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- 1985-Ph.D. Electrical Engineering and Computer Science
Massachusetts Institute of Technology, Boston, MA.
Supervisors: J. Saltzer (Chair), J. Meldman, M. Sirbu, G. Walker.
Thesis: Access to Inter-Organization Computer Networks.
- 1982-M.S. Electrical Engineering and Computer Science
Massachusetts Institute of Technology, Boston, MA.
Supervisors: J. Saltzer (Chair)
Thesis: Data Communications over Cable
- 1980-B.S. Electrical Engineering and Computer Science
University of California, Berkeley

PROFESSIONAL EXPERIENCE

- 2013-Current Professor, Computer Science, Cornell Tech; and
Professor, Healthcare Policy and Research, Weill Cornell Medical College
Founder, Healthier Life Hub, Jacobs Technion-Cornell Institute, Cornell Tech.
- 2011-Current co-Founder, Open mHealth, non-profit startup, <http://openmhealth.org>
- 2000-2012 Professor, Computer Science Department, UCLA
- 2006-2012 Professor, Electrical Engineering, UCLA, Joint Appointment
- 2002-2012 Director, Center for Embedded Networked Sensing, an NSF Science and Technology
Center, Headquartered at UCLA
- 1998-2000 Professor, Computer Science Department, and Project Leader, USC Information Sciences
Institute
- 1992-1998 Associate Professor, Computer Science Department, USC
- 1986-1992 Assistant Professor, Computer Science Department, USC

TEACHING EXPERIENCE**Recent Courses Taught and Developed (*)**

- CS5555 Health Tech Data and Systems, Spring 2015, With Daniel Stein (WCMC), MEng CS
- CS5555 Mobile Health, Spring 2014, Cornell Tech, MEng CS
- CS5454 Mobile and Ubiquitous Systems, Fall 2013 and 2014, Cornell Tech, MEng CS
- CS5190 Computer Networking, Spring 2013, Cornell Tech, MEng CS
- CS219 Participatory Sensing
- CS213 Distributed Embedded Systems
- CS199 Directed Undergraduate Research
- CS194 Honors Undergraduate Research Program
- CS118 Computer Networks (taught annually), BS and MS students
- CS113 Intro to Distributed Embedded Systems

Doctoral Student Advising***Current PhD Students:***

Faisal Alquaddoomi (UCLA), Andy Hsieh (UCLA), Jinha Kang (UCLA), Brent Longstaff (UCLA), Fabian Okeke (Cornell), Longqi Yang (Cornell)

Completed PhD Students (UCLA and USC, alphabetical order):

Lee Breslau (ATT Labs), Nirupama Bulusu (Oregon State), Alberto Cerpa (UC Merced), Ron Cocchi (DirectTV), Jeremy Elson (Microsoft Research), Hossein Falaki (Apple), Deepak Ganesan (U Mass Amherst), Lewis Girod (MIT), Benjamin Greenstein (Google), Ahmed Helmy (Univ Florida), Shai Herzog (Microsoft), Bau-Yi Polly Huang (Univ of Taiwan), Josh Hyman (Google), Chalermek Intanagonwiwat (Univ Thailand), Donnie Kim (Intel), Teresa Ko (Google), Kanna Satish Kumar (Packet Design), Charley Ching-Gung Liu, Martin Lukac (NexLeaf), Danny Mitzel (Nokia), Minyoung (Min) Mun (Samsung), Andrew Parker (Google), Graham Phillips, Pavlin Radoslavov (ICIR), Nithya Ramanathan (NexLeaf), Anoop Reddy (HP Labs), Sasank Reddy (Kullect), Reza Rejaie (Oregon State), Vids Samanta (Nokia), Thomas Schoellhammer (Google), Puneet Sharma (HP Labs), Thanos Stathopoulos (Google), Gene Tsudik (UC Irvine), Kannan Varadhan (Procket), Hanbiao Wang (St Jude Medical), Liming Wei, Ya Xu (Cisco), Haobo Yu (Packet Design), Yan Yu (MS), Daniel Zappala (Univ Oregon), Jerry Zhao (Google)

HONORS

Doctor Honoris Causa, Uppsala University, Sweden 2011
ACM Sigmobility Outstanding Contribution Award - 2009
National Academy of Engineering, Elected Member - 2009
Doctor Honoris Causa, Ecole Polytechnique Federale de Lausanne, Switzerland 2008
Distinguished Alumnus Award in Computer Sciences & Engineering, UC Berkeley 2008
Women in Technology International Hall of Fame Award - 2008
MacKay Fellow, UC Berkeley – 2007-2008
Campbell Lecturer, Southampton University – May 2007
American Academy of Arts & Sciences, Elected Fellow 2007
Anita Borg Institute's Women of Vision award for Innovation 2007
First Association for Computing Machinery's Committee on Women in Computing (ACM-W) Athena Lecturer – 2006-2007
Jon Postel Endowed Chair – 2005
Institute of Electrical and Electronics Engineers (IEEE) Fellow Award – 2004
American Association for the Advancement of Science (AAAS) Fellow Award – 2001
Association for Computing Machinery (ACM) Fellow Award – 2000
Okawa Foundation Award – 1997
National Science Foundation – Presidential Young Investigator Award – 1987 to 1992
Vinton Hayes Communication Fellowship, MIT – 1981

PROFESSIONAL ACTIVITIES: EDITORIAL and ADVISORY COMMITTEES

Refereed Conference Program Committees

- Guest co-Editor, IEEE Internet Computing Special Issue - Internet of You: Data Big and Small, To appear 2015
- Technical Program Committee Member, 2nd Physical Analytics workshop (WPA-15), held in conjunction with Mobisys 2015, Florence Italy
- Scientific program committee member, Digital Disease Detection Conference, held in conjunction with WWW 2015, Florence Italy
- Judge, Qualcomm Tricorder XPRIZE, 2014
- Program Co-Chair, Workshop on Physical Analytics, ACM Mobisys, New Hampshire, June 16, 2014
- Organizing committee, HealthDataPalooza, June 2014
- Co-Organizer, Social-Mobile-Cloud meets Medicine, December 17, 2013, Technion University, Haifa Israel.

- Member, World Economic Forum, Network of Global Agenda Councils, Robotics and Smart Devices Council, 2012-2013.
- Technical Program Committee Member, ACM Mobisys, 2013
- Co-PI, Intel Science and Technology Center on Pervasive Computing, <http://istc-pc.washington.edu>, 2010-2012.
- Steering Committee, Health Data Initiative (HDI), 2012
- Technical Program Committee Member, SocialUrb, Workshop on Social Connections in the Urban Space 2011
- Technical Program Committee Member, PhoneSense, the 2nd International Workshop on Sensing Applications on Mobile Phones 2011 and 2012
- Technical Program Committee Member, MobiHeld, the 3rd ACM SOSP Workshop on Networking, Systems, and Applications on Mobile Handhelds 2011
- Program Committee Member, 1st Annual Symposium on Computing for Development 2010
- Program Committee Member, MobiHeld, the Second ACM SIGCOMM Workshop on Networking, Systems, and Applications on Mobile Handhelds 2010
- Program Committee Member, MobiSys, International Conference on Mobile Systems, Applications, and Services 2010
- Program Committee Member, Ubicomp, 12th International Conference on Ubiquitous Computing 2010
- Technical Program Committee Member, ACM HotMobile, Eleventh Workshop on Mobile Computing Systems and Applications 2010
- Program Committee Member, Engaging Data: First International Forum on the Application and Management of Personal Electronic Information 2009
- Program Committee Member, MobiSys, International Conference on Mobile Systems, Applications, and Services 2009
- Technical Program Committee Member, Information Processing in Sensor Networks (IPSN) 2009
- Program Committee Member, MobiSys 2008, 6th International ACM Sigmobile Conference on Mobile Systems, Applications, and Services 2008
- Technical Program Committee Member, 18th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2007
- Technical Program Committee Member, ACM Special Interest Group on Data Communications (ACM Sigcomm - Data Communication Festival) 2007
- Technical Program Committee Member, Fourth Workshop on Embedded Networked Sensors (EmNets), 2007
- Technical Program Committee Member, International Conference on Distributed Computing in Sensor Systems (DCOSS) 2007
- Steering Committee, Sixth International Conference on Information Processing in Sensor Networks (IPSN) 2007
- Program Committee Member, International Workshop on Ambient Intelligence, Media, and Sensing (AIMS) 2007
- Technical Program Committee Member, ACM Mobicom, Workshop on Challenged Networks (Sigcomm CHANTS) 2007
- Program Committee Member, ACM International Workshop on Algorithmic Aspects of Wireless Sensor Networks (ALGOSENSORS) 2006
- Technical Program Committee Member, ACM Special Interest Group on Data Communications Workshop on Challenged Networks (Sigcomm CHANTS) 2006
- Program Committee Member, Fourth Workshop on Hot Topics in Networks, (HotNets IV) 2005

