MARK E. CROVELLA

Duan Family Fellow
Professor, Computer Science
Professor, Faculty of Computing and Data Sciences

Boston University
665 Commonwealth Ave.
Boston, MA 02215

Date of Birth: October 28, 1959
Location: Buffalo, New York, USA
Nationality: USA

Current as of January 24, 2025

EDUCATION

Ph.D. Computer Science, University of Rochester, October 1994.

M.S. University of Rochester, May 1991.

M.S. State University of New York at Buffalo, May 1990.

B.S. Cornell University, May 1982.

PROFESSIONAL EXPERIENCE

Professor Department of Computer Science, Boston University, 2006 to present. **Department Chair** 2013 – 2018; **Associate Professor** 2000 – 2006; **Assistant Professor** 1994 – 2000. On leave 2000 – 2001.

Professor Faculty of Computing & Data Sciences, Boston University, 2022 to present. **Duan Family Fellow** 2024 – present; **Chair of Academic Affairs** 2022 – present; **Founding Faculty Member**, 2020 – 2022; **Data Science Faculty Fellow** 2019 – 2022.

Affiliated Faculty Department of Electrical and Computer Engineering, Graduate Program in Bioinformatics, Center for Information Systems and Engineering, and Division of Systems Engineering, Boston University.

Chief Scientist Guavus, Inc., February 2012 to August 2014.

Visiting Faculty Laboratoire d'Informatique de Paris 6 (LIP6); 2003 – 2004 and 2018 – 2019; INRIA Paris 2018 – 2019; Laboratory of Information, Networking and Communication Sciences (LINCS) Paris 2018 – 2019.

Technical Director Network Appliance, Tewksbury, MA. November 2000 to April 2002.

Chief Architect Webmanage Technologies, Chelmsford, MA. May 2000 to acquisition by Network Appliance in November 2000.

Lead Research Scientist epicRealm, Inc., Richardson, TX. January to May 2001.

Senior Computer Scientist Calspan Corporation, Buffalo, NY. August 1984 to August 1994.

HONORS

Duan Family Faculty Fellow, 2024, Boston University.

Distinguished Alumni Award, 2017, University at Buffalo, Department of Computer Science and Engineering.

Innovator of the Year, 2014, Boston University.

IETF/IRTF Applied Networking Research Prize for "Routing State Distance: A Path-based Metric for Network Analysis," ACM Internet Measurement Conference (IMC), 2012.

Best Student Paper Award for "Intrusion as (Anti)social Communication: Characterization and Detection," ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2012.

IEEE Fellow, 2011, "For contributions to the measurement and analysis of networks and distributed systems."

ACM Fellow, 2010, "For contributions to the measurement and analysis of networks and distributed systems."

ACM SIGMETRICS Test of Time Award for "Self-Similarity in World Wide Web Traffic: Evidence and Possible Causes," (with Azer Bestavros). One of the three inaugural Test of Time Awards given by SIGMETRICS in 2010. The award is given for a paper published between 1973 and 1999 that has had the greatest impact over the subsequent period.

CNRS Fellowship, Centre National de la Recherche Scientifique (Department Sciences et Technologies de l'Information et de la Communication), for 2003-2004 academic year as Visiting Associate Professor at Laboratoire d'Informatique de Paris 6 (LIP6).

NSF CAREER Award, 1995.

ARPA Fellowship in High Performance Computing, 1993-1994.

DARPA Parallel Processing Fellowship, 1992-1993.

EDITORIAL BOARDS

Steering Committee, IEEE Transactions on Network Science and Engineering, 2016–2019.

Editor, Computer Communication Review, 2005 – 2008.

Editor, Computer Networks, 2004 – 2005.

Editor, IEEE/ACM Transactions on Networking, 2000 – 2006.

Editor, IEEE Transactions on Computers, 2000 – 2004.

FUNDING

"Large Scale Analysis of Configurations and Management Practices in the Domain Name System," NSF CISE/CNS NeTS Medium, 10/1/23 – 9/30/26, $525,000.

"Methods for Active Measurement of the Domain Name System," NSF CISE/CNS IMR, 10/1/23 - 9/30/26, $256,463.

Google Research Award, 10/1/20, $30,000.

"Traveling Back to the Future: Using Network Science to Unravel Evolutionary Conserved RNA Binding Proteins and Complexes Associated with Disease," BU Hariri Institute Research Incubation Award, 2/9/18, $35,280.

"Analytic Tools for Evolving Path-based Networks," NSF CISE/CNS NeTS Small, 8/15/16 – 7/31/19, $499,951.

"Structural Matrix Completion for Data Mining Applications," NSF CISE/III Small, 9/1/14 – 8/31/17, $499,702 with 1 other PI.

"Understanding Communication Strategies for Ad Hoc Networks," NSF CISE/CNS NeTS Small, 8/1/11 – 7/31/14, $390,853.

"Information and Software Assurance: A Coordinated Approach to Cyber-Situation Awareness Based on Traffic Anomaly Detection,", DoD ARO, 9/1/2011 - 8/31/2015, $800,000 with 3 other PIs.

"Securing the Open Softphone," NSF CISE/CNS TC Large, 7/1/10 – 6/30/15, $2,992,896, with 8 other PIs. REU Supplement, 4/13/11 – $73,125.

"New Directions in Network Dimensionality Reduction for Routing and Beyond," NSF CISE/CNS NeTS Small, 7/1/10 – 6/30/13, $450,000.

"Wide-Aperture Traffic Analysis for Internet Security," NSF CISE/CNS TC Medium, 9/1/09 – 8/31/13, $723,053, with 2 other PIs.

Sponsoring Advisor for Postdoctoral Fellow under the *Computing Innovations Fellowship Program,* NSF CIF, 9/1/09 – 8/31/11, $267,500.

"Passive Methods for Internet Topology Discovery," National Geospatial Intelligence Agency, 8/1/09 – 7/31/12, $360,000.

"Instrumentation and Measurement for GENI," NSF/BBN, 8/1/08 – 8/31/11, $80,932

"Whole-Network Anomaly Diagnosis," Intel, 1/1/05 – 12/31/07, $158,000.

"Coordinate Systems for the Internet," NSF CISE/ANI, 8/15/03 – 7/31/06, $222,035.

"Collaborative Research: Modular Strategies for Global internetwork Monitoring," with 6 other PIs, NSF CISE/CCR ITR, 9/1/03 – 8/31/08, $1,994,513.

"Research Support for IP Network Characterization," Sprint Advanced Technology Laboratories, 9/1/03 – 8/31/04, $29,592.

"Research Support for IP Network Characterization," with 3 other PIs, Sprint Advanced Technology Laboratories, 9/1/02 – 8/31/03, $80,000.

"A Control Theoretic Approach to the Design of Internet Traffic Managers," with 3 other PIs, NSF CISE/ANIR, 9/1/01 – 8/31/05, $719,994.

"Diagnosis and Control of Network Variability by Massively Accessed Servers," with 2 other Principal Investigators, NSF CISE/ANI, 9/1/00 – 8/31/05, $1,210,768.

"Wide Area Web Measurement," GTE Laboratories, 9/1/00 – 8/31/01, $20,000.

"Wide Area Web Measurement," Xerox PARC, 9/1/99 – 8/31/00, $15,000.

"COMMONWEALTH: Architecture and Protocols for Scalable WWW Service," with 2 other Principal Investigators, NSF CISE/CCR Experimental Software Systems, 7/15/97 – 6/30/00, $590,087.

"Research Support for Network Performance Characterization, Analysis, and Evaluation," Principal Investigator, Hewlett-Packard Company, 9/1/96 – 9/1/97: $69,404. Renewed for 9/1/97 – 9/1/98: $88,154. Renewed for 9/1/98 – 9/1/99: $29,873.

"Practical Performance Prediction for Parallel Programmers," Principal Investigator, NSF CISE/CCR CAREER, 9/1/95 – 5/31/98, $91,066

"Research Infrastructure for Parallel and Distributed Systems: Real-Time, Multimedia, and High-Performance," with 4 other Principal Investigators, NSF CISE Institional Infrastructure, $874,019

"Research Instrumentation for Real-Time, Multimedia and High-Performance Computing in Distributed Systems," with 4 other Principal Investigators, NSF CISE IGR, $142,744

"Graduate Assistantships in High Performance Computing," with 5 other Principal Investigators, US Dept. of Education, 9/1/95 – 8/31/98, $354,645

PROFESSIONAL AFFILIATIONS

Association for Computing Machinery (Fellow)
IEEE (Fellow)
ACM SIGCOMM and SIGMETRICS
IEEE Computer Society and Communication Society

INVITED CONFERENCE TALKS

Invited Speaker, *TMA Experts Summit,* Paris, June 18, 2019.

Invited Panelist, *The 3rd Future Network Development Conference,* Nanjing, China, May 22, 2019.

Keynote Speaker, *IEEE Workshop on Data Science for Networking (DS4N),* Boston, MA, December 14, 2017.

Invited Panelist, *CSE 50th Anniversary Celebration,* University at Buffalo, Department of Computer Science and Engineering, September 30, 2017.

Keynote Speaker, *DATANET 16: Workshop on Data-Driven Networking,* Arizona State University, May 13, 2016.

Invited Speaker, *Workshop on Mathematics of Data Analysis in Cybersecurity,* ICERM, Brown University, October 24, 2014.

Invited Speaker, *51st Annual Allerton Conference on Communication, Control, and Computing,* University of Illinois at Urbana-Champaign, October 3, 2013.

Invited Speaker, *Network Links: Connecting Social, Communication and Biological Network Analysis,* Institute for Mathematics and its Applications (IMA), Minneapolis, MN, February 29, 2012.

