

Curriculum Vitae



Dr. Raj Jain
Barbara H. and Jerome R. Cox, Jr., Professor
Computer Science and Engineering
Washington University in St. Louis
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Raj Jain is Barbara H. and Jerome R. Cox Jr Professor of Computer Science and Engineering at Washington University in St. Louis. Previously, he was the CTO and one of the Cofounders of Nayna Networks, Inc. - a next-generation telecommunications systems company in San Jose, CA. He was a Senior Consulting Engineer at Digital Equipment Corporation in Littleton, Mass and then a professor of Computer and Information Sciences at Ohio State University in Columbus, Ohio.

Dr. Jain is a Life Fellow of IEEE, a Fellow of ACM, a Fellow of AAAS and a Fellow of Academy of Science, St. Louis. He is a winner of [2018 James B. Eads Award](#) from Academy of Science, Saint Louis, [ACM SIGCOMM Lifetime Achievement Award 2017](#), [2015 A. A. Michelson Award](#) from Computer Measurement Group, 2014 Distinguished Alumnus Award from Indian Institute of Science, Bangalore Alumni Association, 2006 ACM SIGCOMM Test of Time award, and [Center for Development of Advanced Computing – Advanced Computing and Communications Society \(CDAC-ACCS\) Foundation Award 2009](#), and WiMAX Forum Individual Contribution Award 2008.

He is the author of “[The Art of Computer Systems Performance Analysis](#),” which won the 1991 “Best-Advanced How-to Book, Systems” award from the Computer Press Association. His fourth book entitled “[High-Performance TCP/IP: Concepts, Issues, and Solutions](#)” was published by Prentice Hall in November 2003. He is a co-editor of “[Quality of Service Architectures for Wireless Networks: Performance Metrics and Management](#),” published in April 2010.

He is on the Editorial Boards of [Journal of High Speed Networks](#) (USA), [Mobile Networks and Applications](#), [International Journal of Virtual Technology and Multimedia](#) (IJVTM) (UK), [International Journal of Wireless and Optical Communications](#) (IJWOC), [Vehicular Communications](#) (Elsevier), [International Journal of Communication Networks and Distributed Systems](#) (IJCND), [Mobile Communications and Applications](#), [International Journal on Advances in Internet Technology](#), and on the advisory boards of [Global Science and Technology Forum](#) (GSTF), Singapore, [Journal of Communications](#) (Finland), [EIA Transactions on TSim Tools](#), [Asia-pacific Journal of Neural Networks and its Applications \(AJNNIA\)](#). He was also a co-guest editor of ACM/Springer Mobile Networks and Applications (MONET) special issue on Device-to-Device Communication in 5G Networks published in 2017. In the past, he has served on the Editorial Boards of Recent Advances in Communications and Networking, Journal of Innovation in Digital Ecosystems, Computer Communications (UK), IEEE/ACM Transactions on Networking, Computer Networks: The International Journal of Computer and Telecommunications Networking, Journal of Telecommunication System and Management (JTSM), Central European Journal of Computer Science (Poland), Infocommunications Journal (Hungary) and ICTACT Journal on

Communications Technology, and has served as a Guest Co-Editor of IEEE Communications Magazine September 2012 special issue on Cloud Computing: Networking and Communications Challenges, July 2011 special issue on Future Internet Architectures: Design and Deployment Perspective, April 2001 special issue on TCP Performance over Emerging High-Speed Networks, IEEE Communications Magazine March and July 1999 special issues on Satellite Networks, Computer Networks and ISDN System October 1998 special issue on ATM Traffic Management, and Computer Communications (UK), April-May 1993 issue.

Raj Jain serves on the advisory board of [Astra](#). In the past, he has served on the advisory board of Bluesage Communications, Inc. (2013-2018), InBay Technology Solutions, Inc, San Jose, CA (2012-2015), AKS University, Satna, MP, India (2012-2015), Indo-US Collaboration in Engineering Education (IUCEE) (2013-2015), DOCOMO Innovations, Inc., San Jose, CA (2011), Mercury, Mountain View, CA (2004), Teradiant Networks, San Jose, CA, Corona Networks, Inc., Milpitas, CA (2000-2004), Avatar Networks, Fremont, CA (2001-2002), Rhonet Systems, Columbus, OH (2002-2003), Chip Engines, Inc., Sunnyvale, CA (2000-2002), EdgeNet Communications Corporation, Burlingame, CA (2000-2002), Tivre Networks, San Jose, CA (2001-2002), Irvine Networks, Irvine, CA acquired by Simple Technologies. (2000-2001), Beacon Telco, Boston, MA (2001-2002), iBEAM Broadcasting Corporation, Sunnyvale, CA (2000-2001), Nexabit Networks, Westborough, MA acquired by Lucent Corporation. (March 1997-1999), Amber Networks, Fremont, CA acquired by Nokia (1999-2001) and on the Board of Directors of MED-I-PRO Systems, LLC, Pomona, CA, (1998-2000). He was also a consultant to several networking companies.

He has 14 patents and has written or edited 12 books, 18 book chapters, 80+ journal and magazine papers, and 130+ conference papers. His papers have been widely referenced, and he is known for his research on software-defined networking, multi-cloud application delivery, next-generation Internet architecture, congestion control and avoidance, traffic modeling, performance analysis, and error analysis. Google Scholar lists over 30,600+ citations to his publications. He is a co-inventor of the DECbit scheme, which has been implemented in various forms in DECnet, OSI, Frame Relay, and ATM Networks (Explicit Forward Congestion Indication). The DECbit paper has received ACM SIGCOMM Test of Time Award. His team has developed several switch algorithms for explicit rate-based congestion avoidance in ATM networks.

He has served as a Distinguished Lecturer for the IEEE Communications Society (1997, 1999-2006), ACM Lecturer (1991-97), IEEE Computer Society Distinguished Visitor (1993-96), Vice-Chair of ACM SIGCOMM (1991-95), Chair of TIA/SCD/CIS Working Group on ATM Traffic Management (1996-1998), Editor of the [WiMAX System Evaluation Methodology](#) (2005-2008), Editor of ATM Forum Performance Testing Specification (1996-1998), Member of IEEE Computer Society Education Board, Member of IEEE Computer Society Publication Board (1995-1997), Member of the 1997 National Science Foundation Research Infrastructure Program Final Evaluation Panel, Member of U.S. delegation (Computer Communications) to People's Republic of China in July 1987, Member of National Science Foundation's site visit team to evaluate NSF Engineering Research Center program at Center for Telecommunications Research, Columbia University 1991.

At Ohio State University, Dr. Jain established a world-class program of research in networking raising a total of \$6.2 million in six years through grants on which he was PI or Co-PI. This was in collaboration with many faculty members in the department, in the sister department of ECE, Ohio Supercomputer Center, and Other Computer Science Departments of the state of Ohio. He formed and led the consortium of all networking researchers in the state to form OCARnet (Ohio

Computing and ATM Research Network) that won \$1.7 million from Ohio Board of Regents. The final report showed that the project resulted in three times as much research funding coming into the state as a result.

Dr. Jain was the Conference chair of International Conference on Communications, Image, and Signal Processing (CCISP 2016), General Chair of International Conference on Convergence and Broadband Networking (ICCBN 2008), General Co-Chair of SPIE's Broadband Access Communication Technologies Conferences in 2007-2011, and the founding General Chair of the First International Conference on Broadband Networking ([Broadnets 2004](#)). He has served as program committee member on 275+ other conferences.

He was a keynote speaker at 49+ conferences including 2nd International Conference on Smart IoT Systems: Innovations in Computing (SSIC 2019), 4th IEEE International Smart Cities Conference (ISC2) 2018, IEEE Conference on Network Softwarization (NetSoft 2018), IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT 2017), ACM SIGCOMM 2017, International Conference on Computer, Information and Telecommunication Systems (CITS 2017), International Conference on Communications, Image, and Signal Processing (CCISP 2016), 2nd IEEE International Conference on Collaboration and Internet Computing (CIC 2016), Midwest Drone Introduction 2016, 7th IEEE Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON) 2016, 22nd Annual International Conference on Advanced Computing and Communications ([ADCOM 2016](#)), 1st Annual Research Workshop on Advances & Innovations in Cyber Security 2016, 2nd IEEE International Workshop on Sensors and Smart Cities (SSC2016), 9th Central Area Networking and Security Workshop (CANSec) 2016, Internet of Things World Forum, Research and Innovation Symposium 2015, 21st Annual International Conference on Advanced Computing and Communications (ADCOM) 2015, 20th Annual International Conference on Advanced Computing and Communications (ADCOM) 2014, IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM) 2014. Also, he gave Qualcomm Distinguished Lecture at International Conference on Computing Networking and Communications (ICNC 2012).

A distinguishing factor of his research is its relevance to the Industry. As a faculty member, Dr. Jain actively participates in industry forums like RTCA, WiMAX Forum, IEEE Standards group, ATM Forum, and Internet Engineering Task Force and has made over 200 contributions that ensured that his research was implemented and not just published as papers. Based on his active participation in the computer industry, Dr. Jain was awarded the 1999 siliconindia Leadership Awards for Excellence and Promise in Business and Technology and 2008 WiMAX Forum Individual Contribution Award. He is also the recipient of "Lumley Engineering Research Award 1999" and "Research Accomplishment Award 1996" by The Ohio State University, College of Engineering and "Ameritech Prize 1995" by Ohio State University.

He is listed in Who's Who in the World (since 1998), Who's Who in America (since 2000), Who's Who in American Education (since 2002), Who's Who in Finance and Business (since 2001), Who's Who in Science and Engineering (since 1998), Writers Directory (Since 1997), Who's Who in Midwest (1996-2000), Who's Who in Writers, Editors, & Poets 1991-92, Contemporary Authors 1991, and Who's Who in the Computer Industry, 1989.

His Ph.D. thesis entitled "[Control theoretic Formulation of Operating Systems Resource Management Policies](#)" was published in the Outstanding Dissertations in the Computer Sciences Series by Garland Publishing Company, New York, NY.

In 1984, 1985, and 1987 he taught a graduate course on performance analysis at Massachusetts Institute of Technology. This led him to write his performance analysis book which is now a popular textbook on the subject.

Until 1994, he was a Senior Consulting Engineer at Digital Equipment Corporation, Littleton, Massachusetts, where for 16 years, he lead the design and analysis of many computer systems and networking technologies including VAX Clusters, Ethernet, DECnet, OSI, FDDI, and ATM networks. He was also an active member of the All-Optical Networking (AON) consortium consisting of Digital, M.I.T./Lincoln Lab, and AT&T that successfully bid for DARPA funding and started the research on Dense Wavelength Division Multiplexing (DWDM) networks.

He is very active in the areas of blockchains, machine learning applications to cybersecurity, software-defined networking, mobile edge computing, multi-cloud computing, Internet of things, next-generation Internet architecture, unmanned aircraft systems, wireless networking, network security, traffic management and quality of service in data networks. His research has influenced the directions of traffic management and testing of networks. He is an active participant in several industry forums including Institute of Electrical and Electronic Engineering (IEEE), Internet Engineering Task Force (IETF), ATM Forum, WiMAX Forum, Optical Interoperability Forum (OIF), American National Institute (ANSI), and Telecommunications Institute of America (TIA).

Dr. Jain maintains a highly informative website on latest advances in networking. The website is used extensively in industry and academia and has won "**Top Excellence Award**," for its usefulness. All his class lectures and most external lectures have been videotaped and available for streaming. These lectures are regularly viewed by students from all over the world particularly the third-world countries.

APPOINTMENTS

- May 2016-Present, Barbara J. and Jerome H. Cox, Jr. Professor, Washington University, St. Louis, MO
- August 2005-May 2016, Professor, Washington University, St. Louis, MO
- April 2000-July 2007, Co-Founder and Chief Technology Officer, Nayna Networks, Inc., Milpitas, CA
- September 2002-June 2003 and November 2003-August 2004, Adjunct Professor, Ohio State Univ., Columbus, OH
- April 1994 –August 2002, Professor, Ohio State Univ., Columbus, OH
- May 1978- March 1994, Senior Consulting Engineer, Digital Equipment Corp., Littleton, MA
- January 1987-June 1987, Honorary Lecturer, Massachusetts Inst. of Technology, Cambridge, MA
- January 1985-June 1985, Honorary Lecturer, Massachusetts. Inst. of Technology, Cambridge, MA
- September 1983-June 1984, Visiting Scholar, Massachusetts. Inst. of Technology, Cambridge, MA

EDUCATION

- Ph. D. (Applied Math/Comp. Sc.), Harvard University, Cambridge, MA. Thesis published as distinguished dissertations in Computer Science, 1978
- M. E. (Comp. Sc. & Controls), Indian Institute of Science, Bangalore, India, 1974
- B. E. (Electrical Engineering), A. P. S. University, Rewa, India, 1972

RESEARCH INTERESTS

- Machine learning applications to Cybersecurity
- Blockchains
- Edge Cloud/Multi-Cloud Application Management
- Wireless for Unmanned Aircraft Systems
- Architecture for the Next Generation Internet
- Software Defined Networking
- Internet of Things
- Resource Management in Wireless Networks
- Congestion Control and Traffic Management
- Performance Analysis, Simulation, and Modeling

AWARDS and COMMENDATIONS

1. **2018 James B. Eads Award** from Academy of Science, Saint Louis, April 2018, <https://www.academyofsciencestl.org/awards/>
2. **ACM SIGCOMM Lifetime Achievement Award**, August 2017, <https://www.sigcomm.org/awards/sigcomm-awards>
3. Best Paper Award, Cloud Computing and Data Center Systems category at the 7th IEEE Annual Computing and Communication Workshop and Conference (CCWC), Las Vegas, January 9-11, 2017.
4. **Barbara J. and Jerome R. Cox Jr. Chair**, Since May 24, 2016.
5. **A. A. Michelson Award**, Computer Measurement Group, November 2015, <https://www.cmg.org/2015-a-a-michelson-award-announcement/>
6. **Distinguished Alumnus Award**, Indian Institute of Science Alumni Association, September 2014
7. Finalist, “**Vodafone Wireless Innovation Project 2014**,” April 2014, <http://vodafone-us.com/wireless-innovation-project/past-competitions/2014/2014-finalists/>
8. **Fellow of AAAS**, for distinguished contributions to the field of computer networking impacting the areas of traffic management, performance modeling, and wireless networking as a professor and scientist, November 1, 2012.

9. **CDAC-ACCS** (Center for Development of Advanced Computing-Applications of Computing and Communications Sciences) **2009 Foundation Award** 2009.
10. "**WiMAX Forum Individual Contribution Award**," in appreciation of leadership in driving the capacity planning tool for the Application Working Group, October 2008
11. "**ACM SIGCOMM Test of Time Paper Award**," 2006.
12. Best paper award for the paper "**Traffic Management in Multilevel Explicit Congestion Notification**," in Proceedings of the 5th World Multi-conference on Systemics, Cybernetics and Informatics SCI'2001, ABR over the Internet, Orlando, FL, July 22-25, 2001, pp. 12-17.
13. **Web of Science List of Highly Cited Researchers**, 2001
14. "**1999 siliconindia Leadership Award for Excellence and Promise in Business and Technology**," October 1999, San Jose, CA.
15. "**Lumley Engineering Research Award 1999**" from Ohio State University College of Engineering.
16. Distinguished paper award for "**Modeling Traffic Management in ATM Networks with OPNET**," Proceedings of OPNETWORK'98, Washington DC, May 1998, <http://www.cse.wustl.edu/~jain/papers/opnetwork98.htm>
17. "**1996 Ohio State University College of Engineering Annual Research Accomplishment Award**," May 6, 1996.
18. **Ameritech Fellowship**, 1995.
19. **Fellow of ACM** for developing a new control-theoretic approach to computer systems modeling, October 1995
20. **Fellow of IEEE** for contributions to performance analysis and modeling of computer systems and networks and for providing a new direction for solutions to the problem of network congestion, 1993.
21. "**Best Advanced How-to Book, Systems**" award from Computer Press Association, 1991.
22. Ph.D. thesis entitled "**Control-theoretic Formulation of Operating Systems Resource Management Policies**" was published in the Outstanding Dissertations in the Computer Sciences Series by Garland Publishing Company, New York, NY.
23. Nominated for Ohio State University 2000 Distinguished Scholar Award, June 2000
24. Renominated for Ohio State University 2001 Distinguished Scholar Award, June 2001
25. Nominated for "**Technologist of the Year**" award from The Ohio Academy of Science, Columbus, OH, February 20, 1997.
26. Listed in:
 1. American Men and Women of Science, Since 2015
 2. Who's Who in the World, Marquis, Since 1998.
 3. Who's Who in America, Marquis, Since 2000.
 4. Who's Who in Engineering Education (WWEE), Since 2002.
 5. Who's Who in Sciences (Higher Education) Since 2008

6. Who's Who in American Education, Marquis, Since 2005.
7. Who's Who in Finance and Industry, Marquis, 2001-2003.
8. Who's Who in Finance and Business, Marquis, Since 2004
9. Who's Who in Science and Engineering, 4-5th Ed, Marquis, Since 1998.
10. Writer's Directory, Since 1997
11. Who's Who in Midwest, Marquis, 1996-2000.
12. Who's Who in Writers, Editors, & Poets 1991-92.
13. Contemporary Authors 1991, and
14. Who's Who in the Computer Industry, Marquis, 1989.

RESEARCH FUNDING

1. M. Samaka, Raj Jain, Nader Meskin, "**Intrusion Detection System (IDS) for Industrial Control Systems**," Qatar National Research Fund, NPRP-10-0206-170360, \$540,000=\$351,000 (QU)+\$189,00 (WUSTL), pending.
2. A. Al-Ali, A. Shikfa, R. Jain, "**Cyber Security For Next-Generation Healthcare In Qatar**," Qatar National Research Fund, NPRP-10-0125-170250, \$600,000=\$390,000 (QU)+\$210,000 (WUSTL), pending.
3. Raj Jain, "**NETS: SMALL: Fault and performance management in carrier-grade virtual networks over multiple clouds**," NSF, CNS-1718929, \$299,999, August 1, 2017-July 31, 2020.
4. Raj Jain, "**Mobile Multi-Cloud Application Delivery**," Futurewei Corporation, Gift, \$95,000, December 2015.
5. Aiman Erbad, Raj Jain, Mohammed Samaka, "**Intercloud WAN Delivery Platform for Business Applications**," Qatar National Research Fund, NPRP-8-634-1-131, \$737,931 = \$479,657 (QU)+\$258,274 (WUSTL), December 1, 2015-November 30, 2018
6. Raj Jain, Elisa Bertino, Arjan Durrresi, "**CICI: Secure Data Architecture: Collaborative Research: AMDN Framework for Secure Scientific Collaboration**," NSF, CNS-1547380, \$499,820 = \$220,000 (WUSTL)+\$139,999 (IUPUI)+ \$139,831 (Purdue), Jan 1, 2016-Dec 31, 2018
7. Raj Jain, "**AppFabric: Application Deployment and Service Chaining in Future NFV Cloud, WAN Environments**," Cisco University Research Program Gift, \$152,925, January 2015-December 2015.
8. Raj Jain, "**OpenADN: Application Delivery in a Global Multi-Cloud Environment using SDN**," Broadcom Foundation Gift, \$25,000, Nov 1, 2014-Oct 31, 2015.
9. M. Samaka and Raj Jain, "**Middleware Architecture for Cloud Based Services Using Software Defined Networking (SDN)**," Qatar National Research Fund, NPRP-6-901-2-370, \$1,049,583 = \$734,049 (QU)+\$315,534 (WUSTL), December 1, 2013-November 30, 2016.
10. Raj Jain, "**OpenADN: Application Delivery in a Global Multi-Cloud Environment using SDN**," Broadcom Foundation, \$25,000, Nov 1, 2013-Oct 31, 2014.

11. Raj Jain, "**An Application Delivery Platform for Mobile Apps on Global Clouds,**" Cisco University Research Program Gift, \$99,216, December 15, 2012-December 14, 2013.
12. Raj Jain and A. Durresi, "**Collaborative Research: Eager: An Application Delivery Platform for Mobile Apps on Global Clouds,**" NSF, CNS-1249681 and #1249678, \$199,997 = \$139,999 (WUSTL) + \$59,998 (IUPUI), September 1, 2012-August 31, 2014.
13. Raj Jain, "**openSDN-A Service Delivery Network Architecture,**" Cisco University Research Program Gift, \$50,000, January 2, 2012-December 31, 2012.
14. A. Durresi and Raj Jain, "**RAPID: Collaborative Research:Using Lessons from Disasters in Japan to Develop Communications for Emergency Situations,**" NSF CNS-1138665, \$49,996 = \$24,996 (WUSTL) + \$25000 (IUPUI), July 15, 2011-July 14, 2013.
15. Raj Jain and P. Biswas, "**Communication and Modeling for Green Buildings,**" International Center for Advanced Renewable Energy and Sustainability (i-CARES), Washington University, \$35,000, May 1, 2011-March 31, 2012.
16. Raj Jain and A. Durresi "**Collaborative Research: EAGER:Large-Scale Distributed Scientific Experiments on Shared Substrate**", National Science Foundation, CNS-1019119, \$299,494 = \$199,968 (WUSTL) + \$99,526 (IUPUI), February 15, 2010-October 15, 2012.
17. Raj Jain, "**Internet 3.0: Architecture for Next Generation Internet,**" Intel Corporation Gift, \$60k, December 2009
18. Raj Jain, "**Internet 3.0: Architecture for Next Generation Internet,**" Huawei Technologies Gift, \$30k, November 2008-March 2009.
19. Raj Jain, "**Internet 3.0: Architecture for Next Generation Internet,**" Intel Corporation Gift, \$60k, May 2008-April 2009.
20. Raj Jain, "**WiMAX Modeling,**" WiMAX Forum, \$50k, Jan 2008-December 2008.
21. Raj Jain, "**Internet 3.0: Architecture for Next Generation Internet,**" Intel Corporation Gift, \$65k, April 2007-March 2008.
22. Raj Jain, "**WiMAX Modeling,**" WiMAX Forum, \$70k, June 2007-December 2007.
23. Raj Jain, "**WiMAX Modeling,**" WiMAX Forum, \$70k, December 2006-May 2007.
24. Raj Jain, "**Traffic Management in IP Networks,**" National Science Foundation, \$360,000, October 1, 2000-September 31, 2003.
25. Raj Jain, Unrestricted donation of \$10,000 from PMC-Sierra, San Jose, CA, December 1999.
26. M. Atiquzzaman, Raj Jain, "**QoS over Satellite Networks,**" NASA, \$130,000, October 1999-September 2000.
27. W. Feng, R. Crawfis, and Raj Jain, "**CISE Research Instrumentation: A Video-Based Testbed for Scientific Visualization and Networking Research,**" National Science Foundation, \$182,000, December 15, 1998, to November 30, 2001.
28. M. Fitz, U. Mitra, S. Ellingson, Raj Jain, and C. Hou, "**An Experimental Testbed for Research in Advanced Wireless Communications,**" \$1,450,203, Funded by National Science Foundation, September 1, 1998, to August 31, 2001

29. M. Fitz, Raj Jain, "**An Experimental Testbed for Research in Advanced Wireless Communications**," \$10,000, Research Experiences for Undergraduates (REU) supplement to the above grant. Funded by National Science Foundation, Summer 1999.
30. Raj Jain, "**Design Issues in Traffic Management for the ATM UBR+ Service for TCP over Satellite Networks**," \$159,987, Funded by National Aeronautics and Space Administration, NASA Lewis Research Center, Cleveland, OH, December 2, 1997- December 1, 1998.
31. Raj Jain, "**Multimedia over ATM Networks**," Ameritech Foundation, \$21,174, October 1, 1996, to September 30, 1997
32. Raj Jain, D.K. Panda, A.E. Stutz, G. Wallis, M. Farrell, B.A. Blake, C.H. Lin, J. Sang, M. Atiquzzaman, Y. Pan, H. Carter, P.A. Vendt, O. Garcia, T. Saliga, "**OCARNet: Ohio Computing and Communications ATM Research Network**," Ohio Board of Regents Investment Fund, \$1,721,730+, March 1, 1996, to February 28, 1999
33. Raj Jain and Wu-Chi Feng, "**Network Management Techniques for VBR Digital Audio and Video for ATM**," AT&T/Lucent Foundation, \$40,000, October 1, 1996, to September 30, 1997
34. Raj Jain, D. K. Panda, Anish Arora, and Thomas W. Page, "**ATM Testbed for Multimedia and Distributed Computing**," Funded jointly by the National Science Foundation (NSF), Ohio State University, Ohio Board of Regents Action Fund, \$176,500 (NSF), \$123,500 (OSU), and \$100,000 (OBR Action Fund), January 1, 1996 to December 31, 1997.
35. Raj Jain and Steve Lai, "**Laboratories for Data Communications and Computer Networks**," National Science Foundation, \$356,067 NSF + \$270,078 OSU match, July 1, 1995, to June 30, 1998
36. Raj Jain, "**Congestion Avoidance in High-Speed Networks**," National Science Foundation (NSF), \$375,000, September 1, 1996, to August 30, 2000
37. Jennifer Hou, Jason Han, and Raj Jain, "**Communications Middleware and Software for Providing End-to-End QoS for Real-Time Distributed Environments**," \$100,000, Funded by DARPA/ITO, Arlington, VA, June 1, 1997
38. Charlie Bender, Alvin Stutz, Gene Wallis, Raj Jain, and D. K. Panda, "**vBNS Gateway for Ohio via OCARNet and OARnet**," National Science Foundation, \$350,000, January 1, 1997, to December 31, 1998
39. Stan Ahalt and Raj Jain, "**Compressed Video via ATM: Enabling Technology for Imaging Applications**," The Ohio State University, Targeted Interdisciplinary Seed Grant Program, Image Technology Research Focus Area, \$55,000, June 1, 1997, to December 21, 1998
40. Raj Jain, "**Multimedia over ATM Networks**," Ameritech Fellowship, Ohio State University, \$29,674, May 15, 1995-May 14, 1996.
41. Raj Jain, Unrestricted donation of \$75,000 from FORE Systems for research on ATM networks.
42. Raj Jain, Unrestricted donation of \$42,425 from AdTech Electronics Engineering for research on ATM performance testing.
43. Raj Jain and F. Zhao, "**Wireless Communication between Autonomous Robotics Agents and Resource Management in Wireless Networks**," \$45,000, AT&T Foundation, October 1, 1995-Sept 20, 1996.

