar. 2017.
16. J.M. Plante* and Vinod M. Vokkarane, "Sliding Scheduled Lightpath Establishment with Time-Slotted Wavelength Switching," ***IEEE/OSA Journal of Optical Communications and Networking (JOCN)***, vol. 9, no. 1, Jan. 2017.
17. Y. Cui* and Vinod M. Vokkarane, "Analytical Blocking Model for Anycast RWA in Optical WDM Networks," ***IEEE/OSA Journal of Optical Communications and Networking (JOCN)***, vol. 8, no. 10, Oct. 2016.
18. C. Wang*, L. Xing, A.E. Zonouz*, V. M. Vokkarane, and Y. Sun, "Communication Reliability Analysis of Wireless Sensor Networks Using Phased-Mission Model," ***Quality and Reliability Engineering International***, in press, 2017.
19. A.E. Zonouz*, L. Xing, V.M. Vokkarane, and Y.L. Sun, "Hybrid wireless sensor networks: a reliability, cost and energy-aware approach," **IET Wireless Sensor Systems**, Volume 6, Issue 2, p. 42 – 48, Apr. 2016, DOI: 10.1049/iet-wss.2014.0131 2016.
20. J. Plante*, A. Gadkar, and V.M. Vokkarane, "Manycast Overlay in Split-Incapable Networks for Supporting Bandwidth-Intensive Applications," **IEEE/ACM Transactions on Networking (TON)**, Feb. 2016, DOI: 10.1109/TNET.2014.2360503.
21. D.A.P. Davis* and V. M. Vokkarane, "Static Protection Against Single Multicast Resource Failure," **Springer Photonic Networks Communications**, Special Issue on Top Papers from ONDM 2015, Jan. 2016, DOI 10.1007/s11107-015-0590-3.
22. J.M. Plante*, D.A.P. Davis, and V.M. Vokkarane, "Parallel Circuit Provisioning in ESnet's OSCARS," Springer Photonic Networks Communications, Special Issue on Top Papers from IEEE ANTS 2014, Volume 30, Issue 3, pp 363-375, Dec. 2015, DOI: 10.1007/s11107-015-0535-x.
23. Yongbo Zeng*, Yan Sun, L. Xing, and V. M. Vokkarane, "Online Social Networks Privacy Study Through TAPE Framework," **IEEE Journal of Selected Topics in Signal Processing** - Special Issue on Signal and Information Processing for Privacy, Oct. 2015, DOI: 10.1109/JSTSP.2015.2427774.
24. Thilo Schöndienst* and Vinod M. Vokkarane. "Reducing Greenhouse Gas Emissions with Power Source Aware Multi-Domain Multi-Layer Networks," **IEEE Systems Journal** - Special Issue on Green Communications, Computing, and Systems, Jul. 2015, DOI:10.1109/JSYST.2015.2448599.
25. C. Wang*, L. Xing, V. M. Vokkarane, and Y. Sun, "Infrastructure Communication Sensitivity Analysis of Wireless Sensor Networks," **Quality and Reliability Engineering International**, 2015, in press.
26. A. E. Zonouz*, L. Xing, V. M. Vokkarane, and Y. Sun, "Application Communication Reliability of Wireless Sensor Networks," **IET Wireless Sensor Systems**, Vol. 5, No. 2, pp. 58-67, April 2015.
27. A. E. Zonouz*, L. Xing, V. M. Vokkarane, and Y. Sun, "Reliability-Oriented Single-Path Routing Protocols in Wireless Sensor Networks," **IEEE Sensors Journal**, Vol. 14, No. 11, Nov. 2014.
28. T. Schöndienst*, D.A.P. Davis*, J.M. Plante*, and V.M. Vokkarane, "Renewable Energy-Aware Manycast Overlays," ***IEEE Journal on Selected Areas in Communication (J-SAC): Energy-Efficiency in Optical Networks***, Vol.32, No.8, pp. 1585–1599, Aug 2014.
29. T. Schöndienst* and V. M. Vokkarane, "Renewable Energy-aware Grooming in Optical Networks," ***Springer Photonic Network Communications***, Vol. 28, No.1, pp. 71–81, Apr. 2014.
30. A. Gadkar*, T. Entel*, J.M. Plante*, and Vinod M. Vokkarane, "Slotted Advance Reservation for Multicast-Incapable Optical WDM Networks," ***IEEE/OSA Journal of Optical Communications and Networking (JOCN)***, vol. 6, no. 3, pp. 340-354, Mar. 2014.
31. C. Wang*, L. Xing, V. M. Vokkarane, and Y. Sun, "Reliability and Lifetime Modeling of Wireless Sensor Nodes", ***Elsevier Microelectronics Reliability***, Vol. 54, No. 1, pp. 160-166, January 2014.
32. J. Triay*, C. Cervello-Pastor, and V.M. Vokkarane, "Analytical Blocking Probability Model for Hybrid Immediate and Advance Reservations in Optical WDM Networks," ***IEEE/ACM Transactions on Networking***, vol. 21, no. 6, pp. 1890–1903, Dec. 2013.
33. N. Charbonneau* and V.M. Vokkarane, "A Survey of Advance Reservation Routing and Wavelength Assignment in Wavelength-Routed WDM Networks," ***IEEE Communications Surveys and Tutorials***, vol. 14, no. 4, pp. 1037–1064, Q4. 2012.
34. A.G. Gadkar*, J. Plante*, and V.M. Vokkarane, "Multicast Overlay for High-Bandwidth Application Over Optical WDM Networks," ***IEEE/OSA Journal of Optical Communications and Networking (JOCN),*** vol. 4, no. 8, pp. 571-585, Aug. 2012.
35. N. Charbonneau*, A. G. Gadkar*, B.H. Ramaprasad*, and V.M. Vokkarane, "Dynamic Circuit Provisioning in All-Optical WDM Networks Using Lightpath Switching," ***Elsevier Optical Switching and Networking, Special Issue on IEEE ANTS 2010***, vol. 9, no. 2, pp. 145-146*,* Apr. 2012.
36. C. Wang*, L. Xing, V. M. Vokkarane, and Y. Sun, "Reliability Analysis and Optimization of WSN with Tree Topology," ***Elsevier Computer Communications Journal, Special Issue on Reliable Network-based Services****,* vol. 8, no. 2, pp. 213-216, Mar. 2012.
37. A. Shrestha*, L. Xing, Y. Sun, and V. M. Vokkarane, "Infrastructure Communication Reliability of Wireless Sensor Networks Considering Common-Cause Failures," ***International Journal of Performability Engineering***, vol. 8, no. 2, pp. 141-150, Mar. 2012.
38. N. Charbonneau* and V.M. Vokkarane, "Static Routing and Wavelength Assignment for Multicast Advance Reservation in All-Optical Wavelength-Routed WDM Networks," ***IEEE/ACM Transactions on Networking***, vol. 20, no. 1, pp. 1–14, Feb. 2012.
39. N. Charbonneau*, D. Chandran, and V.M. Vokkarane, "Improving TCP Performance over Optical Burst-Switched Networks Using Forward Segment Redundancy," ***Springer Photonic Networks Communications***, vol. 23, no. 1, pp. 1-15, Feb. 2012.

