

JAMES F. KUROSE

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EDUCATION

Doctor of Philosophy, Computer Science, Columbia University, 1984. Thesis advisors: Mischa Schwartz, Electrical Engineering; Yechiam Yemini, Computer Science
Masters of Science, Computer Science, Columbia University, 1980
Bachelor of Arts, Physics, Wesleyan University, 1978

WORK EXPERIENCE

Distinguished University Professor, U. Massachusetts, 9/04 to present

Associate Chancellor for Partnerships and Innovation. U. Massachusetts, 9/20 – present. Fostering system-wide and state-wide research and education partnerships. Strategic planning, implementation of UMassFlex flexible learning initiative.

Assistant Director for Artificial Intelligence, White House Office of Science and Technology Policy (OSTP), Executive Office of the President, 4/18 to present. (Full time 5/18-7/18, part-time detail before and after that). In this position, I led OSTP activities in Artificial Intelligence. This includes planning and implementation of a national AI strategy, managing the new Select Committee of AI in the National Science and Technology Council (NSTC), co-chairing the MLAI NSTC subcommittee, advising OSTP leadership, and participating in various AI-related meetings/briefings in the executive and legislative branches of the US government. I also assisted OSTP personnel on various NSTC-related activities in Open Science and Strategic Computing.

Assistant Director, US National Science Foundation, Computer and Information Science and Engineering (CISE) Directorate, 1/15 to 5/18; 7/18 – present. In this position, I lead the CISE Directorate, with an annual budget of more than \$900 million, in its mission to uphold the nation's leadership in scientific discovery and engineering innovation through its support of fundamental research in computer and information science and engineering and transformative advances in cyberinfrastructure.

In addition to NSF responsibilities, I co-chaired the Networking and Information Technology Research and Development Subcommittee of the National Science and Technology Council Committee on Technology (NSTC), facilitating the coordination of networking and information technology research and development efforts across Federal agencies. I also co-chaired the NSTC Open Science Working Group.

Visiting Professor, University of Paris VI (Université Pierre et Marie Curie), Sorbonne Université, 10/19 – 6/20, 2/12 – 7/12, 6/05, 6/06.

Executive Associate Dean, College of Natural Sciences, **Senior Faculty Advisor to the Vice Chancellor for Research and Engagement**, 9/09 – 9/11.

Interim Dean, College of Natural Sciences and Mathematics, U. Massachusetts, 9/08 – 8/09.

Visiting Scientist, Thomson/Technicolor (Paris, Palo Alto) 5/06-6/06, 10/06, 2/12 – 7/12, 9/1 – 12/12

Professor, U. Massachusetts, Dept. Computer Science, 9/96 – 9/04 .
Department Chair, U. Massachusetts, Dept. Computer Science, 5/98 – 6/01.
Associate Director and Co-PI, Center for Collaborative Adaptive Sensing of the Atmosphere (CASA), NSF Engineering Research Center, 9/03 – 8/08.
Visiting Professor, Institut National de Recherche en Informatique et en Automatique (INRIA), and Institut Eurecom, INRIA, Sophia Antipolis, France, 9/97 – 9/98.
Associate Professor, U. Massachusetts, Dept. Computer Science, 9/90 – 8/96.
Visiting Scientist, IBM Thomas J. Watson Research Center, Communications Dept., 9/90 – 8/91.
Assistant Professor, U. Massachusetts, Dept. Computer Science, 9/84 – 8/90.
Consultant, IBM Thomas J. Watson Research Center, Performance Modeling and Methodology, 9/80 – 5/88.

RESEARCH INTERESTS

Computer networks, protocols and architecture; network measurement; sensor networks; multimedia communication.

AWARDS AND HONORS

RESEARCH AWARDS AND HONORS

Honorary Doctorate, Universidad Carlos III de Madrid (2022)
National Academy of Engineering (2019)
Fellow, IEEE (1997), ACM (2001)
ACM SIGCOMM Lifetime Achievement Award, 2016
Distinguished Faculty Lecture, U. Massachusetts, 2014
IEEE Infocom Achievement Award, 2013
ACM Sigcomm Test-of-Time Award (10-year retrospective best paper), 2008
Samuel F. Conti Research Fellowship, U. Massachusetts, 2011-2012
Award for Outstanding Achievement in Research and Creative Activity, U. Massachusetts, 2005
Faculty Development Award, IBM, 1985, 2005
Outstanding Investigator Award, DARPA, 2002
Young Faculty Award, General Electric Foundation, 1985

Best Paper Award (runner up), 2014 ACM Information-centric Networking Conference
Best Poster/Demo, 2014 ACM MSWiM Conference
Best Paper Award 2013 IEEE Infocom conference
Best paper Award, 2013 IEEE Vehicle Technology Conference
Best Paper Award, 2008 IEEE Multimedia Computing and Networking Conference
Best Student Paper Award, 2000 ACM Sigmetrics Conference
Best Paper Award, 1996 ACM Sigmetrics Conference
Best Paper Presentation Award, 1994 ACM Sigmetrics Conference

Distinguished Lecturer (as UMass faculty member): UC Davis, UC Irvine, City College of NY, CMU, Columbia U., Colorado State U., U. Delaware, U. Kentucky, U. Illinois, Indiana U., U. Minnesota, Northeastern U., Northwestern U., NYU Polytechnic Institute, Ohio State U., Purdue University, Rensselaer Polytechnic Institute, Texas A&M, UFRJ (Brazil), U. Texas Dallas, U. Toronto, U. Utah, U. Vermont, Worcester Polytechnic Institute