44. Raj Jain, Unrestricted donation of \$25,000, Cascade Communications Corp., December 1, 1995.
45. Raj Jain, Unrestricted donation of \$25,000 from Intel Corp., February 1995.
46. Raj Jain, Unrestricted donation of \$25,000 from StrataCom, Inc, January 1995.
47. Raj Jain, Donation of \$10,000 from AT&T Columbus for Networking and Telecommunications Seminars, December 1994.

PROFESSIONAL ACTIVITIES

Keynote Speaker

1. Keynote Speaker, "**Networking Developments for IoT: Current Research Issues,**" Keynote at 2nd International Conference on Smart IoT Systems: Innovations in Computing (SSIC 2019), Jaipur, India
January 20, 2019, http://www.cse.wustl.edu/~jain/talks/iot_ssic.htm
2. Keynote Speaker, "**Recent Advances in Networking and their Impact on Smart Cities,**" Keynote at 4th IEEE International Smart Cities Conference (ISC2), Kansas City, MO, September 16-19, 2018, <http://www.cse.wustl.edu/~jain/talks/smrtciti.htm>
3. Keynote Speaker, "**Trends and Issues in Softwarization of Networks: What's In, What's Out,**" Keynote at IEEE Conference on Network Softwarization, Montreal, Canada, June 26, 2018, <http://www.cse.wustl.edu/~jain/talks/netsoft.htm>
4. Keynote Speaker, "**Trends and Issues in Networking: What's In, What's Out,**" Keynote at IEEE International Conference on High-Performance Switching and Routing, Bucharest, Romania, June 19, 2018, <http://www.cse.wustl.edu/~jain/talks/hpsr18.htm>
5. Keynote Speaker, "**Current Trends in Networking With Applications to the Internet of Things and Smart Cities,**" Keynote at 2017 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT), Amman, Jordan, October 12, 2017, <http://ewh.ieee.org/conf/aeect/Program.html>
6. Keynote Speaker, "**The Catch-up Game: Quest for the Impact,**" Keynote at ACM SIGCOMM 2017, Los Angeles, CA, August 22, 2017, <https://conferences.sigcomm.org/sigcomm/2017/program.html>
7. Keynote Speaker, "**Blockchains: The Distributed Trust Technology,**" Keynote at The 2017 International Conference on Computer, Information and Telecommunication Systems (CITS 2017), Dalian, China, July 21, 2017.
8. Keynote Speaker, "**Seven Trends Leading to Opportunities in Multi-Cloud Global Application Delivery,**" 2016 International Conference on Communications, Image, and Signal Processing (CCISP), Dubai, November 19, 2016.
9. Keynote Speaker, "**Multi-Cloud Global Application Delivery for the Internet of Things and Smart Cities,**" Keynote at the 2nd IEEE International Conference on Collaboration and Internet Computing (CIC), Pittsburgh, PA, Nov 1, 2016, <http://www.sis.pitt.edu/cic2016/keynotes.html>
10. Keynote Speaker, "**Unmanned Aerial Systems: Networking Applications, Challenges, and Issues,**" Keynote at Midwest Drone Introduction, St. Louis, MO, October 15, 2016, <https://www.aerialsync.com/copy-of-wendy-erikson-1>

11. Keynote Speaker, "**Multi-Cloud Global Application Delivery for the Internet of Things and Smart Cities**," Keynote at the 7th IEEE Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON), Vancouver, Canada, October 14, 2016
12. Keynote Speaker, "**Blockchains: The Revolutionary Trust Protocol**," BEL Keynote at 22nd Annual International Conference on Advanced Computing and Communications (ADCOM 2016), Bangaluru, India, Sep 10, 2016, <http://accsindia.org/category/speakers-at-adcom-2016/page/2/>
13. Keynote Speaker, "**Internet of Things and Smart Cities Security: Challenges and Issues**," Keynote at 1st Annual Research Workshop on Advances & Innovations in Cyber Security, Memphis, TN, June 10, 2016
14. Keynote Speaker, "**Internet of Things and Smart Cities: Challenges and Issues**," Keynote at 2nd IEEE International Workshop on Sensors and Smart Cities (SSC2016), St. Louis, MO, May 18, 2016, <http://ssc2016.unime.it/>
15. Keynote Speaker, "**Internet of Things Security: Challenges and Issues**," Keynote at 9th Central Area Networking and Security Workshop (CANSec), University of Central Missouri, Warrensburg, MO, April 16, 2016
16. Keynote Speaker, "**Internet of Things: Research Challenges and Issues**," Internet of Things World Forum, Research and Innovation Symposium, Dubai, December 5-6, 2015
17. IEEE CS Keynote Speaker, "**Smart Cities: Technological Challenges and Issues**," 21st Annual International Conference on Advanced Computing and Communications (ADCOM) 2015, Chennai, India, September 19, 2015, <http://accsindia.org/adcom-2015-speakers/>
18. IEEE CS Keynote Speaker, "**Internet of Things: Challenges and Issues**," 20th Annual International Conference on Advanced Computing and Communications (ADCOM) 2014, Bangaluru, India, September 19, 2014, <http://accsindia.org/accs-adcom-2014-keyspeakers.html>
19. Keynote Speaker, "**Virtualization and Software Defined Networking (SDN) for Mobile Carriers**," WoWMom 2014, Sydney, Australia, June 18, 2014
20. IEEE CS Keynote Speaker, "**Networking for Big Data**," 19th Annual International Conference on Advanced Computing and Communications (ADCOM) 2013, Chennai, India, October 22, 2013, <http://accsindia.org/accs-adcom-2013-prg.html>
21. Keynote Speaker, "**Network Virtualization and Application Delivery Using Software Defined Networking**," Huawei Strategy and Technology Workshop, Shenzhen, China, May 15, 2013, and Huawei Strategy and Technology Workshop, Santa Clara, CA, March 19, 2013
22. Keynote Speaker, "**OpenADN: Mobile Apps on Global Clouds Using Software Defined Networking**," Mobile Cloud Computing & Services 2012, Low Wood Bay, Lake District, UK, June 25, 2012.
23. Keynote Speaker, "**IEEE International Conference on Communications (ICC 2012)**," Ottawa, Canada, June 10-15, 2012
24. Qualcomm Distinguished Lecture, "**International Conference on Computing Networking and Communications (ICNC 2012)**," Maui, Hawaii, 30 Jan-2 Feb 2012.
25. Inaugural and Keynote Speaker, "**International Conference on Advanced Computing, Networking, and Security (ADCONS) 2011**," National Institute of Technology Karnataka, Mangalore, India, December 17, 2011

26. Keynote Speaker, “**XXIX Brazilian Symposium on Computer Networks and Distributed Systems**,” May 30-June 3, 2011, Campo Grande, Mato Grosso do Sul, Brazil, <http://sbrc2011.facom.ufms.br/tutorials/view/id/4>
27. Inaugural Speaker, “**3rd International Conference on Communication Systems and Networks (COMSNETS 2011)**,” Bangalore, India, January 4-11, 2011.
28. Keynote Speaker, “**4th IEEE International Symposium on Advanced Networks and Telecommunication Systems (ANTS 2010)**,” Mumbai, India, December 16-18, 2010.
29. Keynote Speaker, “**International Conference on Models of Information and Communication Systems (MICS 2010)**,” Rabat, Morocco, November 2-4, 2010.
30. CDAC-ACCS Foundation Lecture, “**17th International Conference on Advanced Computing and Communications (ADCOM 2009)**,” Bangalore, India, December 14-17, 2009., <http://www.cse.wustl.edu/~jain/talks/adcom09.htm>
31. Keynote Speaker, “**12th International Conference on Network-Based Information Systems (NBIS 2009)**,” Indianapolis, IN, Aug 19-21, 2009.
32. Keynote Speaker, “**Networking Architecture Symposium 1969-2009: Forty years of Internetworking Research**,” at Centro Stefano Franscini at Monte Verita in Ascona, Switzerland, March 15-20, 2009.
33. Keynote Speaker, “**16th IEEE International Conference on Networks (ICON) 2008**,” New Delhi, India, December 12-14, 2008.
34. Keynote Speaker, “**ACM International Conference on Multimedia 2008**,” Vancouver, BC, Canada, October 27 – 31, 2008.
35. Keynote Speaker, “**International Conference on Communication, Convergence, and Broadband Networking (ICCBN) 2008**,” Bangalore, India, July 17-20, 2008.
36. Keynote Speaker, “**International Conference on Computer and Communications Engineering (ICCCE 2008)**,” Kuala Lumpur, Malaysia, May 13-15, 2008.
37. Keynote Speaker, “**Second International Conference on Access Networks (AccessNets 2007)**,” Ottawa, Ontario, Canada, August 23-24, 2007
38. Keynote Speaker, “**11th IEEE International Conference on Parallel and Distributed Systems (ICPADS-2005)**,” Fukuoka, Japan, July 20-22, 2005
39. Keynote Speaker, “**IEEE Local Computer Networking Conference 2004 (LCN04)**,” Tampa, FL, November 18, 2004.
40. Keynote Speaker, “**2004 International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS'04)**,” San Jose, CA, July 25-29, 2004.
41. Keynote Speaker, “**Concord Users Group Conference**,” Scottsdale, AZ, April 8-10, 2002.
42. Keynote Speaker, “**Opnetwork 2001**,” Washington, DC, August 27-31, 2001.
43. Keynote Speaker, “**NREN Gigabit Networking Workshop**,” Moffett Field, CA, August 14-16, 2000.
44. Keynote Speaker, “**2000 Summer Computer Simulation Conference SCSC 2000 and SPECTS 2000**,” Vancouver, BC, Canada, July 16-20, 2000.

45. Keynote Speaker, “**International Conference on High-Performance Computing (HiPC'98)**,” Chennai (Madras), India, December 19, 1998.
46. Keynote Speaker, “**ATM: Technology, Standards, Trials and Applications 1994**,” Vancouver, Canada
47. Keynote Speaker, “**Gigabit Networks- Key to Information Superhighway**,” 1994.
48. Keynote Speaker, “**IEEE Local Computer Networking Conference**,” Minneapolis, MN September 15, 1992.
49. Keynote Speaker, “**Modeling Techniques and Tools Conference**,” Edinburgh, UK September 18, 1992.

Editorships

1. Co-Guest Editor, “**ACM/Springer Mobile Networks and Applications (MONET) special issue on Device-to-Device Communication in 5G Networks**,” Volume 22, Issue 6, December 2017.
2. Member of the Editorial Board, “**Asia-Pacific Journal of Neural Networks and its Applications (AJNNIA)**,” July 2016-Present, <http://gvschoolpub.org/journals/AJNNIA/eb.php>
3. Member of the Advisory Board, “**EIA Transactions TSimTools**,” September 2014-Present, <http://www-sop.inria.fr/members/Olivier.Dalle/wiki/TSimTools/Boards?setview=author>
4. Member of the Editorial Board, “**Vehicular Communications**,” Elsevier, August 2013-Present, <https://www.journals.elsevier.com/vehicular-communications/editorial-board/>
5. Member of the Editorial Board, “**International Journal on Advances in Internet Technology**,” published by IARIA, January 2012-Present, http://www.iariajournals.org/internet_technology/index.html#board
6. Member of Editorial Board, “**Mobile Communications and Applications**,” 2009-Present, <http://eai.eu/transaction/mobile-communications-and-applications>
7. Member of Editorial Board, “**International Journal of Communication Networks and Distributed Systems (IJCND)**,” April 2007-Present, <http://www.inderscience.com/jhome.php?jcode=ijcnds>
8. Member of Editorial Board, “**International Journal of Virtual Technology and Multimedia (IJVTM)**,” Published by Inderscience Publisher Ltd, UK, March 2005-Present-, <http://www.inderscience.com/jhome.php?jcode=ijvtm#board>.
9. Member of Editorial Board, “**International Journal of Wireless and Optical Communications (IJWOC)**,” World Scientific, Singapore, March 2002-Present, <http://www.worldscientific.com/page/ijwoc/editorial-board>
10. Member of the Editorial Board, “**Mobile Networks and Applications (MONET)**,” 1996-Present, <http://www.springer.com/engineering/signals/journal/11036?detailsPage=editorialBoard>
11. Member of Editorial Board, “**Journal of High-Speed Networks**,” published by IOS Press Inc., 1994-Present, <http://www.iospress.nl/journal/journal-of-high-speed-networks/>
12. Member of the Advisory Board, “**Journal of Communications**,” published by ETPub, Finland, 2008-Present, <http://www.jocm.us/index.php?m=content&c=index&a=lists&catid=18>

13. Member of the advisory board, “**Global Science and Technology Forum (GSTF)**,” Singapore, June 2010-2018.
14. Member of the Editorial Board, “**Recent Advances in Communications and Networking Technology (Formerly, Recent Patents on Telecommunications)**,” Bentham Science Publishers, July 2011-2018
15. Member of the Editorial Board, “**Journal of Innovation in Digital Ecosystems (JIDES)**,” Elsevier, July 2014-2016
16. Member of the Editorial Board, “**Infocommunications Journal**,” published by Scientific Association for Infocommunications, Hungary, 2013-Jan 2015.
17. Member of the Editorial Advisory Board, “**Central European Journal of Computer Science (CEJCS)**,” published by Springer, August 2010-December 2014.
18. Co-Guest Editor, “**IEEE Communications Magazine Special Issue on Cloud Computing: Networking and Communications Challenges**,” September 2012 issue.
19. Guest Editor, “**IEEE Communications Magazine Special issue on Future Internet Architectures: Design and Deployment Perspectives**,” July 2011 issue.
20. Member of the Editorial Board, “**Journal of Telecommunications System & Management (JTSM)**,” published by OMICS Publishing Group, Los Angeles, CA, December 2011-September 2012
21. Co-Editor-in-Chief, “**ICST Transactions on Networking and Communications**,” January 2009-2011
22. Member of Editorial Board, “**ICST Transactions on Information-centric Networking**,” September 2009-2011.
23. Member of the Editorial Board, “**ICTACT Journal on Communications Technology**,” 2009-2010.
24. Member of Editorial Board, “**Computer Communications (UK)**,” published by Butterworth-Heinemann, 1994-2009.
25. Co-Guest Editor, “**IEEE Communications Magazine, special issue on TCP Performance in Future Networking Environments**,” April 2001 issue.
26. Member of Editorial Board, “**Computer Networks and ISDN Systems**,” published by Elsevier Science Publishers, 1994-2000.
27. Co-Guest Editor, “**IEEE Communications Magazine, special issue on Satellite ATM Network Architecture**,” July 1999 issue.
28. Co-Guest Editor, “**IEEE Communications Magazine, special issue on Satellite ATM Network Architectures**,” March 1999 issue.
29. Co-Guest Editor, “**Computer Networks and ISDN System’s special issue on ATM Traffic Management**,” October 1998.
30. Member of the editorial board, “**IEEE/ACM Transactions on Networks**,” June 94-December 1994.
31. Guest Editor, “**Computer Communications (UK) Special SIGCOMM Section**,” April-May 1993.

Industry Consulting and Board Membership

1. Member of the Advisory Board, Astra-The Social Supercomputer, June 2018-Present, <https://www.astra.computer/>
2. Member of Technical Advisory Board, Blue Sage Communications, Inc., San Ramon, CA, June 2013-2018
3. Member of the Board, “Indo-US Collaboration for Engineering Education (IUCEE),” September 2013-2015
4. Member of the University Advisory Board, AKS University, Satna, MP, India, July 2012-July 2015
5. Member of Technical Advisory Board, InBay Technology Solutions, Inc., San Jose, CA, January 2012-2015
6. Member of Technical Advisory Board, DOCOMO Innovations, Inc., Palo Alto, CA, (2011)
7. Member of Technical Advisory Board, Mercury, Mountain View, CA, (2004).
8. Member of Board of Technical Advisors, Teradient Networks, San Jose, CA, (2000-2004)
9. Member of Board of Technical Advisors, Corona Networks, Inc., Milpitas, CA (2000-2004)
10. Member of Board of Technical Advisors, Avatar Networks, Fremont, CA (2001-2002).
11. Member of Board of Technical Advisors, Chip Engines, Inc., Sunnyvale, CA (2000-2002)
12. Member of Board of Technical Advisors, EdgeNet Communications Corporation, Burlingame, CA (2000-2002)
13. Member of Board of Technical Advisors, Tivre Networks, San Jose, CA (2001-2002)
14. Member of Board of Technical Advisors, Irvine Networks, Irvine, CA, acquired by Simple Technologies. (2000-2001)
15. Member of Board of Technical Advisors, Beacon Telco, Boston, MA (2001-2002).
16. Member of Board of Technical Advisors, Rhonet Systems, Columbus, OH (2002-2003).
17. Member of Board of Research Advisors to iBEAM Broadcasting Corporation, Sunnyvale, CA (2000-2001).
18. Member of Board of Technical Advisors, Nexabit Networks, Westboro, MA, acquired by Lucent Corporation. (March 1997-1999)
19. Member of Board of Technical Advisors, Amber Networks, Fremont, CA, acquired by Nokia. (1999-2001)
20. Member of Board of Directors of MED-I-PRO Systems, LLC, Pomona, CA, February 1998-2000.

Professional Society Activities

1. Vice-Chair of ACM SIGCOMM, 1991-95.
2. IEEE Communications Society Distinguished Lecturer, 1997, 1999-2006.
3. IEEE Computer Society Distinguished Visitor, 1993-1996.

4. ACM Lecturer 1991-1997.
5. Editor, "**WiMAX Systems Evaluation Methodology**," WiMAX Forum, Applications Working Group, 2006-2009.
6. Chair, TIA/SCD/CIS Working Group, "**ATM Traffic Management**," 1996-1998.
7. Editor, "**ATM Forum Performance Testing Specification**," February 1996-February 1998.
8. Member, IEEE Computer Society Education Board
9. Member IEEE Computer Society Publication Board, 1995-1997.
10. Member of U.S. delegation (Computer Communications) to People's Republic of China, July 1987.
11. Member of National Science Foundation's site visit team to evaluate NSF Engineering Research Center program at the Center for Telecommunications Research, Columbia University, November 13-14, 1991.
12. Member of NSF Global Environment for Networking Innovations (GENI) Design Review group, Arlington, VA, July 6-7, 2006.
13. Member of the 1997 National Science Foundation Research Infrastructure Program Final Evaluation Panel, Arlington, VA, April 21, 1997.

