

Fabián E. Bustamante

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RESEARCH INTERESTS

My research spans computer networks and distributed systems, with contributions to Internet measurement, broadband characterization, content delivery, DNS, and submarine cable infrastructure. More recently, my work has focused on the resilience, observability, and sovereignty of critical digital infrastructure, including methods for understanding shared dependencies, characterizing failure propagation, and improving the transparency of an increasingly opaque digital ecosystem.

Across these areas, the overarching goal of my research is to improve the observability of networked systems at Internet scale by developing methods to measure, characterize, and reason about both their behavior and the critical infrastructure on which they depend. This work combines empirical measurement with the design and deployment of systems that make previously hidden aspects of digital infrastructure observable, thereby improving our ability to assess its resilience, transparency, and trustworthiness.

EDUCATION

NORTHWESTERN UNIVERSITY, KELLOGG SCHOOL OF MANAGEMENT
Executive Education, Management Skills for Innovative University Leaders, 2009.

GEORGIA INSTITUTE OF TECHNOLOGY
Ph.D. Computer Science – December 2001
Dissertation *The Active Streams Approach to Distributed Applications and Services*
Advisor: Prof. Karsten Schwan

GEORGIA INSTITUTE OF TECHNOLOGY
M.S. Computer Science – December 1997

UNIVERSIDAD NACIONAL DE LA PATAGONIA SAN JUAN BOSCO, Argentina
Licenciado en Ciencias de la Computación (5-year-and-project degree) – March 1993

UNIVERSIDAD NACIONAL DE LA PATAGONIA SAN JUAN BOSCO, Argentina
Analista Programador Universitario (3-year degree) – April 1992

PROFESSIONAL EXPERIENCE

NORTHWESTERN UNIVERSITY, Evanston, IL – 2002–Present
Department of Computer Science, McCormick School of Engineering
Professor (2014–Present)
Associate Head for Computer Science (2015–2019)
Associate Professor (2008–2014)
Assistant Professor (2002–2008)

KEALU, INC., Chicago, IL – 2025–Present
Co-founder and Chief Science Officer

PHENIX REAL TIME SOLUTIONS, INC., Chicago, IL – 2016–2024
Director of Research (2021–2024)
Research Scientist (2016–2021)

TRINITY COLLEGE DUBLIN, Dublin, Ireland – 2012–2018
School of Computer Science and Statistics
Adjunct Associate Professor

UNIVERSIDAD DE BUENOS AIRES, Argentina – June–July 2012; June–July 2017
Department of Computer Science
Visiting Professor

TRINITY COLLEGE DUBLIN, Dublin, Ireland – 2009
School of Computer Science and Statistics
E.T.S. Walton Visiting Research Fellow

GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, GA – 2001–2002
Research Scientist

HEWLETT-PACKARD LABORATORIES, Palo Alto, CA – Fall 1999
Research Intern

UNIVERSITY OF MARYLAND, College Park, MD – Summer 1997
Visiting Researcher

HONORS AND AWARDS

Major Honors

National Science Foundation CAREER Award, 2007.

Science Foundation Ireland E.T.S. Walton Visitor Award, 2008.

Google Faculty Research Awards, 2010, 2011, 2012, and 2016.

Best Paper Awards

Best Student Paper Award, International Symposium on Reliable Distributed Systems (SRDS), 2025 (with E. Ehsani Moghadam).

Runner-up, Best Paper Award, ACM Internet Measurement Conference (IMC), 2014 (with Z. Bischof and R. Stanojevic).

Best Paper Award, ACM SIGCOMM Workshop on Measurement Up and Down the STack (W-MUST), 2012 (with Z. Bischof and J. Otto).

Best Paper Award, USENIX Annual Technical Conference (FREENIX Track), 2004.

Professional Recognition

Fulbright Specialist, 2012–2015.

Senior Member, Association for Computing Machinery (ACM), since 2008.

Senior Member, Institute of Electrical and Electronics Engineers (IEEE), since 2010.

University and Community Recognition

Searle Junior Fellow, Searle Center for Teaching Excellence, Northwestern University, 2003–2004.

AGEP Professor, Midwest Crossroads AGEP (Alliances for Graduate Education and the Professoriate), 2005.

Apps for Metro Chicago Grand Challenge: Second Place (Trailblaze), Fifth Place (Fixit!), and Fourth Place (Trailblaze), 2011.

KEYNOTES AND DISTINGUISHED LECTURES

Inaugural LACNIC Internet Measurement Working Group (IMWG), Keynote Speaker, Fortaleza, Brazil, 2023.
 International Workshop on Traffic Monitoring and Analysis (TMA), Keynote Speaker, Puerto Varas, Chile, 2019.
 International Workshop on Traffic Monitoring and Analysis (TMA), Keynote Speaker, Vienna, Austria, 2018.
 TMA Expert Summit, Invited Speaker, Vienna, Austria, 2018.
 mPlane Final Workshop, Keynote Speaker, Heidelberg, Germany, 2015.
 Global Future Internet Summit, Keynote Speaker, Seoul, Republic of Korea, 2012.

STUDENT AWARDS AND RECOGNITIONS

Students supervised or co-supervised have received the following national and international recognitions.

Internet Society Fellow, *Rashna Kumar*, 2025.
 Winner, ACM Student Research Competition, Graduate Category, ACM SIGCOMM, *Rashna Kumar*, 2021.
 Northwestern University, Outstanding Computer Science Senior Award *Robbert Belson (BS student)*, 2019.
 Northwestern University. Greenbriar Research Fellowship *Robbert Belson (BS student)*, 2018.
 EECS Department Outstanding Senior in Computer Science, *Nathan A. Lindquist (BS/MS student)*, 2018.
 JSPS Postdoctoral Fellowship, Japan Society for the Promotion of Science, *Zachary Bischof*, 2017.
 Winner, ACM Student Research Competition, Undergraduate Category, ACM SIGCOMM, *Angela Jiang (BS student)*, 2014.
 Winner, ACM Student Research Competition, Graduate Category, ACM SIGCOMM, *John Rula*, 2014.
 EECS Department Outstanding Ph.D. Thesis, *John S. Otto*, 2013.
 NSF/CRA Computing Innovations Fellowship, 2010-2012, *David R. Choffnes*, 2010-2012.
 EECS Department Outstanding Ph.D. Thesis, *David R. Choffnes*, 2010.

PUBLICATIONS

(Acceptance rates provided when available.)

REFEREED PUBLICATIONS

- [1] HyunSeok (Daniel) Jang, Ayush Pandey, Matteo Varvello, **Fabián E. Bustamante**, Yasir Zaki, “Dissecting Mellowtel: Bandwidth-as-a-Service Through Browser Extensions,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2026.
- [2] Caleb Wang, Ying Zhang, Qianli Dong, Esteban Carisimo, Ramakrishnan Durairajan. **Fabián E. Bustamante**, “Calypso’s Voyage: Charting Traceroute Paths to Submarine Cables,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2026.
- [3] Ying Zhang, Daniel Jang, **Fabián E. Bustamante**, “Belt and Suspenders: A Study of Resilience in TikTok’s Global Video Delivery,” *Proc. of the International Conference on emerging Networking EXperiments and Technologies (CoNEXT)*, December 2026.
- [4] Rashna Kumar, Marinho Barcellos, Amreesh Phokeer, **Fabián E. Bustamante**, “Government Procurement and the Structure of Digital Dependency,” *Proc. of TPRC54*, September 2026.

