



FARNAM JAHANIAN

Provost and Chief Academic Officer
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213-3890
Phone: 412-268-3260
e-mail: farnam@andrew.cmu.edu

Farnam Jahanian began serving as provost of Carnegie Mellon University in February 2015. As the university's chief academic officer, Jahanian has broad responsibility for leading CMU's schools, colleges, institutes and campuses and is instrumental in long-range institutional and academic planning and implementation. The office of vice provost for research also reports to Jahanian, where he is responsible for fostering excellence in research, scholarship and creative activities across the entire campus. He brings to CMU extensive leadership and administrative expertise, not only in supporting and nurturing foundational research within and across disciplines, but also in translating research into technologies and practices that benefit society.

Prior to CMU, Jahanian led the National Science Foundation Directorate for the Computer and Information Science and Engineering (CISE) from 2011 to 2014. With the budget of over \$900 million, he was responsible for directing CISE programs and initiatives that support advances in research and cyber infrastructure, foster broad interdisciplinary collaborations, and contribute to the development of a computing and information technology workforce with skills essential to success in the increasingly competitive global market. During his tenure at NSF, the CISE Directorate led several administration initiatives with the White House Office of Science and Technology Policy, including the National Robotics Initiative, the National Big Data Research and Development Initiative and US Ignite. He also served as co-chair of the Networking and Information Technology Research and Development (NITRD) Subcommittee of the National Science and Technology Council Committee on Technology, providing coordination of R&D activities of 17 government agencies.

Jahanian was on the faculty at the University of Michigan from 1993 to 2014, where he held the Edward S. Davidson Collegiate Professorship in the College of Engineering, and served as Chair for Computer Science and Engineering from 2007 to 2011 and the Director of the Software Systems Laboratory from 1997 to 2000. He co-founded Arbor Networks in 2001 and served as its President and Chief Scientist until 2004. He remained as Chairman of Arbor Networks until its acquisition in 2010. Earlier in his career, he held research and management positions at the IBM T.J. Watson Research Center.

Jahanian's research interests span distributed computing, network security and network protocols and architectures. His research has been sponsored by NSF, DHS, DARPA, NSA, ONR and numerous companies including Cisco, Intel, Google, Boeing, VeriSign, Hitachi, Hewlett-Packard and IBM.

While at the University of Michigan, Jahanian led several large-scale research projects that studied the growth and scalability of the Internet infrastructure, which ultimately transformed how cyber threats are addressed by Internet Service Providers. In the late 1990s, his research team, including former students, Craig Labovitz and G. Robert Malan, demonstrated fundamental limitations in the core routing architecture of the Internet by uncovering the fragility of the underlying routing infrastructure. The group's seminal work on Internet routing stability and convergence has been highly influential within both the network research community and the Internet operations community. It served as a catalyst for significant changes in commercial Internet routing software implementation and impacted routing policies employed by Internet Service Providers worldwide. The centerpiece of this work was recognized with an ACM SIGCOMM Test of Time Award in 2008. Furthermore, it has inspired significant new endeavors by numerous networking researchers over the last decade.

Anticipating the emergence of increasingly complex, widely distributed cyber attacks on IP-based networks, long before terms such as "distributed denial of service" and "zero-day worms" entered the mainstream, Jahanian led an effort to develop new techniques that combine network topology information and traffic flow statistics to detect, backtrack and filter DDoS attacks. Working from a granular understanding of normal

network traffic flows, the anomaly detection technique invented by Jahanian's research team rapidly uncovers distributed attacks, closing a costly gap between the detection of a widely distributed attack and its resolution. This approach, without requiring any changes to the existing Internet routing infrastructure, has transformed how network security is addressed by today's Internet Service Providers.

The impact of Jahanian's contributions to Internet stability and security extends beyond the research community and into industry, as is evident in the successful commercialization of his research through Arbor Networks (www.arbor.net), which Jahanian co-founded with former UM graduate student G. Robert Malan in 2000. Over a 10-year period, Jahanian led the research, co-founded the company, launched its flagship products, and upon his return to the University of Michigan, served as Chief Scientist and Chairman of Arbor Networks setting the strategic direction until its acquisition in 2010. During a three-year leave from the University of Michigan, he led the management team of the company and raised over \$33 million in two rounds of funding from venture capital firms and strategic investors.

At Arbor Networks, Jahanian and his team developed highly scalable, service provider-class solutions for protecting networks against distributed denial of service attacks, zero-day network threats and routing exploits. These Internet security solutions have been widely implemented by hundreds of Internet Service Providers, wireless carriers, cloud service providers and numerous mission-critical networks in leading financial, retail, healthcare and government organizations in 107 countries around the globe, including AT&T, Verizon, British Telecom, Comcast, NTT, Telecom Italia, Vodafone, Internet2, Yahoo and Cisco. In 2010, 70 percent of Internet backbone transit traffic was being protected by their technology. Over the last decade, Arbor Networks's technology has been utilized by the world's leading companies to measure, monitor and defend networks against attack, including 90% of the world's Tier 1 service providers, 8 of the 10 largest cloud service providers, 9 of the 10 largest managed security service providers, 3 of the 5 largest social media networks, 5 of the 6 largest U.S. cable broadband providers, and 4 of the top 6 U.S. banks based on assets under management. In addition, more than 50 global carriers and cloud service providers offer managed security services to their enterprise customers based on Arbor Networks products. The technology has also been used to successfully protect Web properties for five Olympic Games and two World Cups.