Technical Conference Organizations

1. Member of the Steering Committee, "**The Fourteenth International Conference on Internet and Web Applications and Services (ICIW 2019)**," Nice, France, Jul 28-Aug 1, 2019, <http://www.iaria.org/conferences2019/ComICIW19.html>
2. Member of the International Advisory Committee, "**International Conference on Frontiers in Smart System Technologies (FSST 2019)**," Chennai, India, Apr. 3-5, 2019, <http://www.veltech.edu.in/fsst/#committee>
3. Member of the Conference Technical Committee, "**2019 International Conference on Blockchain Technology (ICBCT 2019)**," Honolulu, Hawaii, March 15-18, 2019, <http://www.icbct.org/com.html>
4. Member of the International Advisory Committee, "**2nd International Conference on Advanced Computing and Software Engineering (ICACSE 2019)**," Sultanpur, India, Feb. 8-9, 2019, <https://www.icacse2019.com/include/commitee.php>
5. Member of the Technical Program Committee, "**Symposium on Emerging Computing and Networking**," Celebrating IISc CSA Department's Golden Jubilee, Bangalore, India, January 4, 2019, <https://events.csa.iisc.ac.in/icdcn2019/csa50symp.htm>
6. Member of the International Program Committee, "**International Conference on Computational Intelligence (ICCI 2018)**," Dec 10-11, 2018, Mesra, India, <https://www.bitmesra.ac.in/ICCI/page?page=icci&pid=77>
7. Member of the International Advisory Committee, "**3rd International Conference on Advanced Computing and Intelligent Engineering (ICACIE 2018)**," November 22-24, 2018, Bhubaneswar, India, <http://www.icacie.com/2018/international-advisory-committee>

8. Member of the Steering Committee, "**The Tenth International Conference on Emerging Networks and Systems Intelligence (EMERGING 2018)**," November 18 - 22, 2018 – Athens, Greece, <http://www.iaria.org/conferences2018/ComEMERGING18.html>
9. Member of the Technical Program Committee, "**Third International Conference on Contemporary Computing and Informatics (IC3I)**," October 10-12, 2018, Delhi, India.
10. Member of the Steering Committee, "**The Thirteenth International Conference on Internet and Web Applications and Services (ICIW 2018)**," July 22-26, 2018, Barcelona, Spain, <http://www.iaria.org/conferences2018/ComICIW18.html>
11. Member of the Program Committee, "The 1st workshop on Energy Efficient Machine Learning and Cognitive Computing for Embedded Applications (EMC²)," Williamsburg, VA, Mar. 25, 2018, <https://sites.google.com/view/asplos-emc2/committees>
12. Member of the Advisory Board, "**4th International Conference on Recent Advances in Information Technology (RAIT-2018)**," 15-17 March 2018, Dhanbad, India.
13. Member of the advisory team, "**1st International Conference on Data, Engineering & Applications (IDEA 2017)**," Bhopal, India, December 28-29, 2017.
14. Member of the International Advisory Committee, "**2nd International Conference on Advanced Computing and Intelligent Engineering (ICACIE 2017)**," November 23-25, 2017, Ajmer, India, <http://www.icacie.com/>
15. Member of the Steering Committee, "**The Ninth International Conference on Emerging Networks and Systems Intelligence (EMERGING 2017)**," November 12 - 16, 2017 - Barcelona, Spain, <https://www.iaria.org/conferences2017/ComEMERGING17.html>
16. Member of the Program Committee, "**The 3rd International Workshop on Dependability Issues in SDN and NFV (DISN)**" workshop at IEEE Dependable Systems and Networks Conference, Denver, Colorado, June 26-29, 2017, <http://www.inf.ufpr.br/disn/>
17. Member of the Steering Committee and Technical Program Committee, "**The Twelfth International Conference on Internet and Web Applications and Services (ICIW 2017)**," June 25-29, 2017, Venice, Italy, <http://www.iaria.org/conferences2017/ComICIW17.html>
18. Member of the International Advisory Board, "**International Conference on Big Data Analytics and Computational Intelligence (ICBDACI)**," March 23-25, 2017, Chirala, India, <http://icbdaci-conference.org/2017/#iac>
19. Member of the Technical Program Committee, "**International Conference on Computing and Communication Technologies for Smart Nation (IC3TSN)**," February 16-18, 2017, Gurgaon, India
20. Member of the Advisory Committee, "**International Conference on Computing Analytics and Networking (ICCAN 2017)**," December 13-16, 2016, Bhubaneswar, India.
21. Member of the Technical Program Committee, "**Ubiquitous Sensing and Actuation (UbSA) via the Internet of Things**," workshop at IEEE WorldForum on Internet of Things, December 2-14, 2016, Reston, VA, <http://wfiot2016.ieee-wf-iot.org/program/ubiquitous-sensing-and-actuation-ubsa-internet-of-things/>
22. Member of the Advisory Board, "**International Conference on Advanced Computing and Intelligent Engineering (ICACIE 2016)**," 21-23 December 2016, Bhubaneswar, India

23. Member of the Technical Program Committee, "**2nd International Conference on Contemporary Computing and Informatics (IC3I)**," December 14-17, 2017, Noida, India, <http://ic3i.org/2015/tpc.html>
24. Conference Chair, "**2016 International Conference on Communications, Image, and Signal Processing (CCISP) and 2016 International Conference on Virtualization Application and Technology (ICVAT)**," Dubai, November 19, 2016.
25. Member of the Advisory Committee, "**Smart Cities – Technological Challenges and Opportunities**," Workshop in Conjunction with IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), 7 November 2016, Bangalore, India, <http://ants2016.ieee-comsoc-ants.org/call-for-submissions/call-for-workshops/>
26. Technical and Scientific Program Co-Chair, "**International Conference on Information Science and Communications Technologies (ICISCT 2016)**," November 2-4, Tashkent, Uzbekistan, International Conference on Information Science and Communications Technologies ICISCT 2016
27. Member of the Advisory Chairs and Technical Program Committee, "**The Eighth International Conference on Emerging Network Intelligence (EMERGING 2016)**," Venice, Italy, October 9-12, 2016, <http://www.iaria.org/conferences2016/ComEMERGING16.html>
28. Tutorial Chair, "**ACM SIGCOMM 2016**," Salvador, Brazil, August 22-26, 2016, <http://conferences.sigcomm.org/sigcomm/2016/organization.php>
29. Member of Technical Program Committee, "**The Eleventh International Conference on Systems and Networks Communications (ICSNC 2016)**," Brussels, Belgium, August 21-25, 2016, <http://www.iaria.org/conferences2016/ComICSNC16.html>
30. Member of the Steering Committee, "**2nd International Conference on Applied and Theoretical Computing and Communication Technology (iCATccT 2016)**," Bangalore, India, July 21-23, 2016, <http://icatcct.org/sc.html>
31. Member of the Program Committee, "**Dependability Issues in SDN and NFV (DISN 2016)**" workshop at IEEE Dependable Systems and Networks Conference, Toulouse, France, June 28, 2016
32. Member of the Program Committee, "**The Eleventh International Conference on Internet and Web Applications and Services (ICIW 2016)**," May 22 - 26, 2016, Valencia, Spain, <http://www.iaria.org/conferences2016/ComICIW16.html>
33. Member of the Advisory Committee, "**12th International Workshop on Heterogeneous Wireless Networks**," Crans-Montana, Switzerland, March 23-25, 2016, <http://voyager.ce.fit.ac.jp/conf/hwise/2016/index.html>
34. Member of the Program Committee, "**2016 International Conference on Internet of Things and Cloud Computing (ICC 2016)**," Cambridge, UK, March 22-23, 2016.
35. Member of the Advisory Committee, "**3rd International Conference on Recent Advances in Information Technology 2016 (RAIT-2016)**," Dhanbad, India, March 3-5, 2016
36. Member of the Advisory Committee, "**The Ninth International Conference on Communication Theory, Reliability, and Quality of Service (CTRQ 2016)**," February 21-25, 2016, Lisbon, Portugal, <http://www.iaria.org/conferences2016/ComCTRQ16.html>

37. Member of the Technical Program Committee, "**The Fifteenth International Conference on Networks (ICN 2016)**," February 21-25, 2016 - Lisbon, Portugal, <http://www.iaia.org/conferences2016/ComICN16.html>
38. Member of the Review Group, "**3rd International Conference on Transformation in Engineering Education (ICTIEE 2016)**," Pune, India, January 8-10, 2016
39. Member of the Advisory Committee, "**Indo-US International Workshop on Large Scale Complex Network Analysis**," Kolkata, December 19-20, 2015
40. Member of the International Advisory Committee, "**International Conference on Computational Intelligence (ICCI 2015)**," BIT Mesra, Ranchi, December 10-11, 2015, <https://www.bitmesra.ac.in/ICCI/page?page=ICCI&pid=77>
41. Member of the Advisory Committee, "**International Conference on Computational Intelligence in Data Mining (ICCIDM 2015)**," Bhubaneswar, India, December 5-6, 2015
42. Member of Technical Program Committee, "**The Tenth International Conference on Systems and Networks Communications (ICSNC 2015)**," Barcelona, Spain, November 15-20, 2015, <http://www.iaia.org/conferences2015/ComICSNC15.html>
43. Member of the Steering Committee, "**International Conference on Applied and Theoretical Computing and Communication Technology (iCATccT 2015)**," Davangere, India, October 29-31, 2015
44. Member of Technical Program Committee, "**International Conference on Green Computing and Internet of Things (ICGCIoT)**," Delhi, India, October 8-10, 2015, <http://gciot-conference.org/2015/tpc.html>
45. Member of the Advisory Board, "**International Conference on Signal, Networks, Computing, and Systems (ICSNCS-2015)**," New Delhi, India, September 9-11, 2015
46. Member of the Technical Program Committee, "**12th International Conference on Wireless and Optical Communications Networks (WOCN 2015)**," Bangalore, India, September 9-11, 2015.
47. Member of the Organizing Committee, "**Global Cloud Computing Conference**," Philadelphia, PA, August 10-12, 2015.
48. Member of the Advisory Chairs and Technical Program Committee, "**The Seventh International Conference on Emerging Network Intelligence (EMERGING 2015)**," Nice, France, July 19-24, 2015, <http://www.iaia.org/conferences2015/ComEMERGING15.html>
49. Member of the Advisory Board, "**3rd International Conference on Advanced Computing, Networking, and Informatics (ICACNI-2015)**," Orissa, India, 23-25 June 2015.
50. Member of the Program Committee, "**The Tenth International Conference on Internet and Web Applications and Services (ICIW 2015)**," June 21 - 26, 2015, Brussels, Belgium, <http://www.iaia.org/conferences2015/ComICIW15.html>
51. Member of the Advisory Committee, "**The Sixth International Conference on Communication Theory, Reliability, and Quality of Service (CTRQ 2015)**," April 19 - 24, 2015, Barcelona, Spain, <http://www.iaia.org/conferences2015/ComCTRQ15.html>

52. Member of the Technical Program Committee, "**The Fourteenth International Conference on Networks (ICN 2015)**," Barcelona, Spain, April 19-24, 2015, <http://www.iaria.org/conferences2015/ComICN15.html>
53. Advisory Chair, "**11th International Workshop on Heterogeneous Wireless Networks (HWISE 2015)**," Gwangju, Korea, March 24-27, 2015, <http://voyager.ce.fit.ac.jp/conf/hwise/2015/committee.html>
54. Member of the International Advisory Board, "**2nd International Conference on Electronics and Computing Technologies (ICONECT15)**," Thane, India, 12-13 March 2015
55. Member of the Advisory Committee, "**1st International Conference on Recent Developments in Control, Automation and Power Engineering (RDCAPE 2015)**," Noida, India, March 12-13, 2015
56. Member of the Review Group, "**2nd International Conference on Transformation in Engineering Education (ICTIEE 2015)**," Bangalore, India, January 5-8, 2015
57. Member of the Technical Program Committee, "**IEEE International Conference on Contemporary Computing and Informatics**," Mysore, India, 27-29 November 2014.fgct
58. Member of Technical Program Committee, "**The Ninth International Conference on Systems and Networks Communications (ICSNC 2014)**," Nice, France, October 12 - 16, 2014, <http://www.iaria.org/conferences2014/ComICSNC14.html>
59. Member of the Program Committee, "**11th International Conference on Wireless and Optical Communications Networks (WOCN 2014)**," Vijayawada, India, September 11-13, 2014.
60. Member of the Program Committee, "**11th International Conference on Wireless Information Networks and Systems (WINSYS 2014)**," Vienna, Austria, August 28-30, 2014.
61. Member of the Technical Committee, "**Science and Information Conference 2014 (SAI 2014)**," London, UK, August 27-29, 2014.
62. Member of the Advisory Committee and Technical Program Committee, "**The Sixth International Conference on Emerging Network Intelligence (EMERGING 2014)**," Rome, Italy, August 24 - 28, 2014, <http://www.iaria.org/conferences2014/ComEMERGING14.html>
63. Member of Technical Program Committee, "**First International Conference on Networks & Soft Computing (ICNSC 2014)**," Guntur, AP, India, August 19-20, 2014
64. Member of the Program Committee, "**The Ninth International Conference on Internet and Web Applications and Services (ICIW 2014)**," Paris, France, July 20 - 24, 2014
65. Member of the Technical Program Committee, "**2014 International Conference on Computer, Information, and Telecommunication Systems (CITS 2014)**," Jeju Island, South Korea, July 7-9, 2014, <http://atc.udg.edu/CITS2014/#tpc>
66. Member of the Advisory Board, "**2nd International Conference on Advanced Computing, Networking, and Informatics (ICACNI-2014)**," Kolkata, India, June 24-26, 2014.

67. Member of the Content Advisory Team, "**The Indian Entrepreneur Conference (TiECON 2014)**," Santa Clara, CA, May 15-16, 2014
68. Member of the Technical Program Committee, "**3rd IEEE International Workshop on Opportunistic Networking (WON 2014)**," Victoria, BC, May 13-16, 2014
69. Member of the Program Committee, "**The 28th IEEE International Conference on Advanced Information Networking and Applications (AINA-2014) - Internet Computing and Web Applications Track**," Victoria, Canada, May 13-16, 2014, <http://www.aina-conference.org/2014/>
70. Member of the Advisory Committee, "**International Conference on innovations in Computer, Communication, and Control technologies**," Kumaracoil, India, April 2014.
71. Member of the Advisory Committee, "**2nd International Conference on Recent Advances in Information Technology 2014 (RAIT-2014)**," Dhanbad, India, March 13-15, 2014
72. Member of International Advisory Committee, "**Innovation in Computer Technology and Communication (NCICTC'14)**," Coimbatore, India, Feb 28, 2014.
73. Member of the Program Committee, "**The Thirteenth International Conference on Networks (ICN 2014)**," Nice, France, February 23-27, 2014, <http://www.iaria.org/conferences2014/ComICN14.html>
74. Member of the Advisory Committee, "**The Seventh International Conference on Communication Theory, Reliability, and Quality of Service (CTRQ 2014)**," Nice, France, February 23-27, 2014, <http://www.iaria.org/conferences2014/ComCTRQ14.html>
75. Member of the Technical Program Committee, "**International Conference on Computing, Networking and Communications (ICNC 2014)**," Honolulu, Hawaii, February 3-6, 2014, <http://www.conf-icnc.org/2014/>
76. Member of the Program Committee (CS Track), "**International Conference on Mathematics and Computing 2013 (ICMC 2013)**," Haldia, India, December 26-29, 2013.
77. Member of the Program Committee, "**The 2nd Networking and Communications 2013 workshop**," Jeju Island, Korea, December 11-13, 2013.
78. Member of the Program Committee, "**The 2nd Mobile and Wireless 2013 workshop**," Jeju Island, Korea, December 11-13, 2013.
79. Member of the Program Committee, "**The Eighth International Conference on Systems and Networks Communications (ICSNC 2013)**," Venice, Italy, October 27-November 1, 2013, <http://www.iaria.org/conferences2013/ComICSNC13.html>
80. Member of the Technical Committee, "**Science and Information Conference (SAI 2013)**," London, UK, October 7-9, 2013.
81. Member of the Advisory Committee and Technical Program Committee, "**The Fifth International Conference on Emerging Network Intelligence (EMERGING 2013)**," Porto, Portugal, September 29 - October 4, 2013, <http://www.iaria.org/conferences2013/ComEMERGING13.html>
82. Member of the Program Committee, "**The 4th International Conference on Mobile, Ubiquitous, and Intelligent Computing (MUSIC-13)**," Gwangju, Korea, Sep 4-6, 2013

83. Member of the Program Committee, "**2nd International Conference on Advances in Computing, Communications and Informatics (ICACCI-2013)**," Mysore, India on August 22-25, 2013, <http://icacci-conference.org/site/pcc>
84. Member of the Program Committee, "**10th International Conference on Wireless Information Networks and Systems (WINSYS 2013)**," Reykjavik, Iceland, July 29-31, 2013.
85. Member of Technical Program Committee, "**4th International Conference on Data Communication Networking (DCNET 2013)**," Reykjavik, Iceland, 29-31 July 2013, <http://www.dcnnet.icete.org/ProgramCommittee.aspx?y=2013>
86. Member of the Program Committee, "**10th International Conference on Wireless and Optical Communications Networks (WOCN 2013)**," Bhopal, India, July 26-28, 2013, <http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=6589213>
87. Member of the Technical Program Committee, "**2013 International Conference on Computer, Information, and Telecommunication Systems (CITS 2013)**," Athens, Greece, May 2013, <http://atc.udg.edu/CITS2013/#tpc>
88. Advisory Co-Chair and Member of the Technical Program Committee, "**The Fourth International Conference on Models and Ontology-based Design of Protocols, Architectures and Services (MOPAS 2013)**," April 21 - 26, 2013 - Venice, Italy, <http://www.iaria.org/conferences2013/ComMOPAS13.html>
89. Conference Program Co-Chair, "**MASAUM International Conference on Computer Science 2013(MIC-CS'13)**," Kuala Lumpur, Malaysia, March 29-31, 2013
90. Member of the Technical Program Committee, "**IEEE International Workshop on Broadband Wireless Internet and Next Generation Networks Access (BWINA 2013)**," In conjunction with AINA 2013, in Barcelona, Spain, March 25-28, 2013
91. Member of the Advisory Committee, "**International Conference on Computing, Communication, and Network (ICCCN 2013)**," Chennai Institute of Technology, Chennai, India, March 15-17th, 2013.
92. Member of the Technical Program Committee, "**International Conference on Computing, Networking and Communications (ICNC 2013)**," San Diego, USA, Jan 28-31, 2013, <http://www.conf-icnc.org/2013/>
93. Member of the Technical Program Committee, "**The Twelfth International Conference on Networks (ICN 2013)**," Seville, Spain, Jan 27-Feb 1, 2013, <http://www.iaria.org/conferences2013/ComICN13.html>
94. Conference Co-Chair and Co-Founder, "**Broadband Access Communication Technologies VII**," SPIE Photonics West Conference 8282, San Francisco, CA, January 24-26, 2013, <http://spie.org/Publications/Proceedings/Volume/8645>
95. Conference Program Co-Chair, "**MASAUM International Conference on Information Technology 2013 (MIC-IT '13)**," Dubai, UAE, Jan 1-3, 2013
96. Member of the International Program Committee, "**First International Conference on Future Generation Communication Technologies (FGCT 2012)**," British Computer Society, London, UK, December 12-14, 2012.

97. Member of the Technical Program Committee, "**ACM CoNEXT 2012 Capacity Sharing Workshop (CSWS'12)**," co-located with CoNEXT'12, December 10, 2012, Nice, France, <http://conferences.sigcomm.org/co-next/2012/e-proceedings/csws/organization.pdf>
98. Member of the Technical Program Committee, "**The Seventh International Conference on Systems and Networks Communications (ICSNC 2012)**," Lisbon, Portugal, Nov 18-23, 2012, <http://www.iaia.org/conferences2012/ICSNC12.html>
99. Member of the Technical Program Committee, "**MASAUM International Conference on Computer Science 2012 (MIC-CS'12)**," Kuala Lumpur, Malaysia, October 26-28 2012.
100. Member of the Technical Program Committee, "**Web and Internet Technologies (WIT) track of Mosharaka International Conference on Communications, Computers, and Applications (MIC-CCA2012)**," Istanbul, Turkey: 12-14 October 2012.
101. Member of the Advisory Committee and Technical Program Committee, "**The Fourth International Conference on Emerging Network Intelligence (EMERGING 2012)**," Barcelona, Spain, September 23-28, 2012, <http://www.iaia.org/conferences2012/ComEMERGING12.html>
102. Member of the Technical Program Committee, "**2012 Ninth International Conference on Wireless and Optical Communications Networks - (WOCN 2012)**," Indore, India, September 20-22, 2012.
103. Member of the Technical Program Committee, "**2012 International Conference on Computer, Information and Telecommunication Systems (CITS 2012)**," Amman, Jordan. May 13-16, 2012.
104. Advisory Chair and Member of the Technical Program Committee, "**The Third International Conference on Models and Ontology-based Design of Protocols, Architectures and Services (MOPAS 2012)**," Chamonix / Mont Blanc, France April 29-May 4, 2012, <http://www.iaia.org/conferences2012/MOPAS12.html>
105. Member of the Advisory Committee, "**The Fifth International Conference on Communication Theory, Reliability, and Quality of Service (CTRQ 2012)**," Chamonix / Mont Blanc, France, April 29-May 4, 2012, <http://www.iaia.org/conferences2012/ComCTRQ12.html>
106. Member of the Program Committee, "**Mosharaka International Conference on Communications and Signal Processing (MIC-CSP 2012)**," Barcelona, Spain, 6-8 April 2012.
107. Advisory Chair, "**8th International Workshop on Heterogeneous Wireless Networks (HWISE 2012)**," Fukuoka, Japan, March 26-29, 2012.
108. Member of the Advisory Board, "**1st International Conference on Recent Advances in Information Technologies (RAIT 2012)**," Dhanbad, India, March 15-17, 2012
109. Conference Co-Chair and Co-Founder, "**Broadband Access Communication Technologies VI**," SPIE Photonics West Conference 8282, San Francisco, CA, January 24-26, 2012, <http://spie.org/Publications/Proceedings/Volume/8282>
110. Member of the Technical Program Committee, "**Energy in Communication, Information, and Cyber-physical Systems (E6)**," COMSNETS Workshop, Bangalore, India, January 4, 2012

111. Member of the Program Committee, “**International Conference on IT Convergence and Security (ICITCS 2011)**,” Suwon, Korea, December 14-16, 2011
112. Member of the Program Committee, “**The Third International Conference on Emerging Network Intelligence (EMERGING 2011)**,” November 20-25, 2011, Lisbon, Portugal, <http://www.iaria.org/conferences2011/ComEMERGING11.html>
113. Technical Program Co-Chair, “**Asian Himalayas International Conference on Internet (AH-ICI2011)**,” November 4-6, 2011, Kathmandu, Nepal.
114. Member of the Program Committee, “**The Fifteenth IEEE International EDOC Conference (EDOC 2011)**,” Helsinki, Finland, 29th August-2nd September 2011.
115. Member of the Track Technical Program Committee, “Internet Services and Applications (ISA) track at **20th International Conference on Computer Communications and Networks (ICCCN 2011)**,” Maui, Hawaii, August 1-4, 2011, <http://www.iccn.org/iccn11/tracks.html>
116. Member of the Technical Program Committee, “**2011 International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS 2011)**,” The Hague, Netherlands, June 27-30, 2011, <http://atc.udg.edu/SPECTS2011/>
117. Member of the Technical Program Committee, “**2011 Eighth International Conference on Wireless and Optical Communications Networks (WOCN 2011)**,” Paris, France, May 24-26, 2011
118. Advisory Co-Chair and Member of the Program Committee, “**The Fourth International Conference on Communication Theory, Reliability, and Quality of Service (CTRQ 2011)**,” Budapest, Hungary, April 17-22, 2011, <http://www.iaria.org/conferences2011/CTRQ11.html>
119. Co-Chair and Member of the Technical Program Committee, “**The Second International Conference on Models and Ontology-based Design of Protocols, Architectures, and Services (MOPAS 2011)**,” April 17-22, 2011 – Budapest, Hungary, <http://www.iaria.org/conferences2011/ComMOPAS11.html>
120. Advisory Chair, “**7th International Workshop on Heterogeneous Wireless Networks (HWISE 2011)**,” Biopolis, Singapore, March 22-25, 2011.
121. Member of the Technical Program Committee, “**25th International Conference on Advanced Information Networking and Applications (AINA 2011)**,” Biopolis, Singapore, March 22-25, 2011
122. Conference Co-Chair and Cofounder, “**Broadband Access Communication Technologies V**,” SPIE, San Francisco, CA, January 26-27, 2011
123. Member of the Technical Program Committee, “**Third International Workshop on the Network of the Future (FutureNet-III)**,” In conjunction with IEEE Globecom 2010, Miami, FL, December 10, 2010, <http://exmgaity.sd.tmu.ac.jp/~aida/FutureNet3/Welcome.html>
124. Member of the Technical Program Committee, “**International Conference on Access Networks (AccessNets)**,” Budapest, Hungary, November 3-5, 2010

125. Member of the International Program Committee, "**International Conference on Models of Information and Communication Systems (MICS'10)**," Rabat – Morocco, November 2-4, 2010.
126. Member of Program Committee, "**The Second International Conference on Emerging Network Intelligence (EMERGING 2010)**," October 25-30, 2010-Florence, Italy, <http://www.iaria.org/conferences2010/EMERGING10.html>
127. Member of the Program Committee, "**14th IEEE International EDOC Conference (EDOC 2010)**," 25-29 October 2010, Vitoria, ES, Brazil.
128. Member of the Technical Program Committee, "**4th International Workshop on Broadband Wireless Internet and Next Generation Networks Access (BWINA 2010), in conjunction with WiMob 2010**," Niagara Falls, Ontario, Canada, October 11-13, 2010
129. Member of the Technical Program Committee, "**Seventh IEEE and IFIP International Conference on Wireless and Optical Communications Networks (WOCN2010)**," Colombo, Sri Lanka, September 6-8, 2010.
130. Member of the Track Technical Program Committee, "Internet Services, Architectures and Protocols (ISAP) track at **19th International Conference on Computer Communications and Networks (ICCCN 2010)**," Zurich, Switzerland, August 2-10, 2010, <http://iccn.org/iccn10/tracks/ISAP.html>
131. Member of the Program Committee, "**International Conference on Advanced Infocomm Technology 2010 (ICAIT 2010)**," 20-22 July 2010, Hainan, China.
132. Member of the Program Committee, "**First International Workshop on Optimization and Network Planning (ONPlan 2010)**," In conjunction with WCMC2010, Caen, France, 28 June-2 July 2010.
133. Member of the Technical Program Committee, "The First International Conference on Models and Ontology-based Design of Protocols, Architectures, and Services (MOPAS 2010)," June 13-19, 2010-Athens, Greece, <http://www.iaria.org/conferences2010/ComMOPAS10.html>
134. Member of the Program Committee, "**2010 ACS/IEEE International Conference on Computer Systems and Applications**," Hammamet, Tunisia, May 16-19th, 2010
135. Member of International Advisory Board, "**3rd International Conference on Computer and Communications Engineering (ICCCE 2010)**," May 11-13, 2010, Kuala Lumpur, Malaysia.
136. Member of The Program Committee, "**International Conference on Information Science and Applications (ICISA 2010)**," 21-23 April 2010, Seoul, Korea
137. Advisory Chair, "**6th International Workshop on Heterogeneous Wireless Networks (HWISE 2010)**," Perth, Australia, April 20-23, 2010.
138. Member of the Program Committee, "**IEEE 24th International Conference on Advanced Information Networking and Applications (AINA 2010)**," Perth, Australia, 20-23 April 2010
139. Member of the Advisory Committee, "**IEEE Conference on Control, Communication and Computing (ICCC 2010)**," Trivandrum, India, March 18-20 2010.

