Frank Nagle

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Cambridge, MA 02142
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Academic Employment

Massachusetts Institute of Technology
- Research Scientist, Initiative on the Digital Economy   2025 – Present

Harvard University, School of Engineering and Applied Sciences
- Visiting Lecturer of Engineering Sciences   2025 – Present

Harvard Business School
- Assistant Professor, Strategy Unit   2018 – 2025[a]
- Principal Investigator, OpenLab   2022 – 2025
- Co-Director HBS/Linux Foundation Core Infrastructure Initiative   2018 – 2025
- Faculty Affiliate - Digital, Data, and Design (D^3) Institute   2022 – 2025
- Faculty Affiliate - Managing the Future of Work Project, HBS Digital Initiative,   2018 – 2025
  Laboratory for Innovation Science at Harvard (LISH)

University of Southern California
- Assistant Professor, Management and Organization, Marshall School of Business   2015 – 2018
- Co-Founder and Co-Director, Marshall Digitopolis   2016 – 2018
- Faculty Affiliate, Lloyd Greif Center for Entrepreneurial Studies, Annenberg Innovation Lab,   2016 - 2018
  Annenberg Research Network on International Communication

Education

Harvard Business School, Boston, MA, USA   May 2015
- Doctor of Business Administration in Technology and Operations Management
- Committee: Shane Greenstein (co-chair), Marco Iansiti (co-chair), Carliss Baldwin, Karim Lakhani, Feng Zhu
- Dissertation Title: The Digital Commons: Tragedy or Opportunity? The Effect of Crowdsourced Digital Goods on
  Innovation and Economic Growth
    - Harvard Business School Wyss Award for Excellence in Doctoral Research
    - INFORMS TIMES Doctoral Dissertation Award, 2016 Runner-Up
    - Grigor McClelland Doctoral Dissertation Award, 2016 Finalist[1]

Georgetown University, Washington, DC, USA   January 2011
- Master of Science in Computer Science, focus in Information Security
- Master's Thesis Title: Quantifying Privacy Breaches in Social Networks

City University, London, UK   September 2007
- Master of Science in International Business Economics, Graduated with Distinction
- Master's Thesis Title: High-Tech IPO's in the US and Europe Before, During, and After the Dot-Com Bubble

Georgetown University, Washington, DC, USA   May 2004
- Bachelor of Science in Computer Science, Cum Laude
- Minors: Science and Technology in International Affairs; Music

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[a] Off tenure clock 2019-2020, 2020-2021, 2024-2025

Peer Reviewed Journal Publications – Research Articles

- F. Nagle, R. Seamans, and S. Tadelis. (2025). "Transaction Cost Economics in the Digital Economy: A Research Agenda." *Strategic Organization*, 23(2), pp. 351-365.

- N. Wright, F. Nagle, and S. Greenstein. (2023). "Open Source Software and Global Entrepreneurship." *Research Policy* 52(9), 104846.

- E. Altman, F. Nagle, and M. Tushman. (2022) "The Translucent Hand of Managed Ecosystems: Engaging Communities for Value Creation and Capture." *Academy of Management Annals* 16(1), pp. 70-101.

- F. Nagle. and F. Teodoridis. (2020). "Jack of All Trades and Master of Knowledge: The Role of Generalists in Novel Knowledge Integration." *Strategic Management Journal*, 41(1), pp. 55-85.
  - Selected for AOM Best Paper Proceedings, 2019

- S. Shah and F. Nagle. (2020). "Why do User Communities Matter for Strategy?" *Strategic Management Review*, 1(2), pp. 305-353.

- F. Nagle. (2019). "Open Source Software and Firm Productivity." *Management Science*, 65(3), pp. 1191-1215.
  - Strategic Management Society (SMS) Best Conference Paper, 2014 Finalist

- F. Nagle. (2018). "Learning By Contributing: Gaining Competitive Advantage Through Contribution to Crowdsourced Public Goods." *Organization Science*, 29(4), pp. 569-587.
  - European Academy of Management (EURAM) Conference – Innovation Strategic Interest Group Best Paper, 2018 Winner
  - Strategic Management Society (SMS) Conference - Knowledge and Innovation Interest Group Best Conference Paper, 2017 Winner
  - Strategic Management Society (SMS) Best Conference Paper, 2017 Nominated
  - AOM Technology and Innovation Management Best Paper, 2016 Finalist
  - Selected for AOM Best Paper Proceedings, 2016

- S. Greenstein and F. Nagle. (2014). "Digital Dark Matter and the Economic Contribution of Apache." *Research Policy* 43 (4), pp. 623-631.
  - Lead Article.