Keynote Addresses (as UMass faculty member): ACM Sigcomm Workshop on Information-centric Networks, Asian Internet Engineering Conference, ACM Federated Computing Research Conference (FCRC), ACM Mobicom Conference, ACM SigComm Conference, ACM Mobihoc Conference, Brazil National Academy of Sciences, Brazilian Computer Conference (SBRC), Consortium for Computing Sciences in Colleges New England, IEEE COMSWARE, IEEE COMSNETS, EU Workshop on Future Internet Research and Experimentation (FIRE), IEEE Infocom (twice), IEEE Int. Conference on Network Protocols, IEEE Percom Conference, IEEE Internet Performance Symposium, IEEE Int. Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), IEEE Int. Conf. Computer Network and Mobile Communications; Conference on Innovation in Clouds, Internet and Networks (ICIN); IEEE MedComMet; IEEE Int. Workshop on Quality of Service in MultiService IP Networks, IEEE Distributed Interactive Simulation and Real-Time Workshop, IEEE Real-Time System Symposium, IFIP Networking, Korea Software Conference, Workshop on Embedded Networked Sensors, IMDEA Networks.

TEACHING AWARDS AND HONORS

IEEE Computer Society Taylor Booth Education Medal, 2001
Outstanding Teaching Award, Northeast Assn. of Graduate Schools, 1996
Outstanding Teaching Award, College of Natural Sciences and Mathematics, U. Massachusetts, 1995
Lilly Teaching Fellowship, U. Massachusetts, 1993/94
Outstanding Teacher Award, National Technological University, awarded each year 1989 – 1998

SERVICE AWARDS AND HONORS

CRA Distinguished Service Award, 2021.
IEEE Communication Society, Publications Exemplary Service Award, 2007
IEEE Infocom Outstanding Service Award, 2005
Massachusetts 2002 Workforce Development Leader of the Year
U. Massachusetts President's 2002 Service Award
College of Natural Sciences and Mathematics, U. Massachusetts 2002 Service Award

GRADUATE AND UNDERGRADUATE HONORS

Graduate: IBM Graduate Student Fellowship
Undergraduate: Magna cum laude with high honors in Physics, Phi Beta Kappa, Sigma Xi, Bertman Research Prize, Thorndike award, Eastman-Kodak research fellowship

PROFESSIONAL SERVICE: RESEARCH

Blue Ribbon Panel, NSF/CISE Expeditions, 2022
CRA Executive Director Search Committee, co-chair, 2022.
OECD AI Principles, Experts Group and subcommittee chair, AI Systems Lifecycle, 2018 – 2021.
Co-chair, NSF Workshop on a National Network of Research Institutes, May 2021.
NSF CISE Advisory Committee, 2011 – 2014
NSF CISE, Committee of Visitors, Chair, 2014 (through 9/14)
Computing Research Association, Board of Directors, 2008 – 2014
NSF CISE, Midscale Infrastructure Committee, Co-Chair, 2012 –2014
NSF, Merit Review Advisory Committee, 2011-2012
NSF CISE Indo-US Workshops in Pervasive Communications/Computing Collaboration, Co-Chair, 2010 – 2013
Panel on Information Technology, National Academy of Sciences, 2011

NSF Future Internet Design (FIND) Planning Committee, 2006 – 2008
NSF Workshop on Integrated Computing Education and Research, Workshop Co-organizer, 2005
NSF Workshop on Science of Networking Design, Workshop Co-organizer, 2004
DARPA Panel: NetVision 2014, 2003 – 2004
NSF Workshop on Future Networking Research Directions, 2003
NSF Workshop on Research Network Testbeds, Workshop Chair, 2002
Panel on Networking Research Horizons, National Academy of Sciences, 2001
Panel on Army Communications, National Academy of Sciences, 1994 –1995
Panel, National Science Foundation, Very High Speed Backbone Network, 1995
NSF Blue Ribbon Panel – Engineering Research Centers, 2005 – 2006
Proposal Evaluation Panels, NSF, 1987, 1992, 1993, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2005, 2008, 2009, 2013

Founding Editor-in-Chief, *IEEE/ACM Trans. Networking*, 6/92 – 6/95
Editor-in-Chief, *IEEE Trans. Communications*, 6/91 – 9/92
Editor, *IEEE/ACM Trans. Networking*, 1995-1997
Associate Editor for Networking Systems, *IEEE Trans. Communications*, 1989-1991
Guest Editor, *IEEE J. Selected Areas in Communications*, special issues on Network Measurement and Sampling, 12/06; Computer-Aided Modeling of Communication Systems, 12/90, 1/91
Director of Journals, IEEE Communications Society, 1/00 – 12/02
Steering Committee, *IEEE/ACM Trans. Networking*, 2000 – 2009
Editorial Advisory Board, *International Journal of Distributed Sensor Networks*, 2004 – 2010

IEEE Computer Society, Eric Sumner Award Committee, 2020 – 2023.
ACM SIGCOMM Doctoral Dissertation Ward Committee, 2019
ACM Doctoral Dissertation Award Committee, 2014-2015
Marconi Society Award Selection Advisory Committee, 2014 – 2018
IEEE Computer Society, Education Awards Committee, 2012 – 2014
IEEE Alexander Graham Bell Award Committee, 2010 – 2013
Nominations and Elections Committee, ACM Sigcomm, 2006 (chair), 2013
NSF/CCC CI Fellows Committee, 2009 – 2011
ACM Sigmetrics Test of Time Award Committee, 2011
Awards Committee, ACM Sigcomm, 2003 – 2004, 2006, 2010
ACM Sigcomm Rising Star Award Committee, 2007, 2008, 2010 (chair)
ACM Sigcomm Test of Time Award Committee, 2006, 2007 (chair), 2009
IEEE Computer Society, Fellows Evaluation Committee, 2009, 2011
Nomination and Elections Committee, IEEE Communications Society, 2004 – 2006
Board of Governors, IEEE Communications Society, 1996 – 1998, 2000 – 2002
Awards Committee, IEEE Communications Society, 1998 – 2000
IEEE Tech. Committee on Computer Communications, Vice Chair 1989 – 1991; Secretary, 1987 – 1989
Advisory Board, National Center for Telecommunications Technologies, 2001 – 2003

