

Dashun Wang

CONTACT INFORMATION

Northwestern University
Kellogg School of Management
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RESEARCH INTERESTS

My current research focus is on *Science of Science*, a quest to turn the scientific methods and curiosities upon science itself, hoping to use and develop tools from complexity sciences and artificial intelligence to broadly explore the opportunities and promises offered by the recent data explosion in science.

Keywords: Science of Science, Computational Social Science, Network Science, Big Data, Complex Systems

ACADEMIC POSITIONS

Northwestern University, Evanston, IL, USA

- Professor, September 2021 to present
Management & Organizations, Kellogg School of Management
Industrial Engineering & Management Sciences, McCormick School of Engineering
- Founding Director, August 2019 to present
Center for Science of Science and Innovation, Kellogg School of Management
- Associate Professor (with Tenure), September 2020 to August 2021
- Associate Professor, August 2016 to August 2020
- Core faculty, Northwestern Institute on Complex Systems. August 2016 to present

Pennsylvania State University, University Park, PA, USA

Assistant Professor, January 2015 to July 2016
College of Information Sciences and Technology

IBM T.J. Watson Research Center, Yorktown Heights, NY, USA

Research Staff Member July 2013 to December 2014

Northeastern University, Boston, MA, USA

Adjunct Assistant/Associate Professor of Physics January 2014 to June 2019

Dana-Farber Cancer Institute, Harvard University, Boston, MA, USA

Research Associate March 2009 to June 2013

Northeastern University, Boston, MA, USA

Research Assistant January 2009 to June 2013

IBM T.J. Watson Research Center, Hawthorne, NY, USA

Research Intern Summers 2010 and 2011

OTHER POSITIONS

- Science Advisor, **Chan Zuckerberg Initiative**, 2018 to 2019.
- Special Volunteer, **National Institutes of Health**, 2016 to present.

EDUCATION

Ph.D. Physics, Northeastern University, Boston, USA, June 2013

- Thesis title: Statistical Physics in the Era of Big Data

M.Sc. Physics, Northeastern University, Boston, USA, May 2009

B.Sc. Physics, Fudan University, Shanghai, China, July 2007

SELECTED HONORS & AWARDS

- Finalist - Falling Walls Breakthroughs of the Year 2021
- Shortlisted for Thinkers50 Distinguished Achievement Award for Radar Thinker 2021
- *Erdos-Renyi Prize*, NetSci Society, 2021.
- *Thinkers50 Radar*, Thinkers50, 2021.
- *Top 100 most-discussed papers across all sciences*, 2020.
- *Junior Scientific Award*, Complex Systems Society, 2020.
- *World Changing Ideas Awards* (honorable mention), Fast Company (FastCo), 2020.
- *Innovations that Inspire* (honorable mention), AACSB, 2020.
- *Poets & Quants Best 40 Under 40 Professors*, 2019.
- *Top 100 most-discussed papers across all sciences*, 2019.
- *Minerva Award*, Department of Defense, 2019.
- *Young Investigator Award*, Air Force Office of Scientific Research, 2016.
- *Invention Achievement Award*, IBM Research, 2014.
- *Best Student Talk Award*, International Workshop and Conference on Network Science (NetSci, Chicago, IL, USA), 2012.
- *Student Travel Award*, ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD, San Diego, CA, USA), 2011.
- *Student Spotlight*, Physics Department, Northeastern University, 2011.
- *Lawrence Award*, Northeastern University, 2010.
- *Outstanding Student*, Fudan University, Shanghai, Awarded 4 times: 2004–2007.
- *Graduate scholarship*, Northeastern University, 2007–2013
- *Renmin Scholarship*, Fudan University, Shanghai, 2003–2007

GRANTS

- PI, Peterson Foundation, \$150,000, 2021–2023.
- PI, National Institutes of Health, \$25,000, 2021–2022.
- PI, Alfred P. Sloan Foundation, \$500,000, 2021–2024.
- PI, Future Wanxiang Foundation Inc, \$250,000, 2021–2022.
- PI, Department of Defense, \$309,562, 2020–2021.
- PI, National Institutes of Health, \$150,000, 2019–2020.
- PI, Alfred P. Sloan Foundation, \$250,000, 2019–2022.
- Lead PI, “Fundamental dynamics, predictability, and uncertainty of tomorrow’s scientific discoveries”, Department of Defense, Minerva Award, \$5M, 2019–2024.
- PI, “Collaborative Research: Understanding Team Success and Failure”, National Science Foundation (NSF) Award #1829344, \$592,772, 2018/08–2021/08.
- PI, Data Science Initiative, Northwestern University, \$45,000, 2017/03–2018/03.