The author of over 100 published research papers, Jahanian has also served on dozens of national advisory boards and panels. He serves as chair of the National Research Council's Computer Science and Telecommunications Board (CSTB) and is a board member of the Computing Research Association (CRA) and National Center for Women and Information Technology (NCWIT). Jahanian has testified before Congress on a broad range of topics, including cybersecurity, next generation computing and "big data" analytics. He has been an active advocate for how basic research can be uniquely central to an innovation ecosystem that drives global competitiveness and addresses national priorities, working with entrepreneurs and frequently lecturing on the topic.

He has received numerous awards for his research, commitment to education and technology commercialization activities, including a National Science Foundation CAREER Award (1995), University of Michigan College of Engineering Teaching Excellence Award (1998), Amoco Teaching Award (2000), DARPA Innovation Award (2000), EECS Outstanding Faculty Achievement Award (2005), the State of Michigan Governor's University Award for Commercialization Excellence (2005) and the ACM SIGCOMM Test of Time Award (2008). He was named "Distinguished University Innovator" at the University of Michigan in 2009, and "Entrepreneur of the Year" by New Enterprise Forum in 2010. Most recently, he was presented with the Computing Research Association's 2015 Distinguished Service Award.

Jahanian holds a master's degree and a Ph.D. in Computer Science from the University of Texas at Austin. He is a Fellow of the Association for Computing Machinery (ACM), the Institute of Electrical and Electronic Engineers (IEEE) and the American Association for the Advancement of Science (AAAS).

News and Media

Farnam Jahanian Receives Computing Research Association Distinguished Service Award

Source: [Computing Research Association](#) | [Carnegie Mellon University](#)

Dr. Farnam Jahanian joins QCRI's Scientific Advisory Committee

Source: [The Peninsula](#) | [Gulf Times](#) | [Qatar is Booming](#)

Farnam Jahanian Named Carnegie Mellon University Provost

Source: [Pittsburgh Business Times](#) | [Carnegie Mellon University](#)

CMU Selects Farnam Jahanian, Accomplished Scientist and Successful Entrepreneur, as VP of Research

Source: [Carnegie Mellon University](#)

NSF Selects University of Michigan Professor Farnam Jahanian to Head Computer & Information Science & Engineering (CISE) Directorate:

Source: [National Science Foundation](#)

University of Michigan spinoff Arbor Networks sold to Tektronix Communications in major IT security deal

Source: [The Ann Arbor News](#)

Arbor Networks Acquisition Is a Tale of Two Cities—and a Strategic Move Into Wider World of Wireless

Source: [Xconomy.com](#)

Arbor Networks Founder Honored by the University of Michigan

Source: [Arbor Networks](#)

Other Links

Page at National Science Foundation: www.nsf.gov/cise/bios/farnam.jsp

Faculty Page at University of Michigan: www.eecs.umich.edu/~farnam/

Jahanian's Research Group Website: nsrc.eecs.umich.edu

Arbor Networks, founded by Jahanian: <http://www.arbor.net>

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EDUCATION

UNIVERSITY OF TEXAS AT AUSTIN

Doctor of Philosophy degree in Computer Science, 1989.

Master of Science in Computer Science, Minor in Electrical Engineering, 1987.

UNIVERSITY OF TEXAS AT SAN ANTONIO

Bachelor of Science in Mathematics, Computer Science, and System Design (Summa cum Laude), 1982.

PROFESSIONAL EXPERIENCE

CARNEGIE MELLON UNIVERSITY

Provost and Chief Academic Officer (May 2015–present)

Vice President for Research (August 2014–May 2015)

Professor, School of Computer Science

Professor, College of Engineering

Professor, Heinz College

NATIONAL SCIENCE FOUNDATION

Directorate for Computer and Information Science and Engineering
(March 2011–August 2014)

UNIVERSITY OF MICHIGAN

Edward S. Davidson Collegiate Professor of EECS

Professor, EECS Department (2001–2014)

Chair, Computer Science and Engineering (2007–2011)

Director, Software Systems Research Lab (1997–2000)

Associate Professor, EECS Department (1995–2001)

Assistant Professor, EECS Department (1993–1995)

ARBOR NETWORKS

Chairman of the Board (2004–2010)

President and Chief Scientist (2000–2004, on leave from UM)