- Program Committee Member, International Conference on Distributed Computing in Sensor Systems (DCOSS), 2005
- Program Committee, ACM International Conference on Embedded Networked Sensor Systems (Sensys) 2004
- Program Committee, ACM International Workshop on Algorithmic Aspects of Wireless Sensor Networks (ALGOSENSORS) 2004
- Program Committee, ACM International Conference on Mobile Systems, Applications, and Services (MobiSys) 2004
- ACM International Conference on Embedded Networked Sensor Systems (SenSys) 2003 General co-chair and Steering Committee Chair
- Committee Member, Real Time Systems Symposium (RTSS) 2003
- Workshop Program Committee Member, ACM International Workshop on Wireless Sensor Networks and Applications (WSNA) 2003
- Member of program committee, First International Sensor Network Protocols and Applications (SNPA) Workshop, (2002-2003)
- Program Committee Member, ACM OSDI, December 2002
- Program Committee Member, ACM Hotnets, October 2002
- Program Committee Member, ACM International Workshop on Wireless Sensor Networks and Applications (WSNA), September 2002
- Program Committee Member, ACM International Conference on Mobile Computing and Networking (Mobicom), September 2002
- Technical Program Committee Member, IEEE Mobile Ad Hoc Networking Committee (MobiHoc), Boston, MA, August 11, 2000
- ACM Sigcomm, Program Committee Member, 1991-2000
- Technical Program Co-Chair, Association for Computing Machinery (ACM) Special Interest Group on Data Communication (Sigcomm), 1996
- IEEE International Conference on Computer Communications (INFOCOM), Program Committee Member, 1990, 1991, 1993-98
- Program Committee Member, IEEE Global Telecommunications Conference (Globecom), 1994
- Program Committee Member, ACM Conference on Computer and Communications Security, 1993
- Program Committee Member, International Federation for Information Processing (IFIP) International Conference on Integrated Network Management, 1989 – 1993
- Program Committee and Tutorial Organizer, INET 92, Kobe, Japan, 1992
- Program Committee Member, Association for Computing Machinery (ACM) Special Interest Group on Data Communication (Sigcomm), 1991 – 1999
- Program Committee Member, International Federation for Information Processing/Institute of Electrical and Electronics Engineers (IFIP/IEEE) Distributed Systems: Operations and Management Workshop, 1991
- Program Committee Member, IEEE International Conference on Computer Communications (INFOCOM), 1990 – 1991
- Program Committee Member, Institute of Electrical and Electronics Engineers (IEEE) Symposium on Security and Privacy, 1986 – 1989
- Program Committee Member, Telecommunications Policy Research Conference, 1987

Journal Editorial Boards

- Associate Editor, ACM Transactions on Sensor Networks, 2004-2010
- Associate Editor for the IEEE Magazine on Pervasive Computing, 2001-2004
- Editorial Board, Communications of the Association of Computing Machinery (CACM), 2007-2009

- Editor, Eurasip Journal, Special Issue on Sensor Networks, 2002
- Co-Editor, Communications of the Association of Computing Machinery (CACM) Special Issue, "Embedding the Internet," May 2000
- IEEE/ACM Transactions on Networking, member of the Editorial Board, 1993-1998
- Guest Co-Editor, IEEE Journal on Selected Areas in Communications, Special Issue on Internetworking, 1993-1994
- Founding Editor, Journal of Internetworking Research and Experience, (Wiley), 1989 – 1993

Research and Advisory Committees

- National Research Council, Computer Science and Telecommunications Board, Study Chair, Computing Research for Sustainability, 2011-12.
- Institute of Medicine's Planning Committee for the Health Data Initiative Forum, 2012, Member
- Go Viral to Improve Health: NAE-IOM Health Data Collegiate Challenge, 2012, Judge
- Center for Technology and Behavioral Health, Expert Team Working Group on Emerging Technologies, 2011 - 2016, Scientific Advisory Board Member and Chair
- AcademyHealth, Relevant Evidence to Advance Care and Health (REACH) Challenge– Enabling Access to Relevant, Timely, and Useful Information to Improve Health and Health Care, 2011, Judge
- UCLA Mobile Steering Committee, 2011-2012, Member
- National Academy and the United States Institute of Peace Roundtable on Technology, Science and Peacebuilding, 2011 – 2012, Member
- UCLA's Information Technology Planning Board (ITPB), 2010 – Present, Member
- The President's Council of Advisors on Science and Technology (PCAST) and the President's Innovation and Technology Advisory Committee (PITAC) to review the Networking and Information Technology Research and Development (NITRD) Program, 2010 – 2012, Working Group Member
- International Computer Science Institute, (ICSI) Board of Trustees, 2009 – 2012, Member
- IEEE Pervasive Computing Board, 2009 – 2011, Member
- Long Term Ecological Research (LTR) Advisory Board, 2009 – 2010, Member
- National Academy of Engineering President's Grand Challenges Advisory Committee, 2009 – 2011, Member
- Alfred P. Sloan Research Fellowships in Computer Science Program Committee, 2008 – 2011, Member
- ACM Athena Lecturer Committee, 2007-2011, Member
- Dan David Prize Review Committee for the chosen field of "Computers and Telecommunications" within the Future Time Dimension, 2010, Member
- Computer Science and Telecommunications Board's (CSTB) Committee on Engaging the Computer Science Research Community in Healthcare Informatics, 2007-2010, Member
- Cork Institute of Technology, Ireland, NEMBES: Networked Embedded Systems Research Programme Advisory Board, 2008-Present, Member
- Computer History Museum Fellows Selection Committee, 2008-2009, Member
- Professor's Chair in Computer Science Search Committee, Faculty of Science and Technology, Uppsala University, 2008, Member
- Crump Institute Faculty Advisory Committee, 2008, Member
- AAAS Electorate Nominating Committee of the Section on Information, Computing and Communication (T), 2007-2010, Elected Member
- Science and Technology Center for Coastal Margin Observation & Prediction (STC CMOP) External Advisory Board, 2007 – 2009, Member

- UCSB, National Consortium on Remote Sensing in Transportation (NCRST) UCSB Department of Transportation (DOT Project) Steering Committee, 2007- 2009, Member
- World Community Grid Advisory Board, 2007- 2009, Member
- University of Southampton, ACM Gender Diversity Committee, 2007-2008, Member
- Initial Nominating Committee for Computing Community Consortium (CCC), November 2006 - April 2007, Member
- IEEE Alexander Graham Bell Committee, 2006-2007, Member
- MIT Dept. of Civil and Environmental Engineering Visiting Committee, 2004-2008, Member
- The National Academies Computer Science and Telecommunications Board (CSTB), 2007-2010, Member
- National Ecological Observatory Network (NEON) Senior Management Team, 2003-2008
- Sensor and Sensor Networks subcommittee of the National Ecological Observatory Network (NEON) Network Design Committee, 2003-2007, Chair
- UCLA, Institute for Pure and Applied Mathematics (IPAM) Scientific Advisory Board Member, 2003-2007, Member
- Center for Environmental Analysis – Center of Research Excellence in Science and Technology (CEA-CREST) External Advisory Board 2003, Member
- California Institute for Telecommunications and Information Technology (CAL-IT2) Advisory Board, 2002-2011, Member
- NSF Environmental Research and Education (ERE) Advisory Committee, 2002-2006, Member
- NSF Computer and Information Science and Engineering (CISE) Advisory Committee, 2002-2006, Member
- National Research Council, Computer Science & Telecommunications Board, 1999 – 2000, Editor and Chair, National Research Council, “Embedded Everywhere Report”, 2001
- ISAT Study on Sensor Networks, 1997-1998, Chair
- Advanced Research Project Agency, Scalable Systems Study Group, 1996-97, Leader
- National Research Internet Committee, Interdomain Multicast Routing (IDMR) Working Group, 1995 –2000, Member
- Advanced Research Project Agency, Information Science and Technology (ISAT) Advisory Group, 1995 – 1998, Member
- National Research Council, Computer Science and Telecommunications Board, High Performance and Computing and Communications (HPCC) Committee, 1994, Member
- National Research Council, Computer Science and Telecommunications Board, Committee to Study Changing Nature of Telecommunications Industry, January 1993 - December 1993, Member
- National Research Internet Committee, Source Demand Routing Working Group, 1993 – 1996, Co-Chair
- National Research Council, Computer Science and telecommunications Board, Committee to Study Academic Careers for Experimental Computer Scientists, March 1992 - July 1993, Member
- AAAS Section T on Information Computing and Communication, 1990 –Current, Elected Representative, Member-at-Large
- National Research Internet Committee, End-to-End Research Group, 1990 – 1999, Member
- Office of Technology Assessment, Advanced Information Technology and Research Advisory Panel, 1989 – 1990, Member
- National Research Internet Committee, Internet Research Steering Group, 1989 – 1993, Member
- National Research Internet Committee, Autonomous Networks Research Group, 1987 – 1993, Chairperson
- National Science Foundation, Experimental Research in Electronic Submission (EXPRES) Advisory Committee, 1987 – 1988, Member

Commercial and Non-Profit Venture Advising and Activities

- Advisor, City Health Works, www.cityhealthworks.com, January 2015-present
- Advisor, Future Perfect Ventures GP LLC, June 2014-present
- Advisory Board Member, Nexleaf Analytics, <http://nexleaf.org/>
- Advisory Board Chair, Open mHealth, June 2012-present
- Mentor, Blueprint Health, Summer 2014
- Mentor, NYC BigApps, April-July 2014
- Member of Technical Advisory Board, Kullect, 2011-2013
- Member of Technical Advisory Board, TTI/ Vanguard Inc., 2007- October 2011
- Member of Technical Advisory Board, Sensicast Inc., 2003-2005
- Consulting Professor, Intel Corporation, 2001 – 2003
- Member of Technical Advisory Board, VitalSigns, Inc., 1998 – 2000
- Member of Technical Advisory Board, Fast Forward Networks, Inc., 1998 – 2000
- Board of Directors, Precept Software, Inc., 1995 – 1998
- Consulting Scientist, CISCO Systems, Inc., 1993 – 1998