40. Q. Zhang, N. Charbonneau*, V.M. Vokkarane, and J.P. Jue, "TCP over Optical Burst-Switched Networks with Controlled Burst Retransmission," ***Springer Photonic Network Communications***, vol. 22, no. 3, pp. 299-312, Dec. 2011.
41. N. Charbonneau*, V.M. Vokkarane, C. Gouk, and I. Monga, "Advance Reservation Frameworks for Wavelength-Routed WDM Networks," ***IEEE Communications Magazine***, Special Issue on Hybrid Networking: Evolution Towards Combined IP Services and Dynamic, vol. 49, no. 5, pp.132-139, May 2011.
42. R.R.C. Bikram*, N. Charbonneau*, and Vinod M. Vokkarane, "Multi-Layer Loss Recovery in TCP over Optical Burst-Switched (OBS) Networks," ***Springer Photonic Network Communications***, vol. 21, no. 2, pp. 158-169, Apr. 2011.
43. N. Charbonneau* and V.M. Vokkarane, "Performance Modeling of HS-RR-TCP Over Load-Balanced Optical Burst-Switched (OBS) Networks," ***Elsevier Optical Switching and Networking (OSN)***, vol. 8, no. 2, pp. 116–128, Apr. 2011.
44. B.G. Bathula*, R.R.C. Bikram*, V.M. Vokkarane, and S. Talabattula, "Quality of Transmission Aware Manycasting Over Optical Burst-Switched (OBS) Networks," ***IEEE/OSA Journal of Optical Communications and Networking (JOCN)***, vol. 2, no. 10, pp. 820–830, Oct. 2010.
45. N. Charbonneau* and V.M. Vokkarane, "Routing and Wavelength Assignment of Static Manycast Demands over All-Optical Wavelength-Routed WDM Networks," ***IEEE/OSA Journal of Optical Communications and Networking (JOCN)***, vol. 2, no. 7, pp. 427-440, Jul. 2010.
46. B.G. Bathula* and V.M. Vokkarane, "QoS-Based Manycasting Over Optical Burst-Switched (OBS) Networks," ***IEEE/ACM Transactions on Networking***, vol. 18, no. 1, pp. 271- 283, Feb. 2010.
47. B. Komatireddy*, N. Charbonneau*, V.M. Vokkarane, "Source-Ordering for Improved TCP Performance over Load-Balanced Optical Burst-Switched (OBS) Networks," ***Springer Photonic Network Communications***, vol. 19, no. 1, pp.1-8, Feb. 2010.
48. R.R.C. Bikram* and V.M. Vokkarane, "TCP over Optical Burst-Switched (OBS): To Split or Not To Split?" ***IEEE/OSA Journal of Lightwave Technology (JLT),*** vol. 27, no. 23, pp. 5208-5219, Dec. 2009.
49. A. Parikh*, H. Joshi*, L. Xing, V. M. Vokkarane, and H. Liu "Optimizing Sensor Count in Layered Wireless Sensor Networks," ***International Journal of Performability Engineering***, Vol. 5, No. 3, pp. 296-298, Apr. 2009.
50. F. Farahmand, V.M. Vokkarane, J.P. Jue, J.J.P.C. Rodrigues, and M.M. Freire, "Optical Burst Switching Network: A Multi-layered Approach," ***IOS Press Journal of High-Speed Networks (JHSN)***, Vol. 16, No. 2, pp. 105-122, Feb. 2007.
51. V.M. Vokkarane, "Intermediate-Node-Initiation (INI): A Generalized Signaling Framework for Optical Burst-Switched Networks," ***Elsevier Optical Switching and Networking (OSN)***, vol. 4, no. 1, pp. 20-32, Feb. 2007.
52. V.M. Vokkarane and J.P. Jue, "Segmentation-Based Non-Preemptive Channel Scheduling Algorithms for Optical Burst-Switched Networks," ***IEEE/OSA Journal of Lightwave Technology (JLT)****, Special Issue on Optical Networks,* vol. 23, no. 10, Oct. 2005.
53. J. Wang, V.M. Vokkarane, R. Jothi, X. Qi, B. Raghavachari, and J. P. Jue, "Dual-Homing Protection in IP-over-WDM Networks," ***IEEE/OSA Journal of Lightwave Technology (JLT),*** *Special Issue on Optical Networks,* vol. 23, no. 10, Oct. 2005.
54. Q. Zhang, V.M. Vokkarane, J.P. Jue, and B. Chen, "Absolute QoS Differentiation in Optical Burst-Switched Networks," ***IEEE Journal on Selected Areas in Communications (JSAC) - Optical Communications and Networking Series*****,** vol. 22, no. 9, pp. 1781-1795, Nov. 2004.
55. V.M. Vokkarane and J.P. Jue, "Burst Segmentation: an Approach for Reducing Packet Loss in Optical Burst-Switched Networks," ***SPIE/Kluwer Optical Networks,*** *Special Issue on Engineering the Next Generation Optical Internet*, vol. 4, no. 6, Nov./Dec., 2003.
56. V.M. Vokkarane and J.P. Jue, "Prioritized Burst Segmentation and Composite Burst Assembly Techniques for QoS Support in Optical Burst-Switched Networks," ***IEEE Journal on Selected Areas in Communication (JSAC)****, Special Issue on High-Performance Optical/Electronic Switches/Routers for High-Speed Internet*, vol. 21, no. 7, pp. 1198-1209, Sep. 2003.

CONFERENCE PAPERS (most are highly-refereed)

1. MZ Islam, VM Vokkarane, and Y Lin, PMU Network Routing for Resilient Observability of Power Grids, Proceedings, IEEE ICC 2023, Rome, Italy, June 2023.
2. S. N. Edib, Y. Lin, and V. M. Vokkarane, "Disaster-Resilient PMU Network Design," Proceedings, IEEE ICC 2023, Rome, Italy, June 2023.
3. A Rezaee, R McCann, VM Vokkarane, "PLI-Aware Dynamic Routing in Software Defined Elastic Optical Networks (SD-EONs)," International Conference on Optical Network Design and Modeling (ONDM), pp. 1-3, Coimbra, Portugal, May 2023.
4. E. Meriaux, D. Koehler, M. Z. Islam, V. Vokkarane and Y. Lin, "Performance Comparison of Machine Learning Methods in DDoS Attack Detection in Smart Grids," *2022 IEEE MIT Undergraduate Research Technology Conference (URTC)*, Cambridge, MA, USA, 2022, pp. 1-5, doi: 10.1109/URTC56832.2022.10002244.
5. Yue Wang* and Vinod M. Vokkarane, "Time-Slice: Evaluation of SDM lightpath Switching RMCSA Algorithms," OSA Advanced Photonics congress 2020, Virtual Conference July 2020.
6. Yue Wang* and Vinod M. Vokkarane, "Light-segment: Crosstalk and Modulation-Aware Spectrum Allocation with Segmentation in SDM-EON," IEEE ICC 2020, Dublin, Ireland, June 2020.
7. Yue Wang* and Vinod M. Vokkarane, "Light-Slice: Evaluation of Slice-ability-based RMCSA algorithms in SDM-EON," OSA Signal Processing in Photonic Communications, JT4A. 25, Burlingame, CA, Aug. 2019.
8. Yan Cui* and Vinod M. Vokkarane, "Analytical Modeling of Survivable Anycast Communication in Optical Networks," Proceedings, Optical Networks Design and Modelling (ONDM) 2019, Athens, Greece, May 2019.

9. Pegah Afsharlar*, Jeremy Plante*, Arash Deylamsalehi*, and Vinod M. Vokkarane, "Delayed Wavelength Switching and Allocation in Optical Networks," Proceedings, IEEE Sarnoff 2018, NJIT, Sep. 2018.
10. Anisha Joseph*, Jeremy Plante*, Juzi Zhao*, and Vinod M. Vokkarane, "Co-Scheduling Scientific Workflows in Elastic Optical Networks" Proceedings, IEEE Sarnoff 2018, NJIT, Sep. 2018.
11. Yan Cui* and Vinod M. Vokkarane, "Analytical Blocking Model for Generalized Light-tree in Optical WDM Networks," Proceedings, IEEE LANMAN 2018, DC, May 2018.
12. D.A.P. Davis* and V.M. Vokkarane, "Generalized Survivability Models for Many-to-Many Communication," Proceedings, ICNC 2018, Maui, Mar. 2018.
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116. V.M. Vokkarane, J.P. Jue, and S. Sitaraman, "Burst Segmentation: an Approach for Reducing Packet Loss in Optical Burst-Switched Networks," Proceedings, ***IEEE International Conference on Communications (ICC) 2002***, vol. 5, pp. 2673-2677, New York, New York, Apr. 2002. [Acceptance Ratio: 655/1568 = 41.8%]
117. V.M. Vokkarane and J.P. Jue, "Prioritized Routing and Burst Segmentation for QoS in Optical Burst-Switched Networks," Proceedings, ***IEEE/OSA Optical Fiber Communication (OFC) Conference 2002***, WG6, pp. 221-222, Anaheim, California, Mar. 2002.

