

JOHN W. BYERS

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ACADEMIC APPOINTMENTS

- Senior Associate Dean of the Faculty**, Division of Mathematical and Computational Sciences, College of Arts and Sciences (CAS), Boston University, May 2023 - present.
- Associate Dean of the Faculty**, Boston University, Sept 2018 - May 2023.
- Professor**, Department of Computer Science, Boston University, 2014 - present.
- Founding Faculty Member**, Faculty of Computing and Data Science, Boston University, 2020-present.
- Data Science Faculty Fellow**, Boston University, 2017 - 2020.
- Fellow**, Hariri Institute, Boston University, 2012 - 2019.
- Associate Professor**, Department of Computer Science, Boston University, 2005 - 2014.
- Associate Chair**, Department of Computer Science, Boston University, 2007 - 2009.
- Assistant Professor**, Department of Computer Science, Boston University, 1999 - 2005.
- Visiting Scientist**, BBN Research, Cambridge, MA, Fall 2005.
- Postdoctoral Researcher**, International Computer Science Institute, Berkeley, CA, 1998.
- Visiting Researcher**, Sandia National Labs, Albuquerque, NM, Summer 1996.

EDUCATION

- Ph.D.** Computer Science, University of California at Berkeley, December 1997.
Thesis title: *Maximizing Throughput of Reliable Bulk Network Transmissions*
Committee: Michael Luby, Richard Karp, Christos Papadimitriou, Dorit Hochbaum
- B.A.** Computer Science, Economics and Mathematics, Cornell University, May 1991.

ENTREPRENEURIAL AND INDUSTRY EXPERIENCE

- Board Member**, Board of Directors, Cogo Labs (fka Adverplex, Inc.), Cambridge, MA, 2008 - present.
- Founding Chief Scientist**, Cogo Labs (fka Adverplex, Inc.), Cambridge, MA, 2007 - present.
- Founding CTO**, Adverplex, Inc., Wakefield, MA, 2005 (founding) to 2007.
During a leave of absence from B.U. in 2005-2007, I served as founding CTO at Adverplex, re-branded as Cogo Labs in 2008. As CTO, I oversaw the design and implementation of a proprietary search engine marketing platform for our incubated portfolio companies. Since 2007, I have served primarily as a Board member and as a technical advisor. Cogo-incubated companies CourseAdvisor and Autotegrity were acquired in 2007 and 2011 by the Washington Post and by ADP, respectively. The Cogo-incubated firm EverQuote had its IPO in 2018 [NASDAQ: EVER].
- Affiliated Scientist and Technical Advisory Board Member**, Digital Fountain, Inc., Fremont, CA, 1998 (founding) - 2004.
As a part-time research scientist, I worked with the founding team to develop software and hardware solutions leveraging the advantages of rateless codes for various networking applications, following a line we initiated in academic research. Digital Fountain was acquired by Qualcomm in 2009.
- Course Instructor and Educational Consultant**, Hewlett-Packard Co., Palo Alto, CA, 7/92 - 8/98.

RESEARCH INTERESTS

Computer networking, electronic commerce, and large-scale data analysis.

HONORS AND AWARDS

Finalist, 2022 AMA Weitz-Winer-O'Dell award. Our paper [3] was recognized as one of the Journal of Marketing Research papers published five years prior that has made the most significant, long-term contribution to marketing theory, methodology, and/or practice.

Finalist, 2018 edX Award. For the BUx Questrom Micromasters in Digital Leadership, of which my co-taught course “Business Analytics for Data-Driven Decision Making” is the fifth and final leg.

Finalist, 2018 AMA Paul E. Green Award. Also awarded to our JMR 2017 paper [3].

2014 IEEE ICDE Influential Paper Award. Awarded to our IEEE ICDE '04 paper [??] in recognition of “a work which has been highly impactful in the area of sensor networks, and has been shown to be applicable to any setting with multiple data sources that may suffer network failures, such as distributed data centers of today.”

2009 ACM SIGCOMM Test of Time Award. Awarded to our ACM SIGCOMM '98 paper [??] in recognition of “an outstanding paper whose contents are still a vibrant and useful contribution today”.