- [5] Esteban Carisimo, Mariano G. Beiró, Lukas De Angelis Riva, Mauricio Buzzzone, **Fabián E. Bustamante**, “En Unión y Libertad: Subnational Strategies for Hosting Government Services,” *Proc. of the International Conference on Passive and Active Measurements (PAM)*, March 2026
- [6] Rashna Kumar, **Fabián E. Bustamante**, Marcel Flores, “Who Holds the Steering Wheel? Opacity and Consolidation in CDN Replica Selection,” *Proc. of New Ideas In Networked Systems (NINeS)*, February 2026.
- [7] Mia Weaver, Darry Veitch, Paul Barford, **Fabián E. Bustamante**, Esteban Carisimo, “Monitoring Latency on Submarine Cables: Limitations and Opportunities,” *Proc. of New Ideas In Networked Systems (NINeS)*, February 2026.
- [8] Vaibhav Bhosale, Ying Zhang, Sameer Kapoor, Robin Kim, Miguel Schlicht, Muskaan Gupta, Ekaterina Tumaniva, Zachary Bischof, **Fabián E. Bustamante**, Alberto Dainotti, Ahmed Saeed, “Are LEO Networks the Future of National Emergency Failover? – A Quantitative Study and Policy Blueprint,” *Proc. of TPRC53*, September 2025.
- [9] Elham Ehsani Moghadam, **Fabián E. Bustamante**, Adrian Perrig, Walter Willinger, “Towards Stress Testing the Internet Inter-Domain Routing System ‘in Silico’ with Domino,” *Proc. of the International Symposium on Reliable Distributed Systems (SRDS)*, September 2025.
Best Student Paper Award.
- [10] Jiahui He, Peter Snyder, Hamed Haddadi, **Fabián E. Bustamante**, Gareth Tyson, “Measuring the Accuracy and Effectiveness of PII Removal Services,” *Proc. of PETS/PoPETs*, July 2025.
- [11] Carlos Selmo, Esteban Carisimo, **Fabián E. Bustamante**, J. Ignacio Alvarez-Hamelin, “Learning AS-to-Organization Mappings with Borges,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2025.
- [12] Kedar Thiagarajan, Esteban Carisimo, **Fabián E. Bustamante**, “The Aleph: Decoding DNS PTR Records With Large Language Models,” *Proc. of the International Conference on emerging Networking EXperiments and Technologies (CoNEXT)*, December 2025.
- [13] Caleb J. Wang, Ying Zhang, Oscar Dong, Esteban Carisimo, **Fabián E. Bustamante**, Ram Durairajan, “Threading the Ocean: Mapping Digital Routes Across Submarine Cables using Calypso,” *Proc. of SIGCOMM (Short Paper)*, August 2025.
- [14] Rashna Kumar, Esteban Carisimo, Lukas De Angelis Riva, Mauricio Buzzzone, **Fabián E. Bustamante**, Ihsan Ayyub Qazi, Mariano G. Beiró, “Of Choices and Control - A Comparative Analysis of Government Hosting,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2024 (21% acceptance rate, 55/253).
- [15] Esteban Carisimo, Rashna Kumar, Caleb J. Wang, Santiago Klein, **Fabián E. Bustamante**, “Ten years of the Venezuelan crisis - An Internet perspective,” *Proc. of the ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM)*, August 2024 (17% acceptance rate, 62/366).
- [16] Esteban Carisimo, Caleb Wang, Mia Weaver, **Fabián E. Bustamante** and Paul Barford, “A hop away from everywhere: A view of the intercontinental long-haul infrastructure,” *Proc. of ACM SIGMETRICS*, June 2024. (also *Proc. ACM Meas. Anal. Comput. Syst.* 7(3), 2023).
- [17] Rashna Kumar, Sana Asif, Elise Lee, and **Fabián E. Bustamante**, “Each at its own pace: Third-party Dependency and Centralization Around the World,” *Proc. of ACM SIGMETRICS*, June 2023 (22% acceptance rate, 26/119).
- [18] Augusto Arturi, Esteban Carisimo, and **Fabián E. Bustamante**, “as2org+ : Enriching AS-to-Organization Mappings with PeeringDB,” *Proc. of the International Conference on Passive and Active Measurements (PAM)*, March 2023 (34% acceptance rate, 27/80).
- [19] Sergi Alcalá-Marín, Aravindh Raman, Weili Wu, Andra Lutu, Marcelo Bagnulo, Ozgu Alay and **Fabián E. Bustamante**, “Global Mobile Network Aggregators: Taxonomy, Roaming Performance and Optimization Conference” *Proc. of ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, June 2022 (22% acceptance rate, 38/176).

- [20] Matteo Varvello, Kleomenis Katevas, Mihai Plesa, Hamed Haddadi, **Fabián E. Bustamante**, Bel Livshits, “BatteryLab: A Collaborative Platform for Power Monitoring Conference”, *Proc. of the International Conference on Passive and Active Measurements (PAM)*, March 2022 (48% acceptance rate, 30/62).
- [21] Byungjin Jun, **Fabián E. Bustamante**, Ben Greenstein and Ian Clelland, “Reining in Mobile Web Performance with Document and Permission Policies,” *Proc. of the ACM Workshop on Mobile Computing Systems and Applications (HotMobile)*, March 2022 (42% acceptance rate, 18/43).
- [22] Sana Asif, Byungjin Jun, **Fabián E. Bustamante**, and John P. Rula, “Networked Systems as Witnesses - Association Between Content Demand, Human Mobility and an Infection Spread,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2021 (28% acceptance rate, 55/196).
- [23] Byungjin Jun, Matteo Varvello, Yasir Zaki and **Fabián E. Bustamante**, “WebTune: A Distributed Platform for Web Performance Measurements Conference,” *Proc. of the IEEE/IFIP Network Traffic Measurement and Analysis Conference (TMA)*, September 2021 (45% acceptance rate, 18/40).
- [24] Andra Lutu, Diego Perino, Marcelo Bagnulo and **Fabián E. Bustamante**, “Insights from Operating an IP Exchange Provider Conference,” *Proc. of the ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM)*, August 2021 (23% acceptance rate, 55/241).
- [25] Neil Agarwal, Matteo Varvello, Andrius Aucinas, James Newman, **Fabián E. Bustamante**, Ravi Netravali, “Mind the Delay: The Adverse Effects of Delay-Based TCP on HTTP,” *Proc. of the International Conference on emerging Networking EXperiments and Technologies (CoNEXT)*, December 2020 (24% acceptance rate, 40/168).
- [26] Shucheng Liu, Zachary S. Bischof, Ishaan Madan, Peter K. Chan and **Fabián E. Bustamante**, “Out of Sight, Not Out of Mind - A User-View on the Criticality of the Submarine Cable Network,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2020 (24.5% acceptance rate, 53/216).
- [27] Andra Lutu, Byungjin Jun, Alessandro Finamore, **Fabián E. Bustamante**, and Diego Perino, “Where Things Roam: Uncovering Cellular IoT/M2M Connectivity,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2020 (24.5% acceptance rate, 53/216).
- [28] Andra Lutu, Byungjin Jun, **Fabián E. Bustamante**, Diego Perino, Marcelo Bagnulo, Carlos Gamboa Bontje, “A first look at the IP eXchange Ecosystem,” *arXiv preprint arXiv:2007.13809*, July 2020.
- [29] Yihan Zhang, Lyon Zhang, Hanlin Wang, **Fabián E. Bustamante**, Michael Rubenstein, “SwarmTalk – Towards Benchmark Software Suites for Swarm Robotics Platforms,” *Proc. of AAMAS*, 2020.
- [30] Byungjin Jun, **Fabián E. Bustamante**, Sung Yoon Whang and Zachary S. Bischof, “AMP up your mobile web experience: Characterizing the impact of Google’s Accelerated Mobile Project,” *Proc. of the ACM International Conference On Mobile Computing And Networking (MobiCom)*, October 2019.
- [31] James Newman and **Fabián E. Bustamante**, “The Value of First Impressions: The Impact of Ad-Blocking on Web QoE,” *Proc. of the International Conference on Passive and Active Measurements (PAM)*, March 2019.
- [32] James Newman, Robert H. Belson and **Fabián E. Bustamante**, “Scaling Up Your Experience, Everywhere,” *Proc. of the ACM Workshop on Mobile Computing Systems and Applications (HotMobile)*, February 2019.
- [33] Zachary S. Bischof, Romain Fontugne and **Fabián E. Bustamante**, “Untangling the world-wide mesh of undersea cables,” *Proc. of the ACM Workshop on Hot Topics in Networks (HotNets)*, November 2018.
- [34] Zachary S. Bischof, **Fabián E. Bustamante**, and Nick Feamster, “The Growing Importance of Being Always On A first look at the reliability of broadband Internet access,” *Proc. of TPRC46*, September 2018.
- [35] Sarah Wassermann, John P. Rula, **Fabián E. Bustamante**, Pedro Casas. “Anycast on the Move: A Look at Mobile Anycast Performance,” *Proc. of the IEEE/IFIP Network Traffic Measurement and Analysis Conference (TMA)*, June 2018.
- [36] John P. Rula, James Newman, **Fabián E. Bustamante**, Arash Molavi Kahki, David R. Choffnes, “Mile High WiFi: A First Look at In-Flight Internet Connectivity,” *Proc. of the International Web Conference (WWW)*, April 2018.
- [37] John P. Rula, **Fabián E. Bustamante**, and Moritz Steiner, “Cell Spotting – Studying the Role of Cellular Networks in the Internet,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2017 (23% acceptance rate, 42/179).