PATENTS

1. V.M. Vokkarane and A. Somani, "Dynamic Advance Reservation with Delayed Allocation," **#8,902,920**, Dec. 2014.

UNREFEERED PUBLISHED WORK

GUEST EDITORIAL

1. S. De and V.M. Vokkarane, Special Issue: Selected Papers from the Seventh International IEEE Symposium on Advanced Networks and Telecommunication Systems (IEEE ANTS 2014), Editorial, ***Springer Photonic Network Communications Journal***, Dec. 2015.
2. P. Monti, A. Morea, A. Nirmalathas, and V.M. Vokkarane, Special Issue on Energy-Efficiency in Optical Networks, Editorial, ***Springer Photonic Network Communications Journal***, Aug. 2015.
3. M. Xia and V.M. Vokkarane, Special Issue: Selected Papers from the Seventh International IEEE Symposium on Advanced Networks and Telecommunication Systems (IEEE ANTS 2013), Editorial, ***Springer Photonic Network Communications Journal***, No. 28, Pp. 113-114, Aug. 2014.
4. B. Mukherjee, R. Dutta, K. Sivalingam, **V.M. Vokkarane**, and A. Jukan, Special Issue: Selected Papers from the Fourth International IEEE Symposium on Advanced Networks and Telecommunication Systems (IEEE ANTS 2010), Editorial, ***Optical Switching and Networking***, vol. 9, no. 2, Apr. 2012.

POSTERS

1. J. M. Plante, T. Schöndienst, D. A.P. Davis, and V. M. Vokkarane, "Dual Power-Source Aware Optical Manycasting," at 23rd Wireless and Optical Communication Conference (WOCC 2014) Newark, USA, May 2014 (BEST POSTER AWARD (2ND)).
2. T. Schöndienst and V. M. Vokkarane, "RINSE: Reducing the Impact of Network Survivability on the Environment," 23rd Wireless and Optical Communication Conference (WOCC 2014) Newark, USA, May 2014 (BEST POSTER AWARD (3RD)).
3. A. Deylamsalehi, T. Schöndienst, and V. M. Vokkarane, "Energy-Cost Aware Routing Using Real-Time Pricing of Power Grids," 23rd Wireless and Optical Communication Conference (WOCC 2014) Newark, USA, May 2014.
4. D. A.P. Davis, J. M. Plante, and V. M. Vokkarane, "Introducing Survivability and Anycast Functionality to OSCARS," 23rd Wireless and Optical Communication Conference (WOCC 2014) Newark, USA, May 2014.
5. T. Schöndienst and V. M. Vokkarane, "RINSE: Reducing the Impact of Network Survivability on the Environment," 17th Annual Student Research & Community Engagement Symposium University of Massachusetts Lowell, USA, April 2014.
6. A. Deylamsalehi, T. Schöndienst, and V. M. Vokkarane, "Energy-Cost Aware Routing Using Real-Time Pricing of Power Grids," 17th Annual Student Research & Community Engagement Symposium University of Massachusetts Lowell, USA, April 2014 (BEST POSTER AWARD).
7. J. M. Plante, T. Schöndienst, D. A.P. Davis, and V. M. Vokkarane, " Dual Power-Source Aware Optical Manycasting," 17th Annual Student Research & Community Engagement Symposium University of Massachusetts Lowell, USA, April 2014.
8. C. Wang, L. Xing, V. M. Vokkarane, and Y. Sun, "Independent Probabilistic Common-Cause Failure Analysis in Phased-Mission Systems," Sigma Xi Research Exhibition, University of Massachusetts Dartmouth, April 2014.
9. R.R.C. Bikram* and V.M. Vokkarane, "Dynamic Load-Balanced Manycasting over Optical Burst-Switched (OBS) Networks," Sigma Xi Research Poster Exhibition, University of Massachusetts Dartmouth, April 28-29, 2009.http://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_vmv_04072008_0218.xml
10. D. Padmanadhan*, R. Bikram*, and V.M Vokkarane, "TCP Over Optical Burst Switching (OBS): To Split or Not To Split?" Sigma Xi Research Poster Exhibition, University of Massachusetts Dartmouth, April 29-30, 2008.http://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_vmv_04072008_0218.xml
11. D. Jain* and V.M. Vokkarane, "Energy-Efficient Target Monitoring in Wireless Sensor Networkshttp://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_djv_04072008_0236.xml," Sigma Xi Research Poster Exhibition, University of Massachusetts Dartmouth, April 29-30, 2008.http://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_vmv_04072008_0218.xml
12. N. Jain* and V.M. Vokkarane, "Performance Analysis of Dual-Homed Fault-Tolerant Routing in Wireless Sensor Networks," Sigma Xi Research Poster Exhibition, University of Massachusetts Dartmouth, April 29-30, 2008.http://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_vmv_04072008_0218.xml
13. B.G. Bathula*, R.R.C. Bikram*, and V.M. Vokkarane, "Impairment-Aware Manycast Algorithms Over Optical Burst-Switched Networkshttp://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_brv_04072008_0249.xml," Sigma Xi Research Poster Exhibition, University of Massachusetts Dartmouth, April 29-30, 2008.http://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_vmv_04072008_0218.xml
14. P. Ramos*, D. Chandran*, and V.M. Vokkarane, "Unfairness in TCP over Optical Burst-Switched Networks (OBS)http://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_pdv_04072008_0255.xml," Sigma Xi Research Poster Exhibition, University of Massachusetts Dartmouth, April 29-30, 2008.http://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_vmv_04072008_0218.xml
15. D. Chandran* and V.M. Vokkarane, "Performance Evaluation of Forward Segment Redundancy Mechanism in Optical Burst-Switched (OBS) Networks," Sigma Xi Research Poster Exhibition, University of Massachusetts Dartmouth, April 29-30, 2008.http://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_vmv_04072008_0218.xml
16. A. Kumar*, A. Parikh*, L. Xing, and V.M. Vokkarane; "Optimizing Sensor Position and Count in Layered Wireless Sensor

Networks," Sigma Xi Research Poster Exhibition, University of Massachusetts Dartmouth, April 29-30, 2008.http://www.umassd.edu/org/sigmaxi/view.cfm?file=computerscience_vmv_04072008_0218.xml

17. R. Balasubramanian and V.M. Vokkarane, "iLearn: Internet-based Active Learning Environment," University of Massachusetts - Instructional Technology Conference (ITC 2008), Boxborough, MA, Apr. 11, 2008 (**Honorable Mention – Best Poster Award Candidate**).
18. S. Parikh*, L. Xing, D. Kasilingam, and V.M. Vokkarane, "Policing of Mobile Nodes to Improve Network Coverage of Wireless Sensor Networks," UMass Dartmouth Sigma Xi Research Exhibition, Apr. 25-26, 2006.

TECHNICAL REPORTS (THESIS AND OTHER PUBLICATIONS)

1. V.M. Vokkarane, "Design and Analysis of Architectures and Protocols for Optical Burst-Switched Networks," ***Ph.D. Dissertation***, *The University of Texas at Dallas*, Jun. 2004 (**Best CS Ph.D. Dissertation Award**).
2. V.M. Vokkarane, "Burst Segmentation: New Policy for Contention Resolution in Optical Burst-Switched Networks," ***Master's Thesis***, The *University of Texas at Dallas*, Dec. 2001.