Invited Speaker, *Statistics of Networks Workshop,* Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, June 24-25, 2010.

Keynote Speaker, *NetEval 2009 Workshop, The First Workshop on Performance Evaluation of Next-Generation Networks,* Boston, MA, April 26, 2009.

Keynote Speaker, *2006 Euro-NGI Workshop on Visions of Future Generation Networks (EuroView2006),* Würzburg, Germany, August 1, 2006.

Invited Speaker, *Maryland Hybrid Networks Center,* Advanced Networks Colloquium Series, University of Maryland, December 16, 2005.

Keynote Speaker, *Workshop on End-to-End Monitoring Techniques and Services (E2EMON),* Nice, France, May 15, 2005.

Invited Speaker, *Workshop on Internet Measurement, Modeling, and Analysis,* Statistical Research Center for Complex Systems (SRCCS), Seoul National University, Seoul, South Korea, January 11, 2005.

Invited Speaker, *Workshop on Measurement, Modeling and Analysis of the Internet,* Institute for Mathematics and its Applications (IMA), Minneapolis, MN, January 12, 2004.

Keynote Speaker, *First Workshop on Performance of Computational Systems and Communication,* part of the XXII Congress of the Brazilian Computer Society, Florianopolis, Brazil, July 18, 2002.

Invited Speaker, Institute for Pure and Applied Mathematics (IPAM) Program on Large Scale Communication Networks, Los Angeles, CA, March 18-22, 2002.

Invited Speaker, *DIMACS Workshop on Internet and WWW Measurement, Mapping and Modeling,* New Brunswick, NJ, February 13-15, 2002.

Invited Speaker, *Workshop on Job Scheduling Strategies for Parallel Processing,* Cambridge, MA, June 16, 2001.

Invited Speaker, *COST 257 Final Conference,* Würzburg, Germany.

Invited Plenary Speaker, *Performance Tools 2000:* The 11th International Conference on Modelling Techniques and Tools for Computer Performance Evaluation, Schaumburg, Illinois, March 27 - 31, 2000.

Invited Speaker, *Institute for Mathematics and Its Applications Workshop: "Scaling Phenomena in Communication Networks,"* Minneapolis, MN, October 22-24, 1999.

Invited Speaker, Boston University Minority Engineers' Society, 2nd Annual Technical Exposition, Boston, MA, April 10, 1999.

Invited Speaker, Workshop on Intelligent Internet Infrastructure, IBM T.J. Watson Laboratory, Yorktown Heights, NY, March 22, 1999.

Invited Speaker, Workshop on Architectures, Performance, and Applications in Globally Distributed Web Services, Federal University of Minas Gerais (UFMG), Belo Horizonte, Brazil, March 11 - 12, 1998.

Invited Speaker, Long-Range Dependence and Self-Similar Network Traffic Session, Winter Simulation Conference, Atlanta, GA, Dec. 7-10, 1997

Invited Speaker, DIMACS/NSF Workshop on "End-to-End Network Modeling and Simulations," Princeton University, Princeton, NJ, October 23-25, 1997.

Invited Panelist, Hot Topic Session On Traffic Characterization, ITC-15, Washington DC, June 22-27, 1997

Invited Speaker, IFIP Working Group 7.3 Workshop, June 19-20, Orcas Island, WA.

Invited Panelist, "Engineering Implications of Long-Range Dependence in Teletraffic Data," MASCOTS '97, January 1997, Haifa, Israel

Invited Speaker, Applied Probability Session of Informs, the Operations Research Society, May 1997, San Diego, CA.

Invited Speaker, Joint Research Conference on Statistics in Quality, Industry and Technology, May 29-31 1996, NIST, Gaithersburg, MD. Sponsored by the *American Statistical Association*, the *Institute of Mathematical Statistics*, E. I. du Pont, and the *National Institute of Standards and Technology.*

PROFESSIONAL ACTIVITIES

Chair, Scientific Advisory Board of the Max Plank Institute for Software Systems, 2024.

Scientific Advisory Board of the Max Plank Institute for Software Systems, 2016 – 2025.

Member, IETF/IRTF Applied Networking Research Prize Selection Committee, 2014 – 2016.

Executive Steering Committee of the Hariri Institute for Computing and Computational Science & Engineering, 2011 – 2014, 2024 – present.

Member of the External Review Visiting Committee for the Department of Computer Science at Amherst College, February 2013.

Organized Workshop: "GPU Programming with CUDA" at Boston University, July 24, 2012.

Member, SIGCOMM Rising Star Award Selection Committee, 2011.

Chair, SIGCOMM Test of Time Award Selection Committee, 2011.

Team Mentor for Conrad Awards, Cyber Security Challenge 2011.

External Judge for FCC's Open Internet Apps Challenge, 2011.

General Co-Chair, CoNEXT 2011.

Internet2 perfSONAR Workshop, Executive Committee, 2010.

Chair, ACM SIGCOMM 2007–2009.

Program Co-Chair, IFIP Networking 2010.

Internet2 Network Research Strategic Planning Team, 2009-present.

Internet2 Network Research Review Committee, `http://www.internet2.edu/networkresearch/nrrc.html`, 2009-present.

Advisory Board of CRAWDAD (Community Resource for Archiving Wireless Data At Dartmouth).

Steering Committee, Passive and Active Measurement Workshop (PAM), 2004-2006.

General Chair, Passive and Active Measurement Workshop (PAM) 2005.

Steering Committee, Internet Measurement Conference, 2003-2007.

ACM SIGCOMM Executive Committee, Award Committee Chair, 2003-2006. b

Program Comittee Chair, Internet Measurement Conference 2003.

Co-organizer (with C. Lindemann and M. Reiser), Workshop on Internet Performance Modeling, Dagstuhl Castle, Germany, September 26-29, 1999.

Co-organizer (with five others), BU/NSF Workshop on Internet Measurement, Instrumentation, and Characterization; Boston University, August 30, 1999.

Tutorials Chair, SIGMETRICS '99, Atlanta GA.

Program Committees:

- SIGCOMM: 2002, 2006, 2008, 2012, 2017

- SIGMETRICS: 1999, 2000, 2002, 2007, 2009, 2010, 2011, 2012, 2014, 2015, 2016
- CoNEXT: 2005, 2007, 2010, 2011
- Internet Measurement Conference: 2002, 2004, 2007, 2010, 2012, 2015, 2017, 2018, 2020, 2022
- ICDM: 2018
- The Web Conference: 2000, 2001, 2002, 2019, 2022 (Senior PC Member)
- KDD: 2017, 2023
- Intelligent Systems for Molecular Biology (ISMB): 2015, 2017
- First IMC Workshop on Internet Visualization: 2012
- Performance: 2011
- Passive and Active Measurement Workshop (PAM): 2009, 2010
- Infocom: 2009 (TPC Area Chair), 2010 (TPC Area Chair)
- IFIP Networking: 2009
- NetEval: 2009
- HotMetrics: 2008
- E2EMON: 2007
- First Workshop on Experimental Computer Science: 2007
- Workshop on Mining Network Data (MineNet-06): 2006
- Workshop on Large Scale Network Inference: 2005
- 6th Global Internet Symposium: 2001
- 6th International Workshop on Web Caching and Content Distribution: 2001
- Workshop on Caching, Coherence and Consistency: 2001
- Workshop on Network-Related Data Management: 2001
- ITC Specialist Seminar on IP Traffic Management and Modeling: 2000
- SPIE Performance and Control of Network Systems Conference: 1998, 1999
- 18th International Conference on Distributed Computing Systems (ICDCS-98): 1998
- Third IEEE Workshop on Services in Distributed and Networked Environments (SDNE '96): 1996

COURSE TEXTS AND MATERIALS

"Linear Algebra, Geometry, and Computation," Electronic Text, one-semester course on Linear Algebra from a Computer Science standpoint. 2015-2022. Available at `http://mcrovella.github.io/CS132-Geometric-Algorithms`. Includes contributions from Wayne Snyder.

"Computational Tools for Data Science," Electronic Text, one-semester course on applied methods in machine learning using Python. 2021-2022. Available at `http://mcrovella.github.io/CS506-Computational-Tools-for-Data-Science`. Includes contributions from Evimaria Terzi and George Kollios.

TUTORIALS AND SHORT COURSES

"Data Mining for Measurement Data," presented at the 5th PhD School on Traffic Monitoring and Analysis, associated with the 7th International Workshop on Traffic Monitoring and Analysis, Barcelona, April 21-22, 2015. Available at `https://github.com/mcrovella/mining-low-dim-network-data`.

"Traffic Modeling: Methods and Results for Single Links and Whole Networks," presented at SIGCOMM 2004, Portland OR.

"Traffic Modeling," short course presented at Aalborg University, February 2, 2004.

"Performance Characteristics of World Wide Web Information Systems," presented at SIGMETRICS '97, Seattle WA, June 1997; SIGMETRICS '98, Madison WI, June 1998; and Performance Tools '98, Palma de Mallorca, Spain, September 1998.

CONSULTING

Member of the Technical Advisory Board, Guavus, Inc. 2006 to 2017.

Consultant, Fujitsu Laboratories of America, Sunnyvale, CA. 2002 to 2004.

Consultant and Expert Witness, in litigation cases involving software patents, software trade secrets, and intellectual property. Ongoing.

Member of the Technical Advisory Board, epicRealm, Inc., Richardson, TX. March 2000 to May 2001.

Consultant and Member of the Technical Advisory Board, WebManage Technologies, Inc., Chelmsford MA. July 1999 to November 2000.

Founder and Principal Technical Officer, Commonwealth Network Technologies, Inc., Boston MA. Incorporated April 27, 1998; acquired by WebManage Technologies, October 12, 1999.