2004 IEEE ICDE Best Paper Award, Also awarded to our IEEE ICDE '04 paper [??].

National Science Foundation CAREER Award, Advanced Networking Research Division, 2001.

California Regents Fellowship, GAANN Fellowship, U.C. Berkeley, 1992, 1994 - 1996.

Outstanding Graduate Student Instructor Award, CS Division of EECS, U.C. Berkeley, 1992.

Phi Beta Kappa, Cornell University, 1991.

BROADER IMPACT

Citations: Google Scholar lists 16,761 citations to my work, with a reported h-index of 47, i10-index of 73 (as of 11/6/23). For additional details, please search Google Scholar for “John W. Byers”.

Courses: The institutions listed below have taught graduate courses in networking, algorithms, or electronic commerce where at least one of my publications was required reading (partial list): Carnegie-Mellon, Cornell, Dartmouth, Duke, Georgia Tech, Harvard, IIT Delhi, MIT, Princeton, Stanford, U.C. Berkeley, U.C. San Diego, U.C. Santa Barbara, U. Illinois at Urbana-Champaign, U. Maryland, U. Mass at Amherst, U. North Carolina, University of Southern California, U. Texas at Austin, U. Washington, U. Wisconsin, Washington U. at St. Louis, Yale.

Media Mentions: My work on Airbnb’s disruptive impact on the hotel industry [3,??,??] received wide coverage in the popular press, including a feature in The Economist on Bloomberg TV, and in a front-page article in the New York Times. My earlier work on the reputation of Groupon merchants as viewed through Yelp reviewers [??, ??] was also widely covered. I was quoted in a front-page article in the New York Times, in a piece in NPR’s “Morning Edition”, on Bloomberg TV, and served as a panelist on WBUR.

SELECTED PROFESSIONAL ACTIVITIES

Contributing Member, DARPA ISAT Study Group, 2020-2023.

Steering Committee Member, ACM Internet Measurement Conference, 2020-present.

Test of Time Award Committee Chair, ACM SIGCOMM, 2018.

Technical Program Committee Co-Chair, ACM Internet Measurement Conference 2016, Santa Monica, CA, October 2016.

General Co-Chair, ACM Internet Measurement Conference 2012, Boston, MA, November 2012.
Technical Program Committee Co-Chair, ACM SIGCOMM 2011, Toronto, Canada, August 2011.
ACM SIGCOMM Awards Chair, 2007 - 2008.
Associate Editor, IEEE/ACM Transactions on Networking, 2003-2006.
National Science Foundation Proposal Review Panelist. (Frequently from 2000-2016).
General Chair, Fourth International Workshop on Networked Group Communication (NGC), Boston, MA, October 2002.
Co-organizer, DIMACS Workshop on Internet and WWW Measurement, Mapping and Modeling, DIMACS Center @ Rutgers University, Piscataway, NJ, February 13-15, 2002.
Co-organizer, BU/NSF Workshop on Internet Measurement, Instrumentation, and Characterization, Boston University, Boston, MA, August 30, 1999.
Other notable journal refereeing: Journal of the ACM, IEEE/ACM Transactions on Networking, IEEE Journal on Selected Areas in Communications (JSAC), SIAM Journal on Computing, Management Science, Marketing Science, IEEE Transactions on Computers, IEEE Transactions on Multimedia, IEEE Transactions on Parallel and Distributed Systems, ACM Transactions on Internet Technology, Computer Communications, Computer Networks.

MAJOR PROGRAM COMMITTEES

Technical Program Committee Member, ACM SIGCOMM (2003, 2004, 2006, 2011, 2013, 2015, 2017).
Technical Program Committee Member, ACM Internet Measurement Conference (2016, 2017, 2018).
Technical Program Committee Member, USENIX NSDI (2006, 2010, 2012).
Technical Program Committee Member, ACM STOC (2013).
Technical Program Committee Member, ACM Electronic Commerce (2013).
Technical Program Committee Member, ACM WSDM (2012).
Technical Program Committee Member, ACM PODC (2012).
Technical Program Committee Member, ACM CoNEXT (2010).
Technical Program Committee Member, IEEE Infocom (2005, 2009).
Technical Program Committee Member, IEEE ICNP (2002, 2003, 2004, 2005).
Technical Program Committee Member, HotNets IV (2005).
Technical Program Committee Member, ACM SPAA (2004).
Technical Program Committee Member, ACM SIGMETRICS (2001).