INVITED TALKS AND PRESENTATIONS

INVITED TALKS/PANELIST

1. Invited Talk, ONDM 2019, Athens, Greece, May 2019.
2. Speaker, DOE Big-Data Workshop, Rockville, MD, Dec. 2016.
3. Invited Talk, IEEE Online GREENCOM 2016, Nov. 2016.
4. Speaker, DOE ASCR PI Meeting Workshop, Rockville, MD, Sep. 2015.
5. Invited Panelist/Speaker, DARPA New Frontiers in Networking Workshop, MIT, Cambridge, MA, May 2015.
6. Invited Panelist/Speaker, DOE ASCR Intelligent Optical Network Infrastructure Workshop, Gaithersburg, MD, August 2014.
7. Invited Panelist/Speaker, NSF Scaling Terabit Networks: Breaking Through Capacity Barriers and Lowering Cost with New Architectures and Technologies Workshop, Washington, DC, Sep 19-20, 2013.
8. DOE COMMON Project: Coordinated Multi-layer Multi-domain Optical Network Framework for Large-scale Science Applications (2010-2013), Annual PI meeting, Next-Generation Networks for Science (NGNS), Berkeley, CA, Mar. 18-20, 2013.
9. Invited Panelist/Speaker, NSF-NASA FutureHetNets 2011 Workshop, Mountain View, CA, March 24-25, 2011.
10. Invited Panelist/Speaker, Terabits Backbone Networking Challenges Group, DOE Terabit Networks for Extreme Scale Science Workshop (2011), Rockville, MD, Feb 16-17, 2011.
11. "Toward a Reliable Data Transport Architecture for Optical Burst-Switched Networks," **Key Speaker**, 3rd Workshop on Optimization of Optical Networks (OON) 2006, Montreal, QC, Apr. 28, 2006 (**Invited Talk**).
12. "Toward a Reliable Data Transport Architecture for Optical Burst-Switched Networks," **IEEE Lecture**, Dept. of Electrical and Computer Eng., Indian Institute of Science (IISc), Bangalore, India, Apr. 22, 2006 (**Invited Talk**).
13. "Dual-Homing Survivability for the Next-Generation Internet," Seminar, Dept. of Computer and Information Science, University of Massachusetts Dartmouth, Sep. 23, 2005 (**Invited Talk**).
14. "Wireless Sensor Networks," Seminar, Dept. of Computer and Information Science, University of Massachusetts Dartmouth, CSIAC Meeting, Nov. 4, 2005 (**Invited Talk**).
15. "Optical Burst Switching: Architectures and Protocols," Seminar, Dept. of Computer and Information Science, University of Massachusetts Dartmouth, Nov. 5, 2004 (**Invited Talk**).
16. "High-Speed Service-Oriented Optical Internet," UMass Dartmouth CIS Seminar, DION 101, 11/21/08 (**Invited Talk**).
17. "Practical Optical Burst Switching," UT Dallas Research Excellence Competition, Richardson, TX, Feb. 12, 2004 (**Invited Talk**).
18. "Quality of Service in Optical Burst-Switched Networks," Dept. of Computer Science, Hong Kong University of Science and Technology (HKUST), Nov. 25, 2002 (**Invited Talk**).
19. "New Contention Resolution Techniques for Optical Burst-Switched Networks," Dept. of Computer Science and Engineering, University of Buffalo (SUNY), May 3, 2002 (**Invited Talk**).

PAPER/POSTER PRESENTATIONS

1. "Parallel Circuit Provisioning in ESnet's OSCARS," 8th IEEE International Conference on Advanced Networks and Telecommunication Systems (IEEE ANTS), New Delhi, India, Dec 16-18, 2014.
2. "DOE PROPER: Parallel Resource-Optimized Provisioning of End-to-End Requests," IEEE/ACM Supercomputing, New Orleans, LA, Nov. 2014.
3. "Dynamic continuous and Non-Continuous advance reservation in SLICE networks," IEEE ICC 2014 - Optical Networks and Systems (ICC'14 ONS), Sydney, Australia, Jun. 2014
4. "Deadline-Aware Co-Scheduling Using Anycast Advance Reservations in Wavelength Routed Lambda Grids," International Conference on Computing, Networking and Communications (ICNC), Workshop on Computing, Networking and Communications, San Diego, CA, Jan. 2013.

5. "Improving Service Differentiation of Immediate and Advance Reservation in Resource-Partitioned Optical WDM Networks," International Conference on Computing, Networking and Communications (ICNC), Workshop on Computing, Networking and Communications, San Diego, CA, Jan. 2013.
6. "On Extending ESnet's OSCARS with an Anycast Path Computation Element," 16th International Conference on Optical Networking Design and Modeling (***ONDM 2012)***, Colchester, UK, April 19, 2012.
7. "Scheduled Multicast Overlay in WDM Unicast Networks," 16th International Conference on Optical Networking Design and Modeling (***ONDM 2012)***, Colchester, UK, April 19, 2012.
8. "Dynamic Manycasting in Optical Split-Incapable WDM Networks for Supporting High-Bandwidth Applications," International Conference on Computing, Networking and Communications, Optical and Grid Networking Symposium (***IEEE ICNC 2012***), Maui, Hawaii, Jan. 30, 2012.
9. "Dynamic Non-Continuous Single Slot Advance Reservation over Wavelength Routed Networks," International Conference on Computing, Networking and Communications, Optical and Grid Networking Symposium (***IEEE ICNC 2012***), Maui, Hawaii, Jan. 30, 2012.
10. "A Framework for Real-Time Monitoring of Acoustic Events Using a Wireless Sensor Network," *IEEE Conference on Technologies for Homeland Security (HST) 2011*, Waltham, MA, Nov. 15-17, 2011.
11. "Dynamic Circuits with Lightpath Switching over Wavelength Routed Networks," Fourth IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS), IIT Mumbai, India, Dec 16 -18, 2010.
12. "Crosstalk-Aware Anycast Routing and Wavelength Assignment in Optical WDM Networks," Fourth IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS), IIT Mumbai, India, Dec 16 -18, 2010.
13. "Multicast Advance Reservation RWA Heuristics in Wavelength-Routed Networks," *IEEE Globecom 2010*, Optical Networks and Systems Symposium, Miami, FL, Dec. 7th 2010.
14. "Performance Evaluation of TCP over Optical Burst Switched (OBS) Networks using Coordinated Burst Cloning and Forward-Segment Redundancy," *IEEE Globecom 2010*, Optical Networks and Systems Symposium, Miami, FL, Dec. 8th 2010.
15. "Coordinated Multi-Layer Loss Recovery in TCP over Optical Burst-Switched (OBS) Networks," IEEE ICC 2010, Cape Town, South Africa, May, 2010.
16. "Tabu Search Meta-Heuristic for Static Manycast Routing and Wavelength Assignment over Wavelength-Routed Optical WDM Networks," IEEE ICC 2010, Cape Town, South Africa, May, 2010.
17. "Static Manycast Routing and Wavelength Assignment over Wavelength-Routed Optical WDM Networks," Third IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS), IIT Delhi, India, Dec 14 -16, 2009.
18. "Unfairness in TCP Performance over Lossy Optical Burst-Switched (OBS) Networks," Third IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS), IIT Delhi, India, Dec 14 -16, 2009.
19. "Impairment-Aware Manycasting Algorithms Over Optical Burst-Switched Networks," 17th IEEE International Conference on Computer Communications and Networks (ICCCN 2008), St. Thomas, USVI, Aug.5, 2008.
20. "TCP Over Optical Burst Switching (OBS): To Split or Not to Split?" 17th IEEE International Conference on Computer Communications and Networks (ICCCN 2008), St. Thomas, USVI, Aug. 5, 2008.
21. "Impairment-Aware Manycasting Over Optical Burst-Switched Networks," IEEE International Conference on Communications (ICC 2008), Beijing, China, May 21, 2008.
22. "iLearn: Internet-based Active Environment," University of Massachusetts - Instructional Technology Conference (ITC 2008), Boxboro, MA, April 11, 2008.
23. "Source-Ordering for Improved TCP Performance over Load-Balanced Optical Burst-Switched (OBS) Networks," Paper Presentation, IEEE/CreateNet BROADNETS 2007, Optical Networking Symp., Raleigh, NC, Sep.11, 2007.
24. "Node-Replacement Policies to Maintain Threshold-Coverage in Wireless Sensor Networks," Paper Presentation, 16th IEEE International Conference on Computer Communications and Networks (ICCCN), Honolulu, HI, Aug. 15, 2007.
25. "TCP-Aware Load-Balanced Routing in Optical Burst-Switched (OBS) Networks," Paper Presentation, IEEE/OSA OFC/NFOEC 2007, Anaheim, CA, Mar. 28, 2007.
26. "Forward Redundancy: A Loss Recovery Mechanism for Optical Burst-Switched Networks," Paper Presentation, Third IEEE/IFIP International Conference on Wireless and Optical Communications Networks (WOCN 2006), Bangalore, India, Apr. 2006
27. "Dynamic Dual-Homing Protection in WDM Mesh Networks," Paper Presentation, IEEE ICC 2004, Paris, France, Jun. 22, 2004.
28. "Design and Analysis of Architectures and Protocols for Optical Burst-Switched Networks," Ph.D. Final Oral Examination, Jun. 2, 2004.
29. "Dynamic Congestion-Based Load Balanced Routing in Optical Burst-Switched Networks," Paper Presentation, IEEE GLOBECOM 2003, San Francisco, CA, Dec. 2, 2003.
30. "Segmentation-Based Non-Preemptive Scheduling Algorithms for Optical Burst-Switched Networks," Paper Presentation, WOBS 2003 (co-located with SPIE OptiComm 2003), Dallas, TX, Oct. 16, 2003.
31. "Channel Scheduling Algorithms using Burst Segmentation and FDLs for Optical Burst-Switched Networks," Paper Presentation, ICC 2003, Anchorage, AK, May 14, 2003.
32. "Intermediate Node Initiated (INI) Signaling: A Hybrid Channel Reservation Technique for Optical Burst-Switched Networks," Paper Presentation, OFC 2003, Atlanta, Mar. 25, 2003.
33. "QoS in Optical Burst Switching," Poster Presentation, TXTEC Conference 2003, UT Arlington, Texas, Jan. 24, 2003.