Consultant and Member of the Technical Advisory Board, VitalSigns Software Inc., Santa Clara, CA; acquired by International Network Services, Inc.; now part of Lucent. November 1996 to October 1999.

PATENTS

Methods for Storing and Reading Digital Data on a Set of DNA Strands, US Patent # 10,027,347, issued July 17, 2018.

Method and Apparatus for Whole-Network Anomaly Diagnosis and Method to Detect and Classify Network Anomalies Using Traffic Feature Distributions, US Patent # 8,869,276, issued October 21, 2014.

Compressed Set Representation for Sets as Measures in OLAP Cubes, US Patent # 8,533,167, issued September 10, 2013.

Method and Apparatus for Dynamic Resource Discovery and Information Distribution in a Data Network, US Patent # 7,747,741, issued June 29, 2010.

System for Creating and Distributing Prioritized List of Computer Nodes Selected as Participants in a Distribution Job, US Patent # 7,346,682, issued March 18, 2008.

Method and Apparatus for Election of Group Leaders in a Distributed Network, US Patent # 6,993,587, issued January 31, 2006.

Method and Apparatus for Scalable Distribution of Information in a Distributed Network, US Patent # 6,748,447, issued June 8, 2004.

Method and Apparatus for Reliable and Scalable Distribution of Data Files in Distributed Networks, US Patent # 6,718,361, issued April 6, 2004. European Patent # EP1305924 issued March 31, 2010.

Distributed Routing, US Patent # 6,370,584, issued April 9, 2002.

Method and Apparatus for Assigning Tasks in a Distributed Server System, US Patent # 6,223,205, issued April 24, 2001.

DOCTORAL STUDENTS

Ahmed Youssef, Ph.D. June 2023. "Computational Methods to Uncover Cell State Proteomes and Profile Protein Interaction Dynamics." Co-advised with Andrew Emili.

Bashir Rastegarpanah, Ph.D. August 2021. "Tools for Responsible Decision-Marking in Machine Learning."

Larissa Spinelli, Ph.D. June 2019. "Empirical Studies of Factors Affecting Opinion Dynamics."

Giovanni Comarela, Ph.D. July 2017. "On the Dynamics of Interdomain Routing in the Internet."

Natali Ruchansky, Ph.D. August 2016. "Matrix Completion with Structure." Co-advised with Evimaria Terzi.

Andrej Cvetkovski, Ph.D. May 2013. "Graph Embeddings for Low-Stretch Greedy Routing."

Gonca Gürsun, Ph.D. March 2013. "Inferring Hidden Features in the Internet."

Vijay Erramilli, Ph.D. December 2008. "Forwarding in Mobile Opportunistic Networks."

Nahur Fonseca, Ph.D. December 2008. "Stochastic Modeling Applied to Detection Problems in Network Protocols and Traffic."

Anukool Lakhina, Ph.D. August 2006. "Network-Wide Traffic Analysis: Methods and Applications."

Jun Liu, Ph.D. August 2002. "Characterizing Network Elements and Paths Using Packet Loss Behavior."

Paul Barford, Ph.D. June 2000. "Modeling, Measurement and Performance of World Wide Web Transactions."

Robert L. Carter, Ph.D. January 1998. "Performance Measurement and Prediction in Packet-Switched Networks: Techniques and Applications."

OTHER DOCTORAL STUDENTS ADVISED

Mengfei Cao, Ph.D, August 2016, "New Graph Metrics Improve Network-based Protein Function Prediction" Tufts University, Member of the Committee.

Bimal Viswanath, Ph.D, April 2016, "Towards Trustworthy Social Computing Systems." Universität des Saarlandes, Member of the Committee.

Yonjun Liao, Ph.D., January 2013, "Learning to Predict End-to-End Network Performance." Université de Liège, Belgium, Member of the Jury.

Diana Zeaiter Joumblatt, Ph.D., December 2012, "Prediction of User Dissatisfaction with Internet Application Performance at End-Hosts." Université Pierre et Marie Curie, Rapporteur.

Chrisil Arackaparambil, Ph.D., July 2011, "Anomaly Detection in Network Streams Through a Distributional Lens." Dartmouth College, Member of the Examining Committee.

Italo Cunha, Ph.D., July 2011, "Tracking Internet Routes and Path Reachability for Network Tomography." Université Pierre et Marie Curie (U. Paris VI), Rapporteur.

Hung Nguyen, Ph.D., February 2008, "User-level Internet Tomography and Overlay Routing." Ecole Polytechnique Fédérale de Lausanne (EPFL), Rapporteur.

Benoit Donnet, Ph.D., September 2006, "Algorithms for Large-Scale Topology Discovery." Université Pierre et Marie Curie (U. Paris VI), Président du Jury.

David Chua, Ph.D. (Mathematics), May 2006, "Statistical Analysis for Whole Networks." Second Reader.

Stilian Stoev, Ph.D. (Mathematics) May 2005.

Abhishek Kumar, Ph.D., October 2005, "Network Data Streaming: Algorithms for Network Monitoring and Coordination." Georgia Tech, Committee Member.

Marjan Bozinovski, Ph.D., May 2004, "Fault-Tolerant Platforms for IP-Based Session Control Systems." Aalborg University, Committee Member.

Artur Ziviani, Ph.D. December 2003, "Qualité de Service et Localisation d'Hotes." University of Paris VI, Examinateur.

Liang Guo, Ph.D. April 2003, "Size-Aware Scheduling of TCP Flows." Second Reader.

Alberto Medina, Ph.D. March 2003, "Practical Estimation of Internet Traffic Demands." Third Reader.

Vladas Pipiras, Ph.D. (Mathematics) April 2002, "Symmetric Stable Self-Similar Processes." Third Reader.

Khaled A. Harfoush, Ph.D. November 2001, "A Framework for End-to-End Characterization of Metric-Induced Network Topologies." Committee Member.

Santiago M. Pericas-Geertsen, Ph.D. November 2001, "XML-Fluent Mobile Agents." Committee Member.

Alia K. Atlas, Ph.D. August 1998, "Statistical Rate Monotonic Scheduling." Second Reader.

Ghulam Bhatti, Ph.D. January 1998, "Parallel and Distributed Discrete Event Simulation: An Event-Reservation Approach." Second Reader.

Sulaiman Mirdad, Ph.D. June 1997, "WebWave: Globally Load-Balanced, Fully-Distributed Caching". Second Reader.

Gi Tae Kim, Ph.D. June 1997, "Framework for Adaptive Forward Erasure Recovery (AFER) for Fault-Tolerant Real-Time Communications". Second Reader.

Carlos Cunha, Ph.D. June 1997, "Trace Analysis and its Application to Performance Enhancements of Distributed Information Systems". Second Reader.

Susan Nagy, Ph.D. April 1997, "Admission Control and Scheduling Strategies for Real-Time Database Systems". Second Reader.

Vadim Teverovksy, Ph.D. February 1997 (Mathematics), "Detection and Estimation of Long-Range Dependence." Third Reader.

Euthimios Panagos, Ph.D. May 1995, "Client-Based Logging: A New Paradigm for Distributed Transaction Management". Third Reader.

MASTERS STUDENTS

Megan Hacker, M.S. May 2012, "Methods for Pairing Mobile Devices Through Shared Sensing"

Lauren Walters, MSc. May 2004, "A Web Browsing Workload Model for Simulation," University of Cape Town, South Africa, external examiner.

Alan Charbonneau, M.A. May 2003, "Simulation of an SJF Proxy"

Iana Vitkova, M.A. May 2003, "Simulation of an SJF Proxy"

Robert Frangioso, M.A. Sept 2002, "Connection Scheduling in Web Servers"

Xiaohui Zhang, M.S. May 1999, "Cachability of Web Objects"

Scott Harrison, M.S. May 1998, "DPR Monitor: A Web-based DPR Network Monitoring Tool"

Stanley Gambarin, M.S. May 1997, "Implementing a Single-Process Non-Multithreaded World Wide Web Server"

Kostas Magoutis, M.S. May 1996, "Economies of Scale In Partitioned Disk Caches with Self-Similar References"

Fred Bierhaus, M.S. May 1996, "Improving Interactive Traffic Through the EQL Driver"

BOOKS

M. Crovella and B. Krishnamurthy, "Internet Measurement: Infrastructure, Traffic, and Applications," John Wiley and Sons, 2006, 512 pp.

BOOKS EDITED

M. Crovella and L. M. Feeney and D. Rubenstein (editors), "Proceedings of the 9th International IFIP TC 6 Networking Conference," Springer-Verlag, 410pp, 2010.

JOURNAL ARTICLES

Hui Peng, Sergei Kotelnikov, Megan E. Egbert, Shany Ofaim, Grant C. Stevens, Sadhna Phanse, Tatiana Saccon, Mikhail Ignatov, Shubham Dutta, Zoe Istace, Mohamed Taha Moutaoufik, Hiroyuki Aoki, Neal Kewalramani, Jianxian Sun, Yufeng Gong, Dzmitry Padhorny, Gennady Poda, Andrey Alekseenko, Kathryn A. Porter, George Jones, Irina Rodionova, Hongbo Guo, Oxana Pogoutse, Suprama Datta, Milton Saier, Mark Crovella, Sandor Vajda, Gabriel Moreno-Hagelsieb, John Parkinson, Daniel Segre, Mohan Babu, Dima Kozakov, and Andrew Emili, "Ligand interaction landscape of transcription factors and essential enzymes in *E. coli*," *Cell,* 2025.

A. Youssef, I. Paul, M. Crovella, and A. Emili, "DESP: Demixing Cell State Profiles from Dynamic Bulk Molecular Measurements," *Cell Reports Methods,* 2024.