IBM T.J. WATSON RESEARCH CENTER

Senior Manager, Research Division (1991–1993)

Research Staff Member (1989–1991)

UNIVERSITY OF TEXAS AT AUSTIN (1984 –1989)

Research Assistant with the Real-Time Systems Group

HONORS AND AWARDS

- Professional Societies
 - Fellow of the Association for Computing Machinery (ACM).
 - Fellow of the Institute of Electrical and Electronics Engineers (IEEE).
 - Fellow of the American Association for the Advancement of Science (AAAS).
- Computer Research Association (CRA) Distinguished Service Award, 2015.
- New Enterprise Forum Entrepreneur of the Year, 2010.
- Edward S. Davidson Collegiate Professor of EECS, 2009.
- Distinguished University Innovator Award, University of Michigan, 2009.
- Association for Computing Machinery SIGCOMM Test of Time Award, 2008.
- Governor's University Award for Commercialization Excellence (U-ACE), 2005.
- EECS Outstanding Faculty Achievement Award, University of Michigan, 2005.
- Ernst & Young Entrepreneur of the Year Finalist, 2003.
- Amoco Faculty Teaching Award, University of Michigan, 2000.
- IBM Faculty Development Award, 2000.
- DARPA Innovation Award, Fault-Tolerant Networking Program, 2000.
- College of Engineering Teaching Excellence Award, University of Michigan, 1998.
- The Smithsonian-ComputerWorld Innovation Awards: UARC project, 1998.
- IBM University Partnership Program Research Award, 1998.
- ACM SIGCOMM Best Student Paper Award (Craig Labovitz), 1997.
- EECS Department Teaching Excellence Award, University of Michigan, 1996.
- National Science Foundation CAREER Award, 1995.
- Eta Kappa Nu Honor Society EECS Professor of the Year, 1995.
- IEEE Service Award, 1993.
- IBM Research Division Award, 1992.
- IBM Outstanding Technical Innovation Group Award, 1992.
- Elected vice president of UTSA chapter of Upsilon Pi Epsilon honor society, 1981-1982.
- Elected to Eta Kappa Nu, Phi Kappa Phi and Alpha Chi honor societies.
- More than 25 company and innovation awards granted to Arbor Networks from 2000-2010 by leading industry publications and organizations including Techworld Award for Security Product Of The Year, Information Security Product Award, and Inc 500 Award.

RESEARCH PROJECTS (nsrg.eecs.umich.edu)

- “*In-Cloud Security Services for Mobile Devices*,” National Science Foundation, Farnam Jahanian (PI), Michael Bailey, 2009-2014.
- “*Mission Assurance in Tomorrow's IP-based Networks*,” Boeing Corporation, Farnam Jahanian (PI), Michael Bailey, 2010-2013.
- “*Virtual Center for Network and Security Data*,” Department of Homeland Security, Farnam Jahanian (PI), Michael Bailey, (UM); Paul Barford (U. Wisconsin); Nick Feamster (Georgia Tech); Manish Karir (Merit Network), 2005-2014.
- “*Botnet Attribution and Removal: from Axioms to Theories to Practice*,” ONR MURI Award, Wenke Lee (PI), Nick Feamster, David Dagon (Georgia Tech); Kang Shin, Farnam Jahanian, Mike Bailey (UM); Christopher Kruegel, Giovanni Vigna (UCSB); John Mitchell (Stanford), 2009-2014.
- “*In-Cloud Security for Mobile Devices*,” Google, Farnam Jahanian (PI), 2009.
- “*Topology-Aware Internet Threat Detection Using Pervasive Darknets*,” National Science Foundation, Farnam Jahanian (PI) and Jignesh Patel, 2006-2010.
- “*CLEANSE: Cross-Layer Large-Scale Efficient Analysis of Network Activities to Secure the Internet*,” National Science Foundation, Wenke Lee (PI), Nick Feamster, David Dagon, Mustaque Ahamad (Georgia Tech); Farnam Jahanian, Mike Bailey (UM); Mike Reiter, Fabian Monroe (UNC), 2008-2012.
- “*New Frameworks for Detecting and Minimizing Information Leakage in Anonymized Network Data*,” Department of Homeland Security, Fabian Monroe (PI) Johns Hopkins University; Farnam Jahanian and Michael Bailey (UM); Mike Reiter (CMU), 2008-2010.
- “*Collaborative Research: Enabling Security and Network Management Research for Future Networks*,” National Science Foundation, Morley Mao (PI), Farnam Jahanian (UM); Wenke Lee and Nick Feamster (Georgia Tech); Manish Karir (Merit Network); Southern Crossroads, 2008-2011.
- “*Detecting and Dismantling Botnet Command and Control Infrastructure using Behavioral Profilers and Bot Informants*,” Department of Homeland Security, Farnam Jahanian (PI), Morley Mao (UM); Greg Travis (Indiana University); Manish Karir (Merit Network), 2006-2008.
- “*Internet Motion Sensor*,” Gift from Intel Corporation, Farnam Jahanian (PI), 2006.
- “*Internet Motion Sensor*,” Gift from Cisco Systems, Farnam Jahanian (PI), 2006.
- “*Distributed Systems Instructional Infrastructure*,” Intel Corporation Equipment Grant, 2004. Farnam Jahanian (PI).
- “*Multi-Tiered Distributed Indication, Warning and Defense System*,” Sponsored by ARDA, Farnam Jahanian (PI) and Peter Chen, 2003-2004.
- “*Lighthouse Project: Detecting and Surviving Large-Scale Network Infrastructure Attacks*,” Sponsored by DARPA, Farnam Jahanian (PI) and Paul Howell (Merit Network), 1999-2003.
- “*Internet Infrastructure Scalability and Stability*,” Intel Corporation, 1999-2000. Farnam Jahanian (PI).
- “*IPMA Project: Internet Performance Measurement & Analysis*,” National Science Foundation, Craig Labovitz (Merit Net) and Farnam Jahanian (Co-PI), 1997-2000.
- “*Experimentation with Multi-Threaded, Distributed Routing Technology in the Internet*,” National Science Foundation, Farnam Jahanian (PI) and Craig Labovitz (Merit Network), 1997-2000.