34. "Generalized Burst Assembly and Scheduling Techniques for QoS Support in Optical Burst-Switched Networks," Paper Presentation, IEEE GLOBECOM 2002, Taipei, Taiwan, Nov. 19, 2002.
35. "Burst Segmentation: An Approach for Reducing Packet Loss in Optical Burst Switched Networks," Paper Presentation, ICC 2002, NY, Apr. 2002.
36. "Prioritized Routing and Burst Segmentation for QoS in Optical Burst-Switched Networks," Paper Presentation, OFC 2002, Anaheim, Mar. 2002.
37. "Burst Segmentation: A New Approach to Reduce Packet Loss in Optical Burst-Switched Networks," Master Thesis Defense, UT Dallas, Nov 19, 2001.

STUDENT SUPERVISION

Ph.D. Graduates/Candidates

1. Thilo Schoendienst (CE), 2011-2014. (Employer: European Patent Office).
2. Amir Ehsani Zonouz (CE), 2011-2015 (co-adviser: Dr. L Xing), UMass Dartmouth. (Employer: AirSys).
3. Jeremy Plante (CE), 2012-2017. (Employer: Hitachi Vanta), Best PhD Student award.
4. Arash Deylamsalehi (EE), 2013-2017. (Employer: Google).
5. Dylan Davis (CE), 2013-2018. (Employer: Hitachi Vanta).
6. Yan Cui (CE), 2014-2019. (Employer: SJSU).
7. Pegah Afsharlar (EE), 2013-2020.
8. Yue Wang (CE), 2017-2022
9. Travis Kessler (ECE), 2018-2023, Best PhD Student award
10. Md. Zahidul Islam (ECE), 2021- 2024 (co-adviser: Dr. Yuzhang Lin)
11. Shamsun Nadir Edib (EE), 2020-2024 (co-adviser: Dr. Yuzhang Lin)
12. Arash Rezaee, 2022-
13. Ken Patrick Watts, 2022- (co-adviser: Dr. Yuzhang Lin)
14. Suvhasis Mukhopadhyay, 2022

Post-Doctoral Scholar

1. Dr. Arash Deylamsalehi (EE), 2017-2019, NSF Biomedical Infrastructure project
2. Dr. Jeremy Plante (CE), (2017-2018), USAF CCDE project (Employer: Hitachi Vanta).
3. Dr. Juzi Zhao (Sep. 2015-2017), DOE PROPER project and SDN (Employer: SJSU Assistant Professor)
4. Dr. Arush Gadkar (Oct. 2010 – Jul. 2012), DOE COMMON project. (Employer: Patent Attorney, DC).
5. Dr. Joan Triay Marques (Sep. 2010–Aug. 2011), Fulbright Scholar (Spain), Advance Reservation in WDM Networks. (Employer: (DOCOMO Euro-Labs, Munich).
6. Dr. Balagangadhar Bathula (Aug. 2007 – Jun. 2008 & Oct. 2009 - May. 2010), Impairment-aware in Optical Networks (Employer: AT&T Bell Labs, NJ).

Ph.D. Committee Member (UMass Dartmouth):

1. Chaonan Wang (ECE), University of Massachusetts Dartmouth, 2011-2014
2. Babak Dastgheib-Beheshti (ECE), University of Massachusetts Dartmouth, 2010-2012
3. Ruiping Ma (ECE), University of Massachusetts Dartmouth, 2007-2012

Ph.D. External Examiner (Committee Member):

1. Chitra, Karnataka University, India, Dec. 2018.
2. Ying Chen, University of Windsor, Canada, May 2013.
3. Balagangadhar Bathula, Indian Institute of Science, India, 2008 (Current Employer: AT&T Labs).
4. Richard Surendrakumar, University of Ottawa, Canada, 2007 (Current Employer: Nav Canada).

M.S. Thesis Advisor (6-credits) (Not Updated)

1. Ryan McCann (2023)
2. Anisha Joseph (2018).
3. Taha Khan (2018).
4. Vishal Sundarrajan (2017).
5. Mark Boddie (2013) – Shared Green Protection in Optical Networks. (Employer: Innovative Technologies).
6. Jeremy Plante (2013) – Manycast Protection in WDM Networks. (Employer: Ph.D. Candidate UML).
7. Bharath Ramaprasad (2012) – Dynamic Continuous and Non-Continuous Advance Reservation in SLICE Networks. (Employer: NetApp).
8. Neal Charbonneau (2010) – Dynamic Non-Continuous Advance Reservation over Wavelength-Routed Networks. (Employer: MITRE, now at Amazon Inc.).

9. Kavitha Baskaran (2010) – Anycasting in Optical Wavelength Division Multiplexing (WDM) Networks using Ant Colony Optimization (Employer: Emulex).
10. Akankshu Dhawan (2010) - A Framework for Real-Time Monitoring of Acoustic Events using a Wireless Sensor Network (Employer: Microsoft).
11. Rajesh Bikram RC (2009) - Multi-Layer Loss Recovery to Improve TCP performance over Optical Burst-Switched (OBS) Networks (Employer: Exeda).
12. Bharat Komatireddy (2008) – Reordering-Robust TCP (RR-TCP) over Congestion-based Load-balanced Routing in Optical Burst Switching. (Employer: Epsilon)
13. Deepak Chandran (2007) - TCP Performance over Optical Burst-Switched Networks with Forward Segment Redundancy. (Employer: Cisco Inc)
14. Deepti Jain (2007) - Energy-Efficient Target Monitoring in Wireless Sensor Networks. (Employer: EMC)
15. Nidhi Jain (2006) - Grade of Protection using Dual-Homing Based Fault-Tolerant Routing in Wireless Sensor Networks. (Employer: Parametric Technology Corporation)

M.S. Project Advisor (3-credits; Many students extend their Master's Project work towards their Master's Thesis)