Co-founder, TheNetworkingChannel (www.networkingchannel.eu), 2020 – present/
Steering Committee, ACM Internet Measurement Conference, 2012 – 2014
Steering Committee, ACM e-Energy Conference, 2013 – 2014
Steering Committee, ACM CoNext Conference, 2006 – 2008
Steering Committee, IEEE Global Internet Conference, 2003 – 2008
Conference Standing Committee, IEEE INFOCOM Conference, 1992 – 2002

Technical Advisory Committee, ACM SIGCOMM, 1997 – 2001

Workshop Co-Chair, ACM SIGCOMM Education Workshop 2020.

General Co-Chair, ACM Internet Measurement Conference, Boston, 11/12

General Co-Chair, IEEE Infocom 2009, Rio de Janeiro, 4/09

General Co-Chair, IEEE COMSNETS 2008, Bangalore, India, 1/08

General Co-Chair, ACM CoNext Conference, NY, 12/07

Technical Program Co-Chair, ACM e-Energy, Berkeley, 5/13

Technical Program Chair, ACM Internet Measurement Conference 11/04

Technical Program Co-Chair, ACM SIGCOMM'00, Stockholm, 8/00

Technical Program Co-Chair, ACM SIGMETRICS'00, Santa Clara, 06/00

Technical Program Co-Chair, IEEE INFOCOM 92, Florence, Italy, 5/02

Workshop Co-Chair, INTIMATE Big Data Workshop, Paris, France 06/12

Workshop Chair, ACM Sigcomm 2010, Delhi India, 08/10

Workshop Chair, ACM Sigcomm 2002 Workshop on Computer Networking: Curriculum Designs and Educational Challenges, Pittsburgh, 08/02

Workshop Chair, Program Committee, 2nd Int. IEEE Workshop on Computer-Aided Modeling of Communication Links and Networks, Amherst MA, 09/88

Program Committee, Program Committee member, AAAS Annual Meeting (2019-present), IEEE INFOCOM Conference, (11 years), ACM SIGCOMM Conference, (11 years), ACM SIGMETRICS Conference, (12 years), ACM Int. Workshop on Network and Operating System Support for Digital Audio and Video, (6 years), ACM CoNEXT, (3 years), ACM Hotnets, (2 years), ACM Internet Measurement Conference (2 years), IEEE Int. Conference on Distributed Computer Systems, (5 years), and numerous other conference and workshop program committees

Research and Science Advisory Boards and Panels:

National ICT Institute of Japan, Member of International Scientific Advisory Committee, 2020 – present.

Board of Trustees and Science Advisory Board, Instituto Madrileño de Estudios Avanzados (IMDEA Madrid) 2007 – 2014, 2019 – present.

Networking Advisory Panel, National Information and Communications Technology Australia (NICTA), 2005 – 2014

Scientific Advisory Board, Laboratory for Information, Network and Communication Sciences, Paris, 2009 – 2014, 2019 – present.

Science Advisory Board, Technicolor, 2008 – 2012

Review panel, Institut Nationale de Recherche en Informatique et en Automatique (INRIA) Networking and Telecommunications, 2000, 2012 (chair)

Advisory/Review Boards for EU Projects: ResumeNet, ETH Zurich, 2009 – 2012; Future and Emerging Technologies, 2008; Onelab, U. Paris VI, 2009 – 2014; User-centric Networking, 2013 – 2014

Swiss National Center for Competence in Research, 2004 – 2010

PROFESSIONAL SERVICE: EDUCATION

Advisory Panel/Group/Board, Dept. Computer Science, U. Connecticut, 2003 –2008; Dept. Computer Science, U. Delaware, 2009, Dept. Electrical Engineering and Computer Science; School of Engineering 2022-present; Chinese U. of Hong Kong, 2003 – 2006; College of Computing, Georgia

Institute of Technology, 2012; Dept. Computer Science, John Jay College, 2006; School of Engineering, TISL, U. Kansas, 2004, 2010; Dept. Electrical Engineering and Computer Science, U. Michigan, 2004 – 2009; Dept. Computer Science, U. Minnesota, 2003; NIIT University, India, 2009 – 2012; Dept. Computer Science, North Carolina State U., 2004; CIS Dept, Ohio State Univ, 2021-present; Dept. Computer Science, Rensselaer Polytechnic U., 2008; Dept. Computer Science, U. Toronto, 2014; Dept. Computer Science, Tufts U., 2013, 2020-present; Dept. Computer Science, Union College, 2001; Dept. Computer Science, Washington U. in St. Louis 2005 –2011; CS Dept., U Illinois Urbana-Champaign, 2021; CS Dept. U. Texas at San Antonio, 2021; U. Washington 2022.

CS Principles AP Advisory Committee, College Board, 2009 – 2012

Faculty Leader, Indo US Collaboration for Engineering Education, Mysore, 2008

ACM Education Council, 2006 – 2008

Director of Education, ACM Special Interest Group on Data Communications, 2003 – 2008

Workshop Chair, NSF CISE Pathways to Revitalized Undergraduate Computing Education (CPATH) New England Workshop, 2006

Workshop Chair, NSF Workshop on Integrative Computing Education and Research Northeast Workshop, 2005

Advisory Board, Internet Engineering Curriculum, CAIDA, 1999 – 2003

PROFESSIONAL SERVICE: STATE

Massachusetts Green High Performance Computer Center, (MGHPCC), Steering Committee; Research, Education and Outreach Co-chair, 2009 – 2014; Chair, Board of Directors 2022-present; MGHPCC 2.0: 5-year planning committee, 2021-2022.