- *“Development of Ultra High Speed Next Generation Internet Technology,”* Sponsored by Hitachi Corporation, Farnam Jahanian (PI), Craig Labovitz and Hirabaru Masaki (Merit Network), 1999-2000.
- *“Middleware Services for Collaboratives on Wide-Area Networks,”* Sponsored by Intel Corporation, Farnam Jahanian (PI), 1997-2000.
- *“The SPARC Project: Collaborative Knowledge-Work Environments for Team Science,”* National Science Foundation KDI Initiative, Dan Atkins (PI), Gary Olson, Farnam Jahanian, Tim Killeen and Atul Prakash, 1998-2001.
- Network Infrastructure Equipment Gift, CISCO Systems, 1999.
- *“IBM UPP: Networking Support for Adaptive Internet-based Applications,”* IBM, Farnam Jahanian and Brian Noble, 1998.
- *“ARMADA Project: Building Scalable Real-Time Fault-Tolerant Systems for Embedded Applications,”* Sponsored by DARPA, Kang Shin (PI), Farnam Jahanian and Peter Chen, 1995-99.
- National Science Foundation *CAREER Award*, Farnam Jahanian (PI), 1995-1999.
- *“End-to-End Performance Studies of Web-Based Groupware and Collaborative Applications over the Internet,”* Sponsored by Hewlett-Packard Company, Farnam Jahanian (PI) and Sugih Jamin, 1997-1998.
- *“Integrated Execution Simulation and Monitoring Environment for the Modechart Toolset,”* Naval Research Laboratories, 1996-1998, Farnam Jahanian (PI).
- *“Enabling Multimedia-Based Collaboration over Computer networks,”* Sponsored by the AT&T Foundation, Atul Prakash (PI) and Farnam Jahanian.
- *“Probing and fault Injection of Distributed Real-Time Protocols,”* Office of Naval Research, Farnam Jahanian (PI), 1994-1997.

SELECTED INVITED TALKS AND KEYNOTES (2011-Present)

- “Academic Perspectives Panel on Smart Cities,” White House Smart Cities Forum, Washington, D.C., September 2015.
- “Accelerating Innovation in a Connected and Data-Rich World: Technology Trends, Disruptive Forces and Market Opportunities,” Keynote, 25th Anniversary Conference, Carnegie Bosch Institute, September 2015.
- “Unleashing the Discovery and Innovation Ecosystem,” CSTB Continuing Innovation in Information Technology Forum, National Research Council, Washington, D.C., March 2015.
- “The Transformative Impact of Computing and Communication in a Data-driven World,” Invited talk, Organick Lecture Series, University of Utah, February 2015.
- “Unleashing the Discovery and Innovation Ecosystem,” Keynote and Panel, National Security Agency Cyber Security Forum, Baltimore, MD, October 2014.
- “The Imperative for a Cyber Secure Society,” Keynote Address, Information Trust Institute 10-Year Anniversary, University of Illinois, September 2014.
- “Computation and Data in Networked World,” Keynote Address, ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc), Philadelphia, PA, August 2014.
- “The Transformative Impact of Computation and Communication in a Data-Driven World,” Keynote Address, Extreme Science and Engineering Discovery Environment (XSEDE) Annual Conference, Atlanta, GA, July 2014.
- “The Imperative of Research in the Innovation Ecosystem,” Invited Talk, Computing Community Consortium (CCC) CI Fellows Workshop, San Francisco, CA, May 2014.
- “Innovating for Society: The Transformative Impact of Computing in a Data-Driven World,” Invited talk, Committee on the Status of Women in Computing Research (CRA-W), Grad Cohort Workshop, Santa Clara, CA, April 2014.
- “The Policy Infrastructure for Big Data: From Data to Knowledge to Action,” Invited talk and panel, Big Data Future Conference, Ohio State University, March 2014.
- “Accelerating Innovation in Big Data: From Data to Knowledge to Action,” Keynote Address, Big Data Summit, Washington, DC, March 2014.
- “The Transformative Impact of Computation in a Data-Driven World,” Invited Talk, Super Computing (SC) 2013, Denver, CO, November 2013.
- “The Imperative for a Cyber Secure Society,” Keynote Lecture, Qatar Foundation Annual Research Conference (ARC' 13), Qatar National Convention Center, Doha, November 2013.
- “Innovating for Society: Realizing the Transformative Impact of Computing and Communication,” Carnegie Mellon University, November 2013.
- “Harnessing the Promise of Data,” Data to Knowledge to Action: Building New Partnerships, White House Office of Science and Technology Policy, Washington, DC, November 2013.
- “Innovating for Society: Realizing the Transformative Impact of Computing and Communication,” CSAIL Colloquium, MIT, September 2013.
- “Innovating for Society: Realizing the Transformative Impact of Computing and Communication,” Invited Talk, Task Force on American Innovation, Washington, DC, September 2013.