COLLEGE AND UNIVERSITY SERVICE AT BU

BU Faculty Affairs Committee, 2018-present.
BU Research Council, 2018-present.
Search Advisory Committee for the Dean of the Questrom School of Business, 2017-2018. Faculty representative elected by the BU Faculty Council.
BU Spark! Advisory Board, College of Arts & Sciences, 2017-present.
Innovate@BU Steering Committee member, 2018-2020.
BU Entrepreneurship Advisory Council, 2016-2017. Our committee recommendation and report to President Brown led to the launch of Innovate@BU in 2017 (URL: www.bu.edu/innovate).
Hariri Institute, Steering Committee Member, 2016-2019.

Academic Program Review, Internal Committee Member for review of the Electrical and Computer Engineering (ECE) Department, 2016.

Appointment, Promotion & Tenure (APT) Committee, College of Arts & Sciences, AY 2014-2015.

Faculty Advisor Committee, UROP Program, 2012 - 2013.

College of Arts & Sciences Academic Conduct Committee, 1999 - 2004.

SELECTED DEPARTMENTAL SERVICE FOR CS @ BU

Ph.D. Admissions Committee Chair, AY 2017-2018.

Director of Graduate Studies, 2012 - 2013.

Associate Chair, 2007 - 2009.

Faculty Search Committee Chair, 2001, 2002, 2016.

Faculty Search Committee Member, 2000, 2004, 2005, 2007, 2009, 2017.

Graduate Student Admissions Committee, 2001 - 2004, 2012.

Computer Science Space Committee, 2011-2013.

Computer Science Curriculum Committee, 2000.

Computer Science Department Colloquium Coordinator, 1999 - 2000.

DOCTORAL STUDENTS ADVISED

Harshal Chaudhari, Ph.D. May 2021, "*Fleet Management Strategies for Urban Mobility-on-Demand Systems*," co-advised by Prof. Evimaria Terzi. B.U. Dept. of Computer Science. Current position: Senior Applied Scientist, Etsy.

Cody Doucette, Ph.D. December 2020, "*An Architectural Approach for Mitigating Next-Generation Denial of Service Attacks*," B.U. Dept. of Computer Science. Current position: Software Engineer, Cloudflare.

Qiaobin Fu, Ph.D. May 2020, "*High-Performance Software Packet Processing*," B.U. Dept. of Computer Science. Current position: Senior Software Engineer, Google.

Michel Machado, Ph.D., May 2014, "*Linux XIA: An Interoperable Meta Network Architecture*," B.U. Dept. of Computer Science. Current position: Chief Scientist, Digirati and Visiting Researcher, BUCS.

Chong Wang, Ph.D., December 2012, "*Modeling Content Provider Networks from an Economic Perspective*," B.U. Dept. of Computer Science. Current position: R&D Engineer, LinkedIn.

Georgios Zervas, Ph.D., August 2011, "*Data-Driven Analysis of Electronic Commerce Systems*," B.U. Dept. of Computer Science. Current position: Associate Professor of Marketing, Questrom School of Management, Boston University.

Gu-In Kwon, Ph.D., December 2004, "*Scalable Architectures for Multicast Content Distribution*," B.U. Dept. of Computer Science. Current position: Associate Professor, Inha University, South Korea.

Jeffrey Considine, Ph.D., December 2004, "*Schedule Oblivious Data Management*," B.U. Dept. of Computer Science. Current position: Chief Technology Officer, SolvedHome, Brookline, MA.

Khaled A. Harfoush, Ph.D., November 2001, "*A Framework for End-to-End Characterization of Metric-Induced Network Topologies*," B.U. Dept. of Computer Science. Co-advised by Azer Bestavros. Current position: Associate Professor of Computer Science, North Carolina State University.