1. Leili Azadivar (2013) – Advance Reservation QoS Differentiation Framework over WDM Optical Networks.
2. Mark Boddie (2012) – Green Provisioning of High Availability Optical Networks.
3. Jeremy Plante (2012) - Dynamic Multicast Overlay Service over DOE ESnet.
4. Bharath Ramprasad (2011) – Dynamic QoS (What-if) Service over DOE ESnet.
5. Fred Ekstrand (2011) – Multi-Domain Non-Continuous Advance Reservation in Wavelength-Routed Networks.
6. Hitesh Kulkarni (2011) - Coordinated Anycast Grid Resource and Network Co-scheduling in LambdaGrid Networks.
7. Derek Rousseau (2011) – Multi-Layer QoS in Hybrid AR/IR-Based Wavelength-Routed WDM Networks.
8. Akankshu Dhawan (2010) - A Framework for Real-Time Monitoring of Acoustic Events using a Wireless Sensor Network (Employer: Microsoft Inc).
9. Julie Sullivan (2009) – Coordinated Burst Cloning and Forward Segment Redundancy in Optical Burst-Switched Networks. (Employer: Meditech).
10. Kavitha Baskaran (2009) – Ant Colony Optimization (ACO)-based Anycast Routing in Wavelength Routed WDM Networks. (Employer: Emulex, now Coraid Inc.).
11. Neal Charbonneau (2009) – Static Routing and Wavelength Assignment (RWA) for Multicast Advance Reservation in Wavelength-Routed WDM Networks (Employer: MITRE corp, now Amazon Inc.).
12. Rajesh Bikram (2008) – SNOOP: Improving TCP/IP Performance over Optical Burst Switching (OBS). (Employer: Exeda Inc).
13. Deepak Padmanabhan (2007) – TCP over Optical Burst-Switching: to Split or Not to Split? (Employer: Goldman Sachs)
14. Deepti Jain (2007) - Coordinated Activation and Routing (CAR) in Wireless Sensor Networks. (Employer: EMC)
15. Fatema Noor (2006) – In-Network Aggregation and its Ill-Effects on Data Accuracy in Wireless Sensor Networks. (Employer: eClinicalWorks)
16. Bharat Komatireddy (2006) - TCP Performance over Congestion-based Load-balanced Routing in Optical Burst Switching. (Employer: Epsilon)
17. Sachin Parikh (2006) - Policing of Mobile Nodes to Improve Lifetime and to Sustain Coverage in Wireless Sensor Networks. (Employer: Continental Automotive Systems)
18. Deepak Chandran (2006) - TCP Performance over Optical Burst-Switched Networks with Burst Segmentation. (Employer: Enterasys Networks)
19. Nidhi Jain (2006) - Evaluation of Dual-Homing Based Fault-Tolerant Routing in Wireless Sensor Networks. (Employer: Parametric Technology Corporation)
20. Jen-Ta Huang (2005) - Optimal Topology Design for Optical Burst-Switched Network. (Employed: Software Engineer)

Master's Project/Thesis Committee Member: 50+ Students (2004-Present);

PROFESSIONAL ACTIVITIES

Associate Editor

- IEEE/OSA Journal of Optical Communications and Networking (JOCN) (2015-Present, 2nd term)
- Springer Photonic Network Communications Journal (2013-present)
- IEEE Communication Letters: 2009-2012 (3-year fixed term)

Award Panelist

- IEEE Communication Society ***Charles Kao Best Paper Award Committee 2018-19***

Guest Editor

- Springer Photonic Network Communications, Special Issue of IEEE ANTS 2014, Dec. 2015.
- Springer Photonic Network Communications, Special Issue of Energy-Efficient Optical Networks, Aug. 2015.
- Springer Photonic Network Communications, Special Issue of IEEE ANTS 2013, Aug. 2014.
- Elsevier Optical Switching and Networking, Special Issue of IEEE ANTS 2010, Dec. 2011.

Member

- Institute of Electrical and Electronics Engineers (IEEE): 2002 – 2009;
- **IEEE Senior Member** (2009- present)
- IEEE Communications Society (ComSoc): 2002 - present
- IEEE ComSoc Optical Networking Technical Committee (ONTC) : 2002 - present
- IEEE ComSoc Technical Committee on Computer Communications (TCCC): 2002 – present

Panelist/Speaker/Proposal reviewer

1. DARPA New Frontiers in Networking roundtable at MIT, April 30-May 1, 2015.
2. DOE ASCR PI Workshop, Washington, DC, September, 2014.
3. DOE ASCR Intelligent Optical Network Infrastructure Workshop, Gaithersburg, MD, August 2014.
4. NSF FutureHetNets 2013 Workshop, Washington, DC, 2013.
5. NSF-NASA FutureHetNets 2011 Workshop (2011)
6. DOE Terabit Networks for Extreme Scale Science Workshop (2011)
7. National Science Foundation (NSF) – CISE directorate (2007, 2008, 2009, 2011, 2017, 2019)
8. Department of Energy (DOE) – SBIR Physics Phase I (2011), SBIR Networking Phase I (2011), High Performance Networks for Distributed Petascale Sciences (2009)
9. Qatar National Research Fund proposal reviewer (2013,2014)
10. Austrian Science Fund (FWF) – START program (similar to NSF CAREER) (2007, 2009).

General Chair/Vice-Chair

1. General Co-chair, IEEE ANTS 2016, November 2016, Bangalore, India.
2. General Vice Co-chair, IEEE ANTS 2015, December 2015, Kolkata, India.

Conference/Symposium TPC Chair/Co-Chair

3. IEEE International Conference on High Performance Switching and Routing 2020, May 11-14, Newark, NJ.
4. IEEE ICNC 2018 - Optical and Grid Networking symposium**,** Maui, Hawaii, March 5-8, 2018.
5. IEEE Sarnoff 2017, September 2017, NJIT.
6. IEEE ANTS 2014, December 2014, Delhi, India.
7. IEEE ANTS 2013, December 2013, Chennai, India.
8. IEEE ICC 2012 - Optical Networks and Systems Symposium, Jun. 2012, Ottawa, Canada.
9. IEEE GLOBECOM 2011 - Optical Networks and Systems Symposium, Dec. 2011, Houston, TX.
10. IEEE INFOCOM 2011 – High-Speed Networking (HSN) Workshop, Mar. 2011, Shanghai, China.
11. IEEE ANTS 2010, Mumbai, India.
12. 19th IEEE International Conference on Computer Communications and Networks (ICCCN 2010), Optical and Backbone Networks (OBN) Track, Zurich, Switzerland.
13. GRID over Optical Burst Switching Networks (GOBS) 2008, Gosier, Guadeloupe.
14. 16th IEEE International Conference on Computer Communications and Networks (ICCCN 2007), Optical Network Track, Honolulu, HI.
15. Fifth Intl. IEEE/CreateNet Workshop on Optical Burst/Packet Switching (WOBS) 2005, Boston, MA.

IEEE Communication Society Optical Networking Technical Committee

1. Communication Society Student Competition Program Representative (2015-2018)

Publication Chair

- IEEE ANTS 2012, Bangalore, India

Student Travel Award Chair/Co-Chair

- IEEE INFOCOM 2008, Phoenix, AZ
- IEEE/CreateNet BROADNETS 2006 - Optical Networking Symposium, San Jose, CA

Website Chair

- IEEE ANTS 2011, Bangalore, India
- IEEE LANMAN 2011, Chapel Hill, North Carolina,

Publicity Chair/Co-Chair

- IEEE ANTS 2009, New Delhi, India
- 17th IEEE ICCCN 2008, Optical Network Symposium, Virgin Islands, US.