- “Innovating for Society: Realizing the Transformative Impact of Computing and Communication,” Keynote Address, Front Range Consortium for Research Computing HPC Symposium, University of Wyoming, August 2013.
- “Building and Protecting Michigan’s Critical Cyber Infrastructure,” Panel, Mackinac Policy Conference, May 2013.
- “The Promise of Big Data,” White House Big Data Partners Workshop, Washington, DC, May 2013.
- “Innovating for Society: Realizing the Transformative Impact of Computing and Communication,” CSE Colloquium, University of Washington, May 2013.
- “Congressional Testimony on “Next Generation Computing and Big Data Analytics,” Subcommittee on Technology and Subcommittee on Research Joint Hearing, Washington, DC, April 2013.
- Leadership in Science Policy Institute, Computing Community Consortium (CCC), Invited Talk, Washington, DC, April 2013.
- “From Data to Knowledge to Discovery,” Keynote Address, Research Data Alliance Launch, Gothenburg, Sweden, March 2013.
- “Pillars of Societal Innovation: The Growing Imperative of Research and Education in Computing,” Biennial CRA Conference at Snowbird, Snowbird, UT, July 2012.
- “Big Data: What it Means and How it Drives Innovation,” TechAmerica U.S. Congressional Big Data Staff Briefing, Washington, DC, May 2012.
- “Realizing the Transformative Impact of Computing and Communication,” Keynote Address, Electrical and Computer Engineering Department Heads Association, Annual Conference, Orlando, Florida, March 2012.
- “Beyond Moore’s Law: A Golden Opportunity for Innovations in Architecture and Software,” AAAS Annual Meeting, Vancouver, CA, February 2012.
- “IT Discovery and Innovation Ecosystem,” Symposium on the Impact Networking and Information Technology, 20th Anniversary of NITRD, Washington, DC, February 2012.
- “NSF CISE Programs, Plans and Budget,” Coalition for Academic Scientific Computation (CASC) Spring Meeting, Arlington, VA, February 2012.
- “Innovating for Society: Realizing the Promise of Computing and Communications,” Columbia University, New York, January 2012.
- “Trends, Advances and Transformative Research Opportunities in Computing and Communication,” Keynote Address, Symposium Beyond the Info-plosion, Tokyo, Japan, January 2012.
- “Innovating for Society: Realizing the Promise of Computing and Communications,” Keynote Address, IEEE Global Communications Conference (GLOBECOM), Houston, TX, December 2011.
- “Innovating for Society: Realizing the Promise and Potential of Computing,” Cray Distinguished Speaker Series, University of Minnesota, November 2011.
- “Reflections on the Evolution of Internet Threats: The Growing Imperative for a Cyber Secure Society,” Keynote Address, 18th ACM Conference on Computer and Communications Security (CCS), Chicago, Illinois, October 2011.
- “The Promise of Smart Health,” Keynote Address, Wireless Health Annual Conference, San Diego, CA, October 2011.

- “Innovating for Society: Realizing the Promise and Potential of Computing,” Keynote Address, 17th Annual ACM International Conference on Mobile Computing and Networking (ACM MobiCom), September 2011.
- “CPS Past and Future,” Cyber Physical Systems Principal Investigator Meeting, National Harbor, MD, August 2011.
- “Innovating for Society: Realizing the Promise and Potential of Computing,” Keynote Address, International Conference on Distributed Computing Systems (ICDCS), June 2011.
- Congressional Testimony on “Protecting Information in the Digital Age,” Subcommittee on Technology and Innovation and Subcommittee on Research and Science Education Joint Hearing, Washington, DC, May 2011.
- “The Growing Imperative and Transformative Impact of Cyber-Physical Systems,” Keynote Address, Cyber Physical Systems Week, April 2011.
- “Securing the Internet Cloud: A Perspective on Seeding Innovation and Technology Transfer,” New Enterprise Forum Entrepreneur of the Year Speech, NEF 25th Anniversary Gala, February 2011.