PUBLICATIONS

Refereed Conference Publications

1. F. Alquaddoomi, C. Ketcham, and D. Estrin. The Email Analysis Framework: Aiding the analysis of personal natural language texts. In Workshop on Linking The Quantified Self (LinkQS), Santiago, Chile, September 2014.
2. Cheng-Kang Hsieh, Hongsuda Tangmunarunkit, Faisal Alquaddoomi, John Jenkins, Jinha Kang, Cameron Ketcham, Brent Longstaff, Joshua Selsky, Dallas Swendeman, Deborah Estrin, Nithya Ramanathan, Lifestreams: a modular sense-making toolset for identifying important patterns from everyday life, ACM Sensys, Nov 12-14 2013, Rome Italy.
3. Hsieh, C.K., Falaki, H., Ramanathan, N., Tangmunarunkit, H., Estrin, D., "HotMobile 2012 Poster: Performance Evaluation of Android IPC for Continuous Sensing Applications, ACM SIGMOBILE Mobile Computing and Communications Review," February 2013.
4. Casillas, J., Dose-Peña, M., Alquaddoomi, F., Millán, R., Jacobson, A., Ganz, P., Estrin, D., "SMS to Promote Risk-Based Late Effect Screenings? A Technical Pilot for Young Adult Cancer Survivors. In Proceedings of the 2012 Annual Conference of Critical Mass, the Young Adult Cancer Alliance," Atlanta, GA, November 2012.
5. Khalapyan, Z., Tangmunarunkit, H., Selsky, J., Sakabu, E., Rocchio, R., Estrin, D., "Hybrid Approaches in Designing Cost Efficient and User Friendly Mobile Interface. Mobility and Web Behavior," MobileHCI Workshop, September 2012.
6. Ramanathan, N., Swendeman, D., Comulada, S., Dawson, B., Rotheram-Borus, MJ., Estrin, D. "Identifying Preferences for Mobile Health Applications Self-Monitoring and Self-Management: Focus Group Findings from HIV-Positive Persons and Young Mothers. Medicine 2.0," Boston, MA, September 2012.
7. Tangmunarunkit, H., Ramanathan, N., Falaki, H., Jenkins, J., Ketcham, C., Longstaff, B., Monibi, M., Ooms, J., Parameswaran, K., Selsky, J., Estrin, D. "Measures and Real-Time Feedback of Diet, Activity, and Stress Using GPS and Accelerometer Enabled Smartphones. Medicine 2.0," Boston, MA, September 2012.

8. Ramanathan, N., Alquaddoomi, F., Falaki, H., George, D., Hsieh, C.K., Jenkins, J., Ketcham, C., Longstaff, B., Ooms, J., Selsky, J., Tangmunarunkit, H., Estrin, D., "ohmage: An open Mobile System for Activity and Experience Sampling." Proceedings of the 6th International Conference on Pervasive Computing Technologies for Healthcare" May 21-24, 2012.
9. Kim, D., Han, K., Estrin, D., "Employing User Feedback for Semantic Location Services," In Proceedings of the 13th International Conference on Ubiquitous Computing," (UbiComp'11), Beijing, China, September 2011.
10. Falaki, H., Mahajan, R., Estrin, D. "SystemSens: A Tool for Monitoring Usage in Smartphone Research Deployments," In Proceedings of the 6th ACM International Workshop on Mobility in the Evolving Architecture (ACM MobiArch 2011), Washington D.C., June 28, 2011.
11. Kyungsik, H., Graham, E., Vassallo, D., Estrin, D. (2011) Enhancing Motivation in a Mobile Participatory Sensing Project through Gaming. IEEE International conference on Social Computing (SocialCom 2011): workshop in Social Connection in the Urban SpacesSocialUrb-2011:1443-1448.
12. Falaki, H., Lymberopoulos, D., Mahajan, R., Kandula, S., Estrin, D., "A First Look at Traffic on Smartphones," In Proceedings of the Internet Marketing Conference (IMC), Barcelona, Spain, November 2010.
13. Mun, M., Hao, S., Mishra, N., Shilton, K., Burke, J., Estrin, D., Hansen, M., Govindan, R., "Personal Data Vaults: A Locus of Control for Personal Data Streams," In Proceedings of the 6rd International Conference on emerging Networking EXperiments and Technologies (CoNEXT) 2010, Philadelphia, PA, November 30, 2010.
14. Kim, D., Kim, Y., Estrin, D., Srivastava, M., "SensLoc: Sensing Everyday Places and Paths Using Less Energy," In Proceedings of the 8th ACM Conference on Embedded Networked Sensor Systems (SenSys 2010), Zurich, Switzerland, November 3-5, 2010.
15. Hicks, J., Ramanathan, N., Kim, D., Monibi, M., Selsky, J., Hansen, M., Estrin, D., "AndWellness: An Open Mobile System for Activity and Experience Sampling," In Proceedings of the Wireless Health 2010: Academic and Research Conference, La Jolla, CA, October 5-7, 2010.
16. Reddy, S., Estrin, D., Hansen, M., Srivastava, M., "Examining Micro-Payments for Participatory Sensing Data Collections," In Proceedings of the International Conference on Ubiquitous Computing (UbiComp), Copenhagen, Denmark, September 2010.
17. Ko, T., Soatto, S., Estrin, D., "Warping Background Subtraction," In Proceedings of the 23rd IEEE Conference on Computer Vision Pattern Recognition (CVPR), San Francisco, CA, June 2010.
18. Falaki, H., Mahajan, R., Kandula, S., Lymberopoulos, D., Govindan, R., Estrin, D., "Diversity in Smartphone Usage," In Proceedings of the 8th International Conference on Mobile Systems, Applications, and Services (MobiSys'10), San Francisco, CA, June 2010.
19. Estrin, D., "Participatory Sensing: Applications and Architecture", In Proceedings of the 8th International Conference on Mobile systems, applications and services (MobiSys'10), San Francisco, CA June 2010.
20. Reddy, S., Estrin, D., Srivastava, M., "Recruitment Framework for Participatory Sensing Data Collections," In Proceedings of the Eighth International Conference on Pervasive Computing, Pervasive, Helsinki, Finland, May 17-20, 2010.
21. Reddy, S., Shilton, K., Denisov, G., Cenizal, C., Estrin, D., and Srivastava, M., "Biketastic: Sensing and Mapping for Better Biking," In Proceedings of the 28th ACM Conference on Human Factors in Computing Systems, CHI 2010, Atlanta, Georgia, April 10-15, 2010.

22. Longstaff, B., Reddy, S., Estrin, D., "Improving Activity Classification for Health Applications on Mobile Devices using Active and Semi-Supervised Learning" in Proceedings of the 4th International Conference on Pervasive Computing Technologies for Healthcare 2010, Munich, Germany, March 2010.
23. Ramanathan, N., Schoelhammer, T., Kohler, E., Whitehouse, K., Harmon, T., Estrin, D., "Suelo: Human-assisted Sensing for Exploratory Soil Monitoring Studies," In Proceedings of the 7th ACM Conference on Embedded Networked Sensor Systems (SenSys 2009), Berkeley, CA, November 4-6, 2009.
24. Kim, D.H., Hightower, J., Govindan, R., Estrin, D., "Discovering Semantically Meaningful Places from Pervasive RF-beacons," In Proceedings of the 11th International Conference on Ubiquitous Computing (Ubicomp 2009), Orlando, FL, September 30 – October 3, 2009.
25. Shilton, K., Burke, J., Estrin, D., Govindan, R., Kang, J., "Designing the Personal Data Stream: Enabling Participatory Privacy in Mobile Personal Sensing," In Proceedings of the 37th Research Conference on Communication, Information and Internet Policy (TPRC), Arlington, VA, September 25-27, 2009.
26. Ryder, J., Longstaff, B., Reddy, S., Estrin, D., "Ambulation: A Tool for Monitoring Mobility Patterns Over Time Using Mobile Phones," IEEE International Conference on Social Computing: Workshop on Social Computing with Mobile Phones & Sensors: Modeling, Sensing and Sharing, Vancouver, Canada, August 29-31, 2009.
27. Ko, T., Soatto, S., Estrin, D., "Categorization in Natural Time-Varying Image Sequences," Computer Vision Pattern Recognition: Visual Interpretation and Understanding Workshop, San Francisco, CA June, 2009.
28. Mun, M., Reddy, S., Shilton, K., Yau, N., Burke, J., Estrin, D., Hansen, M., Howard, E., West, R., Boda, P., "PEIR, the Personal Environmental Impact Report, as a Platform for Participatory Sensing Systems Research," In Proceedings of the 7th Annual International Conference on Mobile Systems, Applications and Services, ACM Mobisys 2009, Krakow, Poland, June 22-25, 2009.
29. Reddy, S., Shilton, K., Burke, J., Estrin, D., Hansen, M., Srivastava, M., "Using Context Annotated Mobility Profiles to Recruit Data Collectors in Participatory Sensing," in Proceedings of the 4th International Symposium on Location and Context Awareness, LOCA, Tokyo Japan, May 2009.
30. Lukac, M., Davis, P., Clayton, R., Estrin, D., "Recovering Temporal Integrity with Data Driven Time Synchronization," In Proceedings of the 8th ACM/IEEE International Conference on Information Processing in Sensor Networks, IPSN 2009, San Francisco, CA, April 13-16, 2009.
31. Whitesell, K., Kutler, B., Ramanathan, N., Estrin, D., "A System for Determining Indoor Air Quality from Images of an Air Sensor Captured on Cell Phones," In Proceedings of the Workshop on Applications, Systems, and Algorithms for Image Sensing, ImageSense'08, Raleigh, North Carolina, November 4, 2008.
32. Hyman, J., Hansen, M., Graham, E., Estrin, D., "Estimating the Spectral Reflectance of Natural Imagery Using Color Image Features," In Proceedings of the Workshop on Applications, Systems, and Algorithms for Image Sensing, ImageSense'08, Raleigh, North Carolina, November 4, 2008.
33. Hicks, J., Paek, J., Coe, S., Govindan, R., Estrin, D., "An Easily Deployable Wireless Imaging System," In Proceedings of the Workshop on Applications, Systems, and Algorithms for Image Sensing, ImageSense'08, Raleigh, North Carolina, November 4, 2008.