L. Salamatian, S. Anderson, J. Matthews, P. Barford, W. Willinger, and M. Crovella, "A Manifold View of Connectivity in the Private Backbone Networks of Hyperscalers," *Communications of the ACM*, August 2023.

N. Kewalramani, A. Emili, M. Crovella, "State-of-the-Art Computational Methods to Predict Protein-Protein Interactions with High Accuracy and Coverage," *Proteomics,*, 2023.

A. Youssef, F. Bian, P. Havugimana, M. Crovella, and A. Emili, "Dynamic Remodeling of *Escherichia coli* Interactome in Response to Environmental Perturbations," *Proteomics,*, 2023.

L. Salamatian, S. Anderson, J. Mathews, P. Barford, W. Willinger, and M. Crovella, "A Manifold View of Connectivity in the Private Backbone Networks of Hyperscalers," *Communications of the ACM*, Research Highlights, 6(7), July 2023.

J. Jung, M. Guo, M. Crovella, J.G. McDaniel, and K.M. Warkentin. "Frog Embryos Use Multiple Levels of Temporal Pattern in Risk Assessment for Vibration-Cued Hatching," *Animal Cognition,* 2022.

J. N. Law, K. Akers, N. Tasnina, C. M. Della-Santina, S. Deutsch, M. Kshirsagar, J. Klein-Seetharaman, M. Crovella, P. Rajagopalan, S. Kasif, and T. M. Murali, "Interpretable Network Propagation with Application to Expanding the Repertoire of Human Proteins that Interact with SARS-CoV-2," *GigaScience,* 10(12), December 2021.

D. Lancour, J. Dupuis, R. Mayeux, J. Haines, M. Pericak-Vance, G. Schellenberg, M. Crovella, L. Farrer, and S. Kasif, "Analysis of Brain Region-Specific Co-Expression Networks Reveals Clustering of Established and Novel Genes Associated with Alzheimer Disease," *Alzheimer's Research & Therapy,* 2020.

J. Fan, X. C. Li, M. Crovella, and M. D. M. Leiserson, "Matrix (Factorization) Reloaded: Flexible Methods for Imputing Genetic Interactions with Cross-Species and Side Information," *OUP Bioinformatics,* 2020.

A. Ramirez, S. Dankel, B. Rastegarpanah, W. Cai, R. Xue, M. Crovella, Y.-H. Tseng, R. Kahn, and S. Kasif, "Single-Cell Transcriptional Networks in Differentiating Preadipocytes Suggest Drivers Associated with Tissue Heterogeneity," *Nature Communications,* 2020.

J. Fan, A. Cannistra, I. Fried, T. Lim, T. Schaffner, M. Crovella, B. Hescott, and M.D.M. Leiserson, "Functional Protein Representations from Biological Networks Enable Diverse Cross-Species Inference," *Nucleic Acids Research,* 2019.

D. Lancour, A. Naj, R. Mayeux, J. L. Haines, M. A. Pericak-Vance, G. C. Schellenberg, M. Crovella, L. A. Farrer, and S. Kasif, "One for All and All for One: Improving Replication of Genetic Studies through Network Diffusion," *PLoS Genetics*, Vol 14, April 2018.

A. Cvetkovski and M. Crovella, "Low-stress Data Embedding in the Hyperbolic Plane Using Multidimensional Scaling," *Applied Mathematics and Information Sciences,* Vol 11, Number 1, January 2017.

A. Cvetkovski and M. Crovella, "Multidimensional Scaling in the Poincaré Disk," *Applied Mathematics and Information Sciences,* Vol 10, Number 1, January 2016.

M. Cao, H. Zhang, J. Park, N. Daniels, M. Crovella, L. Cowen, and B. Hescott, "Going the Distance for Protein Function Prediction: A New Distance Metric for Protein Interaction Networks," *PLoS One,* Vol 8, Number 10, October 2013.

A. Cvetkovski and M. Crovella, "On the Choice of a Spanning Tree for Greedy Embedding of Network Graphs," *Networking Science,* February 2013.

B. Donnet, P. Raoult, T. Friedman, and M. Crovella, "Deployment of an Algorithm for Large-Scale Topology Discovery," *IEEE Journal on Selected Areas in Communications, Special Issue on Sampling the Internet*, Vol 24, Number 12, December 2006.

D. Chua, E. Kolaczyk, and M. Crovella, "Network Kriging," *IEEE Journal on Selected Areas in Communications, Special Issue on Sampling the Internet*, 2006.

B. Gueye, A. Ziviani, M. Crovella, and S. Fdida, "Constraint-Based Geolocation of Internet Hosts," *IEEE/ACM Transactions on Networking,* Vol 14, Number 6, December 2006.

R. Fonseca, V. Almeida, and M. E. Crovella, "Locality in a Web of Streams," *Communications of the ACM*, 48(1), pp. 82–88, January 2005.

M. Fayed, P. Krapivsky, J. Byers, M. Crovella, D. Finkel, and S. Redner, "On the Emergence of Highly Variable Distributions in the Autonomous System Topology," *Computer Communcation Review*, 33(2), pp. 41–49, July 2003.

A. Lakhina, J. W. Byers, M. E. Crovella, and I. Matta, "On the Geographic Location of Internet Resources," *IEEE Journal on Selected Areas in Communications, Special Issue on Internet and WWW Measurement, Mapping, and Modeling*, 2003.

P. Barford and M. E. Crovella, "Critical Path Analysis of TCP Transactions," *IEEE/ACM Transactions on Networking*, 9 (3), pp. 238–248.

M. E. Crovella, C. Lindemann, and M. Reiser, "Internet Performance Modeling: the state of the art at the turn of the century," *Performance Evaluation,* 42 (2–3), pp. 91-108, September 2000.

R. L. Carter and M. E. Crovella, "On the Network Impact of Dynamic Server Selection," *Computer Networks,* 31 (23–24), pp. 2529–2558.

M. Harchol-Balter, M. E. Crovella and C. D. Murta, "On Choosing a Task Assignment Policy for a Distributed Server System," *Journal of Parallel and Distributed Computing,* Special Issue on Software Support for Distributed Computing, September 1999.

P. Barford and M. E. Crovella, "Measuring Web Performance in the Wide Area," *Performance Evaluation Review,* Special Issue on Network Traffic Measurement and Workload Characterization, August 1999.

P. Barford, A. Bestavros, A. Bradley, and M. E. Crovella, "Changes in Web Client Access Patterns: Characteristics and Caching Implications," *World Wide Web,* Special Issue on World Wide Web Characterization and Performance Evaluation, 1999.

M. E. Crovella and M. S. Taqqu, "Estimating the Heavy Tail Index from Scaling Properties," *Methodology and Computing In Applied Probability,* 1(1), 1999.

M. E. Crovella and A. Bestavros, "Self-Similarity in World Wide Web Traffic: Evidence and Possible Causes," *IEEE/ACM Transactions on Networking,* 5(6):835–846, December 1997.

R. L. Carter and M. E. Crovella, "Measuring Bottleneck Link Speed in Packet-Switched Networks," *Performance Evaluation,* 27&28:297–318, October 1996.

L. A. Crowl, M. E. Crovella, T. J. LeBlanc, and M. L. Scott, "The Advantages of Multiple Parallelizations in Combinatorial Search," *Journal of Parallel and Distributed Computing,* special issue on Data-Parallel Algorithms and Programming, 21(1):110–123, April 1994.

BOOK CHAPTERS

M. E. Crovella, M. S. Taqqu, and A. Bestavros, "Heavy-Tailed Probability Distributions in the World Wide Web," Chapter 1 of *A Practical Guide To Heavy Tails,* pages 3–25, Chapman & Hall, New York, 1998.

M. E. Crovella and L. Lipsky, "Simulations with Heavy-Tailed Workloads," Chapter 3 of *Self-Similar Network Traffic and Performance Evaluation,* Wiley/Wiley-Interscience, 1999.

K. Park, G. Kim and M. Crovella, "The Protocol Stack and its Modulation Effect on Self-Similar Traffic," Chapter 16 of *Self-Similar Network Traffic and Performance Evaluation,* Wiley/Wiley-Interscience, 1999.

M. E. Crovella, "Performance Characteristics of the World Wide Web," in *White Book on Performance Evaluation,* Günter Haring, Christoph Lindemann, and Martin Reiser, editors, Springer-Verlag, 1999.

INVITED PAPERS

M. E. Crovella, "Performance Evaluation with Heavy Tailed Distributions," in *Lecture Notes in Computer Science 1786*, Proceedings of the 11th International Conference on Modelling Tools and Techniques for Computer and Communication System Performance Evaluation (TOOLS '2000), pp. 1-9, March 2000. Revised version appeared in *Job Scheduling Strategies for Parallel Processing : 7th International Workshop,* pp. 1-10, June 16, 2001.

REFEREED CONFERENCE PAPERS

A. Anderson, A. S. Mondal, P. Barford, M. Crovella, and J. Sommers, "An Elemental Decomposition of DNS Name-to-IP Graphs," *Proceedings of INFOCOM*, Vancouver, Canada, May 2024.

G. Franco, M. Crovella, and G. Comarela, "Dependence and Model Selection in LLP: The Problem of Variants," *Proceedings of KDD*, Los Angeles, CA, August 2023.

K. Quinn, E. Terzi, and M. Crovella, "Characterizing Covid Waves via Spatio-Temporal Decomposition," *Proceedings of KDD*, Washington DC, August 2022.