140. Conference Co-Chair, “**Broadband Access Communication Technologies IV**,” SPIE, Volume 7620, San Francisco, CA, January 27, 2010, <http://spie.org/Publications/Proceedings/Volume/7620>
141. Member of the International Advisory Committee, “**2009 IEEE 9th Malaysia International Conference on Communications (MICC 2009)**,” 14-17 December 2009, Kuala Lumpur, Malaysia
142. Member of the Program Committee, “**17th International Conference on Advanced Computing and Communications (ADCOM 2009)**,” Bangalore, India, December 14-17, 2009.
143. Technical Program Co-Chair, “**First Asian Himalayas International Conference on Internet (AH-ICI) 2009**,” November 3-5, 2009, Kathmandu, Nepal.
144. Member of the Program Committee, “**7th International Workshop on Design of Reliable Communications Networks (DRCN 2009)**,” October 25-28, 2009, Washington, DC.
145. Member of Technical Program Committee, “**First International Conference on Future Information Networks (ICFIN 2009)**,” Beijing, China, Oct. 14-17, 2009
146. Member of the Program Committee, “**3rd International Workshop on Broadband Wireless Internet Access (BWIA 2009)**,” in conjunction with WiMob 2009, Marrakech, Morocco, October 12-14, 2009.
147. Member of Program Committee, “**The First International Conference on Emerging Network Intelligence (EMERGING 2009)**,” October 11-16, 2009- Sliema, Malta, <http://www.iaria.org/conferences2009/ComEMERGING09.html>
148. Member of the Technical Program Committee, “**First International Conference on Ad Hoc Networks**,” September 23-25, 2009, Niagara Falls, Ontario, Canada
149. Member of the Technical Program Committee, “**21st International Teletraffic Congress (ITC 21) Traffic and Performance Issues in Networks of the Future**,” Paris, France, September 15-17, 2009
150. Member of the Program Committee, “**Thirteenth IEEE International EDOC Conference (EDOC 2009)**,” Auckland, New Zealand, 31 August-4 September 2009
151. Member of the Track Technical Program Committee, “Network Architecture and Protocol (NAP) track at **18th International Conference on Computer Communications and Networks (ICCCN 2009)**,” San Francisco, CA USA, August 2–6, 2009, <http://icccn.org/icccn09/tracks/nap.html>
152. Member of the Technical Program Committee, “**International Conference On Advanced Infocomm Technology (ICAIT) 2009**,” Xi'an, China, 7-9 July 2009
153. Member of the Technical Program Committee, “**First International Workshop on Planning and Optimization of Wireless Communication Networks (PlanNet2009)**,” Leipzig, Germany, 2009, June 21-24, 2009.
154. Member of the Program Committee, “**International Conference on Wireless Information Networks and Systems (WINSYS 2009)**,” Milan, Italy, July 7-10, 2009.
155. Member of the Program Committee, “**4th Workshop on Hot Topics on Autonomic Computing, (HotAC IV)**,” June 15, 2009, Barcelona, Spain

156. Advisory Chair, "**5th International Workshop on Heterogeneous Wireless Networks (HWISE 2009)**," Bradford, UK, May 26-29, 2009.
157. Member of the Technical Program Committee, "**7th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA-2009)**," Rabat, Morocco, May 2009
158. Member of the Technical Program Committee, "**Sixth IEEE and IFIP International Conference on Wireless and Optical Communications Networks (WOCN2009)**," Cairo, Egypt, April 28-30, 2009
159. Member of the Technical Program Committee, "**NetEval 2009 – The First Workshop on Performance Evaluation of Next-Generation Networks**," April 26, 2009, Boston, MA, USA
160. Conference Co-Chair, "**Broadband Access Communication Technologies III**," SPIE, Volume 7234, San Jose, CA, January 28-29, 2009, <http://spie.org/Publications/Proceedings/Volume/7234>
161. Member of the Technical Program Committee, "**Workshop on Wireless IP Communication (WIPcom)**," Bangalore, India, Jan 5-10, 2009
162. Member of the Technical Program Committee, "**2008 International Conference on Computer Intelligence and Security (CIS 2008)**," Suzhou SIP, China, December 13-17, 2008.
163. Member of the Technical Program Committee, "**2008 Third International Conference on Access Networks**," Las Vegas, Nevada, October 15-17, 2008
164. Member of the Technical Program Committee, "**2nd International Workshop on Broadband Wireless Internet Access (BWIA 2008)**," Avignon, France, October 12, 2008.
165. Member of the Technical Program Committee, "**Fourth IEEE UZ Regional Chapter International Conference in Central Asia on Internet The Next Generation of Mobile, Wireless and Optical Communications Networks Information and Communications Technologies with Application to E- and M-Commerce**," Tashkent University of Information Technologies TUIT, Uzbekistan, September 23-25, 2008.
166. Member of the Technical Program Committee, "**The 12th IEEE International EDOC Conference (EDOC 2008)**," Munchen, Germany, 15-19 September 2008
167. Member of the International Program Committee, "**The Seventh IASTED International Conference on Communication Systems and Networks (CSN 2008)**," Palma de Mallorca, Spain, September 1-3, 2008, <https://www.iasted.org/conferences/ipc-607.html>
168. Member of the Technical Program Committee, "**International Conference On Advanced Infocomm Technology (ICAIT) 2008**," Shenzhen, China, July 28-29, 2008
169. Conference General Chair and Co-Founder, "**International Conference on Convergence and Broadband Networking (ICCBN)**," Bangalore, India, July 18-22, 2008
170. Member of the International Advisory Committee, "**2nd International Conference on Computer and Communications Engineering (ICCC'08)**" Kuala Lumpur, Malaysia, May 13-15, 2008.
171. Member of the Technical Program Committee, "**IEEE INFOCOM 2008 Conference on Computer Communications**," Phoenix, AZ, April 13-19, 2008.

172. Member of the International Program Committee, "**The Fifth IASTED Asian Conference on Communication Systems and Networks, (AsiaCSN 2008)**," Langkawi, Malaysia, April 2-4, 2008.
173. Advisory Chair, "**4th International Workshop on Heterogeneous Wireless Networks (HWISE 2008)**," Okinawa, Japan, March 25-28, 2008.
174. Member of the International Advisory Committee, "**The IEEE 22nd International Conference on Advanced Information Networking and Applications (AINA 2008)**," GinoWan, Okinawa, Japan, March 25-28, 2008, <http://www.aina-conference.org/2008/>
175. Conference Co-Chair, "**Broadband Access Communication Technologies Conference**," Part of SPIE Photonics West Conference and Exhibition, San Jose, CA, January 22-23, 2008.
176. Member of the Program Committee, "**The Second International Workshop on Broadband and Wireless Computing, Communication and Applications (BWCCA-2007)**," Jakarta, Indonesia, December 3-5, 2007, <http://www.fit.ac.jp/%7Ebarolli/Conferences/2007/index.html>
177. Reviewer, "**IEEE/NIH BISTI 2007 Life Science Systems and Applications Workshop (LISSA 2007)**," Bethesda, MD, November 8-9, 2007.
178. Member of the Technical Program Committee, "**15th International IEEE Conference on Networking Protocols (ICNP 2007)**," Beijing, China, October 16-19, 2007.
179. Conference Co-Chair, "**Broadband Access Communication Technologies (IT404)**," Part of SPIE's International Symposium on Optics East 2007, Boston, MA, September 9-12, 2007.
180. Member of Program Committee, "**Optical Transmission Systems and Equipment for Networking VI (IT402)**," Part of SPIE's International Symposium on Optics East 2007, Boston, MA, September 9-12, 2007.
181. Member of International Program Committee, "**The Sixth IASTED International Conference on Communication Systems and Networks (CSN 2007)**," Palma de Mallorca, Spain, August 29 – 31, 2007.
182. Member of the program committee, "**2nd International Conference on Information Science and Security (ISS 2007)**," Seoul, Korea, May 23-26, 2007.
183. Advisory Chair, "**3rd International Workshop on Heterogeneous Wireless Networks (HWISE 2007)**," Niagara Falls, Canada, May 21-23, 2007.
184. Member of Program Committee, "**First International Workshop on Broadband and Wireless Computing, Communication and Applications (BWCCA-2006)**," Yogyakarta, Indonesia, 4-6 December 2006
185. Member of Program Committee, "**2nd International Conference on Trends in Enterprise Application Architecture (TEAA 2006)**," Berlin, Germany, November 29-December 1, 2006, <https://www.cs.auckland.ac.nz/research/groups/foa/TEAAWEB/index-Dateien/page0011.html>
186. Member of the Technical Program Committee, "**IEEE Globecom 2006 Symposium on World Class Solutions-Networking the Globe (WCS)**," San Francisco, CA, November 27-December 1, 2006.

187. Member of Program Committee, "**8th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2006)**," Dallas, Texas, November 17-19, 2006, http://www.irisa.fr/sss/2006/?topic=conference_organization
188. Member of Technical Program Committee, "**14th International IEEE Conference on Networking Protocols (ICNP 2006)**," Santa Barbara, CA, November 12-15, 2006, <http://www.ieee-icnp.org/2006/comm.html>
189. Member of the Technical Program Committee, "**IEEE International Conference on e-Business Engineering**," October 24-26, Shanghai, China, October 24-26, 2006.
190. Conference Co-Chair, "**Broadband Access Communication Technologies (IT404)**," Part of SPIE's International Symposium on Optics East 2006, Boston, MA, October 1-4, 2006.
191. Member of the Program Committee, "**Optical Transmission Systems and Equipment for Networking V**," Conference 6388, Part of SPIE's International Symposium on Optics East 2006, Boston, MA October 1-4, 2006.
192. Member of the Technical Program Committee, "**14th IEEE International Conference on Networks (ICON 2006)**," Singapore, September 13-15, 2006.
193. Member of International Program Committee, "**The Fifth IASTED International Conference on Communication Systems and Networks (CSN 2006)**," Palma de Mallorca, Spain, August 28-30, 2006.
194. Member of Technical Program Committee, "**International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS'06)**," Calgary, Canada, July 31-August 2, 2006.
195. Member of Technical Program Committee, "**International Conference on Telecommunications and Multimedia (TEMU 2006)**," Heraklion, Crete, Greece, July 5-7, 2006
196. Member of International Advisory Board, "**International Conference on Computer & Communication Engineering (ICCCE'06)**," Kuala Lumpur, Malaysia, May 9-11, 2006
197. Advisory Chair, "**Second IEEE International Workshop on Heterogeneous Wireless Sensor Networks (HWISE 2006)**," TU, Vienna, Austria, on April 18-20, 2006
198. Member of the Technical Program Committee, "**First International Conference on Software in Communications (SoftComms 2006)**," New Delhi, India, January 8-12, 2006
199. Member of the Technical Program Committee, "**Wireless Communications Symposium**," IEEE Globecom 2005, St. Louis, MO, November 28-December 2, 2005.
200. Member of the International Advisory Council, "**Telecom India 2005**," Mumbai, India, November 9-11, 2005.
201. Member of the Program Committee and Session Chair, "**Optical Transmission Systems and Equipment for WDM Networking IV (IT102)**," SPIE Conference #6012, Boston, October 24-26, 2005.
202. Member of the Program Committee and Session Chair, "**Broadband Access Communications Technology (IT105)**," SPIE Conference, Boston, October 24-26, 2005.

203. Member of the Technical Program Committee, "**The 5th International Workshop on Design of Reliable Communication Networks (DRCN)**," Island of Ischia (Naples), Italy, October 16-19, 2005.
204. Member of the Scientific Program Committee, "**The First IFIP International Conference in Central Asia on Internet The Next Generation of Mobile, Wireless and Optical Communications Networks Information and Communications Technologies and Application to E- and M-Commerce (ICI 2005)**," Bishkek, Kyrgyz Republic, September 26-28, 2005, <http://www.ici2005.org/committee.html>
205. Member of the International Program Committee, "**The Fourth IASTED International Conference on Communication Systems and Networks (CSN 2005)**," Benidorm, Spain, September 12-14, 2005.
206. Member of the Advisory and Technical Committee, "**The First International Workshop on Heterogeneous Wireless Sensor Networks (HWISE 2005)**," July 20-22, 2005
207. Member of the Technical Program Committee, "**International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS05)**," Philadelphia, PA, July 2005.
208. Member of Technical Program Committee, "**IEEE Symposium on Optical Networking, ICC2005**," Seoul, Korea, May 16-20, 2005.
209. Member of the Technical Program Committee, "**Second IFIP International Conference on Wireless and Optical Communications Networks (WOCN 2005)**," Dubai, UAE, March 6-9, 2005.
210. Member of the Technical Program Committee, "**IEEE Wireless Communications and Networking Conference (WCNC 2005)**," New Orleans, LA, March 13-17, 2005, <http://wcnc2005.ieee-wcnc.org/committees.htm>
211. Member of the Technical Program Committee, "**International Conference on Networks (ICON 2004)**," Singapore, November 16-19, 2004.
212. Member of the Technical Program Committee, "**29th Annual IEEE Conference on Local Computer Networks (LCN 2004)**," Tampa, Florida, November 16-18, 2004.
213. Member of the Technical Program Committee, "**Optical Transmission Systems and Equipment for WDM Networking III (IT202)**," Philadelphia, PA, October 25-28, 2004.
214. Conference General Chair and Co-Founder, "**First International Conference on Broadband Networking (Broadnets 2004)**," San Jose, CA, October 25-29, 2004, <http://broadnets.org/2004/organizingcommittee.html>
215. Member of the Technical Program Committee, "**IEEE Region 10 Infocom Colloquium on Broadband Access –Technology and Market**," Singapore, October 2004.
216. Member of the Technical Program Committee, "**First IEEE and IFIP International Conference on Wireless and Optical Communications Networks WOCN 2004**," June 7-10, 2004, Sultan Qaboos University, Muscat, Oman
217. Member of the Technical Program Committee, "**10th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS04)**," Toronto, Canada, May 25-28, 2004.

218. Member of the Technical Program Committee, “**International Conference on Communication and Broadband Networking (ICBN’04)**,” Kobe, Japan, April 4-7, 2004.
219. Member of the Technical Program Committee, “**ICC 2004 Symposium on Optical Networking**,” Paris, France, June 20-24, 2004.
220. Member of the Technical Program Committee, “**Second IFIP-TC6 International Conference on Optical Communications and Networks (ICO CN 2003)**,” Bangalore, India, October 20-22, 2003.
221. Member of the International Scientific Committee, “**4th International Workshop on Design of Reliable Communication Networks (DRCN 2003)**,” The Banff Centre, Banff, Canada, October 19-22, 2003
222. Member of the Technical Program Committee, “**11th IEEE International Conference on Networks (ICON 2003)**,” Sydney, Australia, 28th September to 1st October 2003.
223. Member of the Technical Program Committee, “**Optical Transmission Systems and Equipment for WDM Networking II**,” part of SPIE’s ITCOM 2003, Conference 5247, September 8-11, 2003, Orlando, FL.
224. Co-Chair, Industry Watch Program, “**International Conference on Broadband Networking**,” Bangalore, India, May 7, 2003
225. Member of the Technical Program Committee, “**Symposium on Optical Networking in IEEE International Conference on Communications (ICC03)**,” Anchorage, Alaska, May 11-15, 2003
226. Member of the Technical Program Committee, “**First International Conference on Optical Communications and Networks (ICO CN 2002)**,” Singapore, August 27-30, 2002.
227. Member of the Technical Program Committee, “**International Conference on Networking (ICON02)**,” Singapore, August 27-August 30, 2002.
228. Member of the Technical Program Committee, “**Optical Transmission Systems and Equipment for WDM Networking**,” part of SPIE’s ITCOM 2002, July 29-August 1, 2002, Boston, MA.
229. Member of the Technical Program Committee, “**IEEE Symposium on Optical Networking in IEEE International Conference on Communications (ICC02)**,” New York City, April 28-May 2, 2002
230. Co-Chair, Industry Program, “**Optical Networking and Communications Conference**,” Opticomm 2001, August 19-24, 2001, Denver, CO.
231. Member of the International Program Committee, “**International Conference on Emerging Telecommunications Technologies and Applications, ICETA 2001-Steps Towards the Information Society of the Future**,” Koice, Slovak Republic, October 17-19, 2001.
232. Member of Program Committee, “**2nd International Workshop on Quality of future Internet Services organized by COST263**,” 24-26 September 2001 Coimbra, Portugal.
233. Member of Program Committee, “**Global Internet 2000 Symposium at Globecom**,” San Francisco, CA, November 27-December 1, 2000
234. Member of Program Committee, “**Ninth International Conference on Computer Communications and Networks (ICCCN2000)**,” October 16-18, 2000, Las Vegas, Nevada.

235. Member of the International Program Committee, "**2nd International ATM Technology Users Symposium (ATMTU 2000)**," September 13-15 2000, Kosice, Slovakia,
236. Member of Program Committee, "**International Conference on Communications (ICON2000)**," Singapore, September 5-8, 2000.
237. Member of Program Committee, "**Workshop on IP-oriented Operations & Management (IPOM2000)**," Cracow, Poland, September 4-6, 2000.
238. Member of Technical Program Committee, "**International Conference on Telecommunications (ICT-2000)**," Acapulco, Mexico, May 22-25, 2000.
239. Member of Program Committee, "**Mobile and Wireless Communication Networks (MWCN'2000)**," Paris, France, May 14-19, 2000.
240. Member of Program Committee, "**IEEE International Computer Performance and Dependability Symposium (IPDS2000)**," March 27-28, 2000, Chicago, IL.
241. Member of International Program Committee, "**International Symposium on Telemedicine and Tele-education in Practice (ISTEP2000)**," Elfa, Slovak Republic, March 24-28, 2000.
242. Session Organizer, "**IEEE Aerospace Conference**," Big Sky, MT, March 18-25, 2000.
243. Member of Program Committee, "**Eighth International Conference on Computer Communications (ICCCN'99)**," Boston, MA, October 11-13, 1999.
244. Member of the Program Committee, "**IEEE International Conference on Networking (ICON'99)**," September 28-October 1, 1999, Brisbane, Queensland, Australia.
245. Member of Scientific Committee, "**Seventh IFIP Workshop on Performance Modeling and Evaluation of ATM Networks (IFIP ATM'99)**," June 28-30, 1999, Antwerp, Belgium.
246. Member of the Program Committee, "**The 3rd IFIP WG 6.2 workshop on Traffic Management and Synthesis of ATM Networks (WATM'99)**," London, April 26-28, 1999
247. Conference Co-Chair, "**Quality of Service Issues Related to Internet (VV05)**," part of SPIE Symposium on voice, video, and data communications, Boston, MA, November 1-6, 1998.
248. Member of Program Committee, "**Third International Workshop on Satellite-based information services (WOSBIS'98)**," Dallas, TX, October 1998.
249. Member of Program Committee, "**10th International Conference on Modeling Techniques and Tools for Computer Performance Evaluation (Performance Tools'98)**," Palma de Mallorca, Spain, September 14-18, 1998.
250. Member of the Program Committee, "**1998 International Computer Performance and Dependability Symposium (IPDS'98)**," Durham, NC, September 7-9, 1998
251. Member of the Technical Program Committee (TPC), "**IEEE INFOCOM'98 conference on Computer Communications**," March 29-April 2, 1998, San Francisco, CA.
252. Member of Program Committee, "**IEEE Global Internet'97**," Globecom'97 Mini-conference, Phoenix, AZ, November 1997
253. Session Organizer and Chair, "**Technology Wars for High-Speed Networking: DOD Applications**," at 1997 IEEE Military Communications Conference (MILCOM'97), Monterey, CA, November 2-5, 1997.