DOCTORAL COMMITTEES CHAIRED

- Jakub Jerzy Czyz – May 2016
“Studies on the Deployment and Security of the Emerging IPv6 Internet”
- Jing Zhang – December 2015
“A Macroscopic Study of Network Security Threats at the Organizational Level”
- Yunjing Xu – December 2013
“Characterizing and Mitigating Virtual Machine Interference in Public Clouds”
- Jon Oberheide – December 2011
“Leveraging the Cloud for Software Security Services”
- Sushant Sinha – August 2009
“Context-Aware Network Security”
- Michael D. Bailey – May 2006
“A Scalable Hybrid Network Monitoring Architecture for Measuring, Characterizing, and Tracking Internet Threat Dynamics”
- Junghee Han – December 2004
“Enhancing End-to-end Availability and Performance by Leveraging Internet Redundancy”
- David Watson – May 2004
“Measurement and Analysis of Routing Protocol Behavior on Production Networks”
- Scott Johnson – December 2001
“Scalable Group Composition”
- G. Robert Malan – May 2000
“Transparent Measurement and Manipulation of Internet Protocols”
- Craig Labovitz – August 99
“Scalability of Internet Backbone Routing Infrastructure”
- Monica Brockmeyer – May 99
“Monitoring, Testing, and Abstractions of Real-Time Specifications”
- Hengming Zou – December 99
“Dynamic Active-Passive Replication”
- Scott Dawson – December 97
“Message Level Fault Injection in Distributed Systems”
- Wu-chi Feng – August 96
“Video-on-Demand services: Efficient Transportation and Decompression of Variable Bit Rate Video”
- Served on 25+ doctoral dissertation committees (1993-2010)
- Supervised 50+ undergraduates in my research group since joining UM

TEACHING RECORD

Term	EECS Course	Enrollment	Class Score*	Instructor Score*
Fall 93	682: Special Topic	28	4.71	4.89
Winter 94	582: Adv. OS	22	4.28	4.80
Fall 94	482: Intro OS	89	4.70	4.84
Winter 95	482: Intro OS	108	4.60	4.86
Fall 95	682: Special Topic	26	4.42	4.78
Winter 96	380: Data Structures	76	4.38	4.87
Fall 96	682: Distributed Syst	27	4.65	4.89
Winter 97	482: Intro OS	83	4.40	4.90
Fall 97	591: Distributed Syst	41	4.21	4.70
Winter 98	482: Intro OS	125	4.33	4.69
Fall 98	591: Distributed Syst	38	4.18	4.46
Winter 99	482: Intro OS	125	4.57	4.85
Fall 00	591: Distributed Syst	40	4.40	4.64
Fall 01	281: Data Structures	54	4.16	4.64
Winter 03	591: Distributed Syst	34	4.25	4.65
Fall 03	498: Intro Dist Syst	14	4.78	4.96
Winter 04	591: Distributed Syst	26	4.63	4.80
Fall 04	281: Data Structures	54	4.25	4.82
Winter 05	591: Distributed Syst	22	4.00	4.77
Fall 05	498: Intro Dist Syst	21	4.83	4.96
Winter 06	591: Distributed Syst	22	4.55	4.77
Fall 06	496: Major Design	132	3.95	4.74
Winter 07	591: Distributed Syst	23	4.67	4.88
Fall 07	496: Major Design	128	4.22	4.71
Fall 08	496: Major Design	115	4.65	4.90
Fall 09	496: Major Design	170	4.60	4.85
Fall 10	496: Major Design	162	4.60	4.88

* Maximum score of 5.