L. Salamatian, S. Anderson, J. Matthews, P. Barford, W. Willinger, and M. Crovella, "Curvature-based Analysis of Network Connectivity in Private Backbone Infrastructures," *Proceedings of ACM SIGMETRICS / IFIP Performance,* Mumbai, India, June 2022.

B. Rastegarpanah, K. P. Gummadi, and M. Crovella, "Auditing Black-Box Prediction Models for Data Minimization Compliance," *Proceedings of NeurIPS,* Online, December 2021. **Selected as a Spotlight Presentation (3% acceptance rate).**

L. Amichi, A. Carneiro Viana, M. Crovella, and A. A. F. Loureiro, "From Motion Purpose to Perceptive Spatial Mobility Prediction," *Proceedings of ACM SIGSPATIAL*, Beijing, China, November 2021.

G. Grassi, C. Barakat, M. Crovella, and R. Teixeira, "Leveraging Website Popularity Differences to Identify Performance Anomalies," *Proceedings of Infocom,* Online, May 2021.

L. Amichi, A. Carneiro Viana, M. Crovella, and A. A. F. Loureiro, "Understanding Individuals' Proclivity for Novelty Seeking," *Proceedings of ACM SIGSPATIAL,* Online, November 2020.

J. Fan, X. C. Li, M. Crovella, and M. D. M. Leiserson, "Matrix (Factorization) Reloaded: Flexible Methods for Imputing Genetic Interactions with Cross-Species and Side Information," *Proceedings of the 19th European Conference on Computational Biology,* Online, August 2020.

B. Rastegarpanah, M. Crovella, and K. P. Gummadi, "Fair Inputs and Fair Outputs: the Incompatibility of Fairness in Privacy and Accuracy," *Proceedings of the Workshop on Fairness in User Modeling, Adaptatation, and Personalization (FairUMAP),* Online, July 2020.

L. Spinelli and M. Crovella, "How YouTube Leads Privacy-Seeking Users Away from Reliable Information," *Proceedings of the Workshop on Fairness in User Modeling, Adaptatation, and Personalization (FairUMAP),* Online, July 2020.

J. Law, M. Kshirsagar, M. Crovella, P. Rajagopalan, J. Klein-Seetharaman, S. Kasif and T. M. Murali, "A Network-Based Label Propagation Framework to Reposition Drugs for COVID-19 (Poster)," Proceedings of RECOMB, Online, June 2020.

L. Amichi, A. Viana, M. Crovella, and A. A. F. Loureiro, "Mobility profiling: Identifying Scouters in the Crowd (Poster)," *Proceedings of the CoNEXT Student Workshop,* Orlando, FL, December 2019.

B. Rastegarpanah, K. P. Gummadi, and M. Crovella, "Fighting Fire with Fire: Using Antidote Data to Improve Polarization and Fairness of Recommender Systems," *Proceedings of WSDM 2019,* Melbourne, Australia, February 2019.

G. Comarela, R. Durairajan, P. Barford, D. Christenson, and M. Crovella, "Assessing Candidate Preference through Web Browsing History," *Proceedings of the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD),* London, UK, August 2018. Press coverage: BU Today: `http://www.bu.edu/today/2018/better-election-predictions`.

L. Spinelli and M. Crovella, "Unravelling the Dynamics of Online Ratings," Proceedings of the 4th International Symposium on Social Media Mining and Analysis (SMMA 2018), Exeter, UK, June 2018.

M.D.M. Leiserson, J. Fan, A. Cannistra, I. Fried, T. Lim, T. Schaffner, M. Crovella, and B. Hescott, "A Multi-Species Functional Embedding Integrating Sequence and Network Structure," Proceedings of RECOMB, Paris, France, April 2018.

B. Rastegarpanah, K. Gummadi, and M. Crovella, "Exploring Explanations for Matrix Factorization Recommender Systems" (Position Paper), FATREC Workshop on Responsible Recommendation, Como Italy, August 2017.

L. Spinelli and M. Crovella, "Closed-Loop Opinion Formation", *Proceedings of the 9th International ACM Web Science Conference (WebSci),* Troy, NY, June 2017.

N. Ruchansky, E. Terzi, and M. Crovella, "Targeted Matrix Completion," *Proceedings of the SIAM International Conference on Data Mining (SDM),* Houston, TX, April 2017.

C. Mavroforakis, D. Erdős, M. Crovella, and E. Terzi, "Active Positive-Definite Matrix Completion," *Proceedings of the SIAM International Conference on Data Mining (SDM),* Houston, TX, April 2017.

G. Comarela, E. Terzi, and M. Crovella, "Detecting Unusually-Routed ASes: Methods and Applications," *Proceedings of the ACM Internet Measurement Conference (IMC),* Santa Monica, CA, November 2016.

N. Ruchansky, M. Crovella, and E. Terzi, "Matrix Completion with Queries," *Proceedings of the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD),* Sydney, Australia, August 2015.

G. Comarela and M. Crovella, "Identifying and Analyzing High Impact Routing Events with PathMiner," *Proceedings of the ACM Internet Measurement Conference (IMC),* Vancouver, BC, November 2014.

B. Viswanath, M. A. Bashir, M. Crovella, S. Guha, K. Gummadi, B. Krishnamurthy, and A. Mislove, "Towards Detecting Anomalous User Behavior in Online Social Networks," *Proceedings of the 23rd USENIX Security Symposium*, San Diego, CA, August 2014.

Y. Zhang, T. Lappas, M. Crovella, and E. Kolaczyk, "Online ratings: convergence towards a positive perspective?," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing (ICASSP),* Florence, Italy, May 2014.

G. Comarela, G. Gürsun, and M. Crovella, "Studying Interdomain Routing over Long Timescales," *Proceedings of the ACM Internet Measurement Conference (IMC),* Barcelona, Spain, October 2013.

L. Spinelli, M. Crovella and B. Eriksson, "AliasCluster: A Lightweight Approach to Interface Disambiguation," *Proceedings of the Global Internet Symposium,* Turin, Italy, April 2013.

B. Eriksson and M. Crovella, "Understanding Geolocation Accuracy using Network Geometry," in *Proceedings of the Infocom 2013 Miniconference,* Turin, Italy, April 2013.

J. M. Agosta, J. Chandrasekar, M. Crovella, N. Taft, and D. Ting, "Mixture Models of Endhost Network Traffic," in *Proceedings of the Infocom 2013 Miniconference,* Turin, Italy, April 2013.

G. Gürsun, N. Ruchansky, E. Terzi, and M. Crovella, "Routing State Distance: A Path-based Metric for Network Analysis," in *Proceedings of the ACM Internet Measurement Conference (IMC),* Boston, MA, November 2012. **Winner of a 2013 IETF/IRTF Applied Networking Research Prize.**

G. Gürsun and M. Crovella, "On Traffic Matrix Completion in the Internet," in *Proceedings of the ACM Internet Measurement Conference (IMC),* Boston, MA, November 2012.

T. Lappas, M. Crovella, and E. Terzi, "Selecting a Characteristic Set of Reviews," in *Proceedings of the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2012,* Beijing, China, August 2012.

Q. Ding, N. Katenka, P. Barford, E. Kolaczyk, and M. Crovella, "Intrusion as (Anti)social Communication: Characterization and Detection," in *Proceedings of the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2012,* Beijing, China, August 2012. **Best Student Paper Award.**

G. Gürsun, N. Ruchansky, E. Terzi, and M. Crovella, "Inferring Visibility: Who's (not) Talking to Whom?," in *Proceedings of SIGCOMM 2012,* Helsinki, Finland, August 2012.

B. Eriksson and M. Crovella, "Estimating Intrinsic Dimension Via Clustering," in *IEEE Statistical Signal Processing Workshop (SSP),* Ann Arbor, MI, August 2012.

C. Thomas, J. Sommers, P. Barford, D. Kim, A. Das, R. Segebre, M. Crovella, "A Passive Measurement System for Network Testbeds," in *Tridentcom 2012,* Thessaloniki, Greece, June 2012.

G. Comarela, M. Crovella, V. Almeida and F. Benevenuto, "Understanding Factors that Affect Response Rates in Twitter," in *ACM Hypertext 2012,* Milwaukee, WI, June 2012.

A. Cvetkovski and M. Crovella, "Low-Stretch Greedy Embedding Heuristics," in *Fourth International Workshop on Network Science for Communication Networks (NetSciCom 2012),* Orlando, FL, March 2012.

V. Manfredi, M. Crovella, and J. Kurose, "Understanding Stateful vs Stateless Communication Strategies for Ad hoc Networks," in *Proceedings of Mobicom 2011,* Las Vegas, NV, September 2011.

G. Gürsun, M. Crovella, and I. Matta, "Describing and Forecasting Video Access Patterns," in *Proceedings of the Infocom 2011 Miniconference,* Shanghai, China, April 2011.

V. Bharti, P. Kankar, L. Setia, G. Gürsun, and M. Crovella, "Inferring Invisible Traffic," in *Proceedings of CoNEXT 2010,* Philadelphia, PA, December 2010.

J. Sommers, P. Barford and M. Crovella, "Router Primitives for Programmable Active Measurement," in *Workshop on Programmable Routers for Extensible Services of Tomorrow (PRESTO '09)*, Barcelona, Spain, August, 2009.

A. Cvetkovski and M. Crovella, "Hyperbolic Embedding and Routing for Dynamic Graphs," in *Proceedings of Infocom 2009*, Rio de Janeiro, Brazil, April 2009.

V. Erramilli and M. Crovella, "Forwarding in Opportunistic Networks with Resource Constraints," in *Proceedings of the Fourth ACM Workshop on Challenged Networks (CHANTS 08)*, San Francisco, CA, September, 2008.