34. Reddy, S., Shilton, K., Burke, J., Estrin, D., Hansen, M., Srivastava, M., "Evaluating Participation and Performance in Participatory Sensing," In Proceedings of International Workshop on Urban, Community, and Social Applications of Networked Sensing Systems - UrbanSense08, Raleigh, North Carolina, November 4, 2008.
35. Shilton, K., Ramanathan, N., Samanta, V., Burke, J., Estrin, D., Hansen, M., Srivastava, M., "Participatory Design of Urban Sensing Networks: Strengths and Challenges," In Proceedings of the Participatory Design Conference, Bloomington, Indiana, October 1-4, 2008
36. Reddy, S., Burke, J., Estrin, D., Hansen, M., Srivastava, M., "Determining Transportation Mode On Mobile Phones," In Proceedings of the 12th IEEE International Symposium on Wearable Computers (ISWC), Pittsburgh, Pennsylvania,), September 28 – October 1, 2008.
37. Mun, M., Estrin, D., Burke, J., Hansen, M., "Parsimonious Mobility Classification using GSM and WiFi Traces," In Proceedings of the Fifth Workshop on Embedded Networked Sensors (HotEmNets 2008) Charlottesville, VA, June 2-3, 2008.
38. Allen, M., Girod, L., Newton, R., Madden, S., Blumstein, D., Estrin, D., "VoxNet: An Interactive, Rapidly-Deployable Acoustic Monitoring Platform," In Proceedings of the Information Processing in Sensor Networks (IPSN 08) St. Louis, Missouri, April 22-24, 2008.
39. Shilton, K., Burke, J., Estrin, D., Hansen, M., Srivastava, M., "Participatory Privacy in Urban Sensing," In Proceedings of the International Workshop on Mobile Device and Urban Sensing (MODUS 2008), St. Louis, Missouri, April 21, 2008.
40. Allen, M., Graham, E., Ahmadian, S., Ko, T., Yuen, E., Girod, L., Hamilton, M., Estrin, D., "Interactive Environmental Sensing: Signal and Image Processing Challenges" In Proceedings of the ICASSP 2008: IEEE International Conference on Acoustics, Speech and Signal Processing, Las Vegas, NV, USA, March 30 – April 4, 2008.
41. Agapie, E., Chen, G., Houston, D., Howard, E., Kim, J., Mun, M., Mondschein, A., Reddy, S., Rosario, R., Ryder, J., Steiner, A., Burke, J., Estrin, D., Hansen, M., Rahimi, M., "Seeing Our Signals: Combining location traces and web-based models for personal discovery," In Proceedings of the 9th IEEE Workshop on Mobile Computing Systems and Applications (HotMobile 2008), Napa Valley, CA, February 25-26, 2008.
42. Ko, T., Charbiwala, Z., Ahmadian, S., Rahimi, M., Srivastava, M., Soatto, S., Estrin, D., "Exploring Tradeoffs in Accuracy, Energy and Latency of Scale Invariant Feature Transform in Wireless Camera Networks," First ACM/IEEE International Conference on Distributed Smart Cameras (ICDSC 2007), Vienna, Austria, September 25-28, 2007.
43. Hyman, J., Graham, E., Hansen, M., Estrin, D., "Imagers as sensors: Correlating plant CO₂ uptake with digital visible-light imagery," Fourth International Workshop on Data Management for Sensor Networks (DMSN 2007), Vienna, Austria, September 24, 2007.
44. Reddy, S., Parker, A., Hyman, J., Burke, J., Estrin, D., Hansen, M., "Image Browsing, Processing, and Clustering for Participatory Sensing: Lessons From a DietSense Prototype," In Proceedings of the Fourth Workshop on Embedded Networked Sensors (EmNets 2007), Cork, Ireland, June 25-26, 2007.
45. Allen, M., Girod, L., Estrin, D., "Acoustic Laptops as a research enabler," In Proceedings of the Fourth Workshop on Embedded Networked Sensors (EmNets 2007), Cork, Ireland, June 25-26, 2007.
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2. Estrin, Deborah, "small data, where n=me", accepted for publication in CACM, Viewpoint Column, Communications of the ACM, Vol. 57 No. 4, Pages 32-34, April 2014.
3. **(In review)** Dallas Swendeman, Scott Comulada, Carol Worthman, Deborah Estrin, Mary Jane Rotheram-Borus, Nithya Ramanathan. Validity and Reliability of Brief Smartphone Ecological Momentary Assessments and Daily Diaries for Diet, Stress, and Physical Activity Compared to Brief Recall Self-Reports, Bio-measures, Biomarkers, and Passive Actigraphy Data Monitoring. Submitted to Annals of Behavioral Medicine July 2014.
4. **(In review)** Swendeman D, Comulada WS, Ramanathan N, Lazar M, & Estrin D. Daily self-monitoring of substance use, sexual behaviors, medication adherence, and health-related quality of life among people living with HIV: Evidence and methods for reliability. AIDS and Behavior. Journal requested revise / resubmit, planned resubmission by end of March.
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Selected Invited Presentations

1. Distinguished Lecture, School of Computer Science, Georgia Tech, Inaugural Mary Jean Harrold Memorial Lecture, November 20, 2014, Atlanta Georgia
2. Invited Speaker, "Using small data to fuel, personalize, sustain and study incentives", NYC Health Tech Food Forum, November 18, 2014, Hunter College, NYC
3. TechVision Speaker Series, Thompson Reuters, October 23, 2014, NYC
4. Invited speaker, BBC Future World Changing Ideas Summit, October 21, 2014, NYC.
5. Invited speaker, Grace Hopper Celebration for Women, October 10, 2014, Phoenix Arizona

6. Invited lunch speaker, "Small data as a tool for health innovation", July 21, 2014. Robert Wood Johnson Foundation, Princeton, New Jersey.
7. Distinguished Lecture, Mobile health: as a tool for personal and clinical management of chronic disease, June 23, 2014. University Waterloo, Canada
8. Invited speaker, "Small, n=me, data", Project MAC 50th Anniversary, May 29, 2014, MIT, Cambridge, MA.
9. Invited speaker, "Small, n=me, data", Institute of Medicine special meeting on Lake Nona, May 12, 2014, Washington DC
10. Invited speaker, "Small, n=me, data", Personal Genomics Conference, April 30, 2014, Cambridge, MA.
11. Invited Speaker, "Small data", Games 4 Change, April 23, 2014, NYU
12. Keynote, NIH Workshop, Harnessing "small data" for personalized health promotion, Bethesda MD, April 3, 2014
13. Keynote, Health Research Association annual meeting, Small data, Chicago Ill, April 1, 2014
14. Distinguished Lecture, Brown University Computer Science Department, Small, n=me, data, March 13, 2014, Providence Rhode Island
15. Invited panelist, "Nano Size me", South by Southwest (SXSW), Austin TX, March 9, 2014
16. Invited Guest, Privacy and Health, Brian Lehrer Show, March 4, 2014
17. Invited speaker, Simon's Rock, Hudson New York, Jan 31, 2014
18. Panel Member, Big data and health, World International Summit on Health, Doha QATAR, December 10
19. Invited seminar, WCMC Genomics Systems Biology Seminar, New York NY, December 4, 2013
20. Keynote, NIPS, Lake Tahoe, NV, Decemer 6, 2013
21. Invited seminar, WCMC Rogers Health Policy Colloquium, New York NY, Nov 13, 2013
22. Small Data, Big Impact, AAMC Annual Meeting Invited Keynote, November 3rd 2013, Philadelphia California
23. Keynote Speaker, Wireless Health Conference, Baltimore MD, Nov 1, 2013
24. Panel Member, New York City: A Data Science Mecca, Strata Conference, New York NY, October 29, 2013
25. From Internet Architecture to Mobile Health, Stanford University, Stanford CA, October 18, 2013
26. Distinguished Lecture, Information Sciences, Univ Maryland, College Park, Sept 27, 2013
27. Panel member, Genomics and Quantified Health, New York Genome Center, New York NY, Sept 20, 2013
28. Small n=me, data, National Science Foundation CISE Directorate Distinguished Lecture, Washignt DC, Sept 19, 2013,
29. Small, n=me, data, Invited Seminar, NYU Govlab, New York, NY Aug 14, 2013
30. Keynote, Dagstuhl Workshop on A life shared, Dagstuhl, Germany, July 29, 2013
31. Sensemaking for Mobile Health, Hong Kong University, May 28, 2013