- [38] Zachary S. Bischof, **Fabián E. Bustamante**, Rade Stanojevic, “The Utility Argument – Making a Case for Broadband SLAs,” *Proc. of the International Conference on Passive and Active Measurements (PAM)*, March 2017 (23% acceptance rate, 20/87).
 - [39] Dipendra Jha, John P. Rula, **Fabián E. Bustamante**, “eXploring Xfinity: A First Look at Provider-enabled Communication Networks,” *Proc. of the International Conference on Passive and Active Measurements (PAM)*, March 2016 (32% acceptance rate, 30/93).
 - [40] John P. Rula, **Fabián E. Bustamante**, David R. Choffnes, “When IPs Fly: A Case for Redefining Airline Communication,” *Proc. of the ACM Workshop on Mobile Computing Systems and Applications (HotMobile)*, February 2016 (33% acceptance rate, 18/55).
 - [41] Zachary S. Bischof, John P. Rula, **Fabián E. Bustamante**, “In and Out of Cuba: Characterizing Cuba’s Connectivity,” *Proc. of the ACM Internet Measurement Conference (IMC)*, October 2015 (26% acceptance rate, 44/169).
 - [42] John P. Rula and **Fabián E. Bustamante**, “Crowdsensing Under (Soft) Control,” *Proc. of IEEE International Conference on Computer Communications (INFOCOM)*, April/May 2015 (19% acceptance rate, 316/1640).
 - [43] John Rula, Byungjin Jun, **Fabián E. Bustamante**, “Mobile AD(D): Estimating Mobile App Session Times for Better Ads,” *Proc. of the ACM Workshop on Mobile Computing Systems and Applications (HotMobile)*, February 2015 (28.75% acceptance rate, 23/80).
 - [44] Arnau Gavaldá-Miralles, John S. Otto, **Fabián E. Bustamante**, Luõs A N. Amaral, Jordi Duch and Roger Guimera, “User Behavior and Change: File-sharers and Copyright Laws,” *Proc. of the International Conference on emerging Networking EXperiments and Technologies (CoNEXT)*, December 2014 (20% acceptance rate, 37/186).
 - [45] Zachary S. Bischof, **Fabián E. Bustamante**, and Rade Stanojevic, “Need, Want, Can Afford – Broadband Markets and the Behavior of Users,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2014 (23% acceptance rate, 43/188).
- Runner-up for Best Paper Award**
- [46] John P. Rula and **Fabián E. Bustamante**, “Behind the Curtain – Cellular DNS and Content Replica Selection,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2014 (23% acceptance rate, 43/188).
 - [47] Mario A. Sánchez, **Fabián E. Bustamante**, Balachander Krishnamurthy, Walter Willinger, Georgios Smaragdakis, Jeffery Erman, “Internet Inter-Domain Traffic Estimation for the Outsider,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2014 (23% acceptance rate, 43/188).
 - [48] Emden R. Gansner, Balachander Krishnamurthy, Walter Willinger, **Fabián E. Bustamante**, Mario A. Sánchez: Demo abstract: towards extracting semantics by visualizing large traceroute datasets. *Computing*, 96(1), 2014.
 - [49] John Rula, Vishnu Navda, **Fabián E. Bustamante**, Ranjita Bhagwan and Saikat Guha, “No ‘one-size fits all’: Towards a principled approach for incentives in mobile crowdsourcing,” *Proc. of the ACM Workshop on Mobile Computing Systems and Applications (HotMobile)*, February 2014.
 - [50] John S. Otto and **Fabián E. Bustamante**, “The Hidden Locality in Swarms,” *Proc. of the IEEE International Conference on Peer-to-Peer Computing (P2P)*, September 2013 (31% acceptance rate, 29/94).
 - [51] Mario A. Sánchez, John S. Otto, Zachary S. Bischof, David R. Choffnes, **Fabián E. Bustamante**, Balachander Krishnamurthy and Walter Willinger, “Dasu: Pushing Experiments to the Internet’s Edge,” *Proc. of the USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, April 2013 (22% acceptance rate, 38/171).
 - [52] Mario A. Sánchez, John S. Otto, Zachary S. Bischof and **Fabián E. Bustamante**, “Trying broadband characterization at home,” *Proc. of the Passive and Active Measurement Conference (PAM)*, March 2013 (32% acceptance rate, 24/74).
 - [53] John S. Otto, Mario A. Sánchez, John P. Rula and **Fabián E. Bustamante**, “Content Delivery and the Natural Evolution of DNS,” *Proc. of the ACM Internet Measurement Conference (IMC)*, November 2012 (24% acceptance rate, 45/183).

- [54] Zachary S. Bischof, John S. Otto, and **Fabián E. Bustamante**, “Up, Down and Around the Stack: ISP Characterization from Network Intensive Applications,” *Proc. ACM SIGCOMM Workshop on Measurements Up the Stack (W-MUST)*, August 2012. *Best paper; Selected for publication in SIGCOMM CCR Special Issue, 42(4), October 2012.*
- [55] John S. Otto, Mario A. Sánchez, John P. Rula, Ted Stein, and **Fabián E. Bustamante**. “namehelp - Intelligent, Client-Side DNS Resolution”, Demo Session, *Proc. of the ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM)*, August 2012.
- [56] John Rula and **Fabián E. Bustamante**, “Crowd (Soft) Control: Moving Beyond Opportunistic Sensing,” *Proc. of the ACM Workshop on Mobile Computing Systems and Applications (HotMobile)*, February 2012.
- [57] Zachary S. Bischof, John S. Otto and **Fabián E. Bustamante**, “Distributed Systems and Natural Disasters – BitTorrent as a Global Witness,” *Proc. of the International Conference on emerging Networking EXperiments and Technologies (CoNEXT)– Special Workshop on Internet and Disasters (WoID)*, December 2011.
- [58] Mario A. Sánchez, John S. Otto, Zachary S. Bischof, and **Fabián E. Bustamante**. “Dasu - ISP Characterization from the Edge: A BitTorrent Implementation”, Demo Session, *Proc. of the ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM)*, August 2011.
- [59] John S. Otto, Mario A. Sánchez, David R. Choffnes, **Fabián E. Bustamante**, and Georgos Siganos, “On Blind Mice and the Elephant – Understanding the Network Impact of a Large Distributed Systems,” *Proc. of the ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM)*, August 2011 (14% acceptance rate, 32/223).
- [60] Zachary S. Bischof, John S. Otto, Mario A. Sánchez, John P. Rula, David R. Choffnes, and **Fabián E. Bustamante**, “Crowdsourcing ISP Characterization to the Network Edge,” *Proc. ACM SIGCOMM Workshop on Measurements Up the Stack (W-MUST)*, August 2011.
- [61] Gareth Bennett, Eoin A. King, Jan Curn, Vinny Cahill, **Fabián E. Bustamante**, and Henry J. Rice, “Environmental Noise Mapping Using Measurements in Transit,” *Proc. of the International Conference on Noise and Vibration Engineering (ISMA)*, September 2010.
- [62] David R. Choffnes, **Fabián E. Bustamante**, Zihui Gao, “Crowdsourcing Service-Level Network Event Detection,” *Proc. of the ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM)*, August 2010 (12% acceptance rate, 33/276).
- [63] David R. Choffnes, Jordi Duch, Dean Malmgren, Roger Guimera, **Fabián E. Bustamante**, Luís Amaral, “Strange Bedfellows: Communities in BitTorrent,” *Proc. of the International Workshop on Peer-to-Peer Systems (IPTPS)*, April 2010 (20% acceptance rate, 13/64).
- [64] David R. Choffnes, Mario A. Sánchez, **Fabián E. Bustamante**, “Network positioning from the edge: An empirical study of the effectiveness of network positioning in P2P systems,” *Proc. of IEEE International Conference on Computer Communications (INFOCOM)(miniconference)*, March 2010 (24% acceptance rate, 382/1575).
- [65] Kai Chen, David R. Choffnes, Rahul Potharaju, Yan Chen, **Fabián E. Bustamante**, Dan Pei, Yao Zhao, “Where the Sidewalk Ends: Extending the Internet AS Graph Using Traceroutes From P2P Users,” *Proc. of the International Conference on emerging Networking EXperiments and Technologies (CoNEXT)*, December 2009 (17% acceptance rate, 29/170).
- [66] John S. Otto and **Fabián E. Bustamante**, “Distributed or Centralized Traffic Advisory Systems – The Application’s Take,” *Proc. of IEEE SECON*, June 2009 (18.8% acceptance rate, 81/431).
- [67] John S. Otto, **Fabián E. Bustamante**, and Randall Berry, “Down the Block and Around the Corner: The Impact of Radio Propagation on Inter-vehicle Wireless Communication,” *Proc. of the International Conference on Distributed Computing Systems (ICDCS)*, June 2009 (16% acceptance rate, 74/455).
- [68] David R. Choffnes and **Fabián E. Bustamante**, “On the Effectiveness of Measurement Reuse for Performance-Based Detouring,” *Proc. of IEEE International Conference on Computer Communications (INFOCOM)*, April 2009 (20% acceptance rate, 282/1435).