254. Member of Program Committee, "**2nd International Workshop on Satellite-based information services (WOSBIS'97)**," Budapest, Hungary, October 1, 1997.
255. Member of Program Committee, "**ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems (SIGMETRICS'97)**," Seattle, WA, June 15-18, 1997.
256. Member of Program Committee, "**9th International Conference on Modeling Techniques and Tools for Computer Performance Evaluation (Performance Tools'97)**," Saint-Malo, France, June 1997
257. Member of Technical Program Committee, "**15th International Teletraffic Congress**," Washington, DC, June 23-27-1997.
258. Member of Program Committee, "**IEEE Infocom'97**," Kobe, Japan, April 7-11, 1997.
259. Member of Program Committee, "**IEEE Global Internet'96**," Globecom'96 Miniconference, London, November 20-21, 1996.
260. Member of Program Committee, "**Transport Protocols for Broadband Networks**," Globecom'96 Miniconference, London, November 20, 1996.
261. Member of Steering Committee, "**ACM/IEEE Mobile Computing and Networking Conference (MOBICOM'96)**," Rye, NY, November 11-12, 1996.
262. Member of Program Committee, "**1996 International Conference on Network Protocols**," Columbus, Ohio, October 29-November 1, 1996.
263. Panel member, "**International Conference on Networking Protocols (ICNP'96)**," Columbus, OH, October 29-November 1, 1996.
264. Session Organizer and Session Chair, "**Expert Panel on High-Speed Networking in the Enterprise: Which Way?**" 21st Conference on Local Computer Networks, October 13-16, 1996.
265. Member of Program Committee, "**International Conference on Performance Theory, Measurement and Evaluation of Computer and Communication Systems (Performance'96)**," Lausanne, Switzerland, October 7-11, 1996.
266. Session Organizer and Session Chair, "**Can ATM Networks Scale?**" NetWorld+Interop'96 Engineers' Conference, Atlanta, GA, September 18, 1996.
267. Member of Program Committee, "**IEEE International Computer Performance and Dependability Symposium (IPDS'96)**," Urbana-Champaign, IL, September 4-6, 1996.
268. Invited Speaker, "**IEEE International Computer Performance and Dependability Symposium IPDS'96**," Urbana-Champaign, IL, September 4-6, 1996.
269. Member of Program Committee, "**ACM SIGCOMM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communications (SIGCOMM'96)**," San Francisco, CA, August 26-28, 1996.
270. Session Organizer and Session Chair, "**Resource, Traffic and Congestion Management over Heterogeneous Networks**," NetWorld+Interop'96 Engineers' Conference, Las Vegas, April 2-5, 1996.
271. Program committee member, "**First Workshop on ATM Traffic Management (WATM'95)**," France, December 4-8, 1995.

272. Member of Steering Committee, "**The First International Conference on Mobile Computing and Networking 1995 (MobiCom'95)**," Berkeley, CA, November 13-15, 1995.
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7. Raj Jain, "**Internet, Multi-Cloud, Wireless, and Network Security Research at Washington University in St. Louis**," A talk to CSE 131R Introduction to Computer Science I students at WUSTL, October 23, 2017, <http://www.cse.wustl.edu/~jain/talks/cs13117.htm>
8. Raj Jain, "**Current Trends in Networking With Applications to the Internet of Things and Smart Cities**," Keynote at 2017 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT), Amman, Jordan, October 12, 2017, <http://www.cse.wustl.edu/~jain/talks/aect17.htm>
9. Raj Jain, "**Blockchains: Networking Applications**," An invited talk at the 38th IEEE Sarnoff Symposium, Newark, NJ, Sep 19, 2017, http://www.cse.wustl.edu/~jain/talks/blc_srnf.htm
10. Raj Jain, "**The Catch-up Game: Quest for the Impact**," Keynote at ACM SIGCOMM 2017, Los Angeles, CA, August 22, 2017, <http://www.cse.wustl.edu/~jain/talks/sigcomm.htm>
11. Raj Jain, "**Smart Cities: Technical Issues and Challenges**," A talk given at Smart City Meet up, University City, MO, August 10, 2017, <http://www.cse.wustl.edu/~jain/talks/smrtcitey.htm>
12. Raj Jain, "**Multi-Cloud Global Application Delivery for Smart Cities**," International Summit on Smart World and Smart Cities, Fremont, CA, USA, Aug 5, 2017, <http://www.cse.wustl.edu/~jain/talks/smrtwrlld.htm>
13. Raj Jain, "**Fault and Performance Management in Multi-Cloud Based NFV using Shallow and Deep Predictive Structures**," 7th Workshop on Industrial Internet of Things Communication Networks (IoTCom) at ICCCN 2017, Vancouver, Canada, August 3, 2017, <http://www.cse.wustl.edu/~jain/talks/icccn17p.htm>
14. Raj Jain, "**Blockchains: The Distributed Trust Technology**," Keynote at The 2017 International Conference on Computer, Information and Telecommunication Systems (CITS 2017), Dalian, China, July 21, 2017, <http://www.cse.wustl.edu/~jain/talks/cits17.htm>
15. Raj Jain, "**Seven Trends Leading to Opportunities in Multi-Cloud Global Application Delivery**," Keynote at 2016 International Conference on Communications, Image, and Signal Processing (CCISP), Dubai, November 19, 2016. <http://www.cse.wustl.edu/~jain/talks/ccisp16.htm>
16. Raj Jain, "**Software Defined Multi-Cloud Networking at the Tactical Edge**," Panel Presentation at IEEE MILCOM 2016 Conference, Baltimore, MD, November 2, 2016, http://www.cse.wustl.edu/~jain/talks/sdn_mlcb.htm
17. Raj Jain, "**Multi-Cloud Global Application Delivery for the Internet of Things and Smart Cities**," Keynote at the 2nd IEEE International Conference on Collaboration and Internet Computing (CIC), Pittsburgh, PA, Nov 1, 2016, http://www.cse.wustl.edu/~jain/talks/adn_cic.htm
18. Raj Jain, "**Unmanned Aerial Systems: Networking Applications, Challenges, and Issues**," Keynote at Midwest Drone Introduction, St. Louis, MO, October 15, 2016, <http://www.cse.wustl.edu/~jain/talks/unmanned.htm>
19. Raj Jain, "**Multi-Cloud Global Application Delivery for the Internet of Things and Smart Cities**," Keynote at the 7th IEEE Annual Information Technology, Electronics and

- Mobile Communication Conference (IEMCON), Vancouver, Canada, October 14, 2016, <http://www.cse.wustl.edu/~jain/talks/iemcon.htm>
20. Raj Jain, "**Next Generation Internet, Wireless, and Network Security Research at Washington University in St. Louis**", talk to CSE 591 Introduction to Graduate Study in CSE Students, St. Louis, MO, Sept 28, 2016, <http://www.cse.wustl.edu/~jain/talks/cs59116.htm>
 21. Raj Jain, "**Next Generation Internet, Wireless, and Network Security Research at Washington University in St. Louis**", talk to CSE 131R Introduction to Computer Science I students, St. Louis, MO, Sept 26, 2016, <http://www.cse.wustl.edu/~jain/talks/cs13116.htm>
 22. Raj Jain, "**Blockchains: The Revolutionary Trust Protocol**," BEL Keynote at 22nd Annual International Conference on Advanced Computing and Communications (ADCOM 2016), Bangaluru, India, Sep 10, 2016, http://www.cse.wustl.edu/~jain/talks/blc_ad16.htm
 23. Raj Jain, "**Software Defined Networking at the Tactical Edge**," Talk at Bharat Electronics Limited, Bangalore, India, September 10, 2016, http://www.cse.wustl.edu/~jain/talks/sdn_bel.htm
 24. Raj Jain, "**Internet of Things and Smart Cities Security: Challenges and Issues**," Keynote at 1st Annual Research Workshop on Advances & Innovations in Cyber Security, Memphis, TN, June 10, 2016, http://www.cse.wustl.edu/~jain/talks/iots_tns.htm
 25. Raj Jain, "**Multi-Cloud Global Application Delivery for the Internet of Things and Smart Cities**," Talk at Cisco Research PI meeting, San Jose, CA, May 26, 2016, <http://www.cse.wustl.edu/~jain/talks/ciscopi.htm>
 26. Raj Jain, "**Multi-Cloud and Fog Computing for the Internet of Things and Smart Cities**," Talk at his installation as "Barbara J. and Jerome R. Cox Jr. Professor" at Washington University in St. Louis, May 24, 2016, http://www.cse.wustl.edu/~jain/talks/iots_cox.htm
 27. Raj Jain, "**Internet of Things and Smart Cities: Challenges and Issues**," Keynote at 2nd IEEE International Workshop on Sensors and Smart Cities (SSC2016), St. Louis, MO, May 18, 2016, http://www.cse.wustl.edu/~jain/talks/iots_ssc.htm
 28. Raj Jain, "**Internet of Things Security: Challenges and Issues**," Keynote at 9th Central Area Networking and Security Workshop (CANSec), University of Central Missouri, Warrensburg, MO, April 16, 2016, http://www.cse.wustl.edu/~jain/talks/iots_ucm.htm
 29. Raj Jain, "**Five Trends Leading to Opportunities in Multi-Cloud Global Application Delivery**," Research seminar at Cisco, San Jose, March 18, 2016, <http://www.cse.wustl.edu/~jain/talks/cisco16.htm>
 30. Raj Jain, "**Internet of Things: Research Issues**," NSF Applications and Services Workshop, January 27, 2016, http://www.cse.wustl.edu/~jain/talks/iot_nsf.htm
 31. Raj Jain, "**Five Trends in Computing Leading to Multi-Cloud Applications and Their Management**," Seminar at Kindi Labs, Qatar University, Doha, Qatar, December 27, 2015, http://www.cse.wustl.edu/~jain/talks/apf_knd.htm
 32. Raj Jain, "**Internet of Things: Research Challenges and Issues**," Keynote at the Internet of Things World Forum, Research and Innovation Symposium, Dubai, December 5-6, 2015, <http://www.cse.wustl.edu/~jain/talks/iotwrld.htm>

33. Raj Jain, "**Internet of Things Security**," Keynote at STLCybercon 2015, University of Missouri, St. Louis, November 20, 2015, http://www.cse.wustl.edu/~jain/talks/iots_um.htm
34. Raj Jain, "**Advancing in Performance Careers**," Panel Presentation, 2015 CMG Performance and Capacity Conference, San Antonio, TX, November 5, 2015, http://www.cse.wustl.edu/~jain/talks/cmg_scs.htm
35. Raj Jain, "**Five Trends in Computing Leading to Multi-Cloud Applications and Their Management**," 2015 CMG Performance and Capacity Conference, San Antonio, TX, November 5, 2015, http://www.cse.wustl.edu/~jain/talks/apf_cmg.htm
36. Raj Jain, "**Software Defined Networking at the Tactical Edge**," Panel presentation at IEEE Milcom 2015, Tampa, FL, Oct 28, 2015, http://www.cse.wustl.edu/~jain/talks/sdn_mlc.htm
37. Raj Jain, "**Application Deployment in Future Global Multi-Cloud Environment**," OIN Workshop, Saint Louis, MO, October 20, 2015, http://www.cse.wustl.edu/~jain/talks/apf_oin.htm
38. Raj Jain, "**Next Generation Internet, Wireless Networking, and Security Research at Washington University in St. Louis**," Lecture to undergraduate students in CS131: Seminar in Computer Science I, October 12th, 2015, <http://www.cse.wustl.edu/~jain/talks/cs13115.htm>
39. Raj Jain, "**Next Generation Internet, Wireless Networking, and Security Research at Washington University in St. Louis**," Lecture to incoming graduate students in CS591: Introduction to Graduate Study in CSE, October 5th, 2015, <http://www.cse.wustl.edu/~jain/talks/cs59115.htm>
40. Raj Jain, "**Smart Cities: Technological Challenges and Issues**," IEEE CS Keynote at 21st Annual International Conference on Advanced Computing and Communications (ADCOM) 2015, Chennai, India, September 19, 2015, <http://www.cse.wustl.edu/~jain/talks/smrtcit.htm>
41. Raj Jain, Mohammed Samaka, "**Application Deployment in Future Global Multi-Cloud Environment**," The 16th Annual Global Information Technology Management Association (GITMA) World Conference, Saint Louis, MO, June 23, 2015, http://www.cse.wustl.edu/~jain/talks/apf_git.htm
42. Deval Bhamare, Raj Jain, Mohammed Samaka, Gabor Vaszkun, Aiman Erbad, "**Multi-Cloud Distribution of Virtual Functions and Dynamic Service Deployment: OpenADN Perspective**," Workshop on Software Defined Systems 2015, Phoenix, AZ, March 9, 2015, http://www.cse.wustl.edu/~jain/talks/vm_distp.htm
43. Lav Gupta, Raj Jain, Mohammed Samaka, "**Dynamic Analysis of Application Delivery Network for Leveraging Software Defined Infrastructures**," Workshop on Software Defined Systems 2014, Phoenix, AZ, March 9, 2014, <http://www.cse.wustl.edu/~jain/talks/profilep.htm>
44. Raj Jain, "**Next Generation Internet and Wireless Networking Research at WUSTL**," a short talk on Ph.D. Day, CSE, WUSTL, December 5, 2014, http://www.cse.wustl.edu/~jain/talks/phdday_rj.htm

45. Raj Jain, "**OpenADN: Middleware Architecture for Cloud-Based Services**," Presentation at Qatar National Research Foundation ARC 2014 conference, Doha, Qatar, November 18, 2014, http://www.cse.wustl.edu/~jain/talks/adn_arc.htm
46. Raj Jain, "**Internet of Things: Challenges and Issues**," **IEEE CS Keynote** at the 20th Annual Conference on Advanced Computing and Communications (ADCOM 2014), Bangaluru, India, September 19, 2014, http://www.cse.wustl.edu/~jain/talks/iot_ad14.htm
47. Raj Jain, "**Virtualization and Software Defined Networking (SDN) for Multi-Cloud Computing**," Invited talk at the Indian Institute of Science, Bangaluru, September 18, 2014, http://www.cse.wustl.edu/~jain/talks/apf_iis.htm
48. Raj Jain, "**Virtualization and Software Defined Networking (SDN) for Multi-Cloud Computing**," Invited talk at IP Infusion, Bangaluru, September 18, 2014, http://www.cse.wustl.edu/~jain/talks/apf_ipf.htm
49. Raj Jain, "**Virtualization and Software Defined Networking (SDN) for Multi-Cloud Computing**," Invited talk at PES University, Bangaluru, September 17, 2014, http://www.cse.wustl.edu/~jain/talks/apf_pes.htm
50. Raj Jain, "**Virtualization and Software Defined Networking (SDN) for Mobile Carriers**," **Keynote** at IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM) 2014, Sydney, Australia, June 18, 2014, <http://www.cse.wustl.edu/~jain/talks/wowmom14.htm>
51. Raj Jain, "**AppFabric: Application Deployment and Service Chaining in Future NFV Cloud WAN Environments**," Cisco Research Seminar, San Jose, CA, May 15, 2014, http://www.cse.wustl.edu/~jain/talks/apf_csc.htm
52. Raj Jain, "**SDN and NFV: Facts, Extensions, and Carrier Opportunities**," AT&T Labs SDN Forum Seminar, April 10, 2014, http://www.cse.wustl.edu/~jain/talks/adn_att.htmf
53. Raj Jain, "**OpenADN: Service Chaining of Globally Distributed VNFs**," Software Telco Congress, Sunnyvale, CA, November 20-21, 2013, http://www.cse.wustl.edu/~jain/talks/adn_stl.htm
54. Raj Jain, "**Networking for Big Data**," IEEE CS Keynote at 19th Annual International Conference on Advanced Computing and Communications (ADCOM) 2013, Chennai, India, October 22, 2013, <http://www.cse.wustl.edu/~jain/talks/adcom13.htm>
55. Raj Jain, "**Next Generation Internet and Wireless Networking Research at Washington University in St. Louis**," Lecture to incoming graduate students in CS591:Introduction to Graduate Study in CSE, September 18, 2013, <http://www.cse.wustl.edu/~jain/talks/cs59113.htm>
56. Subharthi Paul, Raj Jain, Jianli Pan, Jay Iyer, and Dave Oran, "**OpenADN: A Case for Open Application Delivery Networking**," A paper presentation at International Conference on Computer Communications and Networks (ICCCN) 2013, Nassau, Bahamas, July 30-Aug 2, 2013, http://www.cse.wustl.edu/~jain/talks/ad_ic3np.htm
57. Raj Jain, "**Next Gen Networking Using SDN and NFV**," IISC AANA Global Conference, Chicago, IL, July 19, 2013, http://www.cse.wustl.edu/~jain/talks/adn_iis.htm

58. Raj Jain, "**Network Virtualization and Application Delivery Using Software Defined Networking**," Invited talk at Case Western Reserve University, Cleveland, OH, May 23, 2013, http://www.cse.wustl.edu/~jain/talks/adn_cwr.htm
59. Raj Jain, "**Toward an Energy-Proportional Building Prospect**," a paper presentation talk at the IEEE EnergyTech Conference, Cleveland, OH, May 23, 2013, <http://www.cse.wustl.edu/~jain/talks/etechp.htm>
60. Raj Jain, "**Network Virtualization and Application Delivery Using Software Defined Networking**," Keynote at Huawei Strategy and Technology Workshop, Shenzhen, China, May 15, 2013, http://www.cse.wustl.edu/~jain/talks/adn_hwc.htm
61. Raj Jain, "**Application Delivery Using Software Defined Networking**," Talk at Global Indian Technology Professionals (GITPro) World 2013, Palo Alto, CA, April 13, 2013, http://www.cse.wustl.edu/~jain/talks/sdn_gw.htm
62. Raj Jain, "**Network Virtualization and Application Delivery Using Software Defined Networking**," Keynote at Huawei Strategy and Technology Workshop, Santa Clara, CA, March 19, 2013, http://www.cse.wustl.edu/~jain/talks/adn_hw.htm
63. Raj Jain, "**OpenADN: Mobile Apps on Global Clouds Using Software Defined Networking**," Invited talk at IBM India and Bell Labs India, December 19, 2012, Bangalore, India, http://www.cse.wustl.edu/~jain/talks/adn_ibm.htm
64. Raj Jain, "**OpenADN: Mobile Apps on Global Clouds Using Software Defined Networking**," Invited talk at Wipro Technologies, December 17, 2012, Bangalore, India, http://www.cse.wustl.edu/~jain/talks/adn_wpr.htm
65. Raj Jain, "**OpenADN: Mobile Apps on Global Clouds Using Software Defined Networking**," Invited talk at IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS) 2012, December 16-19, 2012, Bangalore, India, http://www.cse.wustl.edu/~jain/talks/adn_ant.htm
66. Raj Jain "**Network Virtualization and Application Delivery Using Software Defined Networking**," Invited talk at Advanced Computing and Communications Conference 2012 (ADCOM 2012), 14-16th December 2012, Bangalore, India, http://www.cse.wustl.edu/~jain/talks/adn_adc.htm
67. Raj Jain, "**A Novel Incrementally-Deployable Multi-granularity Multihoming Framework for the Future Internet**," a paper presentation talk at IEEE Global Communications Conference (Globecom) 2012, Anaheim, CA, December 3-7, 2012, <http://www.cse.wustl.edu/~jain/talks/slice.htm>
68. Raj Jain, "**OpenADN: Mobile Apps on Global Clouds Using OpenFlow and Software Defined Networking**," a paper presentation talk at First International Workshop on Management and Security technologies for Cloud Computing 2012 (ManSec-CC 2012), December 7, 2012, at Globecom 2012, Anaheim, CA, http://www.cse.wustl.edu/~jain/talks/ad_gc12p.htm
69. Raj Jain, "**Application Delivery Using SDN**," Lightning talk at the IEEE Global Communications Conference, Exhibition, & Industry Forum (Globecom) 2012, December 6, 2012, Anaheim, CA, http://www.cse.wustl.edu/~jain/talks/sdn_gc12.htm

70. Raj Jain, "**Current Trends in Internet Evolution and a Framework for Application Delivery**," Indo US Collaboration for Engineering Education (IUCEE) Virtual Academy Webinar, October 17, 2012, http://www.cse.wustl.edu/~jain/talks/adn_iuc.htm
71. Raj Jain, "**OpenADN: Mobile Apps on Global Clouds Using Software Defined Networking**," Keynote at Mobile Cloud Computing & Services 2012, June 25, 2012, Low Wood Bay, Lake District, UK, http://www.cse.wustl.edu/~jain/talks/adn_mcs.htm
72. Raj Jain, "**Networking Challenges for Big-Data Applications**," Eighth Annual Microsoft Research Networking Summit on Data Analytics and the Networks that Enable them, Woodinville, WA, June 18-19, 2012, <http://www.cse.wustl.edu/~jain/talks/bigdata.htm>
73. Raj Jain, "**Next Generation Internet: Architectures for Future Internet Evolution**," Keynote, International Conference on Communications, June 14, 2012, Ottawa, Ontario, Canada, <http://www.cse.wustl.edu/~jain/talks/icc12.htm>
74. Raj Jain, "**OpenADN: Mobile Apps on Global Clouds Using Software Defined Networking**," Cisco Seminar, May 17, 2012, San Jose, CA, http://www.cse.wustl.edu/~jain/talks/adns_cs.htm
75. Raj Jain, "**OpenADN: Mobile Apps on Global Clouds Using Software Defined Networking**," Insimeo, May 16, 2012, San Jose, CA, http://www.cse.wustl.edu/~jain/talks/adns_is.htm
76. Raj Jain, "**OpenADN: Mobile Apps on Global Clouds Using OpenFlow and SDN**," Microsoft Seminar, Bellevue, WA, April 24, 2012, http://www.cse.wustl.edu/~jain/talks/adns_ms.htm
77. Raj Jain, "**Communication and Modeling for Green Buildings**," ICARES Annual Research Presentations, Washington University in Saint Louis, March 24, 2012, <http://www.cse.wustl.edu/~jain/talks/icares.htm>
78. Raj Jain, "**Wireless Datalink for Unmanned Aircraft Systems: Requirements, Challenges and Design Ideas**," a paper presentation talk at AIAA Infotec@Aerospace Conference, Saint Louis, MO, March 29, 2011, http://www.cse.wustl.edu/~jain/talks/uas_dlt.htm
79. Raj Jain, "**Current Trends in Internet Evolution and a Framework for Application Delivery**," Hitachi Distinguished Lecture, University of Oklahoma, Norman, February 17, 2011, http://www.cse.wustl.edu/~jain/talks/ngi_ou.htm
80. Raj Jain, "**Next Generation Internet: Architectures for Future Internet Evolution**," Qualcomm Distinguished Lecture, International Conference on Computing, Networking, and Communications (ICNC) 2012, Maui, Hawaii, January 30, 2012, http://www.cse.wustl.edu/~jain/talks/ngi_icn.htm
81. Raj Jain, "**Network Virtualization**," Panel presentation, 5th IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS), Bangalore, India, December 21, 2011, http://www.cse.wustl.edu/~jain/talks/nv_ant.htm
82. Raj Jain, "**Will BWA/LTE Rollout Spur Economic Growth?**," Panel presentation, 5th IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS), Bangalore, India, December 20, 2011, http://www.cse.wustl.edu/~jain/talks/bwa_ant.htm