N. Fonseca, M. Crovella, and K. Salamatian, "Long Range Mutual Information," in *Proceedings of the First Workshop on Hot Topics in Measurement and Modeling of Computer Systems (Hotmetrics '08),* Annapolis, MD, June, 2008.

V. Erramilli, A. Chaintreau, M. Crovella, and C. Diot, "Delegation Forwarding," in *Proceedings of the 9th ACM International Symposium on Mobile Ad Hoc Networking and Computing (ACM MobiHoc),* Hong Kong SAR, China, May 2008.

P. Chhabra, C. Scott, E. D. Kolaczyk, and M. Crovella, "Distributed Spatial Anomaly Detection," in *Proceedings of Infocom 2008*, Phoenix, AZ, April 2008.

V. Erramilli, A. Chaintreau, M. Crovella, and C. Diot, "Diversity of Forwarding Paths in Pocket Switched Networks," in *Proceedings of the ACM SIGCOMM Internet Measurement Conference*, San Diego, October, 2007.

B. Eriksson, P. Barford, R. Nowak, and M. Crovella, "Learning Network Structure from Passive Measurements," in *Proceedings of the ACM SIGCOMM Internet Measurement Conference*, San Diego, October, 2007.

V. Erramilli, M. Crovella, and N. Taft, "An Independent-Connection Model for Traffic Matrices," in *Proceedings of the ACM SIGCOMM Internet Measurement Conference*, Rio de Janeiro, October, 2006.

X. Li, F. Bian, M. Crovella, C. Diot, R. Govindan, G. Iannaccone, and A. Lakhina, "Detection and Identification of Network Anomalies Using Sketch Subspaces," in *Proceedings of the ACM SIGCOMM Internet Measurement Conference*, Rio de Janeiro, October, 2006.

A. Lakhina, M. Crovella, and C. Diot, "Detecting Distributed Attacks using Network-Wide Flow Traffic," in *Proceedings of FloCon 2005 Analysis Workshop*, New Orleans, LA, September, 2005.

A. Lakhina, M. Crovella, and C. Diot, "Mining Anomalies Using Traffic Feature Distributions," in *Proceedings of ACM SIGCOMM*, Philadelphia, PA, August 2005.

D. B. Chua, E. D. Kolaczyk, and M. Crovella, "A Statistical Framework for Efficient Monitoring of End-to-End Network Properties," (Poster) in *Proceedings of ACM SIGMETRICS*, Banff, Canada, June 2005.

B. Donnet, P. Raoult, T. Friedman, and M. Crovella, "Efficient Algorithms for Large-Scale Topology Discovery," in *Proceedings of ACM SIGMETRICS*, Banff, Canada, June 2005.

A. Soule, A. Lakhina, N. Taft, K. Papagiannaki, K. Salamatian, A. Nucci, M. Crovella, and C. Diot, "Traffic Matrices: Balancing Measurements, Inference and Modeling," in *Proceedings of ACM SIGMETRICS*, Banff, Canada, June 2005.

B. Donnet, T. Friedman, and M. Crovella, "Improved Algorithms for Network Topology Discovery," in *Lecture Notes in Computer Science, Proceedings of the 2005 Passive and Active Measurement Workshop*, Boston, MA, March, 2005.

D. B. Chua, E. D. Kolaczyk, and M. Crovella, "Efficient Monitoring of End-to-End Network Properties," in *Proceedings of Infocom 2005*, Miami, FL, March 2005.

N. Fonseca and M. Crovella, "Bayesian Packet Loss Detection for TCP," in *Proceedings of Infocom 2005*, Miami, FL, March 2005.

B. Gueye, A. Ziviani, M. Crovella, and S. Fdida, "Constraint-Based Geolocation of Internet Hosts," in *Proceedings of the ACM SIGCOMM Internet Measurement Conference*, Taormina, Italy, October 2004.

A. Lakhina, M. Crovella, and C. Diot, "Characterization of Network-Wide Anomalies in Traffic Flows," in *Proceedings of the ACM SIGCOMM Internet Measurement Conference*, Taormina, Italy, October 2004.

A. Lakhina, M. Crovella, and C. Diot, "Diagnosing Network-Wide Traffic Anomalies," in *Proceedings of ACM SIGCOMM*, Portland, OR, August 2004.

A. Lakhina, M. Crovella, and C. Diot, "Exploring the Subspace Method for Network-Wide Anomaly Diagnosis," (Poster) in *Network Troubleshooting Workshop: Research, Theory and Operations*, Portland, OR, August 2004.

A. Lakhina, K. Papagiannaki, M. Crovella, C. Diot, E. D. Kolaczyk, and N. Taft, "Structural Analysis of Network Traffic Flows," in *Proceedings of ACM SIGMETRICS / Performance 2004*, New York, NY, June 2004.

L. Tang and M. E. Crovella, "A Geometric Exploration of the Landmark Selection Problem," in *Lecture Notes in Computer Science 3015, Proceedings of the 2004 Passive and Active Measurement Workshop (PAM2004)*, pp. 63–72, Juan-les-Pins, France, April 2004.

L. Tang and M. E. Crovella, "Virtual Landmarks for the Internet," in *Proceedings of the 2003 Internet Measurement Conference*, Miami, Florida, October 2003.

R. Fonseca, V. Almeida, M. E. Crovella, and B. Abrahão, "On the Intrinsic Locality Properties of Web Reference Streams," in *Proceedings of IEEE Infocom 2003,* San Francisco, California, April 2003.

A. Lakhina, J. Byers, M. E. Crovella, and P. Xie, "Sampling Biases in IP Topology Measurements," in *Proceedings of IEEE Infocom 2003,* San Francisco, California, April 2003.

M. E. Crovella and E. Kolaczyk, "Graph Wavelets for Spatial Traffic Analysis," in *Proceedings of IEEE Infocom 2003,* San Francisco, California, April 2003.

J. Liu, I. Matta, and M. E. Crovella, "End-to-End Inference of Loss Nature in a Hybrid Wired/Wireless Environment," in *Proceedings of Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt'03)*, Sophia-Antipolis, France, March 2003.

A. Lakhina, J. W. Byers, M. E. Crovella, and Ibrahim Matta, "On the Geographic Location of Internet Resources," (Extended Abstract) in *Proceedings of the ACM SIGCOMM Internet Measurement Workshop 2002,* Marseilles, France, November 2002.

J. Liu and M. Crovella, "Using Loss Pairs to Discover Network Properties," in *Proceedings of the ACM SIGCOMM Internet Measurement Workshop 2001,* pp. 127–138, San Francisco, CA, November 2001.

P. Barford, A. Bestavros, J. Byers, and M. Crovella, "On the Marginal Utility of Network Topology Measurements," in *Proceedings of the ACM SIGCOMM Internet Measurement Workshop 2001,* pp. 5–17, San Francisco, CA, November 2001.

L. Guo, I. Matta, and M. E. Crovella, "How Does TCP Generate Pseudo-Self-Similarity?," in *Proceedings of MASCOTS 2001*, Cincinnati, Ohio, August 2001.

P. Barford and M. E. Crovella, "Critical Path Analysis of TCP Transactions," in *Proceedings of the 2000 ACM SIGCOMM Conference*, Stockholm, Sweden, pp. 127–138, September 2000. Also appeared by invitation as "Análisis de secuencia crítica de transacciones TCP" in *Proceedings of SIGCOMM Latin America,* San Antonio de Belén, Costa Rica, April 2001.

M. E. Crovella, R. Frangioso, and M. Harchol-Balter "Connection Scheduling in Web Servers," in *1999 USENIX Symposium on Internet Technologies and Systems (USITS '99).*

P. Barford and M. E. Crovella, "A Performance Evaluation of Hyper Text Transfer Protocols," in *Proceedings of ACM SIGMETRICS '99,* pp. 188–197, Atlanta, Georgia, May 1999.

A. Bestavros, M. E. Crovella, J. Liu, and D. Martin, "Distributed Packet Rewriting and its Application to Scalable Server Architectures," in *Proceedings of the Sixth International Conference on Network Protocols (ICNP '98),* pp. 290–297, October, 1998.

M. Harchol-Balter, M. E. Crovella, and C. D. Murta, "On Choosing a Task Assignment Policy for a Distributed Server System," in *Proceedings of Performance Tools '98, Lecture Notes in Computer Science,* No. 1469, pp. 231–242, September 1998.

P. Barford and M. E. Crovella, "Generating Representative Web Workloads for Network and Server Performance Evaluation,"in *Proceedings of ACM SIGMETRICS/Performance '98,* pp. 151–160, Madison, Wisconsin, July 1998.

M. E. Crovella, M. Harchol-Balter, and C. D. Murta, "Task Assignment in a Distributed System: Improving Performance by Unbalancing Load," in *Proceedings of SIGMETRICS '98 (Poster paper),* Madison, Wisconsin, July 1998.

M. E. Crovella and P. Barford, "The Network Effects of Prefetching," in *Proceedings of IEEE Infocom '98, the Seventeenth Annual Joint Conference of the IEEE Computer and Communication Societies,* San Francisco, California, pp. 1232–1240, April 1998.

M. E. Crovella and L. Lipsky, "Long-Lasting Transient Conditions in Simulations with Heavy-Tailed Workloads," in *Proceedings of the 1997 Winter Simulation Conference*, December 1997.

K. Park, G. Kim, and M. E. Crovella, "On the Effect of Traffic Self-Similarity on Network Performance," in *Proceedings of the SPIE International Conference on Performance and Control of Network Systems*, November, 1997.

P. Fiorini, L. Lipsky, and M. E. Crovella, "Consequences of Ignoring Self-Similar Data Traffic In Communications Modeling," In *Tenth International Conference on Parallel and Distributed Computing Systems (PDCS-97),* New Orleans, LA, pp. 322-327, October 1997.