Technology Hub Collaborative (Massachusetts Governor’s task force), 2009 – 2012

Holyoke Innovation District Design and Development Task Force, 2010 – 2012

Holyoke Clean Energy Innovation Workshop, Co-chair, 2011

Commonwealth Information Technology Initiative (CITI), Co-founder and Co-chair, 2000 – 2003

Commonwealth Information Technology Initiative (CITI), Advisory Committee, 2002 – 2006

Massachusetts Board of Higher Education, Information Technology Committee, 2000 – 2003

UNIVERSITY SERVICE

University: Energy Transition Institute Steering Committee, 2020 – present.

Member, Faculty Senate Research Computing Committee, 2020 - present

Member, Massachusetts Cybersecurity Strategy Council – present

Chair, CICS Chair search committee, 2022

Faculty Trustee, University of Massachusetts Board of Trustees, 2013 – 2014

Faculty Senate, Rules Committee (ex officio), University of Massachusetts Amherst, 2013 – 2014

University Strategic Planning Committee, 2001 – 2002, 2013 – 2014 (Research Co-Chair, JTF50)

University Strategic Planning Committee (Curricular Innovations, member), 2012/13

Search Committee, Director, Center for Teaching and Faculty Development, 2014

Search Committee, IT Manager, Center for Teaching and Faculty Development, 2013

Principal Investigator, RR-03-011, Extramural Research Facilities Construction, “ National Institutes of Health, J. Kurose (PI), \$7.1M (LGRT Renovation), 9/09 – 6/14

Engineering Dean Search Committee (Chair), 2010/11

Provost Search Committee, (Co-Chair), 2009
 Assoc. Director Search Committee, Center for Teaching, 2008
 Chair Search Committee, Astronomy, 2007
 Chair Search Committee, Physics, 2001/02
 NSM Dean Search Committee, 2000/01, 2005/06
 UMass System-wide Academic VP Search Committee, 2004, 2005
 UMass System-wide UMass Online CEO Search Committee, 2000/01
 UMass SOM Isenberg chair search committee, 1999/2000
 PEEAS Advisory Board (UMass School of Engineering, 2000/01, 2003/04, 2004/05, 2005/06
 NSM Awards Committee 2002/03, 2004/05, 2007/08
 CS Department Awards Committee, 2003/04, 2003/04, 2004/05, 2005/06, 2006/07, 2007/08
 CS Department Chair Search Committee, 2004 (chair), 2007 (chair)
 CS Department Personnel Committee, 2002/03 (Chair), 2007/08 (Chair), 2008/09
 CS Department Strategic Planning Committee 2003/04, 2004/05, 2007/08 (Chair), 2008/09 (Chair), 2009
 – 2014 (chair, co-chair)
 Department Executive Committee, 2005/06, 2006/07, 2010/11, 2013/14
 Department Publicity Committee 2005/06, 2006/07

PUBLICATIONS: BOOKS

J. Kurose, K. Ross, *Computer Networking: a top-down approach*, Pearson/Addison-Wesley, 8th edition, March 2020; 7th edition, March 2016; 6th edition, March 2012; 5th edition, May 2009; 4th edition, May 2007; 3rd edition, June 2004; 2nd edition, July 2002; 1st edition, July 2000; preliminary edition, December 1999. (More US adoptions than all other networking textbooks combined.)

PUBLICATIONS: REFEREED JOURNAL PUBLICATIONS

- M. Dehghan, B. Jiang, A. Seetharam, T. He, T. Salonidis, J. Kurose, D. Towsley, R. Sitaraman, "On the Complexity of Optimal Request Routing and Content Caching in Heterogeneous Cache Networks," *IEEE/ACM Transactions on Networking*, Vol. 25, No. 3, pp. 1635-1648 (May, 2017).
- H. Nakajima, T. Tsutsui, H. Urabayashi, M. Yamamoto, E. Rosensweig, J. Kurose, "Performance Evaluation of Partial Deployment of an In-Network Cache Location Guide Scheme, Breadcrumbs," *IEICE Transactions* 99-B(1): 157-166 (2016).
- A. Seetharam, J. Kurose, D. Goeckel, "A Markovian Model for Coarse-Timescale Channel Variation in Wireless Networks," *IEEE Trans. Vehicular Technology*, Vol. 65, No. 3. Pp. 1701-1710.
- P. Dutta, A. Seetharam, V. Arya, J. Kurose, M. Chetlur, S. Kalyanaraman, "On Managing Quality of Experience of Multiple Video Streams in Wireless Networks," *IEEE Trans. Mob. Comput.* 14(3): 619-631 (2015).
- A. Venkataramani, J. Kurose, D. Raychaudhuri, K. Nagaraja, M. Mao, S. Banerjee, "MobilityFirst: A Mobility-Centric and Trustworthy Internet Architecture," *ACM Computer Communication Review*, July 2014. DOI: <http://dx.doi.org/10.1145/2656877.2656888>
- J. Kurose, "Information-Centric Networking: the evolution from circuits to packets to content," *Computer Networks*, 66: 112–120 (June 2014).