Book Chapters, Conference Proceedings, and Permanent Working Papers

- F. Nagle. and F. Teodoridis. (2019). "Jack of All Trades and Master of Knowledge: The Role of Generalists in Novel Knowledge Integration." *Academy of Management Best Paper Proceedings.*

- F. Nagle. (2018). "The Digital Commons: Tragedy or Opportunity? A Reflection on the 50th Anniversary of Hardin's Tragedy of the Commons. *Harvard Business School Working Paper 19-060.*

- F. Nagle. (2016). "Learning By Contributing: Gaining Competitive Advantage Through Cooperative Contribution to Public Goods." *Academy of Management Best Paper Proceedings.*

- E. Altman, F. Nagle, and M. Tushman. (2015). "Innovating Without Information Constraints: Organizations, Communities, and Innovation When Information Costs Approach Zero." In Oxford Handbook of Creativity, Innovation and Entrepreneurship, pp. 353-378, edited by Michael A. Hitt, Christina Shalley, and Jing Zhou. Oxford University Press.

- F. Nagle and C. Riedl. (2014). "Online Word of Mouth and Product Quality Disagreement." *Academy of Management Best Paper Proceedings*. Full paper available as *Harvard Business School Working Paper 13-091.*

- E. Altman, F. Nagle, and M. Tushman. (2013). "Technology and Innovation Management." In Oxford Bibliographies in Management, edited by Ricky W. Griffin. New York: Oxford University Press.

Technical Reports and White Papers

- F. Nagle, K. Powell, R. Zitomer, D. Wheeler. (2024). "Census III of Free and Open Source Software – Application Libraries." The Linux Foundation Research.

- S. Boysel, F. Nagle, H. Carter, A. Hermansen, K. Crosby, J. Luszcz, S. Lincoln, D. Yue, M. Hoffmann, A. Staub. (2024). "2024 Open Source Software Funding Report." GitHub.

- F. Nagle, J. Dana, J. Hoffman, S. Randazzo, Y. Zhou. (2022). "Census II of Free and Open Source Software – Application Libraries." The Linux Foundation Core Infrastructure Initiative.

- F. Nagle, D. A. Wheeler, H. Lifshitz-Assaf, H. Ham, and J. Hoffman. (2020). "Report on the 2020 FOSS Contributor Survey." The Linux Foundation Core Infrastructure Initiative.

- F. Nagle, J. Wilkerson, J. Dana, and J. Hoffman. (2020). "Vulnerabilities in the Core: Preliminary Report and Census II of Open Source Software." The Linux Foundation Core Infrastructure Initiative.

Policy and Practitioner-Oriented Publications

- F. Nagle. (2022). "Strengthening digital infrastructure: A policy agenda for free and open source software." *Brookings Institution*, May 19, 2022.[2]

- F. Nagle. (2022). "How to prioritize the improvement of open-source software security." *Brookings Institution TechStream*, March 2, 2022.

- F. Nagle. (2021). "Digital infrastructure is more than just broadband: What the US can learn from Europe's open source technology policy study" *Brookings Institution*, November 9, 2021.

- H. Lifshitz-Assaf and F. Nagle. (2021). "The Digital Economy Runs on Open Source. Here's How to Protect It." *Harvard Business Review Online*, September 2, 2021.

- F. Nagle. (2021). "The Problem of Social Benefit." *Stanford Social Innovation Review*, Fall 2021, 19(4).

- F. Nagle. (2020). "Why Congress should invest in open-source software." *Brookings Institution TechStream*, October 13, 2020.

- F. Nagle and F. Teodoridis. (2020). "In R&D, Generalists Are More Valuable Than You Think" *Harvard Business Review Online*, September 28, 2020.

- E. Altman and F. Nagle. (2020). "Accelerating Innovation Through a Network of Ecosystems: What Companies Can Learn from the United Nations." *Sloan Management Review*, Summer 2020, 61(4).

- F. Nagle and J. Hoffman (2020). "The Hidden Vulnerabilities of Open Source Software." *Harvard Business School Working Knowledge*, February 24, 2020.

- R. Kumar and F. Nagle. (2020). "The Case for AI Insurance." *Harvard Business Review Online*, April 29, 2020.

- F. Nagle. (2018). "Capturing Value from Free Digital Goods." *Sloan Management Review*, Spring 2018, 59(3), pp. 16-18.

- C. Nutt and F. Nagle (2010). "Will Laws that Build Upon PCI-DSS Lead to Greater Security? *Secure Times*, Spring 2010, 5(1).