- PI, “Modeling and Predicting Individual Scientific Impact”, Air Force Office of Scientific Research (AFOSR) Young Investigator Research Program, \$359,716, 2016/12–2019/12.
- co-PI, “Discovering the Extent of Estimable Prediction in Science and Technology (DEEP)”, Air Force Office of Scientific Research (AFOSR), \$768,371, 2015/05–2018/05.
- PI, “Modeling patent citation dynamics to uncover and predict patent quality and impacts”, Interdisciplinary Award, Penn State University, \$85,581, 2016/01–2016/07.
- co-PI, “International Symposium on Science of Science”, National Science Foundation (NSF), \$40,000, 2016/03.
- PI, “Science of Science - Data award”, Penn State University, \$5,000, 2015/03.
- co-PI, “Modeling New Product Innovation and Market Reception: predicting market success and exploring computational creativity”, IBM Open Collaborative Research Awards (OCR), \$75,000, 2014/10.

TEN MOST
REPRESENTATIVE
RESEARCH
PUBLICATIONS

†: equal contribution

‡: corresponding author

- Yian Yin, Jian Gao, Benjamin F. Jones, **Dashun Wang**[†], Co-evolution of Policy and Science during the Pandemic, *Science*, 2021.
- Yian Yin, Yang Wang, James A. Evans, and **Dashun Wang**[†], Quantifying the dynamics of failure across science, startups, and security, *Nature*, 2019.
- Yang Wang, Benjamin F. Jones, and **Dashun Wang**[†], Early-Career Setback and Future Career Impact, *Nature Communications*, 2019.
- Lingfei Wu, **Dashun Wang**, James A. Evans, Large teams develop and small teams disrupt science and technology. *Nature*, 2019. [Cover Article]
- Ching Jin, Chaoming Song, Johannes Bjelland, Geoffrey Canright, **Dashun Wang**[†], Emergence of Scaling in Complex Substitutive Systems. *Nature Human Behaviour*, 2019. [Cover Article]
- Lu Liu, Yang Wang, Roberta Sinatra, C. Lee Giles, Chaoming Song, and **Dashun Wang**[†], Hot Streaks in Artistic, Cultural, and Scientific Careers. *Nature*, 2018.
- Tao Jia[†], **Dashun Wang**[†], and Boleslaw K. Szymanski[†]. Quantifying patterns of research-interest evolution. *Nature Human Behaviour* 1 (2017): 0078.
- Roberta Sinatra, **Dashun Wang**, Pierre Deville, Chaoming Song, and Albert-László Barabási, Quantifying the evolution of individual scientific impact, *Science*, 354, 6312 (2016).
- Pierre Deville, Chaoming Song, Nathan Eagle, Vincent Blondel, Albert-László Barabási, and **Dashun Wang**[†], Scaling identity connects human mobility and social interactions. *Proceedings of the National Academy of Sciences (PNAS)*, 2016.
- **Dashun Wang**[†], Chaoming Song[†], and Albert-László Barabási, Quantifying Long-term Scientific Impact. *Science*, 342, 6154 (2013): 127-132. [Cover Article]

BOOK

1. **Dashun Wang** and Albert-László Barabási, *The Science of Science*, Cambridge University Press, 2021.

PUBLICATIONS (FULL LIST)

†: equal contribution

‡: corresponding author

2. Lu Liu, Nima Dehmamy, Jillian Chown, C. Lee Giles, and **Dashun Wang**†, Understanding the onset of hot streaks across artistic, cultural, and scientific careers, *Nature Communications*, 2021
3. Yian Yin, Jian Gao, Benjamin F. Jones, **Dashun Wang**‡, Coevolution of Policy and Science during the Pandemic, *Science*, 2021.
4. Kyle R. Myers†, Wei Yang Tham, Yian Yin, Nina Cohodes, Jerry G. Thursby, Marie C. Thursby, Peter Schiffer, Joseph T. Walsh, Karim R. Lakhani, **Dashun Wang**‡, Unequal effects of the COVID-19 pandemic on scientists, *Nature Human Behaviour*, 2020
5. Jichao Li, Yian Yin, Santo Fortunato, and **Dashun Wang**‡, Scientific Elite revisited: Patterns of productivity, collaboration, authorship, and impact. *Journal of the Royal Society Interface*, 2020.
6. Jiachen Sun, Ling Feng, Jiarong Xie, Xiao Ma, **Dashun Wang** and Yanqing Hu, Revealing the Predictability of Intrinsic Structure in Complex Networks. *Nature Communications*, 2020.
7. Yian Yin, Yang Wang, James A. Evans, and **Dashun Wang**‡, Quantifying the dynamics of failure across science, startups, and security. *Nature*, 2019.
8. Yang Wang, Benjamin F. Jones, and **Dashun Wang**‡, Early-Career Setback and Future Career Impact, *Nature Communications*, 2019.
9. Lingfei Wu, **Dashun Wang**, James A. Evans, Large teams develop and small teams disrupt science and technology. *Nature*, 2019. [Cover Article]
10. Ching Jin, Chaoming Song, Johannes Bjelland, Geoffrey Canright, **Dashun Wang**‡, Emergence of Scaling in Complex Substitutive Systems. *Nature Human Behaviour*, 2019. [Cover Article]
11. Jichao Li, Yian Yin, Santo Fortunato, and **Dashun Wang**‡, Nobel laureates are almost the same as us. *Nature Reviews Physics*, 2019.
12. Jichao Li, Yian Yin, Santo Fortunato, and **Dashun Wang**‡, A dataset of publication records for Nobel laureates. *Scientific Data*, 2019.
13. Morgan R. Frank, David Autor, James E. Bessen, Erik Brynjolfsson, Manuel Cebrian, David J. Deming, Maryann Feldman, Matthew Groh, Jose Lobo, Esteban Moro, **Dashun Wang**, Hyejin Youn, Iyad Rahwan. Towards understanding the impact of AI on labor. *Proceedings of the National Academy of Sciences (PNAS)*, 2019.