DOCTORAL STUDENTS, EXAMINING COMMITTEE MEMBER

- Konstantinos Sotiropoulos, Ph.D., May 2023, "*Methods, Algorithms and Impossibility Results for Machine Learning on Graphs*," B.U. Dept. of Computer Science. Current position: Postdoctoral Researcher, Carnegie-Mellon University.
- Davide Proserpio, Ph.D., May 2016, "*The Impact of Digital Information on Industries and Markets*," B.U. Dept. of Computer Science. Committee chair and research mentor. Current position: Associate Professor of Marketing, University of Southern California (Marshall).
- Flavio Esposito, Ph.D., May 2013, "*A Policy-Based Architecture for Virtual Network Embedding*," B.U. Dept. of Computer Science. Second reader.
- Andrej Cvetkovski, Ph.D., May 2013, "*Graph Embeddings for Low-Stretch Greedy Routing*," B.U. Dept. of Computer Science. Third reader.
- Gonca Gürsun, Ph.D., March 2013, "*Inferring Hidden Features in the Internet*," B.U. Dept. of Computer Science. Third reader.
- Karim Mattar, Ph.D., December 2010, "*Policy Routing Dynamics: Theory and Applications*," B.U. Dept. of Computer Science. Committee chair.
- Vijay Erramilli, Ph.D., December 2008, "*Forwarding in Mobile Opportunistic Networks*," B.U. Dept. of Computer Science. Third reader.
- Georgios Smaragdakis, Ph.D., August 2008, "*Overlay Network Creation and Maintenance with Selfish Users*," B.U. Dept. of Computer Science. Third reader.
- Hany Morcos, Ph.D., August 2008, "*Service Provisioning in Mobile Networks Through Coordinated Distributed Resource Management*," B.U. Dept. of Computer Science. Committee chair.
- Scott W. Russell, Ph.D., December 2007, "*Communication and Query Privacy: Intrusion-Resilient Secure Channels and Private Database Queries*," B.U. Dept. of Computer Science. Committee chair.
- John Rachlin, Ph.D., November 2006, "*Multi-Node Graphs and Their Application to Bioinformatics*," B.U. Dept. of Computer Science. Committee member.
- Vishal Sood, Ph.D., August 2006, "*Interacting Particle Systems on Graphs*," B.U. Dept. of Physics. Committee member.
- Anukool Lakhina, Ph.D., May 2006, "*Network-Wide Traffic Analysis: Methods and Applications*," B.U. Dept. of Computer Science. Second reader.
- Shudong Jin, Ph.D., May 2003, "*Protocol Support for Scalable and Efficient Media Data Streaming*," B.U. Dept. of Computer Science. Second reader.
- Liang Guo, Ph.D., April 2003, "*Size-Aware Scheduling of TCP Flows*," B.U. Dept. of Computer Science. Third reader.
- Prithwish Basu, Ph.D., April 2003, "*A Task-Based Approach for Modeling Distributed Applications on Mobile Ad Hoc Networks*," B.U. Dept. of Electrical and Computer Engineering. Third reader.
- Alberto Medina, Ph.D., March 2003, "*Practical Estimation of Internet Traffic Demands*," B.U. Dept. of Computer Science. Second reader.
- Jun Liu, Ph.D., August 2002, "*Characterizing Network Elements and Paths Using Packet Loss Behavior*," B.U. Dept. of Computer Science. Third reader.
- Paul Barford, Ph.D., June 2000, "*Modeling, Measurement and Performance of World Wide Web Transactions*," B.U. Dept. of Computer Science. Second reader.

MENTORING OF JUNIOR FACULTY AND INSTRUCTORS

Informal teaching mentor for Tiago Januario, Lecturer, B.U. Dept. of Computer Science, 2023-present.

Formal mentor for Charalampos Tsourakakis, Assistant Professor, B.U. Dept. of Computer Science, 2015-2018.

Teaching mentor for Dora Erdos, Lecturer and Undergraduate Program Director, B.U. Dept. of Computer Science, 2016-2018.