Working Papers

- F. Nagle. "Inducing Firms to Contribute to Crowdsourced Public Goods: Evidence from a French Open Source Software Policy." *Harvard Business School Working Paper 19-103.*
  - 2nd R&R at *Organization Science*

- M. Hoffmann, S. Boysel, F. Nagle, S. Peng, and K. Xu. "Generative AI and The Nature of Work." *Harvard Business School Working Paper 25-021.*
  - R&R at *Management Science*

- S. Li, F. Nagle, and A. Zhou "Mapping Firm-Level Networks Using Employee-Level Connections – Evidence from Online Professional Networks." *Harvard Business School Working Paper 24-010.*
  - R&R at *Strategy Science*

- N. Wright, F. Nagle, and S. Greenstein. "Contributing to Growth? The Role of Open Source Software for Global Startups." *Harvard Business School Working Paper 24-040.*
  - Under Review

- D. Yue and F. Nagle. "Igniting Innovation: Evidence from PyTorch on Technology Control in Open Collaboration." *Harvard Business School Working Paper 25-013*.
  - Under review
  - AOM Technology and Innovation Management Best Paper, 2025 Finalist

- S. Li, F. Nagle, and A. Zhou "Employee Connections and Firm Productivity: Evidence from LinkedIn."
  - Under review

- M. Hoffmann, F. Nagle, and Y. Zhou. "The Value of Open Source Software." *Harvard Business School Working Paper 24-038.*

- F. Nagle, E. Seo, and S. Shah. "Does Who Helps You Impact Your Behavior? Examining the Effects of Social Interactions on Knowledge Sharing in Online Communities." *Harvard Business School Working Paper 21-026.*

- F. Nagle, and H. Lifshitz-Assaf. "Knowledge workers are resilient but burnt out: The global impact of the COVID-19 pandemic outbreak on knowledge workers' productivity."

Work In Progress

- S. Boysel, M. Hoffmann, F. Nagle, and K. Xu. "Generative AI and the Gender Puzzle."

- F. Nagle and D. Yue. "The Economic Contribution of Open Model AI to the Market for LLMs."

- H. Lifshitz-Assaf and F. Nagle. "Goldilocks and the Three Programmers: Unpacking the Relationship Between Online Contributions and Productivity at Work."

- S. Boysel, M. Hoffmann, and F. Nagle. "Competition and Open Innovation."

- S. Boysel, M. Hoffmann, and F. Nagle. "The Impact of Automated Security Audits on Open Innovation."

Computer Science Publications

- F. Nagle. (2013). "Privacy Breach Analysis in Social Networks." In Studies in Mining Social Networks and Security Information, edited by Zeki Erdem, Tansel Ozyer, Suheil Khoury and Jon Rokne. Springer Verlag.

- F. Nagle, L. Singh, and A. Gkoulalas-Divanis. (2012). "EWNI: Efficient Anonymization of Vulnerable Individuals in Social Networks", *Proceedings of The 16th Pacific - Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2012)*. Republished in *Lecture Notes in Computer Science: Vol. 7302. Advances in Knowledge Discovery and Data Mining* (pp. 359-370).

- A. Ramachandran, L. Singh, E. Porter, and F. Nagle. (2012). "Exploring Re-Identification Risks in Public Domains", *Proceedings of the Tenth Annual International Conference on Privacy, Security, and Trust (PST 2012)*. Best Student Paper

- F. Nagle and L. Singh. (2009). "Privacy in Online Social Networks: Empirical Evidence from Facebook", *Proceedings of the 2009 International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, Hellenic American University, Greece, July 2009.

- F. Nagle and M. Sutton. (2006). "Emerging Economic Models for Vulnerability Research", *Proceedings of The Fifth Workshop on the Economics of Information Security (WEIS 2006)*, University of Cambridge, England, June 2006. Republished as Chapter 1 in <u>Cyber Fraud: Tactics, Techniques, and Procedures</u>, edited by James Graham, Rick Howard, Ralph Thomas, and Steve Winterfield, 2nd Edition. (2010). CRC Press, Auerbach Publications.

Teaching Materials

- F. Nagle, S. Boysel, and S. Pinckney. (2025). "AI at QuantumBlack: McKinsey's Open Source Dilemma." (HBS Case No. 725-433).
    - F. Nagle, S. Boysel, and S. Pinckney. (2025). "AI at QuantumBlack: McKinsey's Open Source Dilemma." (HBS Teaching Note 725-473).

- F. Nagle and R. Zitomer. (2025). "Open Source Software and Hardware Business Models." (HBS Technical Note 725-489).

- F. Nagle. (2024). "Collaborate on the Core, Compete on the Edges." (HBS Module Note 724-453).

- H. Gibson, F. Nagle, A. Dadlani, and M. Hostetter. (2024). "FedEx CyberAttack (A): Navigating the NotPetya Storm." (HBS Case No. 625-049).

- H. Gibson, F. Nagle, A. Dadlani, and M. Hostetter. (2024). "FedEx CyberAttack (B): Reflections and Lessons." (HBS Case No. 625-049).

- F. Nagle, M. Hoffman, K. Strohlein, and S. Pinckney. (2024). "AGENTS.inc: Pathways to Growth at an AI Startup." (HBS Case No. 724-444).
    - F. Nagle and S. Pinckney. (2025). "AGENTS.inc: Pathways to Growth at an AI Startup." (HBS Teaching Note 725-353).

- F. Nagle. (2024). "Does "Matter" Matter? Amazon and Open Standards in the Smart Home Industry." (HBS Case No. 724-431).