- X. Zhang, G. Neglia, J. Kurose, D. Towsley, H. Wang, "Benefits of Network Coding for Unicast Application in Disruption-Tolerant Networks," *IEEE/ACM Trans. Networking*, vol.21, no.5, pp. 1407-1420, Oct. 2013.
- A. Misra, D. Irwin, P. Shenoy, J. Kurose, T. Zhu, "GreenCharge: Managing Renewable Energy in Smart Buildings," *IEEE Journal on Selected Areas in Communications*, 31(7): 1281 – 1293 (2013).
- X. Zhang, G. Neglia, J. Kurose, D. Towsley, H. Wang, "Benefits of Network Coding for Unicast Application in Disruption Tolerant Networks," *IEEE/ACM Trans. Netw.* 21(5): 1407 – 1420 (2013).
- J. Kurose, "Content-centric networking: technical perspective," *Commun. ACM* 55(1): 116 (2012).
- W. Wei, S. Jaiswal, J. Kurose, D. Towsley, K. Suh, B. Wang, "Identifying 802.11 Traffic from Passive Measurements Using Iterative Bayesian Inference," *IEEE/ACM Transactions on Networking*, 20(2): 325 – 338 (2012).
- M. Uchida, J. Kurose, "An Information-Theoretic Characterization of Weighted α -Proportional Fairness in Network Resource Allocation," *Info. Sci.* 181(18): 4009 – 4023 (2011).
- W. Wei, B. Wang, D. Towsley, J. Kurose: Model-based identification of dominant congested links. *IEEE/ACM Trans. Netw.* 19(2): 456 – 469 (2011).
- M. Zink, J. Kurose, E. Lyons, D. Pepyne, D. Westbrook, "Closed-loop Architecture for Distributed Collaborative Adaptive Sensing of the Atmosphere: Meteorological Command & Control," *International Journal for Sensor Networks*, Vol.7 No.1/2, 2010.
- D. McLaughlin, D. Pepyne, V. Chandrasekar, B. Philips, J. Kurose, M. Zink et al., "Short-Wavelength Technology and the Potential for Distributed Networks of Small Radar Systems," *Bulletin of the American Meteorological Society*, December 2009.
- W. Wei, K. Suh, B. Wang, Y. Gu, J. Kurose, D. Towsley, S. Jaiswal, "Passive Online Detection of 802.11 Traffic Using Sequential Hypothesis Testing with TCP ACK-Pairs," *IEEE Transactions on Mobile Computing*, Vol. 8, Issue 3, pp. 398–412, March 2009.
- M. Zink, K. Suh, Y. Gu, J. Kurose, "Characteristics of YouTube Network Traffic at a Campus Network - Measurements, Models, and Implications," *Elsevier Computer Networks*, Vol. 53, No. 4, March 2009.
- W. Wei, B. Wang, C. Zhang, J. Kurose, D. Towsley, "Classification of Access Network Types: Ethernet, Wireless LAN, ADSL, Cable Modem or Dialup?" *Elsevier Journal of Computer Networks*, Vol. 52, No. 17, December 2008.
- D. Yates, E. Nahum, J. Kurose, and P. Shenoy, "Data Quality and Query Cost in Pervasive Sensing Systems", *Pervasive and Mobile Computing*, Volume 4, Number 6, December 2008.
- B. Wang, J. Kurose, P. Shenoy, D. Towsley, "Multimedia Streaming via TCP: An Analytic Performance Study," *ACM Transactions on Multimedia Computing Communications and Applications (TOMCCAP)*, Vol. 4, No. 2, April 2008.
- K. Suh, C. Diot, J. Kurose, L. Massoulie, C. Neumann, D. Towsley, M. Varvello, "Push-to-Peer Video-on-Demand system: design and evaluation", *IEEE Journal on Selected Areas in Communications (JSAC)*, Vol. 25, No. 9, (Dec. 2007), pp. 1706 –1716.
- B. Wang, W. Wei, J. Kurose, D. Towsley, K. Pattipati, Z. Guo, Z. Peng, "Application-layer Multipath Data Transfer via TCP: Schemes and Performance Tradeoffs," *Performance Evaluation*, Vol. 64, Issues 9 –12, pp. 965 – 977, October, 2007.