SUPERVISION OF POSTDOCTORAL STUDENTS AND VISITING RESEARCHERS

Michel Machado, Postdoctoral Researcher, Boston University, 2014-2015. Current position: CTO at Digirati Internet, Rio de Janeiro, Brazil.

Guido Marchetto, Visiting Researcher, Boston University, 2008-2009. Current position: Associate Professor, Dept. of Control and Computer Engineering, Politecnico di Torino.

Nikos Laoutaris, Marie Curie Postdoctoral Fellow, Boston University, 2005-2007. Current position: Senior Researcher and co-Founder of the Data Transparency Lab, Telefonica I+D, Barcelona.

Boulat Bash, Visiting Researcher, Boston University, 2004-2005.

SUPERVISION OF MASTERS AND UNDERGRADUATE STUDENTS

Masters: John Peterson, Manish Sharma, Marwan Fayed, Stan Rost, Yuri Vaysman, Dmitriy Zavin, Igor Stubailo, Yazdan Shaghghi, Min Guo.

Senior Honors Thesis: Ryan Mahon, David Blumstein, Stan Rost.

Undergraduate Research: Cody Doucette, Yvette Tsai, Nam Chu Hoai, Alan Burstein.

SELECTED INVITED COLLOQUIA

Institutes: DIMACS, Hariri Institute, Institute for Mathematics and its Applications (IMA), Institute for Pure and Applied Mathematics (IPAM), Korea Development Institute (KDI), Mathematical Sciences Research Institute (MSRI), Radcliffe Institute.

Industry: AT&T Laboratories, BBN Technologies, Bell Labs (Lucent), Cisco Systems, Intel Research, NEC Research Institute, Nortel Networks, Sprint Labs, Technicolor Research, Telefonica Research.

Universities: Boston University, Carnegie-Mellon University, Duke University, Harvard University, Tufts University, Université Pierre et Marie Curie, Laboratoire d'Informatique (LIP6), Universidad Carlos III de Madrid (UC3M), University of California at Berkeley, University of Maryland, University of Massachusetts at Amherst, University of North Carolina at Chapel Hill, University of Washington, University of Wisconsin, Williams College.

PATENTS

Generating High Weight Encoding Symbols Using a Basis, with A. Haken, M. Luby, G. Horn, D. Hernek, and M. Mitzenmacher. Issued as U.S. Patent 6,411,223, June 25, 2002.

On Demand Encoding with a Window, with M. Luby, G. Horn, J. Persch, A. Haken, and M. Mitzenmacher. Issued as U.S. Patent 6,486,803, November 26, 2002.

Multi-output Packet Server with Independent Streams, with M. Luby, R. Vainish, L. Rasmussen, D. Kushi, S. Simu, A. Perrig, R. Attias, M. Walfish, and D. Hernek. Issued as U.S. Patent 8,185,809, May 22, 2012. Continuation filing issued as U.S. Patent 8,671,673, March 11, 2014.

FUNDED GRANTS AND EXTERNAL SUPPORT

Collaborative Research: Real-Time Liquid Wireless Networking for Data-Intensive Rural Applications
Principal Investigator at BU with lead PI Hongwei Zhang (Iowa State) and co-PI Michael Luby (BitRipple Inc.) NSF Division of Computer and Network Systems (CNS Core), 10/1/22 – 9/31/25.
Award to BU: \$149,985.

Collaborative Research: Revisiting Network QoS in the Cloud-based Era, Principal Investigator at BU with lead PI Fahad Dogar (Tufts). NSF Networking Technology and Systems, 10/1/18 – 9/31/23.
Award to BU: \$200,000.

Gatekeeper: Distributed Denial-of-Service Defense, co-PI with Michel Machado, funding from Digirati Inc., 2016-2017. Two unrestricted gifts to BU: \$50,000.

FIA-NP: Collaborative Research: Deployment-Driven Evaluation and Evolution of the eXpressive Internet Architecture, PI at BU, joint with Carnegie-Mellon University (lead PI: Peter Steenkiste), Duke (PI: Bruce Maggs), and U. Wisconsin (PI: Aditya Akella), NSF Special Projects - CISE, 5/1/14 – 10/30/17. Award to BU: \$405,794 of \$6.1M total.