- F. Nagle, S. Greenstein, M. Roche, N. Langburd Wright, and S. Mehta. (2023). "Copilot(s): Generative AI at Microsoft and GitHub." (HBS Case No. 624-010).
    - F. Nagle and M. Roche. (2024). "Copilot(s): Generative AI at Microsoft and GitHub." (HBS Teaching Note 724-452).

- F. Nagle. (2023). "Free and Open Source Software and Hardware." (HBS Technical Note 724-380).

- F. Nagle. (2022). "Nexleaf Analytics: Saving the World Using the Internet of Things." (HBS Case No. 722-414).
    - F. Nagle. (2023). "Nexleaf Analytics: Saving the World Using the Internet of Things." (HBS Teaching Note 724-381).

- F. Nagle, E. Altman, and A. Klopfenstein. (2022). "Strategic Innovation at the United Nations: A Network of Ecosystems." (HBS Case No. 722-363, Revised 2023).
    - F. Nagle, E. Altman, and K. Sennaar. (2023). "Strategic Innovation at the United Nations: A Network of Ecosystems." (HBS Teaching Note 724-363).

- F. Nagle and A. Sah. (2022). "The Wallet Wars: MetaMask." (HBS Case No. 723-358).

- F. Nagle, G. Riedel, W. Kerr, and D. Lane. (2022). "SolarWinds Confronts SUNBURST (A)." (HBS Case No. 723-357, Revised 2023).
    - F. Nagle and D. Lane. (2024). "SolarWinds Confronts SUNBURST." (HBS Teaching Note 724-368).

- F. Nagle, G. Riedel, W. Kerr, and D. Lane. (2022). "SolarWinds Confronts SUNBURST (B)." (HBS Case No. 723-368, Revised 2023).

- F. Nagle, G. Riedel, W. Kerr, and D. Lane. (2022). "Note on Cyberattacks and Regulatory Regimes." (HBS Background Note 723-392).

Research Affiliations

Organization for Economic Cooperation and Development (OECD)
- Advisor to the Working Party on Innovation and Technology Policy   2018 – Present

European Commission/Open Forum Europe
- Board of Experts Member for study on Impact of Open Source on Technological Independence,   2019 – Present
Competitiveness, and Innovation in Europe

Omidyar Network
- Senior Fellow   2022 – 2024

Honors and Awards

- Best Paper, Academy of Management – Technology and Innovation Management Division, 2025 Finalist
- INFORMS Senior Member, 2024-present
- Omidyar Network, Senior Fellow
- Strategy Research Forum, member, 2021-2025
- Council on Foreign Relations, Term-Member, 2019-2026
- Best Paper Proceedings, Academy of Management, 2019
- Best Paper, European Academy of Management (EURAM) Conference – Innovation Strategic Interest Group, 2018 Winner
- LinkedIn Economic Graph Challenge, 2017 Winner (w/ Shelley Li, Milan Miric, Pai-Ling Yin, and Noam Wasserman)
- Best Conference Paper, Strategic Management Society Conference - Knowledge and Innovation Group, 2017 Winner
- Best Conference Paper, Strategic Management Society Conference, 2017 Nominated
- Outstanding Track Associate Editor, International Conference on Information Systems, 2017
- Best Paper, Academy of Management – Technology and Innovation Management Division, 2016 Finalist
- INFORMS TIMES Doctoral Dissertation Award, 2016 Runner-Up
- Grigor McClelland Doctoral Dissertation Award, 2016 Finalist[1]
- Best Paper Proceedings, Academy of Management, 2016
- Wyss Award for Excellence in Doctoral Research, Harvard Business School, 2014
- Best Conference Paper, Strategic Management Society Conference, 2014 Finalist
- Best Paper Proceedings, Academy of Management, 2014
- Received Excellent / High Pass on HBS Doctoral Qualifying Exam, 2013

Grants

- GitHub Research Grant ($150,000), 2024
- Linux Foundation Core Infrastructure Initiative Grant ($150,000 w/ Karim Lakhani), 2024
- Linux Foundation Core Infrastructure Initiative Grant ($500,000 w/ Karim Lakhani), 2022
- GitHub Research Grant ($150,000), 2022
- Linux Foundation Core Infrastructure Initiative Grant ($509,000 w/ Karim Lakhani), 2020
- Sloan Foundation Grant for "Tracking the Diffusion of High- and Low- Quality Science Through Digital Media" ($95,353 w/ Florenta Teodoridis), 2020
- Linux Foundation Core Infrastructure Initiative Grant ($500,000 w/ Karim Lakhani), 2018
- USC Institute for Outlier Research in Business Funding Grant ($25,000 w/ Shelley Li, Milan Miric, Pai-Ling Yin, and Noam Wasserman), 2017
- National Bureau of Economic Research (NBER) Digitization Grant ($15,000), 2017
- Lord Foundation, USC Marshall Seed Funding – Marshall Digitopolis ($3,000), 2016