- X. Zhang, G. Neglia, J. Kurose, D. Towsley, "Performance Modeling of Epidemic Routing," *Computer Networks*, Vol. 51, No. 10 (2007), pp. 2859-2891.
- Y. Guo, K. Suh, J. Kurose, D. Towsley, "P2Cast: Peer-to-peer Patching Scheme for VoD Service," *Kluwer Multimedia Tools and Applications*, Vol. 33, No. 2, May 2007.
- S. Jaiswal, G. Iannaccone, C. Diot, J. Kurose, D. Towsley, "Measurement and Classification of Out-of-Sequence Packets in a Tier-1 IP Backbone," *IEEE/ACM Transactions on Networking*, Vol. 15, No. 1, (Feb. 2007), pp. 54 – 66.
- P. Ji, Z. Ge, J. Kurose, D. Towsley, "A Comparison of Hard-state and Soft-state Signaling Protocols," *IEEE/ACM Transactions on Networking*. Vol. 15, No. 2 (April 2007), pp. 281 – 294.
- B. Plale, D. Gannon, J. Brotzge, K. Droegemeier, J. Kurose, D. McLaughlin, R. Wilhelmson, S. Graves, M. Ramamurthy, R. Clark, S. Yalda, D. A. Reed, E. Joseph, V. Chandrasekar, "CASA and LEAD: Adaptive Cyberinfrastructure for Real-Time Multiscale Weather Forecasting," *IEEE Computer*, Vol. 39, No. 11 (Nov. 2006), pp. 56-64.
- D. Figueiredo, B. Liu, Y. Guo, J. Kurose, D. Towsley, "On the Efficiency of Fluid Simulation of Networks," *Computer Networks*, Vol. 50, No. 12 (Aug. 2006), pp. 1974-1994.
- K. Suh, Y. Guo, J. Kurose, D. Towsley, "Locating Network Monitors: Complexity, Heuristics, and Coverage," *Journal of Computer Communications, Elsevier*, Vol. 29, No. 10, pp. 1564-1577, June 2006.
- S. Bhattacharyya, J. Kurose, D. Towsley, R. Nagarajan, "Efficient Rate-Controlled Bulk Data Transfer using Multiple Multicast Groups," *IEEE/ACM Transactions on Networking*, Vol. 11, No. 6 (Dec., 2004).
- D. Rubenstein, S. Kaser, D. Towsley, J. Kurose, "Improving Reliable Multicast Using Active Parity Encoding Services (APES)," *Computer Communications*, Volume 44, Issue 1, January 2004.
- P. Ji, B. Liu, D. Towsley, Z. Ge, J. Kurose, "Modeling Frame-level Errors in GSM Wireless Channels," *Performance Evaluation*, Vol. 55, No. 1, (Jan. 2004).
- M. Bradshaw, B. Wang, S. Sen, L. Gao, J. Kurose, P. Shenoy and D. Towsley, "Periodic Broadcast and Patching Services," *ACM Multimedia Systems Journal*, Vol. 9, no 1, July 2003.
- J. Kurose, J. Lieberherr, S. Ostermann, T. Ott-Boisseau, "Report from the ACM SIGCOMM Workshop on Computer Networking: Curriculum Designs and Educational Challenges," *Computer Communication Review*, Volume 32, Number 5, October/November 2002.
- L. Gao, J. Kurose, D. Towsley, "Efficient Schemes for Broadcasting Popular Video," *ACM Multimedia Systems Journal*, Vol. 8, No. 4 (2002), pp. 284-294.
- J.K. Shapiro, D. Towsley, Jim Kurose, "Optimization-Based Congestion Control for Multicast Communications", *IEEE Communications Magazine*, no. 9, September 2002.
- D. Rubenstein, J. Kurose, and D. Towsley, "Detecting Shared Congestion of Flows Via End-to-end Measurement," *IEEE/ACM Transactions on Networking*, Volume 10, Number 3, June 2002.
- D. Rubenstein, J. Kurose, D. Towsley, "The Impact of Multicast Layering on Network Fairness," *IEEE/ACM Transactions on Networking*, Vol. 10, No. 2 (April 2002), pp. 169 – 182.
- D. Rubenstein, J. Kurose, D. Towsley, "A Study of Proactive Hybrid FEC/ARQ and Scalable Feedback Techniques for Reliable Real-Time Multicast," *Computer Communications Journal*, March 2001.
- R. Ramjee, T. LaPorta, J. Kurose, D. Towsley, "Migration policies for user agents in wireless networks," *IEEE Journal on Selected Areas in Communications*, Volume: 18 Issue: 11 (Nov. 2000), pp. 2465 -2477.

- R.-H. Hwang, J.F. Kurose, D. Towsley. "MDP routing for multirate loss networks," *Computer Networks*, 34 (2) (2000) pp. 241-261.
- C. Casetti, J. Kurose, D. Towsley, "An Adaptive Algorithm for Measurement-based Admission Control in Integrated Services Packet Networks," *Computer Communications*, pp.1363-1376 August 2000.
- S. Sahu, D. Towsley, J. Kurose, "A Quantitative Study of Differentiated Services for the Internet," *Journal of Communication Networks*, Vol. 2, No. 2 (June 2000), pp. 127-137.
- S. Kasera, G. Hjalmtysson, D. Towsley, J. Kurose, "Scalable Reliable Multicast Using Multiple Multicast Channels," *IEEE/ACM Transactions on Networking*, pp. 294-310, June 2000.
- J. Padhye, V. Firoiu, D. Towsley, J. Kurose, "Modeling TCP Reno: A Simple Model and its Empirical Validation," *IEEE/ACM Transactions on Networking*, Vol. 8, No. 2, pp. 133-145, (April 2000).
- S. Sahu, V. Firoiu, D. Towsley, J. Kurose, "Traffic Models and Admission Control for Variable Bit Rate Continuous Media Transmission with Deterministic Service," *Int. J. Performance Evaluation*, March 2000, pp. 115-133.
- S. Sen, J. Rexford, J. Dey, J. Kurose, D. Towsley, "Online smoothing of variable-bit-rate streaming video," *IEEE Transactions on Multimedia*, pp. 37-48, March 2000.
- S. K. Kasera, S. Bhattacharyya, M. Keaton, D. Kiwior, J. Kurose, D. Towsley, S. Zabele, "Scalable fair reliable multicast using active services," *IEEE Network Magazine*, January 2000
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PATENTS

- US patent 6278716, Multicast with proactive forward error correction, August 21, 2001.
- US Patent 6009077, Flow admission control for a router, December 28, 1999.