32. Distinguished Lecture. Verisign, Reston, Virginia, May 15, 2013
33. Sensemaking for Mobile Health, WISE Distinguished Lecture, University of Madison, Wisconsin, May 2, 2013
34. "Small data", TEDMED, April 17, 2013, Washington DC
35. Sensemaking for Mobile Health, Cyber Physical Systems, Invited Keynote, April 9, 2013, Philadelphia, PA
36. Transforming Health Care Through Mobile Platforms ...for Patients, AAAS Annual Meeting, Boston MA, February 2013.
37. mHealth data streams, personal health portfolios, and privacy, NYU-ONC Privacy Workshop, NYU, February 8, 2013.
38. Toward Mobile Behavioral Biomarkers, WCMC Board of Trustees, February 1, 2013.
39. Mobile Health (mHealth): from smart phone apps and sensor streams to behavioral biomarkers, Weill Cornell Medical School (WCMC) Integrative Medicine Colloquium, January 2013.
40. Mobile Health (mHealth): from smart phone apps and sensor streams to behavioral biomarkers, Cornell University, Information Sciences Department Seminar, January 2013.
41. Mobile Health (mHealth): from smart phone apps and sensor streams to behavioral biomarkers, NIH OBSSR Webinar, January 2013.
42. Using smartphone sensor streams for e-Health, T2Med Technion, December 25, 2012.
43. Participatory Sensing for Health, IDC Herzliya, Israel, December 20, 2012.
44. Open mHealth, Interoperability & Standards Panel, Mhealth summit, December 6, 2013.
45. Participatory mHealth, Env Science Technion, November 21, 2012.
46. Participatory Sensing for Health, CS HUJI, October 27, 2012.
47. Mobile Health: the Opportunity, DLD Tel Aviv, Israel, October 17, 2012.
48. Participatory Sensing for Health. Invited Colloquium, Hebrew University Jerusalem Israel, Computer Science Department, October 29, 2012.
49. E-Health and Medical Devices. Panel Presentation, DLD, Tel Aviv Israel, October 23, 2012.
50. Toward mobile behavioral biomarkers. Invited presentation, TCII Workshop on Healthy Living, Cornell Weill Medical Center, New York City, July 26-27, 2012,
51. Participatory mobile health (mHealth): Innovative approaches to data collection and analysis", Ericsson Silicon Valley Thought Leadership Speaker Series, Ericsson Research, San Jose, July 10, 2012
52. Participatory mobile health (mHealth): Innovative Approaches to Data Collection, Analysis and Use. Invited Speaker, Dartmouth College, Hanover, New Hampshire, June 20, 2012.
53. Leveraging mobile and cloud technologies for scalable personalized health. Technion Computer Engineering Conference, Haifa, Israel, June 6-7, 2012.
54. Telling Traces. Invited Seminar, Department of Geography, Hebrew University of Jerusalem, Israel, June 3, 2012.
55. Mobilizing Health. Workshop on the Future of Mobile, Google, Mountain View, CA, May 23, 2012.
56. Telling Traces. Invited Keynote Speaker, Pervasive Health 2012, San Diego, CA, May 22, 2012.

57. Open Sesame! why "open architecture" are the magic passwords to health innovation. Ignite Speaker, O'Reilly Health Foo Camp, Cambridge, MA, May 19, 2012.
58. Mobilizing Health. Invited Distinguished Lecture, AT&T Labs, May 9, 2012. (Similar presentation given at IMA, Minneapolis MN, May 8, 2012 and Computer Science Department, Ithaca NY, May 10, 2012.)
59. Ohmage: a platform for mHealth explorations. Invited Speaker, Kaiser Permanente Innovation Center, Oakland CA, March 21, 2012.
60. Participatory Sensing: Data, Knowledge, Action. Invited Speaker, 2012 AAAS Annual Meeting, Vancouver, Canada, February 18, 2012.
61. Participatory mHealth: Opportunities and Challenges. Invited Speaker, Rutgers University, New Brunswick, NJ, February 1, 2012.
62. Participatory mHealth: Opportunities and Challenges. Invited Speaker, Shire, Philadelphia, PA, January, 31, 2012.
63. Participatory mHealth: Opportunities and Challenges. Invited Speaker, RockHealth, San Francisco, CA, January, 18, 2012.
64. Participatory mHealth: Opportunities and Challenges. Invited Keynote Speaker, The 13th International Conference on Distributed Computing and Networking, (ICDCN 2012) The Hong Kong Polytechnic University, Hong Kong, China, January 4, 2012.
65. Participatory mHealth: Opportunities and Challenges. Invited Speaker, Infosys Labs, Bangalore, India, December 29, 2011.
66. Participatory mHealth: Opportunities and Challenges. Invited Keynote Speaker, International Conference on Wireless Technologies for Humanitarian Relief (ACWR2011), University Amrita, Kerala, India, December 19, 2011.
67. Pat Brown Institute's Health Policy Outreach Center, eHealth: Impact, Policy, Reality Summit. Invited Panelist, CSULA, Los Angeles, CA, December 12, 2011.
68. Participatory mHealth: Opportunities and Challenges. Invited Keynote Speaker, University of Tromso, Norway, Norwegian Informatics Conference (NIK), November 21, 2011.
69. Participatory mHealth: Opportunities and Challenges. Invited Speaker, University of Michigan, Ann Arbor, Michigan, November 1, 2011.
70. Participatory mHealth: Opportunities and Challenges. Invited Speaker, International ICST Conference on Mobile Computing, Applications, and Services (MobiCASE), Santa Monica, CA, October 25, 2011.
71. Participatory mHealth: Opportunities and Challenges. Invited Speaker, Hewlett Packard, Palo Alto, CA, October 13, 2011.
72. Participatory mHealth: Opportunities and Challenges. Invited Speaker, Statistics Seminar Series, UCLA, October 11, 2011.
73. Participatory mHealth: Opportunities and Challenges. Invited Speaker, Capital Academic Presentation Series (CAPS), The Capital Group Company, Los Angeles, CA, October 10, 2011.
74. Participatory mHealth: Opportunities and Challenges. Invited Speaker, Distinguished Lecture Series, Institute of Information Science, Academia Sinica, Taiwan, September 22, 2011.
75. Participatory mHealth: Opportunities and Challenges. Invited Speaker, National Taiwan University, Taiwan, September 21, 2011.

76. Participatory mHealth: Opportunities and Challenges. Invited Keynote Speaker. Mobile Sensing: Challenges, Opportunities and Future Directions Workshop, 13th ACM International Conference on Ubiquitous Computing (Ubicomp), Beijing, China, September 18, 2011.
77. Open Participatory mHealth: an opportunity for innovation in healthcare, wellness, research. Invited Speaker, Apple, Cupertino, CA, August 12, 2011.
78. Open mHealth Architecture: An engine for Healthcare Innovation, Invited Speaker, Service Industrialization and the Global Information Economy BIT Sixth Annual Conference, UCLA Anderson, July 30, 2011.
79. Participatory mHealth: an Opportunity for Innovation in Healthcare, Wellness, and Research. Invited Speaker, Microsoft Research Faculty Summit, Redmond, WA, July, 18, 2011.
80. Participatory mHealth and Privacy. Invited Speaker, NIH Mobile Health Summer Institute, La Jolla, CA, June 21, 2011.
81. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, American Diabetes Association's 5th Annual EXPO, Los Angeles Convention Center, May 21st, 2011.
82. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, 1st Annual Electronic Data Methods (EDM) Forum Symposium, Washington D.C., April 8, 2011.
83. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, New Community Jewish High School Science Academy, West Hill, CA, April 6, 2011.
84. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, Yahoo! Labs, Santa Clarita, CA, April 5, 2011.
85. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, TAPIA Celebration of Diversity in Computing Conference, San Francisco, CA, April 5, 2011.
86. Participatory Sensing: from ecosystems to human systems. Invited Speaker, Health 2.0 Conference, San Diego, CA, March 22, 2011.
87. Participatory Sensing: from ecosystems to human systems. Invited Speaker, Westwood Women's Bruin Club, UCLA, Los Angeles, CA, March 16, 2011.
88. Open Architecture for Health panel. Tech@State. Invited panelist, Washington, D.C. February 11, 2011.
89. Participatory Sensing: from ecosystems to human systems. Invited Speaker, Thomas Jefferson High School for Science and Technology, Washington, DC, January 14, 2011.
90. Participatory mHealth. Invited Speaker, Indraprastha Institute of Information Technology (IIIT Delhi) New Delhi, India, December 13, 2010.
91. Participatory Sensing: from ecosystems to human systems. Invited Speaker, Institute for Software Research Distinguished Speaker, UC, Irvine, CA, November 19, 2010.
92. Participatory sensing: from community data gathering to personal health. Invited Speaker, NSF Future Internet Architecture Principal Investigator Workshop, Washington D.C., November 15, 2010.
93. mHealth Summit: Research, Technology, Policy. Super Session Panel: The Impact and Future Visions for mHealth. Invited Panelist, Washington, D.C., November 8, 2010.
94. Participatory mHealth. Invited Keynote Panelist, Wireless Influencers 2010, Carlsbad, CA, October 25, 2010