REPRESENTATIVE PROFESSIONAL ACTIVITIES AND SERVICES

Recent Broad Memberships and Advisory Committees

- Computer Science and Telecommunications Board (CSTB), National Research Council, Chair and Board Member, 2015-present.
- Computer Research Association (CRA), Board of Directors, 2015-present.
- University of Texas Computer Science Advisory Council, 2015-present.
- Acrobatiq Inc, Board of Directors, 2015-present.
- National Center for Women & Information Technology, Board of Directors, 2014-present.
- CRA Snowbird Conference, Steering Committee Member, 2015-2016.
- National Governors Association's Cybersecurity Advisory Council, Member, 2012-2014.
- Co-chair, Networking and Information Technology R&D Subcommittee of the National Science and Technology Council's (NSTC) Committee on Technology, 2011-2014.
- External Review Panel, Office of Naval Research, Information Technology Division, 2002, 2007, 2010, 2013.
- IEEE Fellow Selection Committee.
- IEEE Dependable Systems and Networks, Steering Committee, 2008-present.
- IFIP Working Group 10.4 on Dependable Computing and Fault-Tolerance, Vice Chair, 2012-present.
- UM Center for Entrepreneurship, Advisory Board, 2008-2014.
- National Advisory Board, UM Office of Technology Transfer, 2006-2014.
- Twilio Inc., Advisory Board Member, 2009-2011.
- Arbor Networks, Chairman of the Board, 2003-2010.
- Internet2 External Relations Advisory Council (ERAC), Member, 2007-2010.
- Early Stage Partners Advisory Board, 2007-2011.
- Michigan Innovation Board Member, 2009-2010.
- Search Committee, Internet2 CTO and VP Research and Development, 2009.
- Wayne State University, Computer Science Department Advisory Committee, 2005-2010.
- Ann Arbor IT Zone, Board Member, 2004-2008.
- Dartmouth Inst. of Security Technology Studies, Advisory Committee, 2004-2006.
- NSF WG on "Future Scenarios for Networking Research and Associated Infrastructure Support."

Significant Editorship and Technical Committees

- General Chair, IEEE Int. Conf. on Dependable Systems and Networks (DSN), 2010.
- Student Forum Chair, IEEE Int. Conf. on Dependable Systems and Networks, 2007.
- Program Chair, ACM Workshop on Recurring Malcode (WORM), 2006.
- Chair, IFIP Workshop on "Infrastructure Security and Operational Challenges of Service Provider Networks," June 2006.
- Co-chair, 2nd EU-US Workshop on "Cyber Trust: System Dependability and Security," April 2006.
- Program Chair, IEEE Int. Conf. on Dependable Systems and Networks (DSN), 2002.
- Program Committee Vice Chair, Fault-Tolerance Track, 21st ICDCS, 2000.
- Publicity Chair, IEEE Int. Conf. On Dependable Systems and Networks, 2000.
- Elected member of IFIP Working Group 10.4 on Dependable Computing, 1998.
- Editor, IEEE Transactions on Computer, 1995-1999.
- Associate Editor, Real-Time Systems Journal, 1997-present.
- Chair, DARPA Working Group on Integrated High-Conf. Computing, 1998-1999.
- Program Committee Vice-Chair, Distributed Real-Time Systems, 16th ICDCS, 1996.
- General Chair - 15th IEEE Real-Time Systems Symposium, 1994.
- Program Chair - 14th IEEE Real-Time Systems Symposium, 1993.
- Over 30 program committees of technical conferences and symposia, including:
 - 2009 ACM/Usenix Symposium on Networked Systems Design and Implementation.
 - 2009, 2010 IEEE Symposium on Security and Privacy.
 - 2008, 2009, 2010 ACM Computer and Communications Security Conference.
 - 2007 IEEE Internet Measurement Conference.
 - 2001, 2002, 2003, 2005, 2007, 2008, 2009, 2012 IEEE International Conference on Dependable Systems and Networks.
 - 2005-2008 International Symposium Recent Advances in Intrusion Detection (RAID).

National Science Foundation Review Panels, 2000-2010

- CAREER Panel, NSF CISE Directorate.
- Site Visit Member, Research Infrastructure, CISE Directorate.
- Science and Technology Center, Panel, Cross-foundation.
- SBIR Panel, ENG Directorate.
- NSF Infrastructure Panel, CISE Directorate.
- Combined Research-Curriculum Development Panel, Engineering Directorate.
- Operating Systems and Compiler Panel, CISE Directorate.
- Cyber Security ITR, CISE Directorate.
- Engineering Research Center, Panel, ENG Directorate.
- NeTS Networking of Sensor Systems, CISE Directorate.
- CyberTrust Program, CISE Directorate.
- Trustworthy Computing Program, CISE Directorate.
- FIND Panel, NSF CISE Directorate.
- Site Visit Member, TRUST Science and Technology Center, Cross-foundation.