- [69] David R. Choffnes and **Fabián E. Bustamante**, “Taming the Torrent: A Practical Approach to Reducing Cross-ISP Traffic in Peer-to-Peer Systems,” *Proc. of the ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM)*, August 2008 (12% acceptance rate, 36/288).
- [70] Ao-Jan Su, David R. Choffnes, **Fabián E. Bustamante**, and Aleksandar Kuzmanovic, “Relative Network Positioning via CDN Redirections,” *Proc. of the International Conference on Distributed Computing Systems (ICDCS)*, June 2008.
- [71] Jack Lange, Peter Dinda and **Fabián E. Bustamante**, “Vortex: Enabling Cooperative Selective Wormholing for Network Security Systems,” *Proc. of the International Symposium on Recent Advances in Intrusion Detection (RAID)*, September 2007 (16% acceptance rate, 16/101).
- [72] David R. Choffnes and **Fabián E. Bustamante**, “Exploiting Emergent Behavior for Inter-Vehicle Communication,” *Proc. of International Workshop on Hot Topics in Autonomic Computing (HotAC)*, June 2007 (29% acceptance rate, 5/17).
- [73] Guohan Lu, Yan Chen, Stefan Birrer, **Fabián E. Bustamante**, Chin Yin Cheung and Xing Li. “End-to-end Inference of Router Packet Forwarding Priority,” *Proc. of IEEE International Conference on Computer Communications (INFOCOM)*, May 2007 (18% acceptance rate, 252/1404).
- [74] Stefan Birrer and **Fabián E. Bustamante**, “Resilience in Overlay Multicast Protocols,” *Proc. of the IEEE/ACM International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS)*, September 2006.
- [75] Ao-Jan Su, David R. Choffnes, Aleksandar Kuzmanovic, and **Fabián E. Bustamante**, “Drafting Behind Akamai (Travelocity-Based Detouring),” *Proc. of the ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM)*, September 2006 (10% acceptance rate, 37/345).
- [76] Yi Qiao and **Fabián E. Bustamante**, “Structured and Unstructured Overlays Under the Microscope: A Measurement-based View of Two P2P Systems That People Use,” *Proc. of USENIX Annual Technical Conference (Full Paper)*, June 2006 (13.7% acceptance rate, 21/153).
- [77] David R. Choffnes and **Fabián E. Bustamante**, “An Integrated Mobility and Traffic Model for Vehicular Ad Hoc Networks,” *Proc. of ACM International Workshop on Vehicular Ad Hoc Networks (VANET)* (Full Paper), September 2005 (26.7% acceptance rate, 8/30).
- [78] Stefan Birrer and **Fabián E. Bustamante**, “Magellan: Performance-based, Cooperative Multicast,” *Proc. of the International Workshop on Web Content Caching and Distribution (WCW)*, September 2005 (28.6% acceptance rate, 10/35).
- [79] Stefan Birrer and **Fabián E. Bustamante**, “The Feasibility of DHT-based Streaming Multicast,” *Proc. of the IEEE/ACM International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS)*, September 2005.
- [80] Yi Qiao and **Fabián E. Bustamante**, “Elders Know Best - Handling Churn in Less Structured P2P Systems,” *Proc. of the IEEE International Conference on Peer-to-Peer Computing (P2P)*, September 2005 (19.1% acceptance rate, 26/136).
- [81] David R. Choffnes and **Fabián E. Bustamante**, “STRAW - An Integrated Mobility and Traffic Model for VANETs,” *Proc. of International Command and Control Research and Technology Symposium (ICCRTS)*, June 2005.
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Assignee: Phenix Real Time Solutions Inc.

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Assignee: Phenix Real Time Solutions Inc.

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Assignee: Phenix Real Time Solutions Inc.

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United States Patent 7,505,886 (2009).

Assignee: Hewlett-Packard Development Company, L.P.

PROFESSIONAL ADVISORY AND CONSULTING

Advisory Board, DOSENSIO LLC (2008-2011).

Advisory Board, NEOKAST LLC, (2007-2009).

Independent Technical Expert — Provided expert analysis in matters involving computer networks, distributed systems, and Internet technologies; prepared expert technical reports for selected legal proceedings.

RESEARCH SOFTWARE AND DATASETS

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<https://www.calypso.voyage>
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<https://thealeph.ai>
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- [14] **TrailBlaze Chicago** – A mobile application for crowdsourcing bicycle route planning and status reporting. Second Place, *Apps for Metro Chicago Grand Challenge*; Fourth Place, *Apps for Metro Chicago Transportation Round*; First Place among not-for-profit entries.
- [15] **SwarmScreen** – An extension to the Vuze/Azureus BitTorrent client designed to reduce the ability of observers to infer users’ downloading behavior from connection patterns.
- [16] **NEWS** – A Network Early Warning System that exploits naturally occurring BitTorrent traffic to detect Internet anomalies. Implemented as an Azureus plugin.
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- [26] **PDS (Proactive Directory Service)** – An information repository supporting proactive notifications through dynamically customizable client interfaces.
<http://www-static.cc.gatech.edu/systems/projects/PDS/>
- [27] **ECho** – A high-performance event-delivery middleware system supporting typed events, transparent inter- and intra-process communication, and heterogeneous distributed applications.
<http://www-static.cc.gatech.edu/systems/projects/ECho/>
- [28] **PBIO (Portable Binary I/O)** – A portable binary communication library implementing the Native Data Representation (NDR) wire format for efficient storage and communication.
<http://www-static.cc.gatech.edu/systems/projects/PBIO/>
- [29] **Virtual Microscope** – A client-server system providing a realistic digital emulation of a high-power light microscope.
- [30] **Pacioli** – A software toolkit for automatic model construction of large-scale RAID storage systems.

SELECTED PUBLIC IMPACT AND MEDIA COVERAGE

Digital Infrastructure, Sovereignty, and Resilience

Analyzing the Challenge of Digital Sovereignty. Northwestern Engineering News (2025).

Venezuelan Crisis Has Negatively Affected the Country's Internet. Digital Journal, EurekAlert!, TechXplore, Internet Society Pulse, Homeland Security Newswire, and Mirage News (2024).