83. Raj Jain, "**Current Topics for Networking Research**," Keynote speech at International Conference on Advanced Computing, Networking, and Security (ADCONS) 2011, National Institute of Technology Karnataka, Mangalore, India, December 17, 2011, <http://www.cse.wustl.edu/~jain/talks/adcons.htm>
84. Raj Jain, "**Hot Topics in Networking Research for Carrier Network Evolution**," DOCOMO Innovations, Inc., Palo Alto, December 5, 2011, <http://www.cse.wustl.edu/~jain/talks/docomo.htm>
85. Raj Jain, Arjan Durrresi, "**Cloud-Based Distributed High-Speed Application Delivery**," A poster presentation at NSF US Ignite Workshop, Kansas City, KS, November 3-4, 2011, <http://www.cse.wustl.edu/~jain/talks/ignite.htm>
86. Raj Jain, "**Network Virtualization**," A talk to CSE 770 Networking Research Seminar, November 1, 2011, http://www.cse.wustl.edu/~jain/talks/net_v.htm
87. Raj Jain, "**Introduction to Computer Networking: Trends and Issues**," A talk to CSE 131 students, October 4, 2011, <http://www.cse.wustl.edu/~jain/talks/cs13111.htm>
88. Raj Jain, "**Next Generation Internet and Wireless and Mobile Networking Research at Washington University**," A talk to CSE 591 students, September 28, 2011, <http://www.cse.wustl.edu/~jain/talks/cs59111.htm>
89. Raj Jain, "**openSDN: A Service Delivery Network Architecture for Future Internet Evolution**," Intel Webinar, September 9, 2011, http://www.cse.wustl.edu/~jain/talks/sdn_itl.htm
90. Raj Jain, "**openSDN: A Service Delivery Network Architecture for Future Internet Evolution**," Keynote at XXIX Brazilian Symposium on Computer Networks and Distributed Systems, May 30-June 3, 2011, Campo Grande, Mato Grosso do Sul, Brazil, http://www.cse.wustl.edu/~jain/talks/sdn_sbr.htm
91. Raj Jain, "**Architectures for Carrier Network Evolution**," Invited Talk at Docomo USA Labs, Palo Alto, CA, May 14, 2011, http://www.cse.wustl.edu/~jain/talks/sdn_dcm.htm
92. Raj Jain, "**openSDN: A Service Delivery Network Architecture for Future Internet Evolution**," Invited Talk at Hewlett Packard, Palo Alto, CA, March 12, 2011, http://www.cse.wustl.edu/~jain/talks/sdn_hp.htm
93. Raj Jain, "**Video Streaming over Mobile Networks: Issues, Challenges, and Opportunities**," Keynote at National Workshop on Wireless Communications and Mobile Networks (WCMN-2011), Al-Ahsa, Saudi Arabia, March 26, 2011, <http://www.cse.wustl.edu/~jain/talks/wcmn11.htm>
94. Raj Jain, "**Introduction to Computer Networking: Trends and Issues**," A webinar given over the Internet by Prof. Raj Jain to Indo-US Collaboration in Engineering Education (IUCEE) participant colleges in India, March 22, 2011, <http://www.cse.wustl.edu/~jain/talks/iucee11.htm>
95. Raj Jain, "**openSDN: A Dirty-Slate Network Architecture for Cloud-Based Services**," NSF Science of Cloud Computing Workshop, Washington, DC, March 17-18, 2011, http://www.cse.wustl.edu/~jain/talks/sdn_nsf.htm

96. Raj Jain, "**Entrepreneur-Professor Partnership: Issues, Challenges and Suggestions,**" TIE Panel Presentation, Santa Clara, CA, March 3, 2011, <http://www.cse.wustl.edu/~jain/talks/tie1103.htm>
97. Raj Jain, "**Analysis of L-Band Digital Aeronautical Communication Systems: L-DACS1 and L-DACS2,**" IEEE Aerospace Conference, Big Sky, MT, March 6, 2011, http://www.cse.wustl.edu/~jain/talks/ldacs_ia11.htm
98. Raj Jain, "openSDN: A Service Delivery Network Architecture for Future Internet Evolution," Invited Talk at Ericsson Research, San Jose, CA, March 3, 2011, http://www.cse.wustl.edu/~jain/talks/sdn_ers.htm
99. Raj Jain, "**openSDN: A Service Delivery Network Architecture for Future Internet Evolution,**" Inaugural Speech at 3rd International Conference on Communication Systems and Networks (COMSNETS 2011), Bangalore, India, January 4-11, 2011, <http://www.cse.wustl.edu/~jain/talks/comsnets11.htm>
100. Raj Jain, "**openSDN: A Service Delivery Network Architecture for Future Internet Evolution,**" Keynote Speech at the 4th IEEE International Symposium on Advanced Networks and Telecommunication Systems (ANTS 2010), Mumbai, India, December 16-18, 2010, <http://www.cse.wustl.edu/~jain/talks/ants10.htm>
101. Raj Jain, "**A Future Internet Architecture Based on De-Conflated Identities,**" a paper presentation at Globecom 2010, Miami, FL, December 8, 2010, <http://www.cse.wustl.edu/~jain/talks/deconft.htm>
102. Raj Jain, "**Internet 3.0: The Next Generation Internet,**" Keynote Speech at International Conference on Models of Information and Communication Systems (MICS 2010), Rabat, Morocco, November 2-4, 2010, http://www.cse.wustl.edu/~jain/talks/in3_mics.htm
103. Raj Jain, "**Introduction to Computer Networking: Trends and Issues,**" A lecture given in CS 131: Computer Science I class at WUSTL, October 4, 2010, <http://www.cse.wustl.edu/~jain/talks/cs13110.htm>
104. Raj Jain, "**Networking as a Service (NaaS): Cloud Centric Networking in a Federated Environment,**" 7th Annual Microsoft Research Networking Summit in Bellevue, Washington, June 2-3, 2010, http://www.cse.wustl.edu/~jain/talks/ms_smt10.htm
105. Raj Jain, "**Next Generation Internet and Wireless Networking Research at Washington University in Saint Louis,**" 1st Annual Midwest University-Industry Summit, Purdue University, Lafayette, Indiana, March 31-April 1, 2010, <http://www.cse.wustl.edu/~jain/talks/mwuis.htm>
106. Raj Jain, "**Aeronautical Datalinks: Recent Developments and Issues,**" Boeing Corporation, June 4, 2010, <http://www.cse.wustl.edu/~jain/talks/ldac106.htm>
107. Raj Jain, "**An Identifier/Locator Split Architecture for Exploring Path Diversity through Site Multi-homing - A Hybrid Host-Network Cooperative Approach,**" a paper presentation at IEEE International Conference on Communications (ICC 2010), Cape Town, South Africa, May 23-27, 2010, <http://www.cse.wustl.edu/~jain/talks/multihmp.htm>
108. Raj Jain, "**Aeronautical Datalinks: Recent Developments and Issues,**" Boeing Corporation, April 1, 2010, <http://www.cse.wustl.edu/~jain/talks/ldac104.htm>

109. Raj Jain, "**L-DACS1/2 Data Link Analysis Part I: Functional Analysis**," Boeing Corp, February 11, 2010, <http://www.cse.wustl.edu/~jain/talks/ldac1002.htm>
110. Raj Jain, "**Green Networking in the Next Generation Internet: Challenges and Issues**," ADCOM-ACCS Award talk given at ADCOM 2009 Conference, Bangalore, December 14, 2009, <http://www.cse.wustl.edu/~jain/talks/adcom09.htm>
111. Raj Jain, "**Hybrid Transition Mechanism for MILSA Architecture for the Next Generation Internet**," a paper presentation at FutureNet-II workshop, Globecom 2009, Honolulu, HI, December 4, 2009, <http://www.cse.wustl.edu/~jain/talks/milsatp.htm>
112. Raj Jain, "**Internet 3.0: The Next Generation Internet**," HP Labs, Palo Alto, CA, November 19, 2009, http://www.cse.wustl.edu/~jain/talks/in3_hp.htm
113. Raj Jain, "**Internet 3.0: The Next Generation Internet**," Computer Science Colloquium, University of Arkansas, November 12, 2009, http://www.cse.wustl.edu/~jain/talks/in3_uca.htm
114. Raj Jain, "**Internet 3.0: The Next Generation Internet**," Computer Science Colloquium, University of Central Arkansas, November 12, 2009, http://www.cse.wustl.edu/~jain/talks/in3_uap.htm
115. Raj Jain, "**Internet 3.0: The Next Generation Internet**," Computer Science Colloquium, Missouri University of Science and Technology, October 22, 2009, http://www.cse.wustl.edu/~jain/talks/in3_mst.htm
116. Raj Jain, "**Internet 3.0: Future Internet Architecture**," A talk at NSF Future Network Summit, Washington, DC, October 13, 2009, http://www.cse.wustl.edu/~jain/talks/in3_nsf.htm
117. Raj Jain, "**Internet 3.0: The Next Generation Internet**," Colloquium talk, Computer Science and Engineering Department, Washington University in Saint Louis, October 9, 2009, http://www.cse.wustl.edu/~jain/talks/in3_cse.htm
118. Raj Jain, "**Next Generation Internet and Wireless and Mobile Networking Research at Washington University**," A talk to CSE 591 students, September 14, 2009, <http://www.cse.wustl.edu/~jain/talks/cs59109.htm>
119. Raj Jain, "**Policy-Oriented Architecture for the Future Internet: Internet 3.0**," Keynote presentation at 12th International Conference on Network-Based Information Systems (NBIS 2009), Aug 19-21, 2009, Indianapolis, IN, http://www.cse.wustl.edu/~jain/talks/in3_nib.htm
120. Raj Jain, "**Enhanced MILSA Architecture for Naming, Addressing, Routing and Security Issues in the Next Generation Internet**," a conference presentation at IEEE International Conference on Communications (ICC) 2009, Dresden, Germany, June 14-18, 2008, <http://www.cse.wustl.edu/~jain/talks/emilsap.htm>
121. Raj Jain, "**ID/Locator Separation Technology and Its Implications for Future Network Design**," A talk given to Huawei Technologies Co., Ltd. on May 9, 2009, http://www.cse.wustl.edu/~jain/talks/in3_hub.htm
122. Raj Jain, "**Internet 3.0: The Next Generation Internet**," A keynote presentation by professor Raj Jain at Networking Architecture Symposium 1969-2009: Forty years of Internetworking Research, at Centro Stefano Franscini at Monte Verita in Ascona, Switzerland, March 15-20, 2009, http://www.cse.wustl.edu/~jain/talks/in3_na.htm

123. Raj Jain, "**Broadband Wireless Access**," Invited talk at Broadband Access Communication Technologies III Conference, Photonics West, San Jose, January 28, 2009, <http://www.cse.wustl.edu/~jain/talks/pw09.htm>
124. Raj Jain, "**Internet 3.0: The Next Generation Internet**," A talk to Boeing Brown Bag Seminar series, given remotely on January 22, 2009, http://www.cse.wustl.edu/~jain/talks/in3_bng.htm
125. Raj Jain, "**Internet 3.0: The Next Generation Internet**," 2nd IEEE International Symposium on Advanced Networks and Telecommunication Systems (ANTS) 2008, Mumbai, India, December 15-17, 2008, http://www.cse.wustl.edu/~jain/talks/in3_ant.htm
126. Raj Jain, "**Internet 3.0: The Next Generation Internet**," IEEE Mumbai Chapter, India, December 15, 2008, http://www.cse.wustl.edu/~jain/talks/in3_bmb.htm
127. Raj Jain, "**Broadband Wireless Access**," IEEE Mumbai Chapter, India, December 15, 2008, <http://www.cse.wustl.edu/~jain/talks/ieeebmb.htm>
128. Raj Jain, "**Internet 3.0: The Next Generation Internet**," Keynote speech at 16th IEEE International Conference on Networks (ICON) 2008, New Delhi, India, December 13, 2008, http://www.cse.wustl.edu/~jain/talks/in3_icn.htm
129. Raj Jain, "**Routing Architecture for the Next Generation Internet (RANGI)**," Routing Research Group (RRG) at Internet Research Task Force Meeting, Minneapolis, MN, November 21, 2008, <http://www.cse.wustl.edu/~jain/ietf/rangi.htm>
130. Raj Jain, "**Next Generation Internet and Wireless and Mobile Networking Research at Washington University**," A talk to CSE 591 students, November 19, 2008, <http://www.cse.wustl.edu/~jain/talks/cs59108.htm>
131. Raj Jain, "**Internet 3.0: Performance and Productivity Issues of the Internet and a Proposal for the Next Generation**," Invited talk at Saint Louis Computer Measurement Group (CMG), November 18, 2008, http://www.cse.wustl.edu/~jain/talks/in3_cmg.htm
132. Raj Jain, "**Internet 3.0: The Next Generation Internet**," Talk at US-JAPAN workshop on Future Internet, Palo Alto, October 31-November 1, 2008, http://www.cse.wustl.edu/~jain/talks/in3_uj.htm
133. Raj Jain, "**Internet 3.0: The Next Generation Internet**," Keynote speech at ACM Multimedia 2008 conference at Vancouver, BC, Canada, October 27-30, 2008, http://www.cse.wustl.edu/~jain/talks/in3_acm.htm
134. Raj Jain, "**Internet 3.0: Ten Problems with the Current Internet and a Proposal for the Next Generation**," Huawei Technologies, Beijing, China, September 26, 2008, http://www.cse.wustl.edu/~jain/talks/in3_hu.htm
135. Raj Jain, "**A Vision of the Next Generation Internet: A Policy-Oriented Perspective**," British Computer Society Conference on Visions of Computer Science, Imperial College, London, UK, September 22-24, 2008, <http://www.cse.wustl.edu/~jain/papers/bcs08.htm>
136. Raj Jain, "**Wireless Networking: Trends and Issues**," A lecture given in CS 131: Computer Science I class at WUSTL, October 10, 2008, http://www.cse.wustl.edu/~jain/talks/cs131_08.htm
137. Raj Jain, "**Internet 3.0: Ten Problems with the Current Internet and a Proposal for the Next Generation**," Keynote speech at International Conference on Communication,

- Convergence and Broadband Networking (ICCBN) 2008, Bangalore, India, July 17-20, 2008, http://www.cse.wustl.edu/~jain/talks/in3_ib.htm
138. Raj Jain, "**International Conference on Communication Convergence and Broadband Networking, 2008 (ICCBN 2008): Program Overview**," Slides of the conference program overview presentation at ICCBN 2008, Bangalore, India, July 15-20, 2008, <http://www.cse.wustl.edu/~jain/talks/iccbn08.htm>
 139. Raj Jain, "**Internet 3.0: Ten Problems with the Current Internet and a Proposal for the Next Generation**," Keynote speech at International Conference on Computer and Communication Engineering, 2008 (ICCCE 2008), Kuala Lumpur, Malaysia, May 13-15, 2008, http://www.cse.wustl.edu/~jain/talks/in3_ic.htm
 140. Jianli Pan, Subharthi Paul, and Raj Jain, "**Naming Architecture for the Next Generation Internet**," Intel Corporation, Hillsboro, OR, April 24, 2008, <http://www.cse.wustl.edu/~jain/talks/naming.htm>
 141. Raj Jain, "**Internet 3.0: Ten Problems with Current Internet Architecture and a proposal for the Next Generation**," Indiana University Purdue University of Indianapolis (IUPUI), February 11, 2008, http://www.cse.wustl.edu/~jain/talks/in3_iu.htm
 142. Raj Jain, S. Misra, R. Venkateswaran, R. Iyengar, S. Krishnaiyer, D. Doria, S. Kalyanaraman, B. Sikdar, R. Rouil, N. Golmie, S. Parekh, and T. Tofigh, "**WiMAX System Level Modeling**," Invited presentation, Design and Development Forum, IEEE Globecom 2007, Washington, DC, November 24, 2007, <http://www.cse.wustl.edu/~jain/talks/gc07.htm>
 143. Raj Jain, "**Internet 3.0: Performance and Productivity Issues of the Internet and a Proposal for the Next Generation**," Invited talk, Computer Measurement Group (CMG) 2007 Conference, San Diego, CA, December 6, 2007, http://www.cse.wustl.edu/~jain/talks/in3_cmg.htm
 144. Raj Jain, "**Wireless Access Networks: Recent Developments, Issues and Trends**," Keynote at AccessNets 2007, Ottawa, Ontario, Canada, August 24, 2007, <http://www.cse.wustl.edu/~jain/talks/accnet.htm>
 145. Raj Jain, "**Internet 3.0: Ten Problems with Current Internet Architecture and a proposal for the Next Generation**," A talk given at:
 - a. Nortel, Santa Clara, CA, September 14, 2007, http://www.cse.wustl.edu/~jain/talks/in3_nt.htm.
 - b. Cisco TechWiz Seminar, San Jose, CA, August 2, 2007, http://www.cse.wustl.edu/~jain/talks/in3_cs.htm.
 - c. IEEE Distinguished Lecture via Internet to following IEEE Chapters of Asia-Pacific Region, May 9, 2007: Bandung (Indonesia), Bangkok (Thailand), Bombay (India), Calcutta (India), Lahore (Pakistan), Melbourne, (Australia), Singapore, Taipei (Taiwan), and Brisbane (Australia), http://www.cse.wustl.edu/~jain/talks/in3_ie.htm.
 - d. Invited talk, Motorola Research, May 22, 2007, http://www.cse.wustl.edu/~jain/talks/in3_mt.htm.
 - e. Invited talk, Microsoft Research, Bellevue, WA, April 6, 2007, http://www.cse.wustl.edu/~jain/talks/in3_ms.htm

- f. Invited talk at the University of Illinois, Urbana/Champaign, IL, March 5, 2007, http://www.cse.wustl.edu/~jain/talks/in3_ui.htm.
146. Raj Jain, "**High-Speed TCP: Recent Developments, Issues and Challenges**," Invited talk, Microsoft High-Speed TCP Workshop, Bellevue, WA, February 4-5, 2007, <http://www.cse.wustl.edu/~jain/talks/mstep.htm>
147. Raj Jain, "**Hot Issues in Wireless Broadband Networking**," at Broadband Access Communication Technologies (IT404) conference, Part of SPIE's International Symposium on Optics East 2006, Boston, MA, October 1-4, 2006, <http://www.cse.wustl.edu/~jain/talks/oe06.htm>
148. Raj Jain, "**Internet 3.0: Ten Problems with Current Internet Architecture and Solutions for the Next Generation**," Invited talk given at:
- a. Agere, May 25, 2006, http://www.cse.wustl.edu/~jain/talks/in3_ag.htm,
 - b. Intel, September 15, 2006;
 - c. NASA Lewis Center, October 5, 2006, http://www.cse.wustl.edu/~jain/talks/in3_ns.htm
 - d. Kent State University, October 6, 2006, http://www.cse.wustl.edu/~jain/talks/in3_ks.htm
 - e. IEEE Military Communications Conference (MILCOM 2006), http://www.cse.wustl.edu/~jain/talks/in3_mc.htm,
 - f. IEEE Distinguished Lecture, Orange County, CA, November 2, 2006, http://www.cse.wustl.edu/~jain/talks/in3_oc.htm
149. Raj Jain, "**Wireless Personal Area Networks (WPANs)**," WUSTL CSE467S Class guest lecture, April 24, 2006, <http://www.cse.wustl.edu/~jain/talks/wpans.htm>
150. Raj Jain, "**Broadband Access: Issues and Trends**," Invited Talk, SPIE Conference #6012 on Optical Transmission Systems and Equipment for WDM Networking IV, Boston, October 25, 2005, <http://www.cse.wustl.edu/~jain/talks/oe05.htm>
151. Raj Jain, "**QoS and NGN**," Quality of Service and Next Generation Networks Panel, International Technology Forum (ITF 2005), Palo Alto, CA, October 20, 2005, <http://www.cse.wustl.edu/~jain/talks/itf05qs.htm>
152. Raj Jain, "**Computer Networking: Recent Developments, Trends, and Issues**," IEEE Distinguished Lecture, On-line to Region 10, September 7, 2005, <http://www.cse.wustl.edu/~jain/talks/ieee0509.htm>
153. Raj Jain, "**Computer Networking: Recent Developments, Trends, and Issues**," Keynote Speech, 11th IEEE International Conference on Parallel and Distributed Systems (ICPADS-2005), Fukuoka, Japan, July 20-22, 2005, <http://www.cse.wustl.edu/~jain/talks/icpads05.htm>
154. Raj Jain, "**Computer Networking: Recent Developments, Trends, and Issues**," Washington University in Saint Louis, June 14, 2005, <http://www.cse.wustl.edu/~jain/talks/wustl05.htm>
155. Raj Jain, "**Computer Networking: Recent Developments, Trends, and Issues**," invited talk given at:

- a. New Jersey Institute of Technology (April 25, 2005)
 - b. Arizona State University (April 28, 2005)
 - c. University of Texas, Arlington, TX (April 26, 2005)
 - d. Texas A&M University (April 29, 2005)
 - e. The University of Illinois, Chicago (April 18, 2005),
<http://www.cse.wustl.edu/~jain/talks/trends05.htm>
156. Raj Jain, "**Computer Networking: Recent Developments, Trends, and Issues**," Duke University, February 14, 2005, <http://www.cse.wustl.edu/~jain/talks/duke0502.htm>
 157. Raj Jain, "**Computer Networking: Recent Developments, Trends, and Issues**," IEEE Distinguished Lecture, On-line to Region 4, January 26, 2005,
<http://www.cse.wustl.edu/~jain/talks/ieee0501.htm>
 158. Raj Jain, "**Computer Networks: Recent Developments Trends and Issues**," Keynote Speech, IEEE Conference on Local Computer Networks (LCN04), Orlando, Florida, November 18, 2004, <http://www.cse.wustl.edu/~jain/talks/lcn04.htm>
 159. Raj Jain, "**Nayna ExpressSTREAM Broadband EFM Access System**," Network Systems Design Conference, San Jose, CA, October 18-21, 2004,
<http://www.cse.wustl.edu/~jain/talks/nsdc04.htm>
 160. Raj Jain, "**Computer Networking: Recent Developments, Trends, and Issues**," IEEE Distinguished Lecture, ITESM Campus, Monterrey, September 29, 2004, University of the Americas, Puebla, September 30, 2004, and Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Guadalajara, October 1, 2004, Industry Club, Guadalajara, October 1, 2004, <http://www.cse.wustl.edu/~jain/talks/trends04.htm>
 161. Raj Jain, "**Computer Networking: Recent Developments, Trends, and Issues**," Keynote Speech, 2004 International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS'04), San Jose, CA, July 25-29, 2004,
<http://www.cse.wustl.edu/~jain/talks/spects04.htm>
 162. Raj Jain, "**Computer Networking: Recent Developments, Trends, and Issues**," Samuel D. Conte Distinguished Lecture in Computer Science, Purdue University, September 13, 2004,
<http://www.cse.wustl.edu/~jain/talks/purdue.htm>
 163. Raj Jain, "**Broadband Access Using Ethernet in the First Mile (EFM)**," Invited presentation, International Conference on Communication and Broadband Networking (ICBN 2004), Kyoto, Japan, April 8, 2004,
http://www.cse.wustl.edu/~jain/talks/icbn04_efm.htm
 164. Raj Jain, "**Passive optical networks (PON): recent developments and issues**," Invited presentation, Optical Transmission Systems and Equipment for WDM Networking II conference, Orlando, FL, September 8-11, 2003,
<http://www.cse.wustl.edu/~jain/talks/itcom03.htm>
 165. Raj Jain, "**Optical Networking: Recent Developments, Issues, and Trends**," IEEE Distinguished Lecture, May 27-29, 2003, Atlanta GA, Charleston SC, Columbia SC, and Raleigh, NC, and joint meeting of IEEE Communications Society and Signal processing society sections, Orange County, CA, April 10, 2003,
http://www.cse.wustl.edu/~jain/talks/opt_iee2.htm