95. The Ecology and Education Summit. Invited Panelist, Washington, D.C., October 14, 2010.
96. The 2010 NAE Grand Challenges National Summit, Invited Panelist, USC, Los Angeles, CA, October 7, 2010.
97. Participatory Sensing: from ecosystems to human systems. Invited Speaker, BBN Technologies, Boston, MA, August 29, 2010.
98. Participatory Sensing: from ecosystems to human systems. Invited Speaker, Privacy, Identity Innovation (Pii 2010), Seattle, WA, August 18, 2010.
99. Participatory Sensing: from ecosystems to human systems. Invited Speaker, Google, Mountain View, CA, August 10, 2010.
100. Creating a Shared, Open, and Scalable mHealth Platform for Health (care/research) Innovation. Invited Panelist, CCC Workshop on Discovery and Innovation in Health IT, CRA Snowbird, Utah, July 19, 2010.
101. Participatory Data Gathering Using Mobile Phones. Invited Speaker, USC Annenberg/The California Endowment Health Journalism Fellowships, Los Angeles, CA, July 16, 2010.
102. Participatory data gathering using mobile phones. Invited Speaker, MobileActive.org Tech Salon. New York, New York, July 8, 2010.
103. Participatory Sensing: citizen science, scientific citizens, computational thinking. Invited Speaker, NSF Broader Impacts for Research and Discovery Summit, Washington D.C., June 21-23, 2010.
104. Mobile Phones and Personal Data Collection: Avoiding and Resisting Surveillance. Invited panelist, Computers, Freedom, and Privacy in a Networked Society 20th Annual Conference, San Jose, CA, June 17, 2010.
105. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, Sigma Center, Beijing, China, June 10, 2010.
106. Participatory Sensing for Health and Wellness: Leveraging geo/time-coded experience sampling and activity traces. Invited Speaker, National Institutes of Health – mHealth Workshop, Washington D.C., June 7, 2010.
107. Participatory Sensing for Health and Wellness leveraging geo/time-coded experience sampling and activity traces. Invited Speaker, Mobile Health 2010, Stanford, CA, May 25, 2010.
108. Participatory Sensing applications as drivers of Internet and social innovation... and how an MVNO will enable/facilitate/accelerate research. Invited Speaker, NSF Workshop on a Wireless National Test Bed (WiNTeB), Arlington, VA, May 5-6, 2010.
109. Participatory Sensing: from ecosystems to human systems. Invited Speaker, Emerging Communications (eComm) Conference & Awards, San Francisco, CA, April 20, 2010.
110. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, TEDxSB, Santa Barbara, CA, April 17, 2010.
111. Telling Traces. Invited keynote Speaker, Where 2.0 Conference, San Jose, CA, April 1, 2010.
112. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, Internet Engineering Task Force, IEFT Meeting 77, Anaheim, CA, March 24, 2010.
113. Creating a Shared, Open, and Scalable mHealth Platform for Intervention Innovation. Invited Speaker, The Intersection of Technology, HAART Adherence, and Drug Abuse Treatment, Washington, DC, March 5, 2010.

114. Sustainability in an Unsustainable World: Let's Build a Smarter Planet. Panel Moderator, UCLA Tech Forum, Los Angeles, CA, February 11, 2010.
115. Participatory Sensing: promoting citizen science, scientific citizens, and computational thinking. Invited Speaker, Broadening Participation in Computing Principal Investigator (BPC PI) Community Meeting, Marina Del Rey, CA, February 1, 2010.
116. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, Distinguished Lecture Series, UC Riverside, CA, January, 25, 2010.
117. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, CITRIS Intelligent Infrastructure Systems Cluster, UC Berkeley, CA, November 23, 2009.
118. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, UCLA School of Public Health, Department of Environmental Health Science M4II Seminar Series, UCLA, November 19, 2009.
119. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, the Federal Communications Commission (FCC), Washington D.C., October 25, 2009.
120. Participatory Sensing: Smartphones + Web Services + Social Networking. Invited Speaker, Web 2.0 Summit, San Francisco, CA, October 21, 2009.
121. Participatory Sensing: from Ecosystems to Human Systems. Invited Speaker, The Engaging Data: First International Forum on the Application and Management of Personal Electronic Information, Cambridge, MA, October 12, 2009.
122. Participatory Sensing: from Ecosystems to Human Systems, from Chronic Concerns to Urgent Needs. Invited Speaker, Smart Grid Research Symposium, Davidson Conference Center, University of Southern California, October 6, 2009.
123. Mobile Personal Sensing: from Ecosystems to Human Systems. Invited Speaker, Workshop on Social Computing with Mobile Phones & Sensors: Modeling, Sensing and Sharing (SCMPS09) jointly w/ SocialCom 2009, Vancouver, Canada, August 30, 2009.
124. Mobile Personal Sensing for Personalized Health and Wellness. D.Estrin & M.J. Rotheram. Invited presentation, National Institutes of Health, Washington, D.C., August 3, 2009.
125. Mobile Phones, Citizen Scientists and the Cloud. Invited Speaker, Google, Santa Monica, CA, July 20, 2009.
126. Mobile Personal Sensing: from Ecosystems to Human Systems. Invited Speaker, OSOITE-Overlay-network Search Oriented for Information about Town Events, Tokyo Denki University, Tokyo, Japan, July 17, 2009.
127. Mobile Personal Sensing systems: Applications and Architecture. Invited Speaker, KDDI Research and Development Laboratories Inc., Tokyo, Japan, July 5, 2009.
128. MobiArch'09 Panel Discussion on "Cloud Computing and Mobility - How Do These Two Fit Together?" MobiSys 2009. Invited panelist, Krakow, Poland, June 22, 2009.
129. Mobile Personal Sensing Systems: Applications and Architecture. Invited Speaker, Microsoft Research, Redmond, WA, June 15, 2009.
130. Mobile Personal Sensing for Personalized Health Care and Management. Invited Speaker, Using Sensor-based Networks to address Global Issues: Policy Opportunities and Challenges. OECD Experts Conference, Lisbon, Portugal June 8-9, 2009.

131. Participatory Sensing: an emerging driver for the multidimensional Internet. Invited Speaker, Google, Multi-Dimensional View of the Internet Summit, Mountain View, CA, May 5-6, 2009.
132. Sensing everywhere: from Eco-systems to Human Systems. Invited Speaker, Computing Commuting Consortium (CCC), Computing Research that Changed the World: Reflections and Perspectives, Washington, DC, March 25, 2009.
133. Mobile Sensing Systems: From Ecosystems to Human Systems. Invited Speaker, Center for HIV Identification, Prevention, and Treatment Services (CHIPTS) Core Committee Meeting, UCLA, Los Angeles, CA, February 9, 2009.
134. Mobile Personal Sensing for Eco-Responsibility. Invited Speaker, Sensing LA: A workshop on scalable, affordable, and ready-to-use technologies for a sustainable city, UCLA, Los Angeles, CA, February 5, 2009.
135. Mobile Sensing Systems: From Ecosystems to Human Systems. Invited Speaker, Johns Hopkins University Whiting School of Engineering Distinguished Lecture Series, Baltimore, MD, February 3, 2009.
136. Mobile Sensing Systems: From Ecosystems to Human Systems. Invited Speaker, NSF Computer Science & Information Science & Engineering (CISE) Distinguished Lecture Series, Arlington, VA, February 2, 2009.
137. Mobile Sensing Systems: From Ecosystems to Human Systems. Invited Speaker, Center for HIV Identification, Prevention and Treatment Services (CHIPTS) Methods Seminar, UCLA, Los Angeles, CA, January 6, 2009.
138. Wireless Sensing: From Ecosystems to Human Systems. Keynote Speaker, 42nd Annual Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, October 27, 2008.
139. Leveraging Everyday Mobile Phones in Support of Public and Personal Health. Invited Speaker, UCLA Global Health Workshop - "Enhancing the Health of Women and Children Globally: An Interdisciplinary Approach." UCLA, October 23, 2008.
140. CENS Research Overview. Invited Speaker, Bioacoustic Monitoring in the Terrestrial Environment Workshop. James Reserve, San Jacinto Mountains, October 16, 2008.
141. Mobile Sensing: Leveraging Mobile Phones to Support Personal, Community, and Participatory Sensing. Invited Speaker, Nokia-UCLA Workshop on Mobile In-Sight. August 13-15, 2008, Nauvo, Finland.
142. National Instruments: Worldwide Graphical System Design Conference and Exhibition. Invited Panel of Experts, National Instruments, Austin, Texas, August 6, 2008.
143. Wireless Sensing: From Ecosystems to Human Systems. Invited Speaker, Sun Microsystems, San Jose, CA, July 30, 2008.
144. Leveraging Mobile Phones to Support Participatory Urban Sensing. Invited Speaker, Intel, Portland, Oregon July 2008.
145. Leveraging Mobile Phones to Support Participatory Urban Sensing. Invited Speaker, Samsung, Seoul, Korea June 2008.
146. The Organisation of Economic Co-Operation and Development (OECD) Ministerial Meeting on the Future of the Internet Economy. Panel of Experts, Invited talk, Coex, Seoul, Korea, June 2008.
147. Wireless Sensing Systems: from Eco-Systems to Human-Systems. Invited Panelist, UCLA Engineering 2008 Technology Forum, Los Angeles, CA, May 27, 2008.