Invited Presentations

- 2025 –ESADE, Max Planck Institute for Innovation and Competition, MIT Initiative on the Digital Economy, MIT-NYU Conference on Artificial Intelligence (scheduled)

- 2024 - University of Colorado Boulder, Harvard Business School, Tilburg University, Boston University, Boston College, Massachusetts Institute of Technology (MIT)

- 2023 – New York University, Harvard Business School, Center for Strategic & International Studies (CSIS), OpenForum Europe, Open Source Security Foundation (OpenSSF)

- 2021 – Yeshiva University, Purdue University, White House Office of Science and Technology Policy (OSTP) Networking and Information Technology Research and Development Program (NITRD), National Institute of Standards and Technology (NIST) Information Security and Privacy Board (ISPAB), US Open Source Software Policy Actions Community Workshop, OpenUK Research and Report Workshop

- 2020 – Carnegie Mellon University, University of Pittsburgh, The Linux Foundation Board of Directors, Open Forum Europe

- 2019 – HBS Future Assembly, Boston University, OECD/HBS Business and Policy Perspectives on Digital Conference

- 2018 – Organization for Economic Cooperation and Development (OECD)

- 2017 – Federal Trade Commission (FTC), NBER Productivity Seminar, Gould School of Law (USC), Duke Strategy Conference, Boston College, Harvard Business School, Boston University

- 2016 – Annenberg School for Communication (USC), INFORMS TIMES Emerging Scholars

- 2015 – University of California – Los Angeles, University of Maryland, Harvard Business School, University of Pennsylvania, University of Southern California, Carnegie Mellon University, McGill University

- 2014 – Columbia University, Bocconi University, IESE Business School, Temple University, University College London, Boston College, NBER Productivity Seminar

Invited Panel Presentations

- 2025 – Georgetown on the Hill "Open Source Artificial Intelligence", Linux Foundation "Economic and Workforce Impacts of Open Source AI"

- 2024 – OpenForum Academy Symposium "The Future of Open Source Research"

- 2023 – Federal Trade Commission (FTC) "Business Practices of Cloud Computing"

- 2021 – AOM Annual Conference "Understanding Organizational Governance in a Digitally Transformed World (PDW)"

- 2020 – Open Forum Europe "Europe's Digital Decade: Empowered by Open Source"

- 2019 – SMS Annual Conference "AI, Firm Strategy, and Organization: Cognitive Technologies Beyond the Hype", Georgetown University John Carroll Weekend "FinTech and the Future", Harvard Business School Reunion Weekend "Will Robotics and AI Lead Engineers to Rule the World?"

Conference Presentations

- "Generative AI and The Nature of Work."

- o Wharton Technology and Innovation Conference, Philadelphia, PA, April 2025
  - o American Social Science Association (ASSA)/American Economic Association (AEA), San Francisco, CA, January 2025 [3]
  - o OpenForum Academy Symposium, Boston, MA, November 2025 [3]
  - o Roundtable for Engineering Entrepreneurship Research (REER), Atlanta, GA, November 2025 [3]
  - o MIT Conference on Digital Experimentation (CODE@MIT), October, 2024
  - o Wharton Business & Generative AI Workshop, San Francisco, CA, September 2024 [3]
  - o The Workplace of the Future Conference, Tilburg University, Tilburg, Netherlands, September 2024[3]
  - o Jobs in the Age of AI Conference, Georgetown University, September 2024 [3]
  - o Academy of Management (AOM) Conference, Chicago, IL, August 2024 [3]
  - o Open and User Innovation (OUI) Conference, Boston, MA, August 2024 [3]
  - o National Bureau of Economic Research (NBER) Summer Institute, Cambridge, MA July 2024 [3]
  - o ZEW Conference on the Economics of Information and Communication Technologies, June 2024 [3]
  - o Labor in the Age of Generative AI, Chicago Booth, Chicago, IL, June 2024 [3]
  - o Symposium on Statistical Challenges in Electronic Commerce Research (SCECR), Lisbon, Portugal, June 2024 [3]
  - o ACM Collective Intelligence Conference, Boston, MA, June 2024 [3]
  - o Microsoft AI, Cognition, and the Economy Workshop, Boston, MA May 2024 [3]

- "Igniting Innovation: Evidence from PyTorch on Technology Control in Open Collaboration."
  - o Strategic Management Society Conference, Istanbul, Turkey, October 2024 [3]
  - o Open and User Innovation (OUI) Conference, Boston, MA, August 2024 [3]

- "Labor Competition and Open Innovation."
  - o Open and User Innovation (OUI) Conference, Boston, MA, August 2024 [3]
  - o Wharton Technology and Innovation Conference, April 2024
  - o Strategic Management Society Conference, Toronto, CN, September 2023
  - o Center for Economic Studies (CESifo), University of Munich, Munich, Germany, October 2023[3]