166. Raj Jain, "**Industry Watch Program**," International Conference on Broadband Networking, Bangalore, India, May 7, 2003
167. Raj Jain, "**Optical Networking with IP over DWDM: Recent Advances, Trends, and Issues**," Invited Lecture, Wipro Technologies, Bangalore, India, May 6, 2003, http://www.cse.wustl.edu/~jain/talks/opt_wpr.htm
168. A. Durresi and Raj Jain, "**Enhanced Traffic Management in IP Networks**," 2003 NSF ANIR Principle Investigator Meeting, January 9-10, 2003, Reston, Virginia, <http://www.cse.wustl.edu/~jain/talks/nsf0301.htm>
169. Raj Jain, "**Optical Networking: Recent Developments, Issues, and Trends**," IEEE Distinguished Lecture, December 2-4, 2002, http://www.cse.wustl.edu/~jain/talks/opt_ieee.htm
170. Raj Jain, "**Computer Networking: Recent Advances, Trends, and Issues**," Keynote Speech at Concord Users Group Meeting, Tempe, AZ, April 9, 2002, <http://www.cse.wustl.edu/~jain/talks/concord.htm>
171. Sudheer Dharanikota, Raj Jain, Yong Xue, Curtis Brownmiller, Dimitri Papadimitriou, Riad Hartan, Greg Bernstein, Vishal Sharma, John Strand, "**Inter-domain Routing with Shared Risk/Resource Groups (SRG)**," MPLS World Congress, February 8, 2002, <http://www.cse.wustl.edu/~jain/talks/srg02.htm>
172. Raj Jain, "**Computer Networking: Recent Advances, Trends, and Issues**," Invited lecture at Indian Institute of Information Technology, Trivandrum, December 22, 2001, <http://www.cse.wustl.edu/~jain/talks/iiitm01.htm>
173. Raj Jain, "**Optical Networking with IP over DWDM: Recent Advances, Trends, and Issues**," IEEE Distinguished Lecture at IIT Delhi, IIT Bombay, IISc Bangalore, and Trivandrum, December 16-20, 2001, http://www.cse.wustl.edu/~jain/talks/opt_ind.htm
174. Raj Jain, "**Networking Architecture: Recent Developments**," A discussion session at CIO Community of Practice, Milpitas, CA, November 15, 2001, <http://www.cse.wustl.edu/~jain/talks/ciocup01.htm>
175. Raj Jain, "**Optical Networks: Recent Advances, Trends, and Issues**," Keynote Speech, Opnetwork 2001 Conference, Washington, DC, August 29, 2001, <http://www.cse.wustl.edu/~jain/talks/opnet01.htm>
176. Raj Jain, "**IP over DWDM: Issues and Standards**," Invited Speech at ITCOM 2001 Conference, Denver, August 24, 2001, <http://www.cse.wustl.edu/~jain/talks/itcom01.htm>
177. Raj Jain, "**IP over DWDM: Trends and Issues**," Invited Speech at CITO/OCRI Tech Talk Workshop on Optical Networks, Ottawa, Ontario, October 17, 2000, <http://www.cse.wustl.edu/~jain/talks/cito00.htm>
178. Raj Jain, "**IP over DWDM Networks**," Invited Speech at OPNETWORK'2000, Washington, DC, August 28-Sept 1, 2000, <http://www.cse.wustl.edu/~jain/talks/opnet00.htm>
179. Raj Jain, "**IP over Petabit DWDM Networks: Issues and Challenges**," Keynote Speech, NREN Gigabit Networking Workshop, Moffett Field, CA, August 14-16, 2000, <http://www.cse.wustl.edu/~jain/talks/nren.htm>

180. Raj, Jain, "**Current Issues in Telecom Networks: QoS, Traffic Engineering and DWDM**," Keynote Speech by Professor Raj Jain at SPECTS Conference, Vancouver, Canada, July 19, 2000, <http://www.cse.wustl.edu/~jain/talks/spects.htm>
181. M. Atiquzzaman, Raj Jain, W. Ivancic, et al., "**QoS for Real-Time Applications over Next Generation Data Networks**," Project Status Report, Part 1, NASA Cleveland, OH, June 2, 2000, <http://www.cse.wustl.edu/~jain/talks/qos.htm>
182. Raj Jain, "**IP over ATM**," A lecture given remotely to Monterrey Tech, ITESM Virtual University, Mexico, May 4, 2000, http://www.cse.wustl.edu/~jain/talks/atm_ip.htm
183. Raj Jain, "**IP over DWDM Networks**," GTE, Boston, January 19, 2000, http://www.cse.wustl.edu/~jain/talks/opt_gte.htm
184. Raj Jain, "**Optical DWDM Networks**," Nortel Networks, November 5, 1999, http://www.cse.wustl.edu/~jain/talks/h_5opt.htm
185. Raj Jain, "**IP over DWDM**," Nortel Networks, November 5, 1999, http://www.cse.wustl.edu/~jain/talks/h_aipwd.htm
186. Raj Jain, "**Quality of Service in Data Networks**," Workshop on Next Generation Networks, Nortel Networks, Ottawa, Canada, October 28-29, 1999, <http://www.cse.wustl.edu/~jain/talks/qos9910.htm>
187. Raj Jain, "**Networking and Telecommunications Research at OSU**," To CIS 885 Class at Ohio State University, October 13, 1999, http://www.cse.wustl.edu/~jain/talks/osu_net.htm
188. Raj Jain, "**Quality of Service in Data Networks: Trends, Solutions, and Issues**," Keynote speech at ICON'99, Brisbane, Australia, September 29, 1999, <http://www.cse.wustl.edu/~jain/talks/icon99.htm>
189. Raj Jain, "**Current Trends in Networking Traffic Management and Quality of Service**," Invited Speech at OPNETWORK'99, Washington, DC, August 30, 1999, <http://www.cse.wustl.edu/~jain/talks/opnet99.htm>
190. Raj Jain, "**Quality of Service and Traffic Engineering using Multiprotocol Label Switching**," ETRI, Korea, August 17, 1999, http://www.cse.wustl.edu/~jain/talks/mpls_te.htm
191. Raj Jain, "**Quality of Service In Data Networks: Problems, Solutions, and Issues**," Seoul National University, and Samsung, Seoul, Korea, August 16, 1999, <http://www.cse.wustl.edu/~jain/talks/qos9908.htm>
192. Raj Jain, "**Traffic Management in Satellite Networks**," Invited speech at International Symposium on Radio Technologies (ISART'99), Boulder, CO, August 1, 1999, <http://www.cse.wustl.edu/~jain/talks/isart99.htm>
193. Raj Jain, "**Traffic Management in ATM Networks over Satellite Links**," Communications and Interoperability Section and TR34.1, Satellite Communications Division, Telecommunications Institute of America (TIA), Arlington, VA, July 7, 1999, <http://www.cse.wustl.edu/~jain/talks/tiarpt.htm>
194. Raj Jain, "**Quality of Service In Data Networks: Problems, Solutions, and Issues**," Nokia Research Center, Helsinki, Finland, June 8, 1999, <http://www.cse.wustl.edu/~jain/talks/qos9906.htm>

195. Raj Jain, et al., "**ODEN: Ohio Distance Education Network**," A funding proposal presentation to Ohio Board of Regents, May 27, 1999, <http://www.cse.wustl.edu/~jain/talks/oden.htm>
196. Raj Jain, "**Quality of Service In Data Networks: Problems, Solutions, and Issues**," NetWorld+InterOp Engineering Conference Panel, Las Vegas, Nevada, May 12, 1999, <http://www.cse.wustl.edu/~jain/talks/qos9905.htm>
197. Raj Jain, "**Recent Trends in Networking Including ATM and Its Traffic Management and QoS**," Invited Speech at ITESM, Monterrey, Mexico March 23, 1999, http://www.cse.wustl.edu/~jain/talks/atm_mty.htm
198. Raj Jain, "**Our Research on Real-Time ABR, VS/VD, and Multipoint ABR: Final Report**," A status report presentation to Rome Airforce Lab, Rome, NY, March 11, 1999, <http://www.cse.wustl.edu/~jain/talks/ssci993.htm>
199. Raj Jain, "**QoS over Data Networks**," DARPA Quorum PI Meeting, Poster Session, Atlanta, GA, February 17, 1999, <http://www.cse.wustl.edu/~jain/talks/quorum.htm>
200. Raj Jain, "**Design Issues in Traffic Management for the ATM UBR+ Service for TCP over Satellite Networks: Final Report**," NASA Lewis Research Center, Cleveland, OH, January 26, 1999, http://www.cse.wustl.edu/~jain/talks/nas_ub3.htm
201. Raj Jain, "**TCP over ATM using ABR, UBR, and GFR services and QoS over IP issues**," COST-257 Midterm Seminar, Faro, Portugal, January 20, 1999, (video available), http://www.cse.wustl.edu/~jain/talks/cong_pt.htm
202. Raj Jain, "**TCP over ATM using ABR, UBR, and GFR services and QoS over IP issues**," Alcatel Research, Antwerp, Belgium, January 19, 1999, http://www.cse.wustl.edu/~jain/talks/cong_al.htm
203. Raj Jain, "**TCP over ATM using ABR, UBR, and GFR services and QoS over IP issues**," University of Antwerp, Antwerp, Belgium, January 18, 1999, http://www.cse.wustl.edu/~jain/talks/cong_bl.htm
204. Raj Jain, "**Recent Trends in Networking Including ATM and Its Traffic Management and QoS**," Keynote Speech at International Conference on High-Performance Computing, Chennai (Madras), India, December 19, 1998, <http://www.cse.wustl.edu/~jain/talks/hipc98.htm>
205. Raj Jain, "**Recent Advances in Networking Including ATM, Traffic Management, Switching, and QoS**," Larsen Tubro and Fore Systems, Chennai (Madras), India, December 18, 1998, <http://www.cse.wustl.edu/~jain/talks/tmswqos.htm>
206. Raj Jain, "**IP End-to-End Quality of Service: Recent Solutions and Issues**," Nortel, Canada, December 10, 1998, <http://www.cse.wustl.edu/~jain/talks/ipqosb.htm>
207. Raj Jain, "**Current Issues in ATM Forum Traffic Management Group: GFR and DiffServ**," Nortel, Canada, December 10, 1998, http://www.cse.wustl.edu/~jain/talks/tm_gfr.htm
208. Raj Jain, "**ABR Engineering: Guidelines for Setting ABR Parameters**," Nortel, Canada, December 10, 1998, http://www.cse.wustl.edu/~jain/talks/cng_prm.htm
209. Raj Jain, "**ATM Networking Research At OSU**," To CIS 885 Class at Ohio State University, October 14, 1998, http://www.cse.wustl.edu/~jain/talks/osu_at3.htm

210. Raj Jain, "**Traffic Management and Quality of Service Issues for Large High-Speed Networks**," First NASA Workshop on Performance-Engineered Information Systems NASA Ames Research Center, Moffett Field, Calif, September 28-30, 1998, http://www.cse.wustl.edu/~jain/talks/nas_ipg.htm
211. Raj Jain, "**Virtual Private Networks**," Nortel, Canada, September 25, 1998, <http://www.cse.wustl.edu/~jain/talks/vpn.htm>
212. Raj Jain, "**A Comparison of ATM Service Categories**," Nortel, Canada, September 25, 1998, http://www.cse.wustl.edu/~jain/talks/tm_cats.htm
213. Raj Jain, "**TCP/IP over ATM using ABR, UBR, and GFR services**," Lucent Technologies, Holmdel, NJ, September 11, 1998, http://www.cse.wustl.edu/~jain/talks/cong_l2.htm
214. Raj Jain, "**Voice over IP: Issues and Challenges**," Nortel, Canada, August 14, 1998, and Southwestern Bell, Atlanta, October 21, 1998, <http://www.cse.wustl.edu/~jain/talks/voip.htm>
215. Raj Jain, "**Improving Performance of TCP/IP over ATM UBR+ Service**," Nortel, Canada, August 14, 1998, http://www.cse.wustl.edu/~jain/talks/tcp_ubr.htm
216. Raj Jain, "**Traffic Management on Satellite ATM Networks**," Indian Institute of Science, Bangalore, India, July 21, 1998, http://www.cse.wustl.edu/~jain/talks/cong_in.htm
217. Raj Jain, "**Traffic Management of Internet Protocols on ATM Networks**," Lucent Technologies, Middletown, NJ, June 12, 1998, http://www.cse.wustl.edu/~jain/talks/cong_lu.htm
218. Raj Jain, "**Design Issues in Traffic Management for the ATM UBR+ Service for TCP over Satellite Networks: Report II**," NASA Lewis Research Center, Cleveland, OH, June 9, 1998, http://www.cse.wustl.edu/~jain/talks/nas_ub2.htm
219. Raj Jain, "**Switch Algorithms for Multipoint ABR Service over ATM Networks**," Lucent Technologies, Middletown, NJ, June 12, 1998, http://www.cse.wustl.edu/~jain/talks/mpt_lu.htm
220. Raj Jain, "**Addressing Interoperability in Satellite Networks: Issues and Challenges**," Satellite Networks: Architectures, Applications, and Technologies Workshop, Cleveland, OH, June 2-4, 1998, <http://www.cse.wustl.edu/~jain/talks/nas9806.htm>
221. Raj Jain, "**Quality of Service in IP Networks**," Nortel, Canada, May 15, 1998, <http://www.cse.wustl.edu/~jain/talks/ipqos.htm>
222. Raj Jain, "**Current Issues in ATM Forum Traffic Management: Part III**," Nortel, Canada, May 15, 1998, http://www.cse.wustl.edu/~jain/talks/tm_iss3.htm
223. Raj Jain, "**ATM ABR Traffic Management: Our Recent Research Results**," A status report presentation to Rome Airforce Lab, Rome, NY, May 1, 1998, <http://www.cse.wustl.edu/~jain/talks/ssci984.htm>
224. Raj Jain, "**Asynchronous Transfer Mode (ATM) and Competing Technologies for High-Speed Computer Networking**," Korea-U.S. Science and Technology Symposium on Computing and Telecommunications, Chicago, IL, April 23-25, 1998, http://www.cse.wustl.edu/~jain/talks/atm_kr.htm
225. Raj Jain, "**Recent Trends in Networking Including ATM and Its Traffic Management**," IX International Computer Science Expo-Symposium on Global Interconnection

- Technologies, Mayab University, Merida, Mexico, April 3, 1998, http://www.cse.wustl.edu/~jain/talks/atm_mz.htm
226. Raj Jain, "**Traffic Management of Internet Protocols on ATM Network**," Carnegie Mellon University, March 16, 1998, http://www.cse.wustl.edu/~jain/talks/cong_cm.htm
 227. Raj Jain, "**Voice and Telephony over ATM: Status**," US Army CECOM, Fort Monmouth, NJ, March 19, 1998, <http://www.cse.wustl.edu/~jain/talks/vtoa398.htm>
 228. Raj Jain, "**IP over SONET**," Nortel, Canada, March 13, 1998, <http://www.cse.wustl.edu/~jain/talks/ipsonet.htm>
 229. Raj Jain, "**Current Issues in ATM Forum Traffic Management Group**," Nortel, Canada, March 13, 1998, http://www.cse.wustl.edu/~jain/talks/tm_issu.htm
 230. Raj Jain, "**Issues in Traffic Management on Satellite ATM Networks**," Center for Satellite and Hybrid Communication Networks' Advanced Networks Colloquium Series, University of Maryland, College Park, MD, February 27, 1998, http://www.cse.wustl.edu/~jain/talks/cong_um.htm
 231. Raj Jain, "**Wireless Local Area Networks: Recent Developments**," Wireless Seminar Series, Electrical and Computer Engineering Department, Ohio State University, February 19, 1998, http://www.cse.wustl.edu/~jain/talks/ee_wir.htm
 232. Raj Jain, "**Guaranteed Frame Rate (GFR) Service: Recent Issues**," Nortel, Canada, Jan 16, 1998, <http://www.cse.wustl.edu/~jain/talks/gfr.htm>
 233. Raj Jain, "**Gigabit Ethernet: Architectural Design and Issues**," Nortel, Canada, Jan 16, 1998, <http://www.cse.wustl.edu/~jain/talks/gbether.htm>
 234. Raj Jain, "**Traffic Management over Satellite ATM Networks: A Status Report**," TIA Satellite Communications Division (SCD) Communications Interoperability Subcommittee (CIS) meeting, Telecommunications Industries Association, Arlington, VA, January 13, 1998, <http://www.cse.wustl.edu/~jain/talks/nas9801.htm>
 235. Raj Jain, "**Design Issues in Traffic Management for the ATM UBR+ Service for TCP over Satellite Networks**," Project proposal kickoff meeting, NASA Lewis Research Center, Cleveland, January 9, 1998, http://www.cse.wustl.edu/~jain/talks/nas_ubr.htm
 236. Raj Jain, "**Recent Trends in Networking Including ATM and Its Traffic Management**," National University of Singapore, Singapore, December 3, 1997, Korea Telecom, Seoul, Korea, December 4, 1997, Samsung Electronics, Seoul, Korea, December 5, 1997, Seoul National University, Seoul, Korea, December 5, 1997, Indian Institute of Technology, Kanpur, India, December 8, 1997, and Indian Institute of Technology, Delhi, India, December 17, 1997, http://www.cse.wustl.edu/~jain/talks/atm_sg.htm
 237. Raj Jain, "**ATM Networking and Telecommunications Research at OSU**," at the joint Faculty and Computing Facility Staff meeting of the Department of Computer and Information Science, The Ohio State University, Columbus, OH, November 20, 1997, <http://www.cse.wustl.edu/~jain/talks/iicf.htm>
 238. Raj Jain, "**Current Issues in ATM Traffic Management**," 8th Maryland Workshop on Very High-Speed Networks (VHSN'97), University of Maryland, Baltimore Campus, November 12-13, 1997, <http://www.cse.wustl.edu/~jain/talks/umbc.htm>

239. Raj Jain, "**Trends in Networking Research**," at Collaboration and Visualization over the Network conference held at Wright State University, November 10, 1997, <http://www.cse.wustl.edu/~jain/talks/dayton.htm>
240. Raj Jain, "**Networking Research At OSU**," To CIS 885 Class at Ohio State University, October 28, 1997, <http://www.cse.wustl.edu/~jain/talks/cis885.htm>
241. Raj Jain, "**Multipoint ABR Connections over ATM-Recent Research Results**," Rome Airforce Laboratory, Rome, NY, October 22, 1997, <http://www.cse.wustl.edu/~jain/talks/ssci97a.htm>
242. Raj Jain, "**Recent Advances in Networking Including ATM and Its Traffic Management**," Seventh International Symposium of Computing and Electronic Systems, Instituto Tecnologico y de Estudios Superiores de Monterrey, Campus Toluca, Mexico, October 17, 1997, http://www.cse.wustl.edu/~jain/talks/atm_mx.htm
243. Raj Jain, "**Traffic Management over Satellite ATM Networks: Recent Issues**," Telecommunications Industries Association (TIA) Satellite Division Meeting, EIA Annual Conference, San Francisco, October 7, 1997, <http://www.cse.wustl.edu/~jain/talks/nasa979.htm>
244. Raj Jain, "**Protocols for multimedia on the Internet**," Nortel, Canada, (October 1, 1997), http://www.cse.wustl.edu/~jain/talks/ip_mult.htm
245. Raj Jain, "**A Survey of Scheduling Methods**," Nokia Research Center, Boston, MA, September 17, 1997, Bell-Northern Research/Northern Telecom, Ottawa, Canada, October 2, 1996, <http://www.cse.wustl.edu/~jain/talks/sched.htm>
246. Raj Jain, "**Networking and Its Relationship to Education**," US Congress Internet Caucus, Capitol Hill, Washington, DC, September 10, 1997, http://www.cse.wustl.edu/~jain/talks/osc_wash.htm
247. Raj Jain, "**Performance and Traffic Management of Internet Protocols on ATM Networks**," Microsoft, Redmond, WA, August 27, 1997, Also at Digital Equipment Corporation, Littleton, MA, November 22, 1996, Naval Research Laboratory, October 21, 1996, South-Western Bell, Austin, TX, September 30, 1996, http://www.cse.wustl.edu/~jain/talks/cong_ms.htm
248. Raj Jain, "**ATM Networks: An Overview and Applications**," Columbus Industry and Technology Council, August 21, 1997, http://www.cse.wustl.edu/~jain/talks/atm_itc.htm
249. Raj Jain, "**VBR Voice over ATM: Analysis of Multiplexing Gain, and Effect of Scheduling & Drop Policies**," Southwestern Bell, Austin, TX, August 4, 1997, http://www.cse.wustl.edu/~jain/talks/voa_sbc.htm
250. Raj Jain, "**IP Switching: Issues and Alternatives**," Southwestern Bell, Austin, TX, August 4, 1997, and Nortel, Canada, July 25, 1997, <http://www.cse.wustl.edu/~jain/talks/ipsw.htm>
251. Raj Jain, "**ATM Traffic Management over Satellite Networks: Recent Issues**," TIA, July 15, 1997, <http://www.cse.wustl.edu/~jain/talks/nas9707.htm>
252. Raj Jain, "**Worst Case Buffer Requirements For TCP Over ABR**," a paper presentation at SICON'98, June 1998, http://www.cse.wustl.edu/~jain/talks/cong_sg.htm
253. Raj Jain, "**Voice over ATM-Simulation Results**," Presented at Systran Corporation, Dayton, OH, June 12, 1997, <http://www.cse.wustl.edu/~jain/talks/systm2.htm>