Broadband, Web Performance, and Internet Access

Is Internet Access a Right or a Privilege? Interview by Erica Gunderson, WTTW Chicago (Public Television) (2020).

Chrome Extension Speeds Up In-Flight Browsing. Network World, News Atlas, ScienceDaily, CACM News, Indian Express, and Travel+Leisure (2017).

Cuba's Internet Connectivity. Northwestern McCormick News and Phys.org (2016).

Inflight WiFi. Northwestern McCormick News, ChicagoInno, and Chicago Tribune (2016).

On Phone Usage. Northwestern McCormick News and ACM TechNews (2016).

Peer-to-Peer Systems, DNS, and Internet Measurement

Heterogeneity and Socioeconomic Factors in BitTorrent. Science, BBC News, TechTimes, and Slashdot (2014).

Namehelp and DNS. Network World, Lifehacker, MakeUseOf, Korben (France), Chip.com.tr (Turkey), Dicas para Computador (Brazil), PC World (Vietnam), and additional international technology publications (2012–2013).

Crowd Soft Control. Communications of the ACM, Wired, and Discovery News (2012).

Distributed Systems and Natural Disasters. Ars Technica and McCormick By Design (2011).

Mobile Apps for Metro Chicago. WBEZ Chicago and McCormick By Design (2011).

ShadowStream. Ars Technica, The Register (UK), Slashdot, and Punto Informatico (Italy) (2009).

NEWS. RedOrbit, Slashdot, and The Hindu (India) (2008).

Ono. El País (Spain), Chronicle of Higher Education, and Slashdot (2008).

GRANTS

Principal investigator or co-principal investigator on externally funded research projects supported by the National Science Foundation, Department of Energy, Science Foundation Ireland, and industry partners including Comcast, Google, Microsoft Research, and Sun Microsystems.

FEDERAL RESEARCH GRANTS

Conference: Towards Re-architecting Today's Internet for Survivability

National Science Foundation, CNS-2332178.

CICI:TCR:STARNOVA: Scalable Technology to Accelerate Research Network Operations Vulnerability Alerts

National Science Foundation, CNS-2319959, 2023–2027.

Co-PI; PI Ka Pui Mok and co-PI Kimberly Claffy, University of California San Diego.

NeTS: Small: Privacy and Performance over Third-party DNS

National Science Foundation, CNS-2246475, 2023–2026.

Collaborative Research: CNS Core: Medium: On the Criticality of the Submarine Cable Network

National Science Foundation, CNS-2107392, 2021–2025.

Lead PI; co-PI Paul Barford, University of Wisconsin–Madison.

RAPID: Internet Traffic and Compliance with Government Stay-at-Home Measures

National Science Foundation, CNS-2027922, 2020–2021.

CNS: NeTS: Broadband Service Reliability: Characterization and Improvement

National Science Foundation, 2016–2019.

CNS: NeTS: A Dual-Objective Platform for Internet Experimentation

National Science Foundation, CNS-1218287, 2012–2016.

SoCS: Leveraging Shared Social Interest in Content Centric Internet

National Science Foundation, CNS-1211375, 2012–2016.

PI; co-PI Noshir Contractor, Northwestern University.

Collaborative Research: Enabling Exascale Hardware and Software Design through Scalable System Virtualization

Department of Energy X-Stack Program, 2010–2013.

Co-PI; Peter Dinda and Russ Joseph (Northwestern University), with collaborators at the University of New Mexico, Sandia National Laboratories, and Oak Ridge National Laboratory.

CNS: NeTS: Parallax – Leveraging the Perspective of Ten Million Peers

National Science Foundation, CNS-0917233, 2009–2012.

PI; co-PI Yan Chen, Northwestern University.

CRI: II-NEW: Sharing the Perspective of Ten Million Peers

National Science Foundation, CNS-0855253, 2009–2012.

Transportation Center Seed Grant: Understanding the Potential of Cooperative Foresight for Traffic Avoidance

Transportation Center, Northwestern University, 2008.

CAREER: Ensuring Sustainable Scalability for Globally Distributed Systems

National Science Foundation CAREER Award, CNS-0644062, 2007–2011.

Midwest Crossroads AGEP Professor

National Science Foundation, 2005.

INTERNATIONAL FELLOWSHIPS AND FOUNDATION AWARDS

E.T.S. Walton Visitor Award

Science Foundation Ireland, 2008.

Ford Undergraduate Research Grant

Ford Foundation, 2004.

Co-PI; Robert Dick, Northwestern University.

INDUSTRY RESEARCH SUPPORT

Revealing Application-Layer Resilience and Traffic Shifts in Latency-Critical Video Platforms

Comcast Innovation Fund, 2026.

Research Gift

Comcast, 2025.

A Global Index of Third-party Dependency and Centralization

Comcast Innovation Fund, 2021.

Decentralization, Privacy, and Performance in DNS

Comcast Innovation Fund, 2021.

An Extensible Middle-box Service for Mobile Devices

Comcast Innovation Fund, 2018.

A First Look at In-flight Internet Connectivity

Google Faculty Research Award, 2016.

Content Distribution and the Evolution of DNS

Google Faculty Research Award, 2012.

Renewal: A Global View of ISP Interference According to P2P Users

Google Faculty Research Award, 2011.

A Global View of ISP Interference According to P2P Users

Google Faculty Research Award, 2010.

Integrated Modular Trustworthy Computing Curriculum Development

Microsoft Research Trustworthy Computing Award, 2005.

Co-PI; Yan Chen, Peter Dinda, and Aleksandar Kuzmanovic, Northwestern University.

A Virtual Lab for Experimental Systems Education

Murphy Society, Northwestern University, 2005.

PI; co-PIs Peter Dinda, Brian Dennis, Yan Chen, and Aleksandar Kuzmanovic.

Sun Center of Excellence

Sun Microsystems, 2005.

Neokast Fellowship

Metis Enterprise Technologies LLC, 2006.

Motorola Undergraduate Research Grant

Motorola, 2006 (two awards).

Sun Academic Excellence Grant

Sun Microsystems, 2003 (Equipment Award).

STUDENT ADVISING AND MENTORSHIP

Postdoc Alumni

Esteban Carisimo

March 2020 – December 2025

Software Engineer, Cloudflare.

Ph.D. Students

Current Students

Daniel Jang, *September 2025 – Present*

Santiago Klein, *September 2024 – Present*

Kedar Thiagarajan, *September 2022 – Present*

Caleb Wang, *September 2022 – Present*

Ying Zhang, *September 2024 – Present*

Graduated Students

Rashna Kumar

March 2026

Title: Consolidation and Consequence in Web Delivery Infrastructure.

Winner, ACM Student Research Competition (Graduate Category), SIGCOMM 2021

Internet Society Fellow, 2025

Byungjin Jun

August 2023

Title: Handling Scripts to Improve Users' Web Experience on Any Network.

Google Ph.D. Fellow

Professor, Korea Military Academy.

Zachary S. Bischof

December 2016

Title: Characterizing Broadband Services in a Broader Context: Vantage Points, Measurements, and Experimentation.

Recipient of a Postdoctoral Fellowship from the Japan Society for the Promotion of Science

Researcher, IJ.

John P. Rula

December 2016

Title: Adopting a Gateway-Centric View for Cellular Network Content Delivery.

Senior Software Engineer, Akamai (2016–2021).

CTO, nZero.

Mario A. Sánchez

June 2014

Title: Capturing the Internet's Edge at Scale Through a Measurement Platform Hosted by End Users.

Production Engineer, Facebook.

John S. Otto

December 2013

Title: The Changing Face of Content Delivery: Implications for Clients, Content Providers, and the Network at Large.

EECS Department Outstanding Ph.D. Thesis Award

Software Engineer, Google.

David R. Choffnes

June 2010

Title: Service-Level Network Event Detection from Edge Systems.

EECS Department Outstanding Ph.D. Thesis Award

Nominated for the ACM Doctoral Dissertation Award

Computing Innovation Fellow, University of Washington.

Associate Professor, Northeastern University.