14. Morgan Frank, **Dashun Wang**, Manuel Cebrian, Iyad Rahwan. The evolution of citation graphs in artificial intelligence research. *Nature Machine Intelligence*, 2019. [Cover Article]
15. Federico Battiston, Federico Musciotto, **Dashun Wang**, Albert-László Barabási, Michael Szell, Roberta Sinatra. Taking census of physics, *Nature Reviews Physics*, 1, 89–97, 2019.
16. Lu Liu, Yang Wang, Roberta Sinatra, C. Lee Giles, Chaoming Song, and **Dashun Wang**[‡], Hot Streaks in Artistic, Cultural, and Scientific Careers. *Nature*, 2018.
17. Zhongyang He, Zhen Lei, and **Dashun Wang**[‡]. Modeling citation dynamics of “atypical” articles. *Journal of the Association for Information Science and Technology*, 2018.
18. Santo Fortunato, Carl T. Bergstrom, Katy Borner, James A. Evans, Dirk Helbing, Stasa Milojevic, Alexander M. Petersen, Filippo Radicchi, Roberta Sinatra, Brian Uzzi, Alessandro Vespignani, Ludo Waltman, **Dashun Wang**, Albert-Laszlo Barabasi, Science of Science. *Science*, 2018.
19. Tao Jia[‡], **Dashun Wang**[‡], and Boleslaw K. Szymanski[‡]. Quantifying patterns of research-interest evolution. *Nature Human Behaviour* 1 (2017): 0078.
20. Yian Yin, and **Dashun Wang**[‡]. The time dimension of science: Connecting the past to the future. *Journal of Informetrics* 11.2 (2017): 608-621.
21. Roberta Sinatra, **Dashun Wang**, Pierre Deville, Chaoming Song, and Albert-László Barabási, Quantifying the evolution of individual scientific impact, *Science*, 354, 6312 (2016).
22. Pierre Deville, Chaoming Song, Nathan Eagle, Vincent Blondel, Albert-László Barabási, and **Dashun Wang**[‡], Scaling identity connects human mobility and social interactions. *Proceedings of the National Academy of Sciences (PNAS)*, 2016.
23. Xinyang Zhang, **Dashun Wang**, and Ting Wang, Inspiration or Preparation? Explaining Creativity in Scientific Enterprise. *Proceedings of the 25th ACM International Conference on Information and Knowledge Management (CIKM-2016)*, 2016. [Full paper, acceptance rate: 17.6 %]
24. Yi-Shan Sung, **Dashun Wang**, and Soundar Kumara, Uncovering the effect of dominant attributes on community topology: A case of Facebook networks. *Information Systems Frontiers*, 2016.
25. Roberta Sinatra, Pierre Deville, Michael Szell, **Dashun Wang**, and Albert-László Barabási, A Century of Physics, *Nature Physics*, 11.10 (2015): 791-796. [Cover Article].
26. Chaoming Song[‡], **Dashun Wang**[‡], and Albert-László Barabási, Connections between Human Dynamics and Network Science. [arXiv:1209.1411](https://arxiv.org/abs/1209.1411), 2015.
27. Nan Cao, Yu-Ru Lin, Fan Du, and **Dashun Wang**, Episogram: Visual Summarization of Egocentric Social Interactions. *IEEE Computer Graphics and Applications*, 2015.