148. Wireless Sensing Systems: from Eco-Systems to Human-Systems. Re-Discover UCLA. Invited Speaker, UCLA, Los Angeles, CA , May 17, 2008.
149. Everyday mobile phones: innovation platform for aging in place? Invited Speaker, UCLA Technology & Aging Conference, Los Angeles, CA, May 9, 2008.
150. Wireless Sensing Systems: from Eco-Systems to Human-Systems. Invited Speaker, MacKay Lecturer, EECS Colloquium Lecture Series, Berkeley, CA, March 2008.
151. Wireless Sensing Systems: from Eco-Systems to Human-Systems. Invited Speaker, Distinguished Lecture in Computer Science, Columbia University, New York, February 2008.
152. Leveraging Mobile Phones to Support Participatory Urban Sensing. Invited Speaker, MIT Media Lab, Boston, Massachusetts, February 2008.
153. Experiences in developing an *ecosystem* of wireless sensing systems for ecological observation. Invited Speaker, Environmental Sensor Network Program at the Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park, NC, January 2008.
154. Wireless Sensing Systems: from Eco-Systems to Human-Systems. Invited Speaker, James Reserve, San Jacinto Mountains, California, July 2007.
155. Wireless Sensing: The Internet's Front-Tier. Invited Speaker, Federated Computing Research Conference, San Diego, California, June 2007.
156. Wireless Sensing Systems: from ecosystems to Human systems. Invited Speaker, Women's Institute in Summer Enrichment, University of California, Berkeley, June 2007.
157. Participatory Urban Sensing. Invited Speaker, Women's Institute in Summer Enrichment, University of California, Berkeley, June 2007.
158. Center for Embedded Networked Sensing: Technology and Discovery on Land, Rivers and Oceans. Invited Speaker, UCLA HSEAS Technology Forum, Los Angeles, California, May 2007.
159. Wireless Sensing Systems: from ecosystems to Human systems. Invited Speaker, Campbell Lecture, Southampton University, UK, May 2007.
160. Wireless Sensing Systems: from ecosystems to Human systems. Invited Speaker, Boston University Symposium, Boston, Massachusetts, April 2007.
161. Participatory Sensing Roundtable. Invited Technical Keynote Presentation, British Columbia, Vancouver, March 2007.
162. IEEE PerCom 2007 Fifth Annual Conference on the Emerging Area of Pervasive Computing and Communications. Invited Panel Participant, White Plains, New York, March 2007.
163. Wireless Sensing Systems: from ecosystems to Human systems. Invited Speaker, New Jersey Institute of Technology, Newark, New Jersey, March 2007.
164. Wireless Sensing Systems: from ecosystems to Human systems. Invited Speaker, Syracuse University, Syracuse, New York, March 2007.
165. Wireless Sensing Systems: from ecosystems to Human systems. Invited Speaker, UCLA Professor in the Union, Los Angeles, California March 13, 2007.
166. Wireless Sensing Systems: from ecosystems to Human systems. Invited panel, Nokia, Palo Alto, California, March 9, 2007.

167. Wireless Sensing Systems: from ecosystems to Human systems. Invited Speaker, Institute for Computing Information & Cognitive Systems Distinguished Lecture Series, Vancouver, British Columbia, February 2007.
168. Wireless Sensing Systems: from ecosystems to Human systems. Invited lecture, UCLA Science Faculty Research Colloquium Series, Los Angeles, California, February 2007.
169. Wireless Sensing Systems: from ecosystems to Human systems. Invited Speaker, Computational Sciences Lecture Series (CSLS) Sensor Networks and Beyond, Madison, Wisconsin, February 2007.
170. Wireless Sensing Systems: from ecosystems to Human systems. Invited Speaker, IEEE RWS, Long Beach, California, January 2007.
171. Embedded cyberinfrastructure for distributed observatories. Keynote Speaker, Third Annual IMUA NSF Hawaii EPSCor Statewide Conference, Honolulu, HI. November 2006.
172. Wireless Sensing Systems: from Eco-systems to Human-systems. Invited Speaker, Feedback and Dynamics in Nature Workshop held at the Grace Hopper Celebration of Women in Computing Conference. San Diego, California, October 2006.
173. Wireless Sensing Systems: from Eco-systems to Human-systems. Athena Award Lecture, twelfth Annual Conference on Mobile Computing and Networking, MobiCom, Marina del Rey, California, September 2006.
174. Embedded Networked Sensing: from Eco-systems to Human-systems. Invited Speaker, Distinguished Career Lecture Series Colloquium, Cornell University, Ithaca, New York, August 2006.
175. Partisans: Participatory Sensing@CENS. Invited Speaker, Summer Institute on the World-Wide Web Workshop, Microsoft Research, University of Washington, August 2006.
176. Embedded Networked Sensing for Environmental Monitoring. Invited Speaker, Honeywell, Arizona, May, 2006.
177. Embedded Networked Sensing. Urban Sensing Summit – REMAP, Invited Panelist, UCLA, May, 2006.
178. Center for Embedded Networked Sensing. Invited Speaker, UC Regents, Yosemite, California, April, 2006.
179. Embedded Networked Sensing: Urban Applications. Invited Speaker, Google, Mountain View, California, March 17, 2006.
180. Center for Embedded Networked Sensing. Invited Speaker, Center for Nonlinear Studies Conference, Albuquerque, New Mexico, March 9, 2006.
181. Some Thoughts on Enabling SensorPlanet. Invited Speaker, Nokia Workshop, November, 2005.
182. Sensor Networks Redux. Invited Speaker, Microsoft Research Workshop on Sensor Networks, Seattle, WA, October 2005.
183. Sensor Networks. Invited Speaker, NRC Statistics workshop on Statistics of networks. September 26, 2005.
184. Drivers for Adaptive and Programmable Network and Distributed System Services. Invited Speaker, NSF Wireless Workshop, August, 2005.
185. The role of embedded networked sensing in NEON. Invited Speaker, Ecological Society of America. Montreal, Canada. July 2005.

186. The smarts behind smart sensors: How networked sensors may help save the planet. Invited Speaker, H-SEAS-Alumni, July 2005.
187. Embedded Networked Sensing for Environmental Monitoring, Invited Speaker, New York, June 2005.
188. The smarts behind smart sensors: How networked sensors may help save the planet, Invited Speaker, Kabri, June 2005.
189. Embedded Networked Sensing: Overview of Activities at CENS. Invited Speaker, Agilent, May 2, 2005.
190. Embedded Networked Sensing for environmental monitoring, Invited Speaker, IBM Research laboratory, March 2005.
191. Networked Sensing Systems: From Macro to Nano: Challenges and Opportunities in Integrative Complex Systems Engineering, Invited Speaker, NSF Workshop, March 7, 2005.
192. A historical perspective on sensor networks research, Invited Speaker, Nokia workshop on wireless sensor networks, February 6, 2005.
193. Embedding the Internet: How smart sensors may help save the planet, MIT Distinguished Lecturer Series, Boston, Massachusetts, February, 2005.
194. The Smarts behind smart sensors, Invited Speaker, World Economic Conference, Davos, Switzerland, January, 2005.
195. Experiences with sensor network application development and embedded cyberinfrastructure, Invited Speaker, NSF NeTS workshop, February 2004.
196. Instrumenting the world with wireless sensor networks, AAAS Invited Topical Lecture, AAAS Annual meeting, February 2004.
197. Instrumenting the world with wireless sensor networks, Invited Seminar, Harvard University Computer Science Department, February 2004.
198. Embedded CyberInfrastructure, Invited Presentation, NSF Workshop on CyberInfrastructure for Engineering, January 2004.
199. Embedded Networked Sensing Systems: motivations and challenges. Invited Seminar, Stanford University, January 2004.
200. Wireless Sensor Networks: Introduction to applications and systems issues, October 2003, SAMSI Workshop on sensor networks.
201. Embedded Networked Sensing for Environmental Monitoring: Applications and Challenges, Invited talk, DIALM-POMC Joint Workshop on Foundations of Mobile Computing, San Diego, CA, September 19, 2003.
202. Center for Embedded Networked Sensing", Presented at the NSF Electrical and Communications Systems (ECS) Division Wireless Sensor Networks workshop, UCLA, September 8th, 2003.
203. Embedded Networked Sensing for Environmental Monitoring, Presented at University of New South Wales, Sydney, Australia, August 29, 2003.
204. Embedded Networked Sensing, Presented at the NSF Sponsored Environmental Cyberinfrastructure Needs for Distributed Sensor Networks Workshop, San Diego, California, August 2003.
205. Making Sensor Networks Real for Scientists, Presented at the UCB NEST retreat, Berkeley California, June 2003.