Stefan Birrer

December 2007

Title: Addressing the Limitations of Tree-based Approaches to High-Bandwidth Streaming Multicast.

Honorary Ambassador of the Greater Zurich Area (since 2021)

Co-founder and CTO, Kealu, Inc.

Previously: Co-founder and Chief Software Architect, PhenixRTS; Principal, SempitTech Inc.; Co-founder, Neokast LLC and Dosensio LLC.

Ph.D. Thesis Committees

Patric O'Reilly – *Graduated 2026*

Postdoctoral Researcher, MIT.

Yunming Xiao – *Graduated 2024*

Assistant Professor, School of Data Science, The Chinese University of Hong Kong.

Christopher Cummings – *Graduated 2022*

Senior Analyst, United Airlines.

Kaiyu Hou – *Graduated 2022*

Software Engineer, Alibaba Cloud.

Marc Warrior – *Graduated 2019*

Applied Scientist, AWS.

Uri Klarman – *Graduated 2019*

CEO, bloXroute Labs.

Amr Elfar – *Graduated 2019*

Consultant, Bain & Company.

Zihan Hong – *Graduated 2017*

Research Scientist, Coyote Logistics.

Kyle Hale – *Graduated 2016*

Associate Professor, Illinois Institute of Technology.

Marcel Flores – *Graduated 2016*

Research Scientist, Netflix.

Ning Xia – *Graduated 2015*

NEC Labs America.

Alireza Talebour – *Graduated 2015*

Associate Professor, University of Illinois Urbana-Champaign.

Mihai Capotă (Delft University of Technology, The Netherlands) – *Graduated 2015*

Research Scientist, Intel Labs.

Arnau Gavalda-Miralles (Universitat Rovira i Virgili) – *Graduated 2014*

Founder and CEO, Tudispro.

Kai Chen – *Graduated 2012*

Professor, Hong Kong University of Science and Technology.

Ao-Jan Su – *Graduated 2011*

TeleNav.

John R. Lange – *Graduated 2010*
Associate Professor, University of Pittsburgh.

Ashish Gupta – *Graduated 2008*
Co-founder and Head of Agentic Engagement, Arbitr.

Bin Lin – *Graduated 2007*
Senior Research Engineer, Apple.

Ananth Sundararaj – *Graduated 2006*
SVP, AI and Enterprise Platforms, Atlassian.

Dong Lu – *Graduated 2005*
Senior Software Developer, Citadel.

M.S. Students

Terminal MS Ying Zhang (2023), Weili Wu (2023, now PhD student at Ga Tech), Robert Belson (BS/MS, now at Verizon), Sana Asif (2021, now at nZero), Alex Shucheng Liu (2021, now at Riot Games), Nathan A. Lindquist (BS/MS, now at Typco), James Whang (BS/MS, now at Microsoft), Rohit Mandrekar (2021), Yihan Zhang (2021), Wei Han (2020), Ishaan Madan (2020), Yishan Lin (2019), Prashanth Vsanthakrisnan (2019), Shixin Luo (2017), Sarah Wassermann (2017), Andrew Weiner (2017), Dipendra Kumar Jha (2015), Eric Lin (2014), Ted Stein (2013), William Ng (2012), Balasaheb Bagul (June 2012), Wei-Chih Lai (2012), Soyannwo Olusanya (2009), Xian Yi Teng, (2008), Yi Qiao (2004).

Undergraduate Students

Advisor for several undergraduates/graduates' independent studies; the following is only a partial list and their last known location.

Richard Jo, Olivia Gallager, Kevin McAfee, Michael Polniski, Andre Ehrlich, Ishaan Madan (now at Apple), Angela Jiang (later Ph.D. student at CMU), Alex Yi (later Ph.D. student at UIUC), Nikola Borisov (at a startup, selected among the 2010 *50 for The Future* by the Illinois Technology Foundation), Ted Stein (Amazon), Eugenia Gabrielova (Ph.D. student UC Irvine), John Rula (later Ph.D. from Northwestern), Aaron Johnson (Ph.D. from Yale), John Otto (later Ph.D. from Northwestern), Aaron Beach (Ph.D. from U. of Colorado), Brian Cornell (M.S. from U. of North Carolina at Chapel Hill, now at Google, also honorable mention for the CRA Outstanding Undergraduate Awards) and Robert Adolf (honorable mention for the CRA Outstanding Undergraduate Award).

TEACHING

(Student evaluations (mean over 6): [Course/Instruction | Amount Learned])

Advanced Networking (CS 440), Fall 2022, Fall 2024, Fall 2026. *Last student evaluation:* 6 | 6

Introduction to Computer Networking (CS 340), Fall 2020. *Last student evaluation:* 4 | 5

Introduction to Graduate Studies (CS 496), Fall 2018, Fall 2019, Fall 2020, Fall 2021.
Last student evaluation: 5 | 5

Distributed Systems (CS 345; undergraduate course), Spring 2003, Winter 2005, Winter 2008, Winter 2010, Winter 2012, Winter 2013, Winter 2014, Spring 2015, Spring 2017, Spring 2018, Spring 2019, Spring 2020, Spring 2021, Spring 2022, Spring 2024, Spring 2025, Spring 2026
Last student evaluation: 4.68 | 4.49

Operating Systems (EECS 343; undergraduate course), Fall 2002-2017.
Last student evaluation: 5.06 | 5.31

Internet-scale Experimentation (CS 445), Winter 2012, Winter 2015, Winter 2016, Winter 2017, Winter 2019, Winter 2023, Winter 2024, Winter 2025, Winter 2026
Last student evaluation: 5.14 | 5.25

Advanced Operating Systems (CS 443; graduate course), Winter 2003, Spring 2005, Winter 2007, Winter 2009.

Last student evaluation: 5.6 | 5.6

Distributed Systems in Challenging Environments (CS 395/495), Spring 2008, Winter 2011, Spring 2012, Spring 2014, Winter 2018, Winter 2022.

Last student evaluation: 4.6 | 5

Introduction to Computer Systems (CS 213; undergraduate course), Spring 2007, Spring 2010, Spring 2011, Spring 2012.

Last student evaluation: 4.68 | 5.08

Autonomic Computing Systems (CS 395/495; graduate course), Winter 2006.

Last student evaluation: 4.67 | 6 (only data available)

NSRG Systems Reading Group (EECS 399/499).

Undergraduate and Graduate Independent Projects (EECS 399/499).

Peer-to-Peer Computing (MSIT-491; Master of Science in Information Technology Program).

COURSE DEVELOPMENT

Introduction to Computer Networking (CS 340). An introduction to the basics of networking, particularly focusing on the engineering of the Internet.

Introduction to Graduate Studies (CS 401). An introduction to graduate studies in Computer Science at Northwestern organized for the incoming Ph.D. students. Started this course, the first of its kind at Northwestern, in 2018. It is now a required course.

Distributed Systems (CS 345). An introduction to principles and main paradigms in distributed computing. New course model, developed during tenure as Searle Junior Fellow, combining traditional lecture-oriented and seminar-style approaches. Course includes a quarter-length, team-based project.

Internet-scale Experimentation (CS 445). A senior undergraduate and graduate course exploring the challenges with experimentation and measurement of Internet-scale systems.

Operating Systems (CS 343). Overview of operating systems concepts with a significant project component.

Advanced Operating Systems (CS 443). Seminar-style course based on article readings, in-class discussion, and a quarter-length project.

Distributed Systems in Challenging Environments (CS 395/495; senior undergraduate and graduate course). Seminar-style course that reviews interesting ideas and ongoing projects that are pushing distributed systems into new and challenging domains.

Peer-to-Peer Computing (MSIT-491; Master of Science in Information Technology Program). A short introductory course in peer-to-peer computing, its potential, limitations and implications.

TUTORIALS AND SHORT COURSES

“Experimentacion a escala Internet”, presented at the 31st Escuela de Ciencias Informáticas, Universidad de Buenos Aires, Argentina, Julio 2017.

“Internet-Scale Experimentation”, presented at the 6th PhD School on Traffic Monitoring and Analysis, associated with the 8th International Workshop on Traffic Monitoring and Analysis, Leuvain La Neuve, Belgium, April 2016.