- "Government Technology Policy, Social Value, and National Competitiveness."
  - o Academy of Management, Boston, MA, August 2023
  - o Munich Summer Institute, June 2021
  - o Society for Institutional & Organizational Economics (SIOE) Conference, Online, June 2020
  - o National Bureau of Economic Research (NBER) Summer Institute, Boston, MA, July 2018
  - o Open and User Innovation (OUI) Conference, New York, NY, August 2018
  - o Research Conference on Communications, Information, and Internet Policy (TPRC), Washington, DC, September 2018

- "Do Programmers Pay to Be Open?"
  - o Open & User Innovation Conference, Hamburg, Germany July 2023[3]

- "The Value of Open Source Software."
  - o Harvard Business School Values and Valuation Conference, Boston, MA, March 2023[3]

- "Open Source Software and Global Entrepreneurship"
  - o OpenForum Academy, Brussels, Belgium, November 2023[3]
  - o DRUID Conference, Copenhagen, Denmark, June 2022[3]
  - o UN Internet Governance Forum, Katowice, Poland, December 2021[3]
  - o Open & User Innovation Conference, Virtual, June 2021[3]
  - o SMS Special Conference, Berkeley, CA, March 2020 – Cancelled due to COVID-19[3]

- "The Role of Social Capital in the U.S. Economy: Evidence from Employee-Level Professional Connections from LinkedIn."
  - o Strategy Research Forum, May 2021
  - o National Bureau of Economic Research (NBER) Summer Institute, Online, July 2020

- "A Little Help From My Friends: The Impact of Receiving Assistance on Participation in Online Knowledge-Sharing Communities."
  - Academy of Management Annual Conference, Online, August 2020[3]
  - Strategic Management Society Conference, Minneapolis, MN, October 2019
  - Boston College Digital Innovation Workshop, May 2019

- "Jack of All Trades and Master of Knowledge: The Role of Generalists in Novel Knowledge Integration."
  - Academy of Management Annual Conference, Boston, MA, August 2019
    - **Selected for Best Paper Proceedings**

- "Transaction Cost Economics in the Digital Economy: A Research Agenda."
  - AOM Annual Conference, PDW on "Understanding Organizational Governance in a Digitally Transformed World", Online, July 2021.
  - AOM Conference on Big Data and Managing in a Digital Economy, Surrey, UK, April 2018[3]

- "Security Investment as a Strategic Response."
  - Workshop on the Economics of Information Security, San Diego, CA, June 2017[3]

- "Goldilocks and the Three Programmers: Unpacking the Relationship Between Online Contributions and Productivity at Work."
  - Academy of Management Annual Conference, Boston, MA, August 2019
  - Organization Science Winter Conference, Park City, UT, March 2018
  - Israel Strategy Conference, Haifa, Israel, December 2017[3]
  - Academy of Management Annual Conference, Atlanta, GA, August 2017
  - Collective Intelligence Conference, New York University, June 2017

- "Learning By Contributing: Gaining Competitive Advantage Through Contribution to Crowdsourced Public Goods."
  - European Academy of Management Conference, Reykjavik, IS, June 2018
    - **Best Conference Paper, Innovation Strategic Interest Group, Winner**
  - Strategic Management Society Conference, Houston, TX, October 2017
    - **Best Conference Paper, Nominated**
    - **Best Conference Paper, Knowledge and Innovation Interest Group, Winner**
  - DRUID Society Conference on Entrepreneurship, Organization, and Innovation, New York University, June 2017
  - Workshop on Information Systems and Economics (WISE), Dublin, IE, December 2016
  - Academy of Management Annual Conference, Los Angeles, CA, August 2016
    - **Technology and Innovation Management Division Best Paper, Finalist**
    - **Selected for Best Paper Proceedings**
  - Open and User Innovation Conference, Harvard Business School, August, 2016
  - Strategic Management Society Special Conference, Rome, IT, June 2016
  - Organization Science Winter Conference, Park City, UT, February 2016

- "The Translucent Hand of Managed Ecosystems: Engaging Communities for Value Creation and Capture"
  - Academy of Management Annual Conference, Boston, MA, August 2019
  - Wharton Technology and Innovation Conference, April 2019
  - Strategic Management Society Conference, Houston, TX, October 2017[3]
  - Academy of Management Annual Conference, Los Angeles, CA, August 2016
  - Open and User Innovation Conference, Harvard Business School, August, 2016
  - Collective Intelligence Conference, New York University, June 2016[3]

- "Open Source Software and Firm Productivity"
  - National Bureau of Economic Research (NBER) Summer Institute, Boston, MA, July 2016
  - American Economic Association (AEA) Annual Meeting, Boston, MA, January 2015
  - INFORMS Annual Meeting, San Francisco, CA, November 2014
  - INFORMS Conference on Information Systems and Technology (CIST), November 2014
  - Strategic Management Society Conference, Madrid, Spain, September 2014