206. Embedded Networked Sensing for Environmental Monitoring, Presented at National Center for Atmospheric Research (NCAR), Boulder Colorado, April 1, 2003.
207. Overview of CENS systems under construction and associated challenge problems. Invited presentation at NSF sponsored workshop on Sensors and Sensor Networks, Northwestern University, December 5-6, 2002.
208. Sensor Networks: Emerging Research Challenges, UCSD Computer Science Department Distinguished Lecture Presentations, UCSD Computer Science Department, La Jolla, CA, October 21, 2002.
209. Technology for the Future, HSSEAS Symposium, CENS Presentation, UCLA, Los Angeles, CA, October 11, 2002
210. Wireless Sensor Networks: From Rhetoric to(ward) Rigor Sigmetrics Keynote, June 2002.
211. Embedded Networked Sensing for Environmental Monitoring Circuits and Systems Workshop Keynote, June, 2002.
212. This Century Challenges: Sensor Network for Environmental Monitoring. Invited, UCSD Research Review, La Jolla, CA, February 2002.
213. Wireless Sensor Networks: Application Driver for Low Power Distributed Systems. Invited, International Symposium on Low Power Electronics and Design Conference, Long Beach, CA, August 2001.
214. Common Sense: Research Challenges in Embedded Networked Sensing. Invited, UCLA, Computer Science Department, Los Angeles, CA, April 27, 2001.
215. SCADDS Research Update, DARPA PI Meeting, St. Petersburg, FL, April 2001. Some Distributed Coordination Schemes for Wireless Sensor Networks,
216. Stanford Network Seminar Series, Stanford, CA, November 16, 2000.
217. Wireless Sensor Networks: Instrumenting the Physical World, Super Computer 2000 Conference, panel presentation, Dallas, TX, October 2000.
218. SCADDS Research Update, DARPA PI Meeting, Honolulu, HI, October 2000.
219. Bias: Network Challenges are the greatest for Unattended and Un-tethered (wireless) operation. Invited, Networked Embedded Systems Technology Workshop, Seattle, WA, March 2, 2000.
220. Sensor Networks: An Architecture for Sensor Networks, Invited retreat, University of California Berkeley, February 7, 2000.
221. Research Agenda in Sensor Networks, Invited, End to End Research Meeting, San Jose, CA, December 6, 1999.
222. SCADDS Research Update, Invited, DARPA Sensor Nets Workshop, Marina del Rey, CA, October 7, 1999.
223. SCADDS Project Overview, Invited, SenseIT/KickOff Meeting. Invited, Washington, D.C., July 27, 1999.
224. Bi-directional PIM Multicast Routing Protocol, Invited, Working Group presentation at the 45th Internet Engineering Task Force, Oslo, Norway, July 12, 1999.
225. Scalable Coordination Architecture for Deeply Distributed Systems, Invited, Wireless Information Network Laboratory (WINLAB) Berkeley Focus '99 Workshop, Newark, NJ, May 23, 1999.
226. Embedding the Internet. Invited, MIT LCS 35th Anniversary Colloquium, April 1999.

- 227.Multicast: Challenges and Opportunities. Invited, Nortel Networks Design Forum, San Jose, CA, April 20, 1999.
- 228.Simple Systems: ISAT Study, Invited presentations, Washington, January 28, May 7, and August 1998.
- 229.National Academy of Engineering Study on the Relationship between University Research and Industrial Development. Invited panel Speaker, Irvine, CA, January 21, 1998.
- 230.UC Berkeley MASH research retreat. Invited participant, Berkeley, CA, January 12-14.
- 231.Scaling the Internet. Keynote Invited Speaker, Southern California Software Engineering Symposium, UC Irvine, CA, November 7, 1997.
- 232.Multicast: Enabler and Challenge. Invited Seminar, Harvey Mudd, Claremont College, Computer Science Department, Claremont, CA, November 6, 1997.
- 233.DARPA Network Management PI Meeting, Invited Presentation, Princeton, NJ, October 27-28, 1997.
- 234.DIMACS Workshop on Network Modeling and Simulation. Invited Presentation, Princeton, NJ, October 22-23, 1997.
- 235.IETF, Interdomain Multicast Routing (IDMR) Working Group. Invited Presentation, Munich, Germany, July 1997.
- 236.Next Generation Internet NSF-sponsored workshop. Invited Participant, Architecture Working Group, Virginia, May 13-14, 1997.
- 237.Virtual Internet Testbed (VINT) ISMA Workshop. Invited Speaker, UC San Diego, La Jolla, CA, May 1-2, 1997.
- 238.Internet Multicast and Multimedia Technologies. Invited with Zhang, L., Deering, S., Interop Tutorial, Las Vegas, NV, May 1997, 1998 and Atlanta, GA, October 1996, 1997.
- 239.Multicast: Enabler and Challenge. Invited, Princeton University Computer Science Department, Princeton, New Jersey, April 23, 1997.
- 240.Virtual Internet Testbed (VINT). Invited, DARPA Networking Principal Investigators Conference, Baltimore, MD, March 1997.
- 241.Multicast Multimedia on the Internet, Invited with Zhang, L., Deering, S., UCLA Extension Course, Los Angeles, CA, February 1997.
- 242.Internet II. Invited Commentator, National Academy of Engineering, CSTB Board Meeting, Irvine, CA, January 13, 1997.
- 243.PIM-SM Specification. Invited, IETF IDMR Working Group, San Jose, CA, November 1996.
- 244.Virtual Internet Testbed (VINT). Invited, ISI, Presentation to DARPA Program Manager, Los Angeles, CA, July 1996.
- 245.ACM Workshop on Strategic Directions in Computing Research. Invited Participant, MIT, Boston, MA, June 14-15, 1996.
- 246.QOS routing. Invited, End to End Research Group Meeting, June 1996.
- 247.PIM Design Update. Invited, IETF IDMR Working Group, June 1996.
- 248.Scalable Loosely-Coupled Systems. Invited, DARPA ISAT Board Meeting (May 1996) Working group Chair, Arlington, Virginia, May 1996.

249. Policy-based Multicast Routing: Just say no! Invited Workshop Participant, 3rd International Workshop on Community Networking (May 1996) Antwerp Belgium, May 1996.
250. Design of a Scalable Multicast Routing Protocol. Invited, Stanford University, Computer Systems Colloquium, Stanford, CA, May 1996.
251. Source Demand Routing, Invited, IETF SDR Working Group, December 1995.
252. Interoperability Architecture for PIM-SM. Invited, IETF IDMR Working Group, December 1995.
253. Routing Support for Resource Reservations. Invited Paper, IEEE Computer Communications Workshop, Hawks Quai, Florida, November 1994.
254. Protocol Independent Multicast. Invited, IETF Plenary Speaker, November 1994.
255. Wide-Area Multicast Routing Support for Sparse Groups. Invited, IEEE Communications Workshop, San Diego, CA, October 18-20, 1993.
256. Multicast Reservation Setup Protocol (RSVP), Invited, Networkers '94, June 30, 1994 (Guest Speaker), Chicago, INTEROP EUROPE '93, Paris, France, October 1993.
257. Routing in Large Internetworks. Invited, INET '93, San Francisco, CA, August 1993.
258. Cisco Systems, Routing for the Future, Invited, February 1993.
259. CNRI Workshop on High Performance Network Evaluation, Invited, February 1993 and March 1993.
260. University of Colorado, Boulder, Routing for Global Scale Internets. Invited, Boulder, Colorado, January 1993.
261. Source Demand Routing Protocol. Invited Presentation, Internet Engineering Task Force, Washington, D.C., November 1992.
262. Global Internet Simulation, Emulation, and Visualization. Invited, National Science Foundation, CISE-NCRI Division, October 1992.
263. Routing for Global Internets. Invited, The Technicon University, Haifa, Israel, May 1992.
264. Resources Management Internet Protocol. Invited, Dartnet Workshop, ISI, Marina Del Rey, CA, January 1992.
265. A Unified Approach to Inter-Domain Routing. Invited Speaker, Internet Engineering Task Force, Santa Fe, New Mexico, November 20, 1991.
266. Symposium on Gigabit Networks. Invited Speaker, Washington, D.C., July 15-17, 1991.
267. Internet Activities Board Workshop on Future of the Internet Architecture. Invited Speaker, University of California, San Diego, La Jolla, CA, June 11-13, 1991.
268. USC Board of Trustees, Annual Meeting. Invited, Palms Springs, CA, April 12-14, 1991.
269. Mitsubishi Study Group on Computers and Communications. Invited Speaker, USC, Los Angeles, CA, November 1990.
270. MIT Workshop on Inter-Domain Routing. Invited Participant, Boston, MA, June 1990.
271. Harvard-OTA Workshop on Commercialization of the Internet. Invited Participant, Cambridge, MA, February 1990.
272. University Seminars. Invited, Carnegie Mellon University, Columbia, Massachusetts Institute of Technology, UC Berkeley, UCLA, University of Wisconsin, Madison, 1990-1991.

- 273. Interop '89. Invited Speaker and Panel Chair, San Jose, CA, November 1989.
- 274. Infosec '89 Conference on Network Security. Invited Speaker, Palm Springs, CA, November 1989.
- 275. Internet Activities Board Invitational Workshop. Invited, Santa Clara, CA, January 1989.
- 276. Industrial Research Laboratories (1989-1991). Invited, AT&T Bell Laboratories, Xerox PARC, Digital Equipment Corporation Systems Research Center, GTE Laboratories.
- 277. European ACM SIGOP's Workshop on Autonomy or Interdependence in Distributed Systems. Invited, Cambridge University, England, September 1988.
- 278. Office of Technology Assessment, Communications Systems for an Information Age. Invited Workshop Participant, January 1987.
- 279. National Communications Forum Speaker and Faculty Fellow, Tutorial on Inter-Organization Networks. Invited, Chicago, IL, October 1986.
- 280. UCLA Graduate School of Management, Seminar, Organizational Consequences of Inter-Organization Network. Invited, Los Angeles, CA, October 1986.
- 281. American Chemical Society Annual Meeting, Symposium on Wide Area Computer Networks: Technology and Benefits. Invited, New York, NY, April 1986.
- 282. ACM Workshop on Accommodating Heterogeneity Position Paper and Participant. Invited, Orcas Island, WA, December 1985.

Reference *References available upon request*