“Sistemas Distribuidos de Gran Escala”, a short course on large-scale distributed systems as part of the *Visiting Faculty Program* in the Department of Computer Science, Universidad de Buenos Aires, Argentina, June-July 2012.

PROFESSIONAL ACTIVITIES

Affiliations

Affiliated Faculty, Northwestern Institute on Complex Systems (NICO), Northwestern U., 2014-Present.

Affiliated Faculty, Transportation Center, Northwestern U., 2006-Present.

Editorial, Advisory Boards and Steering Committees

Steering Committee, Passive and Active Measurement (PAM), 2019-Present.

Editorial Board, IEEE Internet Computing, 2012-Present.

Editorial Board, IEEE/ACM Transactions on Networking, 2014-2018.

Editorial Board, ACM SIGCOMM Computer Communications Review., 2013-2018.

Advisory Board, Northwestern Institute on Complex Systems (NICO), Northwestern U., 2018-Present.

Executive Committee, Northwestern Institute on Complex Systems (NICO), Northwestern U., 2015-2017.

Faculty Leader, Internet and Society Workgroup, Northwestern Institute on Complex Systems (NICO), Northwestern U., 2014-Present.

External Advisory Board, mPlane: Building an Intelligent Measurement plane for the Internet (<http://www.ict-mplane.eu>), 2013-2015.

Chair, Steering Committee, IEEE International Conference on Peer-to-Peer Computing (P2P), 2013-2015.

Steering Committee, Greater Chicago Area System Research Workshop (GCASR), 2012-2013.

Program Committee

New Ideas in Networked Systems (NINeS), 2026, 2027.

USENIX Symposium on Networked Systems Design and Implementation (NSDI), 2017, 2019, 2020, 2024, 2025, 2026.

Passive and Active Measurement (PAM), 2017, 2018, 2019, 2020, 2021.

ACM Internet Measurement Conference (IMC), 2011, 2015, 2016, 2018, 2021, 2022, 2024, 2025, 2026.

ACM International Conference on emerging Networking EXperiments and Technologies (CoNEXT), 2013, 2015, 2018, 2019, 2024, 2025.

ACM SIGCOMM 2020 Workshop on Network Application Integration/CoDesign, 2020.

ACM SIGCOMM, 2012, 2016, 2023, 2025, 2026.

ACM European Conference on Computer Systems (EuroSys), 2014, 2018.

IEEE INFOCOM, Demo/Poster Session, 2013, 2014.

International Conference on Communication Systems and Networks (COMSNETS), 2009, 2010, 2014.

IEEE Internet Conference on Network Protocols (ICNP), 2012.

ACM SIGCOMM Workshop on Measurements Up and Down the Stack (W-MUST), 2012.

ACM SIGCOMM Workshop on Home Networks (HomeNets) 2011, 2012.

ACM SIGCOMM Poster/Demos 2011, 2012, 2013.

International ACM Symposium on High Performance Distributed Computing (HPDC), 2010.

IEEE/ACM International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS), 2008, 2009.

ACM International Workshop on Vehicular Inter-Networking (VANET), 2008, 2009.

IEEE International Conference on Pervasive Computing and Communications (PerCom), 2009.

International World Wide Web Conference (WWW), 2006, 2009, 2010.

IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO), 2008.

International Workshop on Peer-to-Peer Systems (IPTPS), 2008.

International Workshop on Wireless Mesh and Ad hoc Networks (WiMAN), 2008.

First International Workshop on Pervasive Transportation Systems (PerTrans), 2007.

IEEE International Conference on Distributed Computing Systems (ICDCS), 2006, 2007, 2008, 2013, 2014.

IEEE International Conference on Autonomic Computing (ICAC), 2005, 2006, 2007, 2008, 2009, 2010, 2011.

International Conference on Computer Communications and Networks (ICCCN), 2006, 2007.

International Conference on Self-Organization and Autonomic systems in Computing and Communication (SOAS), 2006, 2007.

International Conference on High Performance Computing and Communications (HPCC), 2005, 2006, 2007.

IEEE Conference on Peer-to-Peer Computing (P2P), 2006, 2007, 2008, 2009, 2013.

International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MOBIQ-UITOUS), 2007.

International Workshop on Quality of Service (IWQoS), 2007.

IEEE Percom Workshop on Pervasive Transportation Systems (PerTran), 2007.

International Conference on Autonomic and Trusted Computing (ATC), 2006.

Adaptive Grid Computing Workshop, part of IEEE International Symposium on Network Computing and Applications, 2006.

International Conference on Parallel Processing (ICPP), 2006.

International Conference on Parallel and Distributed Systems (ICPADS), 2006.

IADIS International Conference on Applied Computing, 2005.

ORGANIZATION

Co-organizer, NSF Workshop Towards Re-architecting Today's Internet for Survivability, 2023.

Steering Committee, NSF Workshop on Overcoming Measurement Barriers to Internet Research, 2021.

Technical Program Co-Chair (with Nick Feamster), ACM Internet Measurement Conference (IMC), 2020.

Co-Chair Student Workshop Co-Chair, ACM International Conference on emerging Networking EXperiments and Technologies (CoNEXT), 2020.

Co-chair, Passive and Active Measurement (PAM), 2019.

Co-chair, IEEE ICDCS 3rd Workshop on QoE-based Analysis and Management of Data Communication Networks, 2018.

Co-chair, ACM SIGCOMM Workshop on QoE-based Analysis and Management of Data Communication Networks (Internet-QoE), 2017.

Co-chair, Workshop on Distributed Computing: Mixing Systems and Theory, part of PODC 2016.

Co-chair, ACM SIGCOMM Workshop on QoE-based Analysis and Management of Data Communication Networks (Internet-QoE), 2016.

Co-chair, ACM SIGCOMM Workshop on Fostering Latin-American Research in Data Communication Networks (LANCOMM), 2016.

Co-chair, Greater Chicago Area Systems Research Workshop (GCASR), 2016.

Co-organizer, NSF/FCC Workshop on Tracking Quality of Experience in the Internet, 2015.

Co-founder, ACM SIGCOMM Workshop on Crowdsourcing and crowdsharing of Big (Internet) Data – C2B(I)D, 2015.

General Co-Chair, ACM SIGCOMM, 2014.

Panel co-chair, ACM COMSNETS 2014.

Technical Program Co-Chair, IEEE International Conference on Peer-to-Peer Computing (P2P), 2012.

Session chair, ACM SIGCOMM 2012.

Local Arrangements Chair, ACM/USENIX Internet Measurement Conference (IMC), 2009.

General Chair, IEEE Workshop on Hot Topics in Web Systems and Technologies (HotWeb), 2008.

Local Organizer, International Conference on Autonomic Computing (ICAC), 2008.

Co-Chair, Workshop on Hot Topics in Autonomic Computing (HotAC), 2006, 2007, 2008, 2009.

Co-Founder, Workshop on Hot Topics in Autonomic Computing (HotAC).

OTHER

Fellow, Public Voices - The OpEd Project, 2014.

Invited participant, Dagstuhl Seminar on “Global Measurement Framework,” 2014.

Panelist, National Science Foundation, USA (several years since 2002).

Reviewer, Israel Science Foundation, Israel, 2019.

Reviewer, Research Grant Council, Hong Kong, China, 2019.

Reviewer, Austrian Science Fund (FWF), 2018.

Invited participant, Computing Community Consortium Leadership in Science Policy Institute (LiSPI), November 2011.

Panelist, Portuguese Fundação para Ciência e a Tecnologia (Foundation for Science and Technology), Portugal, 2009.

USENIX/SAGE University Representative for Northwestern U. (2004-Present).

Referee for several journals including *ACM Transaction on Computer Systems*, *IEEE/ACM Transactions on Networking*, *IEEE Computer*, *IEEE Journal on Selected Areas in Communication*, *IEEE Journal*, *IEEE Transactions on Parallel and Distributed Systems*, *IEEE Multimedia*, *IEEE Transactions on Software Engineering*, *Elsevier Journal of Parallel and Distributed Computing*, and *Software Practice and Experience*.