R. L. Carter and M. E. Crovella, "Server Selection using Dynamic Path Characterization in Wide-Area Networks," in *Proceedings of IEEE Infocom '97, the Sixteenth Annual Joint Conference of the IEEE Computer and Communication Societies,* Kobe, Japan, April 1997.

V. Almeida, A. Bestavros, M. Crovella, and A. de Oliveira, "Characterizing Reference Locality in the WWW," in *Proceedings of the Fourth International Conference on Parallel and Distributed Information Systems (PDIS '96)*, December 1996.

K. Park, G. Kim, and M. E. Crovella, "On the Relationship Between File Sizes, Transport Protocols, and Self-Similar Network Traffic," in *Proceedings of the Fourth International Conference on Network Protocols (ICNP '96),* pp. 171–180, October, 1996.

R. L. Carter and M. E. Crovella, "Measuring Bottleneck Link Speed in Packet-Switched Networks," in *PERFORMANCE '96, the International Conference on Performance Theory, Measurement and Evaluation of Computer and Communication Systems,* October 1996.

M. E. Crovella and A. Bestavros, "Self-Similarity in World Wide Web Traffic: Evidence and Possible Causes," in *Proceedings of the 1996 ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems,* May 1996. **Winner of a 2010 ACM SIGMETRICS Test of Time Award.**

M. E. Crovella and R. L. Carter, "Dynamic Server Selection in the Internet," In *Proceedings of the Third IEEE Workshop on the Architecture and Implementation of High Performance Communication Subsystems (HPCS '95),* August 1995.

A. Bestavros, R. L. Carter, M. E. Crovella, C. R. Cunha, A. Heddaya, and S. A. Mirdad, "Application-Level Document Caching in the Internet," In *Proceedings of the Second Workshop on Services in Distributed and Networked Environments (SDNE '95),* June 1995.

M. E. Crovella and T. J. LeBlanc, "Parallel Performance Prediction Using Lost Cycles Analysis," In *Proceedings of Supercomputing '94,* November, 1994.

R. Bianchini, M. E. Crovella, L. Kontothanassis, and T. J. LeBlanc, "Software Interleaving," In *Proceedings of the 6th IEEE Symposium on Parallel and Distributed Processing*, October, 1994.

M. E. Crovella and T. J. LeBlanc, "Performance Debugging using Parallel Performance Predicates," In *3rd ACM/ONR Workshop on Parallel and Distributed Debugging*, May, 1993, pp. 140-150.

M. Crovella, R. Bianchini, T. LeBlanc, E. Markatos, and R. Wisniewski, "Using Communication-to-Computation Ratio in Parallel Performance Prediction and Program Design," *Proceedings of the Fourth IEEE Symposium on Parallel and Distributed Processing*, December 1992, pp. 238-245.

M. Crovella, P. Das, C. Dubnicki, T. LeBlanc, and E. Markatos, "Multiprogramming on Multiprocessors," *Proceedings of the Third IEEE Symposium on Parallel and Distributed Processing*, December 1991, pp. 590–597, Also published as TR 385, Department of Computer Science, University of Rochester, February 1991 (revised May 1991).

E. Markatos, M. Crovella, P. Das, C. Dubnicki, and T. LeBlanc, "The Effects of Multiprogramming on Barrier Synchronization," *Proceedings of the Third IEEE Symposium on Parallel and Distributed Processing*, December 1991, pp. 662-669. Also TR 380, University of Rochester Computer Science Department, May 1991.

N. Bashir, M. Crovella, G. DeTitta, F. Han, H. Hauptman, J. Horvath, H. King, D. Langs, R. Miller, T. Sabin, P. Thuman and D. Velmurugan, "Parallel Solutions to the Phase Problem in X-Ray Crystallography," *Proceedings of The Fifth Distributed Memory Computing Conference*, IEEE Computer Society Press, 1990, pp. 513–521.

M. Crovella, M. S. Summers, E. M. Camardo, and S. S. Weissman, "Exploiting a Restricted Application Domain in SDE Design," *Advance Working Papers of the Second International Workshop on Computer Aided Software Engineering,* IEEE Computer Society Press, July 1988, pp. 2-3–2-4.

J. G. Neal and M. E. Crovella, "An Expert System for Tactical Support Jammer Configuration," *Proceedings of the 1987 IEEE National Aerospace and Electronics Conference (NAECON '87),* May 1987, pp. 1308–1314.

J. G. Neal, M. E. Crovella, and C. Y. Thielman, "A Knowledge-Based Approach to an EW Mission Planning Task," *Proceedings of the Knowledge Based Information Systems Symposium (KBIS-87),* SHAPE Technical Centre, The Hague, Netherlands, 1987.

J. G. Neal, D. F. Funke, and M. E. Crovella, "JAMEX: An Expert Advisor on Tactical Support Jammer Configuration," *Proceedings of the Second Annual Conference on Expert Systems in Government,* IEEE Computer Society Press, November 1986, pp. 383–394.

REFEREED PRESENTATIONS

I. Fried, A. Cannistra, C. Casey, A. Piel, T. Lim, M. Crovella, B. Hescott, "CANDL: Coarsely Aligning Networks with Diffusion and Landmarks," Theme Presentation, ISMB/ECCB, Dublin, July 2015.

UNREFEREED PUBLICATIONS

R. Canetti, A. Cohen, C. Conley, M. Crovella, S. L. Dogan, M. Gaboardi, W. Hartzog, R. Van Loo, C. T. Robertson, K. Baird Silbaugh, "National Telecommunications and Information Administration: Comments from Researchers at Boston University and the University of Chicago," Boston Univ. School of Law Research Paper No. 23-24, June 2023.

M. Crovella, "The Skillful Interrogation of the Internet," in *Computer Communication Review,* vol. 49, no. 3, October 2019.

kc Claffy, M. Crovella, T. Friedman, C. Shannon and N. Spring, "Community-oriented network measurement infrastructure (CONMI) workshop report," in *Computer Communication Review,* vol. 36, no. 2, pp. 41–48, April, 2006.

M. E. Crovella, "How Big is the Average Web Page?" in *Inclusions, the Arts of Mathematics,* Journal of the Mathematical Association of America Student Chapter at Boston University, May 1999.

T. J. LeBlanc, M. L. Scott, B. Marsh, E. Markatos, C. Dubnicki, M. Crovella, and T. Becker, "The Psyche Parallel Operating System," *IEEE TC on Operating Systems Newsletter,* vol. 6, no. 1, 1992, pp. 11-13.

TECHNICAL REPORTS

G. Grassi, C. Barakat, M. Crovella, and R. Teixeira, "Leveraging Website Popularity Differences to Identify Performance Anomalies," (Extended Version), Available at `https://hal.inria.fr/hal-03109717`, January 2021.

J. N. Law, N. Tasnina, M. Kshirsagar, J. Klein-Seetharaman, M. Crovella, P. Rajagopalan, S. Kasif, and T. M. Murali, "Identifying Human Interactors of SARS-CoV-2 Proteins and Drug Targets for COVID-19 using Network-Based Label Propagation," arXiv:2006.01968, June 2, 2020.

B. Rastegarpanah, M. Crovella, and K. P. Gummadi, "Fair Inputs and Fair Outputs: the Incompatibility of Fairness in Privacy and Accuracy," arXiv:2005.09209, May 19, 2020.

M.D.M. Leiserson, J. Fan, A. Cannistra, I. Fried, T. Lim, T. Schaffner, M. Crovella, and B. Hescott, "A Multi-Species Functional Embedding Integrating Sequence and Network Structure," bioRxiv, December 4, 2017.

J.-M. Agosta, J. Chandrasekar, M. Crovella, N. Taft, and D. Ting, "Mixture Models of Endhost Network Traffic," arxiv:1212.2744, December 13, 2012.

M. Hacker, M. Crovella, and L. Reyzin, "Secure Pairing of Mobile Devices," BUCS-TR-2012-011, May 16, 2012.

A. Cvetkovski and M. Crovella, "Multidimensional Scaling in the Poincare Disk," arxiv:1105.5332, May 26, 2011.

A. Lakhina, M. Crovella, and C. Diot, "Diagnosing Network-Wide Traffic Anomalies," BUCS-TR-2004-008, February 24, 2004. Also published as a Sprint Research Report.

A. Lakhina, K. Papagiannaki, M. Crovella, C. Diot, E. D. Kolaczyk, and N. Taft, "Structural Analysis of Network Traffic Flows," BUCS-TR-2003-021, November 10, 2003. Also published as Sprint Research Report RR03-ATL-110708.

M. Fayed, P. Krapivsky, J. Byers, M. Crovella, and D. Finkel, "On the Size Distribution of Autonomous Systems," BUCS-TR-2003-001, January 17, 2003.

R. Fonseca, V. Almeida, M. E. Crovella, and B. Abrahão, "On the Intrinsic Locality Properties of Web Reference Streams," BUCS-TR-2002-022, July 15, 2002.

A. Lakhina, J. Byers, M. E. Crovella, and P. Xie, "Sampling Biases in IP Topology Measurements," BUCS-TR-2002-021, July 15, 2002.

M. E. Crovella and E. Kolaczyk, "Graph Wavelets for Spatial Traffic Analysis," BUCS-TR-2002-020, July 15, 2002.

A. Lakhina, J. W. Byers, M. E. Crovella, and Ibrahim Matta, "On the Geographic Location of Internet Resources," BUCS-TR-2002-015, 2002.

J. Liu, I. Matta, and M. E. Crovella, "End-to-End Inference of Loss Nature in a Hybrid Wired/Wireless Environment," BUCS-TR-2002-008, March 14, 2002.