- **Best Conference Paper, Finalist**
  - o 2nd Conference on Knowledge Commons, NYU Engelberg Center on Innovation Law & Policy, September 2014
  - o Academy of Management Annual Conference, Philadelphia, PA, August 2014
  - o Harvard Business School TOM Alumni Research Workshop, August 2014
  - o Open and User Innovation Conference, Harvard Business School, July 2014
  - o DRUID Society Conference on Entrepreneurship, Organization, and Innovation, Copenhagen Business School, June 2014
  - o ZEW Conference on the Economics of Information and Communication Technologies, Centre for European Economic Research, Mannheim, Germany, June 2014
  - o Charles River Conference, Harvard Business School, May 2014
  - o Consortium on Competitiveness and Cooperation (CCC), Boston University, April 2014

- "Innovating without Information Constraints: Organizations, Communities, and Innovation When Information Costs Approach Zero"
  - o 2nd Conference on Knowledge Commons, NYU Engelberg Center on Innovation Law & Policy, September 2014

- "Online Word of Mouth and Product Quality Disagreement"
  - o Academy of Management Annual Conference, Philadelphia, PA, August 2014
    - **Selected for Best Paper Proceedings**
  - o Workshop on Information Systems and Economics (WISE), Orlando, FL, December 2012[3]
  - o Workshop on Information in Networks (WIN), NYU Stern, September 2012[3]

- "Us and Them: Predicting Firm Stock Performance via Social Media Sentiment About Competitors"
  - o Workshop on Information in Networks (WIN), NYU Stern, September 2013
  - o Academy of Management Annual Conference, Orlando, FL, August 2013
  - o 11th ZEW Conference on the Economics of Information and Communication Technologies, Center for European Economic Research, Mannheim, Germany, June 2013
  - o London Business School Trans-Atlantic Doctoral Conference, London, UK, May 2013

- "Supply-Chain Based Network Effects in In Information Technology Adoption"
  - o Academy of Management Annual Conference, Orlando, FL, August 2013[3]

Media Coverage and Interviews

- Media Coverage – Bloomberg, Harvard Business Review, Forbes, BBC, Politico, Axios, The Motley Fool, TechCrunch, The Register, Marginal Revolution, The San Diego Union-Tribune, HBS Working Knowledge, TechRepublic, ZDNet, Computer Weekly, Dark Reading, The Stack, Le Monde Informatique, Infosecurity Magazine, ITPro, Tech Target, Beta News, Security Magazine, DevOps, Enterprise AI, AI Trends
- Interviews (Television) – Yahoo!Finance
- Interviews (Written Media) – Dark Reading, The New Stack, ReadWrite, ITWeb
- Interviews (Podcasts) – HBS Cold Call, CHAOSSCast, Security Ledger, The New Stack, Council on Foreign Relations - The World Next Week

Teaching Experience

- **Massachusetts Institute of Technology**
  - o Executive Education courses on AI, digital transformation, strategy, and cybersecurity, 2025-present

- **Harvard University School of Engineering and Applied Sciences**
  - o Business, Strategy, and Entrepreneurship, 2025-present
- **Harvard Business School**
  - o Strategy & Technology Elective, 2021-2025
  - o MBA Strategy, 2018-2020
  - o Executive Education courses on digital transformation, strategy, and cybersecurity
  - o Doctoral seminars (guest lecturer for modules on research methods, and user communities)

- **University of Southern California – Marshall School of Business**
  - BUAD 497 – Strategic Management, 2016-2018.
  - Doctoral Research Methods in Strategy and Organizations (Guest lecturer), 2016-2017.
  - Doctoral Seminar in Strategic Management (Guest lecturer), 2016-2018.
  - Advanced Management Program (Executive Education), 2017.
- **Harvard Business School** (as a doctoral student)
  - Analytics – Teaching Fellow for pre-MBA program, 2011 – 2014. Head Teaching Fellow, 2013, 2014.
  - Technology & Operations Management – Teaching Fellow for core MBA course, Fall 2013.
  - Managing Innovation – Teaching Fellow for elective MBA course, Spring 2012.
  - Leading Change and Organizational Renewal – Facilitator for Executive Education course, 2011.
- **Federal Bureau of Investigation (FBI)**
  - Network Investigation Techniques for Agents – Developer and lead instructor for a required course for all new FBI cyber agents, 2009 – 2010.
  - Wireless Security – Lead instructor, 2008 –2009.
- **Georgetown University**
  - Computer Hardware Fundamentals – Teaching Assistant, Spring 2004.
  - Computer Science I – Teaching Assistant, Spring 2002 and Fall 2003.
  - Computer Science II – Teaching Assistant, Spring 2003.
  - Introduction to Computer Science I – Teaching Assistant, Fall 2002.