Technical Program Committee Member

1. IEEE GLOBECOM 2018-2023
2. IEEE ICC 2018-2023
3. ONDM 2015-2023
4. IEEE GLOBECOM 2017 - Optical Networks and Systems Symposium
5. European Conference on Networks and Communications (EuCNC) 2017

6. IEEE ICC 2017 - Optical Networks and Systems Symposium
7. IEEE GLOBECOM 2016 - Optical Networks and Systems Symposium
8. IEEE ICC 2016 - Optical Networks and Systems Symposium, Malaysia, Jun 2016
9. European Conference on Networks and Communications (EuCNC) 2016, Athens, Greece, Jun. 2016
10. IEEE GLOBECOM 2015 - Optical Networks and Systems Symposium, San Diego, CA, Dec. 2015
11. IEEE ICC 2015 - Optical Networks and Systems Symposium, London
12. IEEE ANTS 2014, Delhi, India (**Chair**)
13. IEEE GLOBECOM 2014 - Optical Networks and Systems Symposium, Austin, TX
14. IEEE ICC 2014 - Optical Networks and Systems Symposium, Sydney
15. IEEE ANTS 2013, Chennai, India (**Chair**)
16. IEEE GLOBECOM 2013 - Optical Networks and Systems Symposium, Atlanta, GA
17. RNDM 2013 - 5th International Workshop on Reliable Networks Design and Modeling Almaty, Kazakhstan
18. 5th International Wireless Summit 2013, New Jersey
19. International Conference on Advances in Computing, Communications and Informatics (ICACCI-2013), Mysore, India
20. IEEE INFOCOM 2013, Torino, Italy.
21. IEEE ICC 2013 - Optical Networks and Systems Symposium, Hungary
22. IEEE ANTS 2012, Bangalore, India
23. IEEE GLOBECOM 2012 - Optical Networks and Systems Symposium, Anaheim, CA
24. International Conference on Optical Engineering (ICOE) 2012, Belgaum, India
25. RNDM 2012 - 4th International Workshop on Reliable Networks Design and Modeling, St. Petersburg, Russia
26. IEEE ICC 2012 - Optical Networks and Systems Symposium, Ottawa, Canada (**Chair**)
27. IEEE ICC 2012 - New Trends in Optical Networks Survivability Workshop, Ottawa, Canada
28. IEEE INFOCOM 2012, Orlando, FL
29. IEEE ANTS 2011, Bangalore, India
30. IEEE LANMAN 2011, Chapel Hill, NC
31. IEEE GLOBECOM 2011 - Optical Networks and Systems Symposium, Houston, Texas (**Chair**)
32. IEEE ICCCN 2011 - Optical Networks for Grid and Cloud Computing Track, Maui, Hawaii
33. IEEE ICC 2011 - Optical Networks and Systems Symposium, Kyoto, Japan
34. IEEE INFOCOM 2011, Shanghai, China
35. IEEE INFOCOM High Speed Networks (HSN) Workshop 2011, Shanghai, China (**Chair**)
36. IEEE ANTS 2010, Mumbai, India (Chair)
37. IEEE GLOBECOM 2010 - Optical Networks and Systems Symposium, Miami, FL
38. IEEE ICCCN 2010 - Optical and Backbone Networks (OBN) Track, Zurich, Switzerland. (**Chair**)
39. IEEE ICC 2010 - Optical Networks and Systems Symposium, Cape town, South Africa
40. IEEE INFOCOM 2010, San Diego, CA
41. IEEE ANTS 2009, Core Network Track, New Delhi, India
42. IEEE GLOBECOM 2009 - Optical Networks and Systems Symposium, Honolulu, Hawaii, USA
43. IEEE GLOBECOM 2009 - Next-Generation Networking and Internet Symposium, Honolulu, Hawaii, USA
44. IC3-2009: International Conference on Contemporary Computing, Noida, India
45. IEEE ICCCN 2009 Optical Networking Track, San Francisco, CA.
46. CreateNet BROADNETS 2009 - Optical Comm., Networks and Systems Symposium, Madrid, Spain.
47. Workshop on Optical Burst/Packet Switching (WOBS) 2009, Madrid, Spain.
48. IEEE ICC 2009 - Optical Networks and Systems Symposium, Germany.
49. International Workshop on Ubiquitous Computing Security (UC-Sec) 2009, Las Vegas, USA.
50. IEEE GLOBECOM 2008 Optical Networks and Systems Symposium, New Orleans, LA.
51. IEEE ICCCN 2008 Optical Networking Track, Virgin Islands, US.
52. Eighth Intl. IEEE/CreateNet Workshop on Optical Burst/Packet Switching (WOBS) 2008, London, UK.
53. IEEE/CreateNet BROADNETS 2008 - Optical Comm., Networks and Systems Symposium, London, UK.
54. IEEE ICC 2008 - Optical Networks and Systems Symposium, Beijing, China.
55. IEEE INFOCOM 2008, High-Speed Networks Workshop (HSN 2008), Phoenix, AZ.
56. IEEE GLOBECOM 2007, Optical Networking Symposium, Washington, DC.
57. GRID over Optical Burst Switching Networks (GOBS) 2007, Athens, Greece.
58. First International Conference on Access Networks (AccessNets) 2007, Ottawa, CA.
59. Second Intl. eSafety & Convergence of Heterogeneous Wireless Networks Workshop 2007, Phoenix, AZ.
60. IEEE/CreateNet BROADNETS 2007 - Optical Networking Symposium, Raleigh, NC.
61. Seventh Intl. IEEE/CreateNet Workshop on Optical Burst/Packet Switching (WOBS) 2007, Raleigh, NC.
62. 16th IEEE ICCCN 2007 Optical Networking Track, Honolulu, HI. (Chair)
63. IEEE ICC 2007 - Optical Networks and Systems Symposium, Glasgow, UK.
64. IEEE GLOBECOM 2006 - Adv. Tech. and Protocols for Optical Networks Sym., San Francisco, CA.

65. Sixth Intl. IEEE/CreateNet Workshop on Optical Burst/Packet Switching (WOBS) 2006, San Jose, CA.
66. IEEE/CreateNet BROADNETS 2006 - Optical Networking Symposium, San Jose, CA.
67. IEEE ICC 2006 – Optical Systems and Networks Symposium, Istanbul, Turkey.
68. First Intl. Workshop on eSafety and Convergence of Heterogeneous Wireless Networks'06, Phoenix, AZ.
69. IEEE/CreateNet BROADNETS 2005 - Optical Networking Symposium, Boston, MA.
70. Fifth Intl. IEEE/CreateNet Workshop on Optical Burst/Packet Switching (WOBS) 2005, Boston, MA. (Chair)
71. IEEE GLOBECOM 2005 - Photonic Technologies for Communications Symposium, St Louis, MO.
72. IEEE WirelessCom 2005 - Network Management Symposium, Maui, HI.
73. IEEE ITCC 2005 - Wireless Ad Hoc/Sensor Nets and Network Security Symposium, Las Vegas, NV.
74. Third International Workshop on Optical Burst Switching (WOBS) 2004, San Jose, CA.

Session Chair

- IEEE ANTS 2014, New Delhi, India
- IEEE ICC 2014, Sydney, Australia
- IEEE ANTS 2013, Chennai, India
- IEEE ICC 2013, Budapest, Hungary
- ICNC 2013, San Diego, CA
- IEEE GreenCom 2012, On-line.
- IEEE ANTS 2010, Mumbai, India
- IEEE GLOBECOM 2010, Optical Networking Symposium, Miami, FL
- IEEE ICCCN 2008, St. Thomas, VI
- IEEE/CreateNet BROADNETS 2007, Raleigh, NC
- IEEE ICCCN 2007, Honolulu, HI
- IEEE/CreateNet WOBS 2006, San Jose, CA
- IEEE GLOBECOM 2004, Optical Networking Symposium, Dallas, TX
- IEEE GLOBECOM 2002, Optical Networking Symposium, Taipei, Taiwan

Referee/Reviewer

Journals/Magazines

- IEEE/ACM Transactions on Networking
- IEEE Journal of Selected Areas in Communications
- IEEE Transactions on Communications
- IEEE Transactions on Parallel and Distributed Systems
- IEEE/LEOS Journal of Lightwave Technology
- IEEE Communications Magazine
- IEEE Optical Communications Magazine
- IEEE Communication Letters
- Springer Photonic Network Communications
- Elsevier Optical Switching and Networking
- Elsevier Computer Networks
- Elsevier Computer Communications
- IEEE/LEOS Photonics Communication Letters
- KICS/IEEE Journal of Communications and Networks

Conferences/Workshops

- IEEE ICC 2002-Present
- IEEE INFOCOM 2003-Present
- IEEE GLOBECOM 2002- Present
- IEEE ICCCN 2007-2011
- IEEE/CreateNet BroadNets 2004-2009
- IEEE ANTS 2008-Present
- IEEE HPSR 2003-2011
- IEEE/CreateNet WOBS 2004-2009
- SPIE OptiComm 2002-2003

TEACHING EXPERIENCE

Instructor at University of Massachusetts Lowell (2013-Present)

1. **EECE 4830-5830: Network Design**
   - The course deals with several aspects of networking related to the Internet. I was responsible for redesigning the undergraduate technical-elective course on computer network design and protocols. This is an undergraduate technical elective course.
   - Responsible for developing and presenting lectures, home works, labs, and examinations.