Holistic Security for Cloud Computing: Architecture for Modular System and Network Design, co-Principal Investigator, one of five NSF EAGER awards to fund our team at BU and MIT led by PI Ran Canetti, 9/1/13 – 2/28/15. Award to BU: \$299,992.

Designing Cloud and Big Data Platforms for Data-intensive Scientific Applications, co-PI, led by PI Orran Krieger at BU, funding from MA Green High-Performance Computing Center, 1/15/13. Award to BU: \$50,000.

To Tweet or to Yelp: Understanding and Shaping Online Consumer Feedback, PI, with co-PI Georgios Zervas, Hariri Institute, Boston University, 1/1/13. Award: \$26,500.

Accountability and Choice in Online Consumer Feedback, PI at BU with co-PI Joan Feigenbaum (Yale) and Georgios Zervas, Google Research Award, 8/15/12. Award to BU: \$26,500.

FIA: Collaborative Research: A Content and Service Friendly Architecture with Intrinsic Security and Explicit Trust, PI at BU, joint with Carnegie-Mellon University (lead PI: Peter Steenkiste), and U. Wisconsin (PI: Aditya Akella), NSF Special Projects - CISE, 9/1/10 – 8/31/14. Award to BU: \$476,385 of \$7.1M total.

Expressive Resource Specification and Discovery in Configurable Networks, PI at BU with co-PI Azer Bestavros, NSF Networking Technology and Systems (NeTS), 9/1/05 – 8/31/09. Award to BU: \$395,000.

ITR: Internet Flows as First-Class Values: Support for Dynamic, Flexible Internet Services, Co-PI with PI Azer Bestavros and three co-PIs, NSF Information Technology Research, 1/1/03 – 6/30/07. Award to BU: \$1,665,497.

SENSORIUM: Research Infrastructure for Managing Spatio-Temporal Objects in Video Sensor Networks, Senior Personnel, with eleven co-PIs, NSF Research Infrastructure Award, 8/1/02 – 7/31/07. Award to BU: \$1,247,395.

Gift from Sprint Advanced Technology Lab to fund BU/CS Networking Research, co-Principal Investigator with M. Crovella, A. Bestavros and I. Matta, 7/1/02. Award to BU: \$80,000.

Global Throughput Maximization via Fair Local Resource Allocation, Principal U.S. Investigator with lead PI Danny Raz (Technion), U.S. - Israel Binational Science Foundation, 8/1/01 - 7/31/03. Award to Technion: \$44,850.

CAREER: Flexible Strategies for Internet Content Distribution, PI, NSF Faculty Early Career Development Award, 6/1/01 - 5/31/06. Award to BU: \$482,467.

Diagnosis and Control of Network Variability at Massively Accessed Servers, Co-PI with PI Azer Bestavros and co-PI Mark Crovella, NSF Special Projects in Networking Award, 6/1/00 - 5/31/04. Award to BU: \$1,210,768.

BU/NSF Workshop on Internet Measurement, Instrumentation and Characterization, Co-PI with PI Azer Bestavros and co-PI Mark Crovella, NSF Advanced Networking Award, 8/15/99 - 2/15/00. Award to BU: \$11,494.

TEACHING

Business Analytics for Data-Driven Decision Making, QD602x, Questrom Digital Together with BU faculty Chris Dellarocas and Andrei Lapets, we developed an edX course for the new Questrom Micromasters programs in Digital Leadership and Digital Product Management. QD602x launched in March 2018. The BU Micromasters in Digital Leadership was a finalist for the 2018 edX Prize.

Electronic Commerce, CS graduate elective. Introduced a new graduate/upper-division elective that takes an interdisciplinary approach to studying the technological foundations of firms facilitating electronic commerce. Students read and discuss papers in computer science, economics and marketing spanning: auction and market design, reputation and recommendation systems, and advertising networks. The capstone is a supervised semester-long, measurement-driven research project.

Computer Networks, CS 455/655. Redesigned and modernized the senior-level / introductory graduate-level networking course. Student projects include the design of a reliable, congestion-controlled file transfer protocol over UDP, and implementation of a link-state multicast routing protocol.