COMPLETED PHD STUDENTS AND POST-DOCS, NEXT JOB

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RESEARCH GRANTS

- "AI Institute: Symbiotic Foundations for AI and Network Research," NSF, Co-PI, \$10M total over 5 years (UMA: ~\$600K total). 10/21 – 5/26.
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- "Mobile Infrastructure-assisted Ad-hoc Network (MIANET): Phase 2," DARPA/BAE, J. Kurose, PI, \$237K, 6/13 – 6/14.
- "Mobile Infrastructure-assisted Ad-hoc Networks" DARPA/BAE, J. Kurose, PI, \$115,000, 9/12 – 3/13.
- "Analysis and Design of Best-Effort Content-Caching Networks," NSF, J. Kurose, PI, \$299,999, 9/11 – 8/15. Kurose removed as PI 12/2014 before taking CISE AD position at NSF.
- "Designing a Smarter and Greener Electric Grid: A Sensor-data Driven Approach," NSF, J. Kurose (PI), P. Shenoy, \$424,000, 9/1/2011 – 8/14.
- "PC3: US-India Program for Pervasive Communications and Computing Collaboration," NSF, J. Kurose, PI, \$99,800, 2/11-9/14.
- "FIA: Collaborative Research: MobilityFirst: A Robust and Trustworthy Mobility-Centric Architecture for the Future Internet", NSF, A. Venkataramani (PI), J. Kurose (Co-I), D. Towsley (co-I), \$7.5M (UMass portion \$1.8M), 9/10 – 8/14.
- "RR-03-011, Extramural Research Facilities Construction," National Institutes of Health, J. Kurose (PI), \$7.1M, 9/09 – 6/14.
- "Sensor Virtualization and Slivering in an Outdoor Wide-Area Wireless GENI Sensor/Actuator Network Testbed," J. Kurose (PI), D. Ganesan, P. Shenoy, M. Zink, BBN Technologies, \$490K, 9/2008 – 9/2011.
- "Green Computing," P. Shenoy (PI), R. Adrion, J. Kurose, UMass President's Office, S&T Initiative, \$200K, 9/09 – 9/11.
- "PIANO/IAMANET," T. Wolf (PI), J. Kurose, D. Towsley (Co-I), DARPA/BAE, \$471K, 12/07-5/09.
- "Underwater Sensor Networks," B. Levine (PI), J. Kurose (Co-I), NSF CRI , \$70K, 5/07 – 5/09.
- "Center for Underwater Sensor Networks," B. Levine (PI), P. Shenoy, J. Kurose (Co-I), UMass President's Office, S&T Initiative, \$200K, 9/07-8/08.
- Gift for Research, NEC Corporation, \$35K, 9/08.
- "Disruption Tolerant Underwater Acoustic Networks," B. Levine (PI), J. Kurose (co-I), ONR, \$32K, 1/07-9/07.
- "International Technology Alliance," IBM Army/UK MOD , D. Towsley (PI), J. Kurose (Co-I), \$3.7M, 9/06 – 8/16. (UMass portion : \$247K/yr)
- "CONCERTO/CBMANET" BAE/ DARPA, 6/06 - 3/07 \$170K (initial increment)
- Integrated Computing Education and Research, (ICER), National Science Foundation, J. Kurose (PI) \$74K 8/05 – 10/07.

- “Postcards from the Edge,” National Science Foundation, J. Kurose (PI), joint with D. Raychaudhuri, S Paul, R. Yates (Rutgers), \$249K (UMass share), 8/06 - 9/10
- “Center for Collaborative Adaptive Sensing of the Atmosphere (CASA),” NSF Engineering Research Center Program, with D. McLaughlin PI (UMass), S. Cruz-Pol (U. Puerto Rico), K. Droegemeier (U. Oklahoma), J. Kurose (UMass), V. Chandrasekar (Colorado State), renewal for three additional year, \$4M/year, 9/08 – 9/11.
- “NeTS-NBD: Network X-ities - Foundations and Applications,” J. Kurose, PI, D. Towsley co-I, NSF, \$675,000 Total Award Period Covered: 9/1/05-8/31/10.
- “CNS-MRI: Acquisition of a Laboratory Testbed for Networked Embedded Systems and Sensor Research,” P. Shenoy PI, Co-I: D. Ganesan, J. Kurose, NSF, \$370,979, 9/1/05-8/31/08
- IBM Faculty Development Award , IBM, \$30,000, 8/05 – 7/06.
- “ITR: Hyperion – next generation measurement infrastructure and application use,” NSF, \$2.7M, 9/15/03-8/31/08, PI, with 5 others.
- Plan for the Blackstone River EFF and the next Generation Cyberinfrastructure, Co-PI, D. Reckhow (PI), NSF, \$86000, 8/04 – 7/05.
- “Gift for Research,” Sprint Corp., PI, \$25K, 6/04 (student support).
- “Gift for Research,” Nortel, PI, \$15K, 6/04 (student support) .
- “Measurement-in-the-Middle,” PI, with D. Towsley, National Science Foundation, \$380K, 5/03 – 5/06.
- “Student Travel Grant: IMC 2004,” PI, NSF, \$15K.
- “Center for Collaborative Adaptive Sensing of the Atmosphere (CASA),” NSF Engineering Research Center Program, with D. McLaughlin (UMass), J. Colom (U. Puerto Rico), K. Droegemeier (U. Oklahoma), S. Rutledge (Colorado State), Co-PI, approx \$17M, 9/03 – 9/08.
- “Gift for Research,” Sprint Corp., PI, \$70K, 6/02 – 6/03.
- “Travel grants for the ACM Sigcomm Workshop on Computer Networking: Curriculum Designs and Educational Challenges,: \$20K, NSF, PI, 6/02 – 12/02 (travel grants to be awards to participants).
- “NSF workshop in Networking Research Testbeds,” NSF, \$54.5K. I was asked to organize a by-invitation NSF workshop on research testbeds (I am serving as the general chair, and lead a small program committee). The \$54.5K is to cover all attendee costs.
- “Infrastructure to Support Research on Mixed Wired/Wireless Information Systems,” with D. Towsley, M. Adler, A. Ganz, D. Goeckel, P. Shenoy, NSF, \$1.394M (including UMass cost share), 9/00-8/05.
- “Commonwealth Information Technology Initiative,” with C. Marrett, J. Goldstein and 4 others, \$6.531M (\$1.690M in year 1), Massachusetts Board of Higher Education, 7/00- 6/03.
- “Scalable Quality of Service Control for the Next Generation Internet: Fundamental Challenges and Effective Solutions,” with Z. Zhang, L. Gao, R. Guerin, D. Towsley, NSF ITR, \$1,882,115, 9/00 – 8/05.
- “Proxy Services in Wide Area Networks,” with D. Towsley, P. Shenoy, L. Gao, J. Rexford, NSF, \$1,010,263, 9/99 – 8/02.
- “A Fluid Methodology for Complex, Large Scale Networks,” with W. Gong, D. Towsley, NSF, \$631K, 9/98-8/01.
- “Creating a Flexible Undergraduate Program in Computer Science: Curriculum, Educational Technology, and Pedagogy,” with R. Adrion, NSF, 732K, 10/00-8/02, (with UMass cost share).
- “Curriculum Development and Infrastructure for an Advanced Systems Laboratory,” PI with 7 others, NSF, \$704K (with UMass cost share), 9/00-9/03.
- “NSF-CNPq: Application Level Adaptation and Control for Retrieval and Delivery of Continuous Media Over the Internet,” with D. Towsley, R. Muntz, L. Golubchik, NSF, \$59K, 10/00 – 9/03.
- “Specialized Active Network Technologies for Distributed Simulation,” PI with D. Towsley, DARPA, \$704K, 8/99 – 7/02.