254. Raj Jain, "**Performance Benchmarking of ATM Devices**," Nortel, Canada, May 16, 1997, Ascom Timeplex, Boston, MA, October 28, 1996, http://www.cse.wustl.edu/~jain/talks/perf_bnr.htm
255. Raj Jain, "**Multipoint Communication in Computer Networks**," Nortel, Canada, May 16, 1997, <http://www.cse.wustl.edu/~jain/talks/multipt.htm>
256. Raj Jain, "**Future of Intranet Technology**," Central Ohio Chapter of ACM, Symposium on Weblets at Work: The Impact of Intranet, Columbus, OH, May 2, 1997, <http://www.cse.wustl.edu/~jain/talks/intrant.htm>
257. Raj Jain, "**Real-Time ABR, MPEG2 Streams over VBR, and Virtual Source/Virtual Destination**," A status report presentation to Rome Airforce Lab, Rome, NY, April 1997, <http://www.cse.wustl.edu/~jain/talks/ssci974.htm>
258. Raj Jain, "**Use of Virtual Source and Virtual Destinations in Satellite Links**," TIA/SCD/CIS ATM over Satellite Meeting, Columbus, OH, March 26, 1997
259. Raj Jain, "**Performance of TCP over ABR with self-similar video background traffic over terrestrial and satellite networks**," TIA/SCD/CIS TCP over Satellite Meeting, Cleveland, OH, January 30, 1997
260. Raj Jain, "**TCP/IP over ATM over Satellite Links**," TIA TCP over Satellite working group meeting, NASA/Lewis Research Center, Cleveland, OH, January 30, 1997, <http://www.cse.wustl.edu/~jain/talks/nasa9701.htm>
261. Raj Jain, "**Voice over ATM**," US ARMY, Monmouth, NJ, January 23, 1997, <http://www.cse.wustl.edu/~jain/talks/systran.htm>
262. Raj Jain, "**Performance and Traffic Management of Internet Protocols on ATM Networks**," Digital Equipment Corporation, Littleton, MA, November 22, 1996
263. Raj Jain, "**Networking Research at OSU**," To students of CIS885, November 20, 1996
264. Raj Jain, "**Traffic Management in ATM Networks over Satellite Links**," Lockheed Martin Telecommunications, San Jose, CA, November 15, 1996, http://www.cse.wustl.edu/~jain/talks/cng_lkh.htm
265. Raj Jain, "**Virtual Source/Virtual Destination: Design Issues**," Bell-Northern Research/Northern Telecom, Ottawa, Canada, November 11, 1996
266. Raj Jain, "**Is Real-Time Communication on Internet Possible?**," Presented during a panel discussion on Real-time Communication on the Internet is Realistic, at 1996 International Conference on Network Protocols (ICNP'96), October 29-November 1, 1996, Columbus, Ohio, <http://www.cse.wustl.edu/~jain/talks/icnp96p.htm>
267. Raj Jain, "**TCP/IP over UBR**," Cascade Communications, Boston, MA, October 28, 1996
268. Raj Jain, "**ATM Performance Benchmarking**," Ascom Timeplex, Boston, MA, October 28, 1996
269. Raj Jain, "**Performance and Traffic Management of Internet Protocols on ATM Networks**," Naval Research Laboratory, October 21, 1996
270. Raj Jain, "**Performance of TCP/IP Using ATM ABR and UBR Services over Satellite Networks**," Invited talk at IEEE Communication Society Workshop on Computer-Aided

- Modeling, Analysis and Design of Communication Links and Networks, Mclean, VA, October 20, 1996, http://www.cse.wustl.edu/~jain/talks/atm_sat2.htm
271. Raj Jain, "**ATM Traffic Management: Unresolved Issues**," Rome Labs, Rome, NY, October 4, 1996, <http://www.cse.wustl.edu/~jain/talks/ssci.htm>
 272. Raj Jain, "**Scheduling Algorithms**," Bell-Northern Research/Northern Telecom, Ottawa, Canada, October 2, 1996
 273. Raj Jain, "**Performance and Traffic Management of Internet Protocols Over ATM Networks**," South-Western Bell, Austin, TX, September 30, 1996
 274. Raj Jain, "**Which Service for TCP/IP over ATM Networks: ABR or UBR?**," Eleventh Annual Workshop on Computer Communications, Reston, VA, September 25-26, 1996, <http://www.cse.wustl.edu/~jain/talks/tccc96.htm>
 275. Raj Jain, "**ATM Traffic Management**," BellSouth, Atlanta, GA, September 18, 1996
 276. Raj Jain, "**ATM Traffic Management**," IEEE International Computer Performance and Dependability Symposium (IPDS'96), Urbana-Champaign, IL, September 4-6, 1996, <http://www.cse.wustl.edu/~jain/talks/ipds96.htm>
 277. Raj Jain, "**Recent Advances in 100 Mbps Networking Technologies**," NASA Lewis Research Center, Cleveland, OH, August 28, 1996
 278. Raj Jain, "**Virtual Local Area Networks**," NSF Computer Networking Workshop, Michigan State University, August 7, 1996
 279. Raj Jain, "**Traffic Management in ATM Networks**," NSF Computer Networking Workshop, Michigan State University, August 7, 1996
 280. Raj Jain, "**A Survey of Results on TCP/IP over ATM**," Nortel, Canada, August 7, 1996, http://www.cse.wustl.edu/~jain/talks/atm_tcp.htm
 281. Raj Jain, "**Frame Level Performance Benchmarking of ATM**," 1996 ARPA Workshop on Wide- Area ATM Performance, University of Kansas, Lawrence, Kansas, June 19-20, 1996, http://www.cse.wustl.edu/~jain/talks/atm_perf.htm
 282. Raj Jain, "**A Survey of ATM/ABR Switch Rate Allocation Algorithms**," Bell-Northern Research/Northern Telecom, Ottawa, Canada, June 4, 1996, <http://www.cse.wustl.edu/~jain/talks/switch.htm>
 283. Raj Jain, "**TCP/IP over ATM**," TIA/SCD/CIS meeting, NASA Lewis Research Center, Cleveland, OH, May 29, 1996
 284. Raj Jain, "**Traffic Management in ATM Networks**," Motorola, Phoenix, AZ, May 17, 1996, http://www.cse.wustl.edu/~jain/talks/cng_tut.htm
 285. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," IEEE Electro'96, New York, May 1, 1996, <http://www.cse.wustl.edu/~jain/talks/netsem3.htm>
 286. Raj Jain, "**ABR or UBR**," A presentation during the panel on Can the High-Speed networks be effectively controlled? IEEE INFCOM'96 conference, San Francisco, CA, March 27, 1996, http://www.cse.wustl.edu/~jain/talks/cng_inf.htm
 287. Raj Jain, "**ATM Research at OSU**," invited seminar at Zeitnet, Santa Clara, CA, March 27, 1996

288. Raj Jain, "**High-Speed Networking: Issues and Trends**," IEEE Distinguished Visitor Lecture, University of Southern Florida, Tampa, FL, March 19, 1996
289. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," IEEE Distinguished Visitor Lecture, University of Central Florida, Orlando, FL, March 19, 1996
290. Raj Jain, "**Common Mistakes and Games of Performance Analysis**," ACM Lecture, University of Tennessee, Knoxville, TN, February 28, 1996
291. Raj Jain, "**High-Speed Networking: Issues and Trends**," ACM Lecture, Vanderbilt University, Nashville, TN, February 28, 1996
292. Raj Jain, "**Gigabit Networking Standards: Fibre Channel and HIPPI**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, Columbus, OH, February 27, 1996, <http://www.cse.wustl.edu/~jain/talks/netsemc.htm>
293. Raj Jain, "**OCARNet: Ohio Computing and Communications ATM Research Network**," A funding proposal presentation to Ohio Board of Regents, February 22, 1996, <http://www.cse.wustl.edu/~jain/talks/obori.htm>
294. Raj Jain, "**Internet Protocol: The Next Generation**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, Columbus, OH, January 30, 1996, <http://www.cse.wustl.edu/~jain/talks/netsemb.htm>
295. Raj Jain, "**Recent Advances in All-Optical Networks**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, Columbus, OH, November 28, 1995, <http://www.cse.wustl.edu/~jain/talks/netsema.htm>
296. Raj Jain, "**Wireless Networking**," SPANN Laboratory Seminar Series, EE Dept, OSU, Columbus, OH, November 7, 1995, http://www.cse.wustl.edu/~jain/talks/wir_spn.htm
297. Raj Jain, "**Traffic Management in ATM Networks**," 6th Maryland Workshop on Very High-Speed Networks, Baltimore, MD, October 30-31, 1995
298. Raj Jain, "**100 Mbps Networking Technologies: 100BASE-Tx, 100VG-AnyLAN, FDDI**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, Columbus, OH, October 31, 1995, <http://www.cse.wustl.edu/~jain/talks/netsem9.htm>
299. Raj Jain, "**Performance Benchmarking of ATM Switches**," Presentation at NetWorld+InterOp, Atlanta, GA, September 28, 1995
300. Raj Jain, "**Congestion Control in ATM Networks**," Presentation at NetWorld+InterOp, Atlanta, GA, September 28, 1995
301. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," Invited Seminar at Business School, Georgia State University, Atlanta, GA, September 27, 1995
302. Raj Jain, "**Congestion Control in ATM Networks**," Invited Seminar at School of Computer Science, Georgia Tech, Atlanta, GA, September 27, 1995
303. Raj Jain, "**Traffic Management in ATM Networks**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, Columbus, OH, September 19, 1995, <http://www.cse.wustl.edu/~jain/talks/netsem8.htm>
304. Raj Jain, "**Congestion Control in ATM Networks**," Invited Seminar at NASA Lewis Research Center, Cleveland, OH, September 15, 1995

305. Raj Jain, "**Congestion Control in ATM Networks**," Satellite Interoperability Subcommittee Meeting, Cleveland, OH, September 14, 1995
306. Raj Jain, "**Congestion Control in ATM Networks: Recent Advances**," Invited Lecture at Bell Northern Research, Ottawa, Ontario, September 11, 1995
307. Raj Jain, "**Research and Teaching Applications of World Wide Web: A Case Study**," Ohio Aerospace Institute conference on Technology and New Ways of Teaching/Learning, Cleveland, OH, September 8-9, 1995. Gave the talk remotely over a video network, <http://www.cse.wustl.edu/~jain/talks/oai.htm>
308. Raj Jain, "**Congestion Control in ATM Networks**," Invited Lecture at Intel Communication Workshop, Portland, Oregon, August 15-16, 1995, http://www.cse.wustl.edu/~jain/talks/cng_mrl.htm
309. Raj Jain, "**Networking Issues for Mobile Computing**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, Columbus, OH, July 25, 1995, <http://www.cse.wustl.edu/~jain/talks/netsem7.htm>
310. Raj Jain, "**Wireless Data Networking-An Introduction**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, Columbus, OH, June 27, 1995, <http://www.cse.wustl.edu/~jain/talks/netsem6.htm>
311. Raj Jain, "**Global Positioning Systems (GPS): Applications to Distributed Systems and Networks**," 3COM Corporation, June 13, 1995, <http://www.cse.wustl.edu/~jain/talks/gps.htm>
312. Raj Jain, "**Multimedia Networks-Advanced Issues**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, Columbus, OH, May 22, 1995, <http://www.cse.wustl.edu/~jain/talks/netsem5.htm>
313. Raj Jain, "**ATM Networking**," Departmental Presentation in OSU's Annual Conference for Engineers and Architects, Columbus, OH, May 19, 1995
314. Raj Jain, "**Multimedia Networks-An Introduction**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, Columbus, OH, April 25, 1995, <http://www.cse.wustl.edu/~jain/talks/netsem4.htm>
315. Raj Jain, "**ATM Networks – Advanced Concepts and Issues**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, Columbus, OH, March 28, 1995, <http://www.cse.wustl.edu/~jain/talks/netsem3.htm>
316. Raj Jain, "**Congestion Control in ATM Networks**," Networld+Interop'95 General Conference, Las Vegas, NV, March 27-31, 1995
317. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," IEEE Chapter, Rochester, NY, March 15, 1995
318. Raj Jain, "**Common Mistakes and Games of Performance Analysis**," Rochester Institute of Technology, Rochester, NY, March 15, 1995
319. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," NASA Lewis Research Center, Cleveland, OH, March 13, 1995

320. Raj Jain, "**ATM Networks – An Overview**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, February 21, 1995, <http://www.cse.wustl.edu/~jain/talks/netsem2.htm>
321. Raj Jain, "**Congestion Control in High-Speed Networks**," Mitsubishi Electric Research Labs, Cambridge, Mass, February 1, 1995
322. Raj Jain, "**High-Speed Networking: Issues and Challenges**," Recent Advances in Networking and Telecommunications Seminar Series, OSU, January 31, 1995, <http://www.cse.wustl.edu/~jain/talks/netsem1.htm>
323. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," Bell Northern Research, Ottawa, Canada, Distinguished Lecture, September 21, 1994
324. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," AT&T Columbus, Ohio, August 26, 1994
325. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," National Institute of Science and Technology (NIST), Gaithersburg, MD, August 12, 1994
326. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," NSF Workshop on Networking, Michigan State University, East Lansing, Mich., August 5, 1994
327. Raj Jain, "**MegaATM: ATM Technology for Gigabit Networking**," NSF/DARPA Workshop on Gigabit Networking, Washington, DC, July 20-21, 1994, <http://www.cse.wustl.edu/~jain/talks/gigabit.htm>
328. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," University of Irvine, CA, July 18, 1994
329. Raj Jain, "**ATM Networks: Issues and Challenges Ahead**," IEEE Chapter, Dallas, TX, IEEE Distinguished Visitor, May 19th, 1994
330. Raj Jain, "**Congestion Control in ATM Networks**," Professor Y.C. Who's 60th Birth Anniversary Symposium, Harvard University, Cambridge, Mass., April 23, 1994
331. Raj Jain, "**Common Mistakes and Games of Performance Analysis**," Wayne State University, Detroit, Mich., ACM Lecture, April 6, 1994
332. Raj Jain, "**High-Speed Networking: Issues and Challenges**," University of Michigan, Ann Arbor, MI, ACM Lecture, April 6, 1994, http://www.cse.wustl.edu/~jain/talks/hi_spd.htm
333. Raj Jain, "**Myths about Congestion Control in High-Speed Networks**," ACM Chapter, Detroit, Mich., ACM Lecture, April 6, 1994
334. Raj Jain, "**ATM or FDDI?**," 4th Maryland Workshop on Very High-Speed Network, Baltimore, MD, March 15-17, 1993
335. Raj Jain, "**High-Speed Networking: Issues and Trends**," University of Saskatchewan, Saskatoon, Canada, Distinguished Lecture, February 1, 1993. Also at University of Regina, Regina, Canada, February 2, 1993, and at Ohio State University, Columbus, Ohio, ACM Lecture, April 7, 1993
336. Raj Jain, "**High-Speed Networking: Issues and Trends**," Keynote speech, 1992 IEEE Local Computer Networking Conference (LCN'92), Minneapolis, MN, September 15, 1992

337. Raj Jain, "**Computer Benchmarking: Issues and Pitfalls**," Keynote speech, 6th International Conference on Modeling Techniques and Tools for Computer Performance Evaluation, Edinburgh, UK, September 18, 1992
338. Raj Jain, "**Computer Benchmarking: Issues and Pitfalls**," Dinner speech, Joint meeting of SPEC and GPC benchmarking groups, Littleton, MA, May 1992
339. Raj Jain, "**Computer Benchmarking: Games People Play**," Boston Computer Society, PC Technical User's Group meeting, January 8, 1992
340. Raj Jain, "**Common Mistakes and Games of Performance Analysis and Simulation**," A talk presented at:
 - a. Old Dominion University, Norfolk, VA, Colloquium Series, April 21, 1993.
 - b. Dayton ACM Chapter, Dayton, OH, April 8, 1993
 - c. Wright State University, Dayton, OH, April 8, 1993
 - d. Central-Ohio ACM Chapter, Columbus, OH, April 7, 1993
 - e. The University of Wisconsin, Eau Claire, October 22, 1992
 - f. The University of Wisconsin, La Crosse, October 23, 1992
 - g. Winona State University, October 23, 1992
 - h. DEC Information Management Symposium (IMSYM'92), Colorado Springs, February 11, 1992.
 - i. Harvard University, November 18, 1991.
 - j. Boston University, Metropolitan College, Faculty Meeting, October 19, 1991.
 - k. DEC Information Management Symposium (IMSYM'91), Seefeld, Austria, October 8, 1991.
 - l. AT_&T Bell Laboratories, Holmdel, NJ, September 17, 1991
 - m. University of Pennsylvania, Philadelphia, PA, April 23, 1991.
 - n. Worcester Polytechnic Institute, April 19, 1991.
 - o. Washington University, St. Louis, April 5, 1991.
 - p. Joint IEEE/Boston and ACM/Boston Meeting, March 21, 1991.
341. Raj Jain, "**Myths About Congestion Control in High-Speed Networks**," Workshop on Very High-Speed Networking Workshop, Greenbelt, MD, March 5, 1990
342. Raj Jain, "**Myths About Congestion Control in High-Speed Networks**," High-Speed Networking Workshop, Cambridge, MA, January 25, 1990, described in Craig Partridge, Ed., Workshop Report Internet Research Steering Group Workshop on Very-High-Speed Networks, IETF RFC 1152, April 1990.
343. Raj Jain, "**Congestion Control-Trends _& Issues**," an invited seminar at AT_&T Bell Laboratories, Murray Hill, NJ, July 1989
344. Raj Jain, "**Congestion Control: Trends _& Issues**," 2nd IEEE Workshop on CAMAD of Communication Links and Networks, University of Massachusetts, Amherst, MA, October 14, 1988

345. Raj Jain, "**Networking Performance Issues and Trends**," Interop'88, Santa Clara, CA, September 30, 1988
346. Raj Jain, "**FDDI Performance: A Tutorial**," Networks and Communications Seminar Series, DEC/LKG, May 11, 1988
347. Raj Jain, "**Congestion Control: Trends & Issues**," TIMS/ORSA Joint National Meeting, Washington, D.C., April 26, 1988
348. Raj Jain, "**Panel Session on Congestion Control**," Panel Organizer, 10th Data Communications Symposium, October 1987
349. K. Ramakrishnan, and D. Chiu, "**Congestion Avoidance in Computer Networks with a Connectionless Network Layer**," Lower Layer SIG, NBS/OSI implementers Workshop, National Bureau of Standards, Washington, D.C., October 8, 1987
350. Raj Jain, "**Networking Performance Issues and Trends**," George Washington University, October 10, 1987
351. Raj Jain, "**FDDI Error Analysis**," ANSI X3T9 SMT meeting, June 23, 1987
352. K. Ramakrishnan, and D. Chiu, "**Congestion Avoidance in Computer Networks with a Connectionless Network Layer**," Performance SIG, NBS/OSI implementers Workshop, National Bureau of Standards, Washington, D.C., May 6, 1987
353. K. Ramakrishnan, and D. Chiu, "**Congestion Avoidance in Computer Networks with a Connectionless Network Layer**," Join Meeting of ISO Routing and ARPA INENG, Cambridge, MA, April 24, 1987
354. Raj Jain, "**Performance Modeling of DNA**," Digital Networking Team Training, Westford, Mass., August 6, 1986
355. Raj Jain, "**Flow and Congestion Control Techniques for Computer Networks**," Networks and Communications Seminar Series, LKG, June 4, 1986
356. Raj Jain, "**High-Performance Networks**," at DEC-France, Valbonne, France, February 10, 1986
357. Raj Jain, "**Packet Trains**," at Indian Institute of Technology, Bombay, India, January 4, 1986
358. Raj Jain, "**Packet Trains for Local Area Network Workload Characterization**," Stanford and U. C. Berkeley, Feb 4-5, 1985
359. Raj Jain, "**High-Performance Networks: New Approaches**," Networks and Communications Seminar Series, DEC, Tewksbury, September 18, 1985
360. Raj Jain, "**Analysis of Retransmission Timer Algorithms**," Massachusetts Institute of Technology, December 1983
361. Raj Jain, "**A Dynamic Window Scheme for Congestion Control in Computer Networks**," Harvard, Stanford, U. C. Berkeley, and MIT, February 1983
362. Raj Jain, "**VAX/VMS Image Accounting: Usage and Examples**," DECUS, October 20, 1983

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1. Member of Sponsor Ballot, P802.1AS/D8, "**IEEE Standard for Local and Metropolitan Area Networks – Timing and Synchronization for Time-Sensitive Applications**," February 23, 2019
2. Member of Sponsor Ballot, P802.3.2/D3.2, "**IEEE Draft Standard for Ethernet YANG Data Model Definitions**," February 2, 2019
3. Member of Sponsor Ballot, P802.15.4x/D2, "**IEEE Draft Standard for Low-Rate Wireless Networks Amendment Defining Enhancements to the Smart Utility Network (SUN) Physical Layers (PHYs) Supporting up to 2.4 Mb/s Data Rates**," January 18, 2019
4. Member of Sponsor Ballot, P1711.2/D2.3, "**IEEE Draft Standard for Secure SCADA Communications Protocol (SSCP)**," December 18, 2018
5. Member of Sponsor Ballot, P802.1CF/D3.1, "**IEEE Draft Recommended Practice for Network Reference Model and Functional Description of IEEE 802 Access Network**," December 10, 2018
6. Member of Sponsor Ballot, P1900.1/D2, "**Standard Definitions and Concepts for Dynamic Spectrum Access: Terminology Relating to Emerging Wireless Networks, System Functionality, and Spectrum Management**," December 9, 2018
7. Member of Sponsor Ballot, P802.15.10a/D03, "**IEEE Draft Recommended Practice for Routing Packets in IEEE 802.15.4 Dynamically Changing Wireless Networks Amendment to fully define the use of addressing and route information currently in the standard - Amendment A**," December 7, 2018

8. Member of Sponsor Ballot, P11073-10471/D1r12, "**IEEE Health informatics-Personal health device communication Part 10471: Device specialization--Independent living activity hub**," December 6, 2018
9. Member of Sponsor Ballot, P11073-10404/D5, "**IEEE Draft Standard - Health Informatics - Personal Health Device Communication - Part 10404: Device Specialization - Pulse Oximeter**," December 4, 2018
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12. Member of Sponsor Ballot, P11073-10415/D5, "**ISO/IEEE International Standard - Health informatics-Personal health device communication--Part 10415: Device specialization--Weighing scale**," November 25, 2018
13. Member of Sponsor Ballot, P802.3cd/D3.5, "**IEEE Draft Standard for Ethernet Amendment: Media Access Control Parameters for 50 Gb/s and Physical Layers and Management Parameters for 50 Gb/s, 100 Gb/s, and 200 Gb/s Operation**", " October 4, 2018
14. Member of Sponsor Ballot, P802.15.7/D3a, "**IEEE Draft Standard for Information technology--Telecommunications and information exchange between systems--Local and metropolitan area networks--Specific requirements--Part 15.7: Standard for Short-Range Wireless Optical Communication Using Visible Light**," September 22, 2018
15. Member of Sponsor Ballot, P802.1Qcy/D2.5, "**IEEE Draft Standard for Local and Metropolitan Area Networks - Bridges and Bridged Networks Amendment: Virtual Station Interface (VSI) Discovery and Configuration Protocol (VDP) Extension to Support Network Virtualization Overlays Over Layer 3 (NVO3)**," August 7, 2018
16. Member of Sponsor Ballot, PC95.2/D1.7, "**IEEE Standard for Radio-Frequency Energy and Current-Flow Symbols**," August 5, 2018
17. Member of Sponsor Ballot, P802.3bt/D3.7, "**IEEE Draft Standard for Ethernet - Amendment 2: Power over Ethernet over 4 Pairs**," July 31, 2018
18. Member of Sponsor Ballot, P1722.1-2013-Cor_1/D9, "**IEEE Approved Draft Standard for Device Discovery, Connection Management, and Control Protocol for IEEE 1722(TM) Based Devices - Corrigendum 1: Technical and editorial corrections**", " July 29, 2018
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22. Member of Sponsor Ballot, P802.19.1/D3, "**IEEE Standard for Information technology--Telecommunications and information exchange between systems--Local and**

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 24. Member of Sponsor Ballot, P802.1AE/D1.3, "**IEEE Standard for Local and metropolitan area networks-Media Access Control (MAC) Security,**" June 13, 2018
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