M. E. Crovella, R. Frangioso, and M. Harchol-Balter "Connection Scheduling in Web Servers," BUCS-TR-1999-003, March 31, 1999.

M. Harchol-Balter, M. E. Crovella, and C. D. Murta, "On Choosing a Task Assignment Policy for a Distributed Server System," MIT Laboratory for Computer Science, MIT-LCS-TR-757, 1998.

P. Barford and M. E. Crovella, "Generating Representative Web Workloads for Network and Server Performance Evaluation," BUCS-TR-1997-006, November 4, 1997.

M. E. Crovella, M. Harchol-Balter, and C. D. Murta, "Task Assignment in a Distributed System: Improving Performance by Unbalancing Load," BUCS-TR-1997-018, October 31, 1997.

M. Harchol-Balter, M. E. Crovella, and C. D. Murta, "To Queue or Not to Queue: When Queueing is Better Than Timesharing in a Distributed System," BUCS-TR-1997-017, October 31, 1997.

K. Park, G. Kim, and M. E. Crovella, "On the Effect of Traffic Self-Similarity on Network Performance," CSD-TR 97-024, Dept. of Computer Sciences, Purdue University, July 1997.

M. Crovella and P. Barford, "The Network Effects of Prefetching," BUCS-TR-97-002, February 7, 1997.

K. Park, G. Kim, and M. E. Crovella, "On the Relationship Between File Sizes, Transport Protocols, and Self-Similar Network Traffic," BUCS-TR-96-016, August 7, 1996.

V. Almeida, A. Bestavros, M. Crovella, and A. deOliveira, "Characterizing Reference Locality in the WWW," BUCS-TR-96-011, June 21, 1996.

A. Bestavros, M. Chen, M. Crovella, A. Heddaya, S. Sclaroff, and J. Cowie, "Responsive Web Computing: Resource Management, Protocol Techniques, and Applications (A research statement)," BUCS-TR-96-008, March 21, 1996.

R. L. Carter and M. E. Crovella, "Dynamic Server Selection Using Bandwidth Probing in Wide-Area Networks," BUCS-TR-96-007, Boston University Computer Science Department, March 18, 1996.

R. L. Carter and M. E. Crovella, "Measuring Bottleneck Link Speed in Packet-Switched Networks," Technical Report BUCS-TR-96-006, Boston University Computer Science Department, March 15, 1996.

M. E. Crovella and A. Bestavros, "Explaining World Wide Web Traffic Self-Similarity," Technical Report BUCS-TR-95-015 (Revised), Boston University Department of Computer Science, October 1995.

M. E. Crovella, T. J. LeBlanc, and W. Meira Jr., "Performance Measurement and Modeling with the Lost Cycles Toolkit," Technical Report 580, University of Rochester Computer Science Department, June 1995.

C. Cunha, A. Bestavros, and M. Crovella, "Characteristics of WWW Client-based Traces," Technical Report BUCS-TR-95-010, Boston University Department of Computer Science, April 1995.

A. Bestavros, R. L. Carter, M. E. Crovella, C. R. Cunha, A. Heddaya, and S. A. Mirdad, "Application-Level Document Caching in the Internet," Technical Report BUCS-TR-95-002, Boston University Department of Computer Science, February 1995.

M. E. Crovella, "Performance Prediction and Tuning of Parallel Programs," Technical Report 573 and Ph.D. Thesis, Computer Science Dept., U. Rochester, February 1995.

M. E. Crovella and T. J. LeBlanc, "The Search for Lost Cycles: a New Approach to Parallel Program Performance Evaluation," Technical Report 479, University of Rochester Computer Science Department, December 1993.

L. A. Crowl, M. E. Crovella, T. J. LeBlanc, and M. L. Scott, "Beyond Data Parallelism: The Advantages of Multiple Parallelizations in Combinatorial Search," Technical Report 92-80-06, December 1992, Department of Computer Science, Oregon State University. Revised version appears as Technical Report 451, U. Rochester Department of Computer Science, April 1993.

R. Bianchini, M. E. Crovella, L. Kontothanassis, and T. J. LeBlanc, "Alleviating Memory Contention in Matrix Computations on Large-Scale Shared-Memory Multiprocessors," Technical Report 449, U. Rochester Computer Science Department, April 1993.

R. Bianchini, M. E. Crovella, L. Kontothanassis, and T. J. LeBlanc, "Memory Contention in Scalable Cache-Coherent Multiprocessors," Technical Report 448, U. Rochester Computer Science Department, April 1993.

D. Bergmark and M. Crovella, "Case Study in KSR Programming: Finding Outliers by the Minimum Volume Ellipsoid Method," Technical Report CTC92TR107, October 1992, Center for Theory and Simulation in Science and Engineering, Cornell University, Ithaca, NY 14853.

RECENT TALKS

"Beyond accuracy: understanding the performance of LLMs on exams designed for humans,"

- UFMG, Department of Computer Science, March 8, 2024.

"Estimating Traffic Flows that Can't Be Measured"

- Google Telemetry Seminar Series, May 17, 2021.

"Assessing Candidate Preference Through Web Browsing History"

- Sorbonne Université (UPMC) LIP6, April 15, 2019.
- INRIA Sophia-Antipolis, March 20, 2019.
- INRIA Saclay, December 13, 2018.
- INRIA Paris, November 8, 2018.
- LINCS Laboratory, Paris, October 10, 2018.

"Human Behavior is Low Dimensional"

- TMA Experts Summit 2019, Paris, June 18, 2019.
- Chinese Academy of Sciences, Institute of Computing Technology, Beijing, May 20, 2019.
- Huawei Network AI Workshop, Paris, April 9, 2019.
- LINCS Laboratory, Paris, February 13, 2019.
- Wesleyan University Department of Mathematics and Computer Science, April 13, 2017.
- IEEE Workshop on Data Science for Networking (DS4N), December 14, 2017.

"The Statistics of Human Activity and Implications for Security"

- BU Statistics Club, Professor Speaker Series, November 10, 2016.

"Analyzing the Evolution of Internet Routing through Path Analysis"

- Cisco FAST Seminar Series, July 17, 2015.
- Raytheon BBN Technologies, SDP Seminar, September 28, 2015.

"Reversing the Curse of Dimensionality for Security Analysis"

- NYU Poly Department of Computer Science, December 5, 2014.

"Anomaly Detection and Dimensionality Reduction"

- Workshop on Mathematics of Data Analysis in Cybersecurity, ICERM, Brown University, October 24, 2014.

"Targeted Matrix Completion"

- 51st Annual Allerton Conference on Communication, Control, and Computing, University of Illinois at Urbana-Champaign, October 3, 2013.

"Better Routing with Hyperbolic Geometry"

- Laboratory of Information, Networking and Communication Sciences (LINCS) Paris, December 19, 2012.

"A Fine Grained Distance Metric for Small Worlds"

- Université de Liège, Liège Belgium, January 11, 2013.
- Laboratory of Information, Networking and Communication Sciences (LINCS) Paris, Mar 20, 2012.

"Inferring Invisible Traffic"

- Williams College, Dept. of Computer Science, Williamstown, MA, November 22, 2013.
- Tufts University, Dept. of Computer Science, Medford, MA, November 7, 2013.
- University of Miami, Dept. of Computer Science, Miami, FL, March 2, 2011.
- International Computer Science Institute (ICSI), Berkeley, CA, July 20, 2010.
- Statistics of Networks Workshop, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, June 24, 2010.

"Network Monitoring: Challenges and Opportunities"

- Indian Institute of Technology (IIT), Delhi, India, June 9, 2008.

"Exploiting Feature Distributions in Anomaly Diagnosis"

- Dartmouth, November 28, 2005.
- MIT CSAIL-LIDS Networking and Systems Seminar, Cambridge MA, April 11, 2005.

"Network Anomaly Diagnosis"

- Boston Area Networking and Networkers Annual Summit (BANANAS-2005), BBN Technologies, Cambridge MA, January 20, 2005.

"Applying the Subspace Method to Network Traffic Analysis"

- Statistical Research Center for Complex Systems (SRCCS), Workshop on "Internet Measurement, Modeling, and Analysis," Seoul National University, Seoul, South Korea, January 11, 2005.
- Electronics and Telecommunications Research Institute (ETRI), Daejeon, South Korea, January 13, 2005.

"Diagnosing Network-Wide Traffic Anomalies"

- Columbia University, Nov. 17, 2004.
- Workshop on Internet Signal Processing (WISP), CAIDA, Nov. 11, 2004.
- Ecole Normale Supérieure, Paris, Apr. 13, 2004.
- France Telecom R&D, Paris, Mar. 18, 2004.

"Structural Analysis of Network Traffic Flows"

- Project Metropolis Meeting, École Nationale Supérieure des Télécommunications de Bretagne (ENST), Rennes, Feb. 10, 2004.
- Institute for Mathematics and its Applications, Workshop on "Measurement, Modeling and Analysis of the Internet," Minneapolis, MN, January 12, 2004.

"Virtual Landmarks for the Internet"

- Intel Research, Cambridge UK, October 1, 2003.
- Ecole Polytechnique Fédérale de Lausanne (EPFL), November 10, 2003.
- Laboratoire d'Informatique de Paris VI (LIP6), November 14, 2003.

"Sampling Biases in IP Topology Measurements"

- Séminaire Graphes, Réseaux et Modélisation, Laboratoire de Recherche en Informatique, Université d'Orsay, January 8, 2004.
- IBM T.J. Watson Labs, April 11, 2003.
- BU Statistics Colloquium, April 10, 2003.
- National Institute of Statistical Sciences, March 28, 2003.