Introduction to Algorithms, CS 330. I teach our undergraduate majors a rigorous version of the required undergraduate Algorithms course, currently following the Kleinberg-Tardos text.

Algorithmic Aspects of Computer Networking, CS graduate elective. Introduced a new graduate course that considers theoretical advances that have had a significant impact on computer networking in the past five years. Students read and discuss papers on both the theory and practical applications of topics such as Bloom filters, consistent hashing, information dispersal, and spectral methods.

Probability in Computing, CS 237. Frequently co-taught the intermediate course in applied probability and statistics for our undergraduate majors. Introduction to basic probabilistic concepts and methods used in computer science. Develops an understanding of the crucial role played by randomness in computing, both as a powerful tool and as a challenge to confront and analyze

Combinatoric Structures, CS 131. Updated the introductory course in discrete mathematics for our undergraduate majors. Standard topics include: logic, proof techniques, mathematical induction, recurrences, counting, combinatorics, and some basic probability.

Introduction to Computer Science II (Data Structures), CS 112. Updated the second semester of our introductory sequence for majors, covering the material in an introductory data structures course: linear data structures, sorting, searching, trees, and basic graph algorithms.

A Critical Look at Network Protocols, CS graduate elective. Introduced a new graduate course that surveys fifty classic papers across computer networking and prepares Ph.D. students both to conduct research in networking and to write their doctoral written exam. Semester-long student projects in both this course and my other electives have ultimately led to a number of student publications.

Software Job Skills at Hewlett-Packard. At H-P Palo Alto, I taught a retraining program in Computer Science to bright and motivated engineers with minimal prior software experience. The full-time, 17-week curriculum started with the C programming language and data structures in an intensive eight weeks, followed by samplers on assembly language, operating systems, networking, software engineering, and web programming, and culminating in a two-week software engineering capstone.

REFEREED JOURNAL PUBLICATIONS

1. G. Zervas, D. Proserpio, and J. W. Byers, "A First Look at Online Reputation on Airbnb, Where Every Stay is Above Average," *Marketing Letters*, 32, pp. 1-16, March 2021.