Professional Service

- *Organization Science* Editorial Review Board (2022-present)
- Ad-Hoc reviewer for *Management Science, Organization Science, Strategic Management Journal, Administrative Science Quarterly, Quarterly Journal of Economics, Strategy Science, Information Systems Research, Management Information Systems Quarterly, Research Policy, Journal of Law, Economics, and Organizations, Journal of Economics and Management Strategy, Journal of Economic Behavior & Organization Academy of Management Discoveries, Academy of Management Perspectives, Strategic Entrepreneurship Journal, Telecommunications Policy*, *Communications of the* ACM, and *Nature Computational Science*
- Academy of Management Conference 2024, 2025 Professional Development Workshop Co-Organizer – "New Frontiers in Open Source: Implications for Strategy and Organization Research."
- OpenForum Academy Symposium 2024 "Open Source in the Global Digital Economy" Co-Organizer and Program Committee.
- Strategic Management Society Conference 2023 Extension Co-Organizer – "The Benefits and Challenges of Open Source: Fostering Innovation, Igniting Growth, and the Promise of Equitable Design"
- Economics of Open Source Paper Development Workshop Co-Organizer (2023)
- Program Committee Member, Workshop on the Economics of Information Security (2019, 2021, 2022)
- Grant Reviewer for 2020 Digital Infrastructure Research sponsored by Ford Foundation, Sloan Foundation, Mozilla Foundation, and Open Society Foundation
- Mentor for Industry Studies Association (ISA) Professional Development Workshop for Early Career Scholars (2020)
- Program Committee Member and Accessibility Chair, ACM Collective Intelligence Conference (2020)
- Program Committee Member, ACM Collective Intelligence Conference (2019)
- Associate Editor, International Conference on Information Systems (2017)
- Program Committee for INFORMS Conference on Information Systems and Technology (CIST 2014 – 2017).
- Symposium Session Organizer for Academy of Management (2016, 2017, 2019)
- Symposium Session Organizer for Strategic Management Society (2019)
- Session chair for Academy of Management (2016) and Strategic Management Society (2016)
- Reviewer for Strategic Management Society Conference (2017, 2019), European Academy of Management (2018), Academy of Management Annual Conference for TIM and OCIS divisions (2013, 2014)
- Grant reviewer for Canada Research Chairs (Canadian educational sponsorship program)
- Grant reviewer for Social Sciences and Humanities Research Council (Canadian equivalent of the NSF)
- Discussant for LBS TADC 2013, ZEW ICT 2013, DRUID 2014, ZEW ICT 2014.
- Reviewer for Social Network Mining, Analysis and Research Trends: Techniques and Applications, ed. I-Hsien Ting.
- Reviewer for Studies in Mining Social Networks and Security Information, edited by Zeki Erdem, Tansel Ozyer, Suheil Khoury and Jon Rokne.

Institutional Service

Harvard Business School
- Strategy Seminar Series, co-coordinator 2019 – 2021
- Dissertation Committee Member (first placement):
  - Jeffrey Gortmaker (NYU Stern)
  - Daniel Yue (Georgia Tech)
  - Christopher Eaglin (Duke University)
- Post-Doctoral Advisor (first placement):
  - Sam Boysel (Linux Foundation)
  - Manuel Hoffmann (UC Irvine)

Marshall School of Business, University of Southern California
- Marshall Digitopolis, school wide initiative supporting research on digital business, co-founder 2016 – 2018
- Strategy Faculty Recruiting Committee, member 2015 – 2016
- Strategy Seminar Series, coordinator 2016 – 2018
- Qualifying Exam Committee Member: Jihoon Hong (Marketing)

Harvard Business School (as a doctoral student)
- Student Advisory Group – Member of committee that advises the doctoral office on student policies, 2012-2015
- Wyss Mentoring Award Committee – Member of selection committee for faculty mentoring award, 2013-2015
- Student Mentor for incoming doctoral students in the TOM unit, 2013-2015
- Panel member for various presentations to incoming and accepted doctoral students at HBS

Professional Experience

The Linux Foundation	San Francisco, CA
Chief Economist	May 2025 - Present
Nexleaf Analytics	Los Angeles, CA
Advisory Board Member (unpaid)	April 2018 - Present
Multiple Big Data Analytics Startups	Various Locations
Technical Advisor	April 2012 - Present
Alphamatician	Boston, MA
Advisory Board Member (unpaid)	November 2018 – July 2020
Mandiant Inc. (acquired by FireEye)	Alexandria, VA
Senior Security Consultant	October 2008 – May 2011
Deloitte & Touche LLP	Washington, DC
Senior Consultant, Federal Security and Privacy	September 2007 – October 2008
iDefense, A VeriSign Company	Dulles, VA & London, UK
Assistant Director of Vulnerability Intelligence	September 2005 – September 2007
iDefense, Inc.	Reston, VA
Security Analyst	May 2003 – September 2005
Nokia Mobile Phones	Burlington, MA
Software Engineer Intern	June 2002- August 2002

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[1] Unable to attend award ceremony, therefore not included on published list of finalists

[2] I received renumeration for this article through the Brookings Institution Center on Regulations and Markets.

[3] Presented by a co-author