Senior member of the ACM; Senior Member of IEEE and the IEEE Computer Society; member of USENIX and the Society of Hispanic Professional Engineers (SHPE).

DEPARTMENTAL AND UNIVERSITY ACTIVITIES

Director of Graduate Admissions, 2018-2023.

Strategy & Planning Committee, Computer Science, 2015-2023.

Associate Head, Computer Science, 2015-2019.

Departmental Computer Systems and Infrastructure Committee, EECS, Northwestern U., Member 2002-2010, Chair 2010-2019.

School Research Computing Committee, McCormick School of Engineering and Applied Science, Northwestern U., 2011-Present.

School Undergraduate Advisor, McCormick School of Engineering and Applied Science, Northwestern U., 2003-Present.

Promotion and Tenure, McCormick School of Engineering and Applied Sciences, 2015-2017, 2021-2023.

Moderator, Autonomous Vehicle Technology for Passenger and Freight, Northwestern University Transportation Center, Spring 2014.

Departmental Diversity Committee, EECS, 2013-2018.

University Collaborative Service Faculty Working Group, Northwestern U., 2011-2012.

Departmental Restructuring Committee, EECS, Chair 2011.

Departmental Computer Science Undergraduate Curriculum Committee, EECS, Northwestern U., 2010-Present.

Departmental Committee on Mission and Goals, EECS, Northwestern U., 2009-2010.

Departmental Publicity, Alumni and Industrial Relations Committee, EECS, Northwestern U., Member 2006-2008, Chair 2008-2011.

Computer Systems and Infrastructure Committee, EECS, Northwestern U., 2002-2010.

Departmental Undergraduate Recruiting, EECS, Northwestern U., 2006-2011.

Invited Panelist, Workshop for Industrial Funded Research, McCormick School of Engineering and Applied Science, Northwestern U., 2006.

Departmental Web-Site Re-Design Committee, Department of Computer Science, Northwestern U., 2002-2003, 2005-2006.

Department Chair's Advisory Committee, Department of Computer Science, Northwestern U., 2003-2004.

Departmental Colloquia Chair, Department of Computer Science, Northwestern U., 2003-2004.

Departmental Curriculum Committee, Department of Computer Science, Northwestern U., 2002-2003.

School Member of Web Redesign Committee, McCormick School of Engineering and Applied Science, Northwestern U., 2003-2004.

Co-founder of the Northwestern Systems Research Group, Department of Computer Science, Northwestern U., 2002.

Initiator and coordinator of the Systems Reading Group, College of Computing, Georgia Institute of Technology, 1998-2002.

Lab Coordinator for Systems Research Group, College of Computing, Georgia Institute of Technology, 1997-2002.

Member of the Graduate Student Council, College of Computing, Georgia Institute of Technology, 1996-1999.

Founder and president of the Computer Science Student Center, Universidad Nacional de la Patagonia San Juan Bosco, 1986.

RECENT INVITED LECTURES

July 2025 – “Global Patterns in Government Hosting: Centralization, Sovereignty, and Risk,” Invited talk, IETF Decentralization of the Internet Research Group (DINRG).

July 2025 – “Government Hosting and the Challenges of Digital Sovereignty in Today’s Internet,” Invited talk, IJ Japan.

August 2024 – Invited Panelist, The Asian Internet Engineering Conference (AINTEC).

October 2023 – “Weighting the criticality of the submarine cable network,” Keynote at the Inaugural LACNIC Internet Measurement Working Group (IMWG), Fortaleza, Brazil.

March 2022 – “Networked Systems as Witnesses - Content Demand, Human Mobility and an Infection Spread,” Northwestern Institute on Complex Systems (NICO), Evanston, IL.

March 2019 – “AMplify the World,” Keynote at the TMA Workshop, Puerto Varas, Chile.

June 2018 – “Network Research and Falling Trees,” Keynote at the TMA Workshop, Vienna, Austria.

June 2018 – “Browsing Over Clouds – Characterizing and Improving the In-Flight Network Experience,” TMA Expert Summit, Vienna, Austria.

- November 2016 – “The Experience Network,” Telefonica Research, Barcelona, Spain.
- October 2016 – “(The Importance of) Being Connected – On the reliability of broadband,” Broadband Internet Technical Advisory Group (BITAG), Boulder, CO.
- July 2015 – “Broadband reliability or the growing importance of being always on,” Vrije U., Amsterdam, Netherlands.
- December 2014 – “Broadband Service characterization in a broader context,” Chicago Chapter ACM and Loyola University, Chicago, IL.
- November 2014 – “Broadband Service characterization in a broader context,” University of British Columbia, Vancouver, Canada.
- August 2014 – Invited Panelist, From Student to PI: Becoming An Independent Researcher, N2Women Workshop.
- March 2014 – “Pushing Internet Experimentation to the (network) edge,” John Hopkins University, Baltimore, MD.
- November 2013 – “An Experimentation platform for the Internet’s edge,” Max Plank Institute, Saarbrücken, Germany
- September 2013 - “Enabling experimentation at the Internet’s edge”, Trinity College, Dublin, Ireland.
- August 2012, Invited Panelist, ACM SIGCOMM Workshop on Mobile Games (MobiGames).
- November 2012, Invited speaker, Annual Meeting, Society of Hispanic Professional Engineers (SPHE).
- August 2012, Invited Panelist, ACM SIGCOMM Workshop on Measurement Up and Down the Stack (W-MUST).
- September 2011 – “The State of Broadband - Getting a straight answer”, Science Cafe, Evanston, IL.
- April 2011 – “Crowdsourcing Broadband Service Characterization to the Network Edge,” UIUC, Urbana-Champaign, IL.
- April 2011 – “Crowdsourcing Broadband Service Characterization to the Network Edge,” DePaul U., Chicago, IL.
- February 2011 – “Crowdsourcing ISP Characterization to The Network Edge,” CAIDA AIMS Workshop, San Diego, CA.
- October 2010 – “Crowdsourcing Service-Level Network Event Monitoring,” HP Labs, Palo Alto, CA.
- 2009, Invited participant, NSF Future Internet Architecture Summit.
- July 2009 – “Crowdsourcing Network Monitoring,” University of Cambridge, Cambridge, UK.
- February 2009 – “Vehicular-Based Monitoring for Sustainable Urban Growth,” Trinity College, Dublin, Ireland.
- October 2008 – “Tension between P2P communication and service providers,” International Conference on Network Protocols (ICNP), Invited panelist.
- September 2008 – “Taming the Torrent – *Can’t ISPs and P2P just get along?*,” U. of Wisconsin-Madison.
- June 2008 – “Taming the Torrent – *Can’t ISPs and P2P just get along?*,” IBM Research, Watson, NY.
- June 2008 – “Taming the Torrent – *Can’t ISPs and P2P just get along?*,” AT&T Research, Florham Park, NJ.
- October 2007 – “Distributed Systems on Vehicular Networks – Challenges and Opportunities,” U. of Illinois, Chicago – Computational Transportation Science.
- May 2007 – “3R: Ensuring Sustainable scalability for globally-distributed systems,” University of Maryland, College Park.
- April 2007 – “3R: Ensuring Sustainable scalability in globally-distributed systems,” Boston University.
- March 2007 – “3R: Ensuring Sustainable scalability in globally-distributed systems,” U. of Illinois at Urbana-Champaign.

February 2007 – “3R: Ensuring Sustainable scalability in globally-distributed systems,” Hewlett-Packard Research Lab, Palo Alto, CA.

November 2006 – “Sustainable scalability in globally-distributed systems,” Purdue University.

October 2006 – “Sustainable scalability in globally-distributed systems,” U. of Minnesota, Twin Cities.

August 2006 – “Sustainable scalability in large-scale distributed systems,” U. of Notre Dame.

June 2006 – “Sustainable scalability in large-scale distributed systems,” Trinity College, Dublin, Ireland.

February 2006 – “Sustainable scalability in cooperative distributed systems,” IBM Research, Watson, NY.

COLLABORATORS

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