2. J. W. Byers, M. Luby and M. Mitzenmacher. "A Digital Fountain Retrospective," *ACM SIGCOMM Computer Communications Review*, October 2019. Special Issue Celebrating 50 Years of ACM SIGCOMM.
3. G. Zervas, D. Proserpio, and J. W. Byers, "The Rise of the Sharing Economy: Estimating the Impact of Airbnb on the Hotel Industry," *Journal of Marketing Research (JMR)*, 54 (5), pp. 687-705, October 2017. [Finalist for the 2018 AMA Paul E. Green Award and the 2022 AMA Weitz-Winer-O'Dell Award.]
4. D. Naylor, M. Mukerjee, P. Agyapon, R. Grandl, R. Kang, M. Machado, S. Brown, C. Doucette, H.-C. Hsiao, D. Han, T. Kim, H. Lim, C. Ovon, D. Zhou, S. Lee, Y.-H. Lin, C. Stuart, D. Barrett, A. Akella, D. Anderson, J. W. Byers, L. Dabbish, M. Kaminsky, S. Kiesler, J. Peha, A. Perrig, S. Seshan, M. Sirbu, and P. Steenkiste, "XIA: Architecting a More Trustworthy and Evolvable Internet," *ACM SIGCOMM Computer Communication Review (CCR)*, 44(3), pp. 50-57, July 2014.
5. G. Smaragdakis, N. Laoutaris, V. Lekakis, A. Bestavros, J. W. Byers, and M. Roussopoulos. "Selfish Overlay Network Creation and Maintenance," *IEEE/ACM Transactions on Networking*, 19(6), pp. 1624-37, December 2011.
6. G. Smaragdakis, N. Laoutaris, P. Michiardi, A. Bestavros, J. W. Byers and M. Roussopoulos. "Distributed Network Formation for n-way Broadcast Applications," *IEEE Transactions on Parallel and Distributed Systems*, 21(10), pp. 1427-41, October 2010.
7. J. Considine, M. Hadjieleftheriou, F. Li, J. W. Byers and G. Kollios, "Robust Approximate Aggregation in Sensor Data Management Systems," *ACM Transactions on Database Systems*, 34(1), pp. 1-35, April 2009.
8. K. Harfoush, A. Bestavros and J. W. Byers, "Measuring Capacity Bandwidth of Targeted Path Segments," *IEEE/ACM Transactions on Networking*, 17(1), pp. 80-92, February 2009.
9. J. W. Byers, G.-I. Kwon, M. Luby and M. Mitzenmacher, "Fine-Grained Layered Multicast using STAIR," *IEEE/ACM Transactions on Networking*, 14(1), pp. 81-93, March 2006.
10. J. W. Byers, J. Considine, G. Itkis, M. C. Cheng and A. Yeung, "Securing Bulk Content Almost for Free," *Computer Communications*, 29(3), Special Issue on Internet Security, pp. 280-290, February 2006.
11. A. Bestavros, J. W. Byers, and K. Harfoush, "Inference and Labeling of Metric-Induced Network Topologies," *IEEE Transactions on Parallel and Distributed Systems*, 16(11), pp. 1053-1065, November 2005.
12. J. W. Byers, J. Considine, M. Mitzenmacher, and S. Rost, "Informed Content Delivery Across Adaptive Overlay Networks," *IEEE/ACM Transactions on Networking*, 12(5), pp. 767-780, October 2004.
13. G.-I. Kwon and J. W. Byers, "Leveraging Single Rate Schemes in Multiple Rate Multicast Congestion Control Design," *IEEE Journal on Selected Areas in Communications, Special Issue on Design, Implementation and Analysis of Communication Protocols*, 22(10), pp. 1975-1986, December 2004.
14. Y. Bartal, J. W. Byers and D. Raz, "Fast, Distributed Approximation Algorithms for Positive Linear Programming with Applications to Flow Control," *SIAM Journal on Computing*, 33(6), pp. 1261 - 1279, August 2004.
15. A. Lakhina, J. W. Byers, M. Crovella, and I. Matta, "On the Geographical Location of Internet Resources," *IEEE Journal on Selected Areas in Communications, Special Issue on Internet and WWW Measurement, Mapping and Modeling*, 21(6), pp. 934-948, August 2003.
16. M. Fayed, P. Krapivsky, J. W. Byers, M. Crovella, D. Finkel, and S. Redner, "On the Emergence of Highly Variable Distributions in the Autonomous System Topology," *ACM SIGCOMM Computer Communication Review (CCR)*, 33(2), pp. 41-50, April 2003.
17. J. W. Byers, M. Luby and M. Mitzenmacher, "A Digital Fountain Approach to Asynchronous Reliable Multicast," *IEEE Journal on Selected Areas in Communications, Special Issue on Network Support for Multicast Communications*, 20(8), pp. 1528-1540, October 2002.

18. J. W. Byers, G. Horn, M. Luby, M. Mitzenmacher and W. Shaver, "FLID-DL: Congestion Control for Layered Multicast," *IEEE Journal on Selected Areas in Communications, Special Issue on Network Support for Multicast Communications*, 20(8), pp. 1558-1570, October 2002.
19. S. Rost, J. W. Byers and A. Bestavros, "The Cyclone Server Architecture: Streamlining Delivery of Popular Content," *Computer Communications*, 25(4), pp. 403-412, March 2002.
20. M. Adler, J. W. Byers and R. M. Karp, "Parallel Sorting with Limited Bandwidth," *SIAM Journal on Computing* 29(6), pp. 1997-2015, June 2000.
21. A. Medina, I. Matta and J. W. Byers, "On the Origin of Power Laws in Internet Topologies," *ACM SIGCOMM Computer Communication Review (CCR)*, 30(2), pp. 18-28, April 2000.

PEER-REVIEWED CONFERENCE PUBLICATIONS (TOP TIER)

22. H. Chaudhari, J. W. Byers and E. Terzi, "Learn to Earn: Enabling Coordination Within a Ride-Hailing Fleet," in *Proc. of IEEE BigData 2020*, December 2020.
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