- “Fluid Methods for Modeling Large, Heterogeneous Networks,” with W. Gong, D. Towsley, DARPA, \$970K, 4/00 – 4/03.
- “Gift for Research,” Intel Corp., PI with P. Shenoy, D. Towsley, \$120K, 6/99 – 6/01.
- “Gift for Research,” Sprint Corp., PI with D. Towsley, \$120K, 6/99 – 6/01.
- “A High Performance Connection for Research and Education,” with J. Dubach, W.R. Adrion, D. Blazis, NSF, \$700K (including UMass match), 3/98-2/99.
- “Smoothing and Congestion Control Algorithms for Stored Continuous Media,” PI, with D. Towsley, NSF, \$251,987, 9/98-8/01.
- “A Fluid Simulation Methodology for Complex, Large Scale Networks,” with W. Gong, D. Towsley, NSF, \$ 631,606, 9/98-8/01.
- “Active and High Confidence Networks,” PI with D, Towsley, DARPA (subcontract with TASC), \$ 463,129, 8/1/97-7/31/00
- “NSF Supplement for Educational Activity,” with R. Adrion, \$20K, 6/97 - 6/98.
- “Graduate Student Support for Research in Multicasting” AT&T, \$24K, 1/97-12/97
- “Real-Time Internet Applications - Traffic Characterization,” GTE, with D. Towsley, \$24,200, 9/96 - 8/97.
- “Multicast Implementation Study,” PI, with D Towsley and researchers, at TASC, DARPA, \$1.6M 9/95 - 8/98.
- “Infrastructure to Support Research on Networked Multimedia Information Systems,” PI (with 6 co-PIs), NSF, \$2.3M (including UMass match), 8-95 - 7/00.
- “Multimedia Communication in Wide-Area Networks,” with D. Towsley, NSF, \$450K, 9/95 - 8/98.
- “Simulations of Integrated Communications Systems,” with D. Towsley and researchers from AT&T, Bellcore, College of William and Mary, Rutgers. NSF Grand Challenges, \$153K (UMass portion only), 3 years.
- “Prototyping the ECS Fault Management Application Service,” with P. Cohen, \$198K, 10/95 - 9/96.
- “Graduate Student Support for Research in Wireless Networks,” AT&T, \$24K, 2/95 - 12/95.
- “Internet-based multimedia distance learning software,” PI, with D. Towsley and H. Liu (UMass/Dartmouth), \$3.5K, 1 year.
- “Design and Analysis Techniques for Future High-Speed Networks,” with D. Towsley, National Science Foundation, \$245K, 3/92 - 2/95.
- “The Effective Use of Multiprocessors for High Performance Network Protocols,” with D. Towsley, DARPA, \$747K, 7/92 - 7/95.
- “University Partnership in Research,” Motorola Codex, \$73K, 5/92 - 8/95.
- “Using Shared Memory Multiprocessors in High-Performance Networks Protocol Processing,” PI (with D. Towsley), National Science Foundation, \$340K, 7/92 - 12/95.
- “Fault-Tolerance and Performance in Real-Time Systems,” with D. Towsley and C.M. Krishna, National Science Foundation, \$235K, 8/92 - 1/95.
- “Problems in Survivable Multi-media Networks Office of Naval Research,” PI (with D. Towsley and C. Cassandras), \$164K, 1/90 - 9/91.
- “Design and Evaluation of Scheduling Policies for Real-Time and Non-Real-Time Traffic in Communication Networks,” PI (with D. Towsley and C. Cassandras), ARPA, \$445K, 8/88 - 12/92.
- “Grant for International Cooperative Research" Japanese Government,” \$30K, 6/88 - 6/92.
- “Design and Analysis of Scheduling Policies for Real-Time Computing Systems,” with C.M. Krishna and D. Towsley, Office of Naval Research \$563K, 9/87 - 9/92.
- “Telecommunications System Analysis,” US Dept. of Transportation, PI, with 5 others, \$13K, 3/87 - 12/88.
- “Resource Contention Management in Parallel Systems,” with C. Cassandras and D. Towsley, \$63K, 5/87 - 12/87.

- "Load Balancing in Distributed Computer Systems," with D. Towsley and C.M. Krishna, National Science Foundation, \$159K. 9/87 - 8/89.
- "Problems in Survivable Multi-Media Networks Office of Naval Research," with D. Towsley and C. Cassandras, \$343K, 2/87 - 1/90.
- "The RESQ Modeling Environment," IBM, \$232K, 8/86 - 10/93.
- "Faculty Development Award," IBM, \$60K, 9/85 - 6/91.
- "Graphical Modeling Environments," IBM, \$60K, 11/85 - 8/86
- "Young Faculty Grant," GE Foundation, \$20K, 6/85 - 12/87.
- "Faculty Research Grant," University of Massachusetts, \$2.5K, 6/85 - 3/86.
- "Decentralized Microeconomic Approach to Optimal Resource Allocation in Computer Networks," NSF, \$70K 6/85 - 11/87.