2. **EECE 4550/5550: Computer System Security**, Summer 2022:
   - The course deals with all aspects of security related to a computer system, such as program security, OS security, network security, and database security. This is a new undergraduate technical elective.
   - Responsible for developing and presenting lectures and for developing homework, programming projects, survey paper topics, and examinations.

3. **EECE 7110: Spl. Topics High-Speed Networks**, Fall 2013, Fall 2014, Fall 2015:

- The course deals with analysis and design of high-speed network paradigms and architectures. We study Cloud computing and Grid computing network architectures. Principles of network design, linear programming, protocol and algorithm design, discrete event simulation techniques, and queueing theory are also studied. This is a new graduate technical course.
- Responsible for developing and presenting lectures and for developing home works, programming projects, survey paper topics, and examinations.

Instructor at University of Massachusetts Dartmouth (2004-2013) (Overall student rating of 4.70/5.00)

Undergraduate Courses

4. **CIS 110: Computer Literacy**, Spring 2009:
   - An introduction to computers, evolution of computer systems and the impact of computers on the society. In this hands-on laboratory course, students will use PCs to learn about components of computer systems and study various applications including word processing, spreadsheet, database, presentation and Internet browsing software.
   - Responsible for developing and presenting lectures, home works, labs, team works, and examinations.

5. **CIS 272: Introduction to Computer Systems**, Fall 2005 and Fall 2008:
   - Course introduces fundamental concepts of computing systems, such as binary arithmetic and data representation, the Von Neumann model for processing computer programs, the operation of memory, instruction set, machine and assembly language programming, assemblers, compilers, linkers, loaders, and operating systems. This required sophomore-level course.
   - Responsible for developing and presenting lectures, home works, labs, and examinations.

6. **CIS 370: Design of Operating Systems**, Fall 2006, Fall 2009-2010, Fall 2012:
   - Course deals with the principles of modern operating systems and their design. Scientific principles and engineering rules of operating systems are explored. Process and storage management subsystems are analyzed in detail. An introduction to distributed operating systems is also presented. This is a design and project-based course with a laboratory component. This required junior-level course.
   - Responsible for developing and presenting lectures and for developing home works, programming projects, survey paper topics, and examinations.

7. **CIS 475: Computer Networks**, Spring 2006-2008, Spring 2010-11, Spring 2013:
   - Course deals with several aspects of networking related to the Internet. I was responsible for redesigning the undergraduate technical-elective course on computer network design and protocols. This is an undergraduate technical elective course.
   - Responsible for developing and presenting lectures, home works, labs, and examinations.

8. **CIS 477: Computer and Information System Security**, Spring 2006 and Fall 2007:
   - Course deals with all aspects of security related to a computer system, such as program security, OS security, network security, and database security. This is a new undergraduate technical-elective.
   - Responsible for developing and presenting lectures and for developing home works, programming projects, survey paper topics, and examinations.

Graduate Courses

9. **CIS 577: Computer Networks**, Fall 2004-2012:
   - Course deals with analysis and modeling of centralized and distributed computer networks, study queueing network analysis, principles of network design, software considerations, and design of computer networks. This is a graduate technical elective course.
   - Responsible for developing and presenting lectures and for developing home works, programming projects, survey paper topics, and examinations.

10. **CIS 590: Optical Networks**, Spring 2005, Spring 2009, Spring 2011, and Spring 2012:
    - Course deals with analysis and design of optical network paradigms and architectures. Introduction to optical components, wavelength division multiplexing, evolution of optical networks, design and analysis of wavelength-routed networks, and optical packet-/burst-switched networks are addressed. Principles of network design, linear programming, protocol and algorithm design, discrete event simulation techniques, and queueing theory are also studied. This is a new graduate technical course.
    - Responsible for developing and presenting lectures and for developing home works, programming projects, survey paper topics, and examinations.

11. **CIS 602: High-Speed Networks**, Spring 2013:
    - Course deals with analysis and design of high-speed network paradigms and architectures. We study Cloud computing and Grid computing network architectures. Principles of network design, linear programming, protocol and algorithm design, discrete event simulation techniques, and queueing theory are also studied. This is a new graduate technical course.
    - Responsible for developing and presenting lectures and for developing home works, programming projects, survey paper topics, and examinations

UNIVERSITY SERVICE

University of Massachusetts Lowell **2013-Present**
UMass System Level
- UML Rep, UMass Data Science Faculty Working Group
- UML Rep, Massachusetts Green High-Performance Computing Cluster (MGHPCC) Research Education & Outreach Committee

College of Engineering and University Service
- **Member,** College Personnel Committee, (2020-2021)
- **Member**, University Honors Committee, 2018-Present
- **Member**, Faculty Senate, 03/2014 – Present
- **Campus Lead**, Big Data Initiative, 2013-Present
    - Leading the effort to create a new inter-disciplinary center on Big Data and Networks Science
    - Responsible for reporting UML "Big Data" activities to the UMass Presidents office
    - Involved in creating the UMass System-wide Report on Big Data
- **Campus Co-Lead**, High-Performance Computing Initiative, 2013-Present
    - Serving on the Organizing committee of UMass HPC Day to be held in Nov. 2014 @ Dartmouth.
    - Involved in collaborations with the MGHPCC
- **Faculty Mentor** for three ECE faculty

ECE Department Service
- **Chair**, CPE Faculty Hiring Committee (2021-Present)
- **Chair**, Department Personnel Committee, 2019-20, 2022-23.
- **Member**, Department Personnel Committee, 2013-Present.
- **Membe**r, Faculty Hiring Committee (2015-Present)
- **Member**, ECE Ph.D. Qualification Examination Committee (2018-Present)
- **Coordinator,** ECE Graduate Seminar (2013-18).
    - Bi-weekly seminar
    - Responsible for inviting speakers from Industry and Universities.
- **Member**, Ph.D. Admissions Ad Hoc Committee, in Computer Engineering.
- Ph.D. Qualifier Exam –Network Design and Operating Systems Areas
- ECE Faculty advisor for 40+ students.

University of Massachusetts Dartmouth **2004-2013**
College of Engineering (COE) and University Service
- **Member**, UMass Dartmouth CARES Program, Founding Member, 04/2013 – 08/2013
- **Member**, College Academic Council, 01/2013- 08/2013
- **Member**, Admission/Advising/Curriculum Committee for Ph.D. in EAS 10/2011-08/2013.
- **Chair**, Computer Science and Information Systems (CSIS) option in the COE Ph.D. in Engineering and Applied Sciences Program development 01/2010-01/2012
- **Member**, COE Web Committee: 09/2005 – 08/2013
    - Designed several student surveys for the college, including alumni, employer survey, grad and undergrad student surveys.
- Participated several in COE Open House and Alumni meeting: 09/2004 - 08/2013

Computer Science Department Service
- **Chair**, CIS Lab Committee: 09/2008- 08/2013, **Member** (09/2007-08/2008)
- **Chair**, CIS Web Committee: 09/2005 - 08/2013
- **Member**, Faculty Evaluation Committee: 09/2010 - 08/2013
- **Member**, Graduate Admission Committee: 09/2004 – 08/2013

- **Member**, Graduate Curriculum Committee: 09/2004 – 08/2013
  - Proposed, CS annual graduate student awards: best graduate student award and best thesis award
- Computer Science Curriculum Development: 09/2004 – 08/2013
  - Developed two new graduate courses, High-Speed Networks (CIS 602) and Optical Networks (CIS 590) and a new undergraduate course, Computer and Information System Security (CIS 477).
- Participation in the CIS Open House, Discovery Days, Alumni Meeting, and CSIAC meetings.