MAJOR UNIVERSITY OF MICHIGAN COMMITTEE ASSIGNMENTS

- Selection Committee, Distinguished University Innovator Award, 2013.
- Center for Entrepreneurship, Advisory Board, 2008-2014.
- Chair, Computer Science and Engineering, 2007-2011.
- Chair, Executive Committee, CSE Division, 2007-2011.
- EECS Awards and Honors Committee, 2007-2011.
- National Advisory Board, Office of Technology Transfer, 2006-present.
- Faculty Search Committee, CSE Division, 2005-2011.
- University IT Governance Council, 2010-2011.
- IOE Chair Search Advisory Committee, Chair, 2008-2009.
- Office of VP Research (OVPR) Committee on Research Cyber Infrastructure, 2007.
- OVPR Committee on Enhancing Industry Relationships: Faculty Advisory Group on Industry and Technology Transfer, 2006-2007.
- Search Committee, CoE/Office of Technology Transfer and Commercialization, 2007–2008.
- UM Office of Technology Transfer National Advisory Board, 2006-present.
 - Chair, Committee on “Business Engagement Center,” Fall 2007.
- Chair, EECS Internal Review Committee, Chair, 2004.
- University IT Security Council, 2004-2011.
- University Digital Strategies Council, 2003-2005.
- Faculty Advisory Board, CoE Technology Transfer and Commercialization, 2002-2004.
- President’s Commission on Information Revolution, 2000-2001.
 - Chair, subcommittee on IT Infrastructure.
 - Co-chair with John Laird, subcommittee on Research.
- CAEN/College of Engineering IT Advisory Committee, 2003-2005.
- Cisco Systems Merit Scholarship Selection Committee, 2003.
- Faculty Associate to OVPR, IBM Relationship, 1997-2000.
- Rackham Panel on Life Beyond Graduate School. 1999.
- CoE Capital Campaign Retreat, 1999.
- College of Engineering Information Technology Advisory Committee, 1996-1997.
- Member, EECS Departmental Review Committee, 1996-1997.

SELECTED REFEREED PUBLICATIONS

(Full list of research group's publications at nsrg.eecs.umich.edu/publications.html)

- F. Jahanian, "The Policy Infrastructure for Big Data: From Data to Knowledge to Action," Journal of Law and Policy for Information Society, vol. 10, no. 3, Winter 2015.
- Y. Xu, M. Bailey, B. Noble and F. Jahanian, "Small is Better: Avoiding Latency Traps in Virtualized Data Centers." Proceedings of the 2013 ACM Symposium on Cloud Computing (SoCC'13) Santa Clara, CA, USA, Oct. 2013.
- J. Zhang, R. Berthier, W. Rhee, M. Bailey, P. Pal, F. Jahanian, and W. Sanders, "Learning from Early Attempts to Measure Information Security Performance." Proceeding of the 5th Workshop on Cyber Security Experimentation and Test (CSET '12), Bellevue, Washington, Aug. 2012.
- J. Zhang, R. Berthier, W. Rhee, M. Bailey, P. Pal, F. Jahanian, and W. Sanders, "Safeguarding Academic Accounts and Resources with the University Credential Abuse Auditing System." Proceedings of the 42nd Annual IEEE International Conference on Dependable Systems and Networks (DSN '12), Boston, MA, June 2012.
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- E. Wustrow, M. Karir, M. Bailey, F. Jahanian, and G. Houston, "Internet Background Radiation Revisited." ACM/USENIX Internet Measurement Conference, Melbourne, Australia, Nov. 2010.
- C. Labovitz, S. Ikle-Johnson, D. McPherson, J. Oberheide and F. Jahanian, "Internet Inter-Domain Traffic." Proceedings of ACM SIGCOMM, August 2010.
- Y. Xu, M. Bailey and F. Jahanian, "CANVuS: Context-Aware Network Vulnerability Scanning." 13th International Symposium on Recent Advances in Intrusion Detection (RAID), Ottawa, CA, Sept. 2010.
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- J. Oberheide and F. Jahanian, "When Mobile is Harder Than Fixed: Demystifying Security Challenges in Mobile Environments." Eleventh Workshop on Mobile Computing Systems and Applications (HotMobile), Annapolis, MD, Feb. 2010.
- J. Oberheide, M. Bailey, and F. Jahanian, "PolyPack: An Automated Online Packing Service for Optimal Antivirus Evasion." 3rd USENIX Workshop on Offensive Technologies (WOOT '09), Montreal, Canada, Aug. 2009.
- J. Oberheide, E. Cooke, and F. Jahanian, "If It Ain't Broke, Don't Fix It: Challenges and New Directions for Inferring the Impact of Software Patches." Workshop on Hot Topics in Operating Systems (HotOS XII), May 2009.
- S. Sinha, M. Bailey, and F. Jahanian, "One Size Does Not Fit All: 10 Years of Applying Context Aware Security." Proceedings of the 2009 IEEE International Conference on Technologies for Homeland Security (HST '09), Waltham, MA, May 2009.
- M. Bailey, E. Cooke, F. Jahanian, Y. Xu, and M. Karir. "A Survey of Botnet Technology and Defenses." Proceedings of the Cybersecurity Applications & Technology Conference For Homeland Security (CATCH '09), Washington, DC, Mar. 2009.
- J. Oberheide, E. Cooke, and F. Jahanian, "CloudAV: N-Version Antivirus in the Network Cloud." Proceedings of the 17th USENIX Security Symposium, July 2008.
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- J. Oberheide, E. Cooke, and F. Jahanian, "Exploiting Live Virtual Machine Migration," Black Hat DC, Washington DC, Feb. 2008.
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- J. Oberheide, E. Cooke, and F. Jahanian, "Rethinking Antivirus: Executable Analysis in the Network Cloud," 2nd USENIX Workshop on Hot Topics in Security (HotSec), Boston, MA, Aug. 2007.
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