28. Chaoming Song and **Dashun Wang**, Impact of Human Mobility on Social Networks. *Journal of Communications and Networks*, 17.2 (2015): 100-109.
29. Giuseppe Mangioni, Filippo Simini, **Dashun Wang**, and Stephen Miles Uzzo (editors), Complex Networks VI, *Springer*, 2015. [Edited Book]
30. Ting Wang and **Dashun Wang**, Why Amazon’s Ratings Might Mislead You? The Story of Herding Effects. *Big Data Journal*, 2014.
31. Ting Wang, **Dashun Wang**, and Fei Wang, Quantifying Herding Effects in Crowd Wisdom. *Proc. 20th ACM SIGKDD Intl. Conf. on Knowledge Discovery and Data Mining (KDD 2014)*, 2014.
32. Hua-Wei Shen, **Dashun Wang**, Chaoming Song, and Albert-László Barabási, Modeling and Predicting Popularity Dynamics via Reinforced Poisson Processes. *The Twenty-Eighth AAAI Conference on Artificial Intelligence (AAAI 2014)*, 2014.
33. A. Jagmohan, Y. Li, N. Shao, A. Sheopuri, **D. Wang**, L. R. Varshney, and P. Huang, Exploring Application Domains for Computational Creativity. *The Fifth International Conference on Computational Creativity (ICCC 2014)*, 2014.
34. Pierre Deville, **Dashun Wang**, Chaoming Song, Roberta Sinatra, Vincent Blondel and Albert-László Barabási, Career on the Move: Geography, Stratification, and Scientific Impact. *Nature Scientific Reports*, 4: 4770, 2014.
35. **Dashun Wang**, Chaoming Song, Hua-Wei Shen, Albert-László Barabási, Response to comment on “Quantifying long-term scientific impact”, *Science*, 345, 6193 (2014): 149-149.
36. Liang Gao, Chaoming Song, Ziyou Gao, Albert-László Barabási, James P. Bagrow, and **Dashun Wang**[†], Quantifying Information Flow During Emergencies. *Nature Scientific Reports*, 4: 3997, 2014.
37. **Dashun Wang**, Yu-Ru Lin, and James P. Bagrow, Social Networks in Emergency Response. *Encyclopedia of Social Network Analysis and Mining*, Springer, 2014 (Edited by Reda Alhajj and Jon Rokne).
38. **Dashun Wang**[†], Chaoming Song[†], and Albert-László Barabási, Quantifying Long-term Scientific Impact. *Science*, 342, 6154 (2013): 127-132. [Cover Article]
39. Fosca Giannotti, Luca Pappalardo, Dino Pedreschi, and **Dashun Wang**, A complexity science perspective on human mobility. *Mobility Data: Modeling, Management, and Understanding*, Cambridge University Press, 2013 (Edited by Chiara Renso, Stefano Spaccapietra, and Esteban Zimányi).
40. **Dashun Wang**, Dino Pedreschi, Chaoming Song, Fosca Giannotti, and Albert-László Barabási, Human Mobility, Social Ties, and Link Prediction. *Proc. 17th ACM SIGKDD Intl. Conf. on Knowledge Discovery and Data Mining (KDD 2011)*. (Full paper, acceptance rate: 17.5 %)
41. James P. Bagrow[†], **Dashun Wang**[†], and Albert-László Barabási, Collective Response of Human Populations to Large-scale Emergencies. *PLoS ONE*, 6(3): e17680, 2011

42. **Dashun Wang**, Zhen Wen, Hanghang Tong, Ching-Yung Lin, Chaoming Song, and Albert-László Barabási, Information Spreading in Context. *Proc. 20th International World Wide Web Conference (WWW 2011)*.
(Full paper, acceptance rate: 12.4 %)

SELECTED
WORKING PAPERS

43. Yian Yin, Yuxiao Dong, Kuansan Wang, **Dashun Wang**[‡], Benjamin F. Jones[‡], Science as a public good: Quantifying uses of science beyond science. 2021
44. Jian Gao, Yian Yin, Kyle R. Myers, Karim R. Lakhani, **Dashun Wang**[‡], Fewer New Projects: The Potentially Long-lasting Effects of the COVID-19 Pandemic on Scientists. 2021
45. Ryan R. Hill, Yian Yin, Carolyn Stein, **Dashun Wang**[‡], Benjamin F. Jones[‡], Adaptability and the pivot penalty in science. 2021
46. Shuhong Hang, Jiachen Sun, Ling Feng, Jiarong Xie, **Dashun Wang**, and Yanqing Hu, Identify COVID-19 Hidden Spreaders over Contact Tracing Networks, 2021.
47. Kyle R. Myers, Karim R. Lakhani, **Dashun Wang**, Towards recovery: Scientists with better ratings of their institution's response to the COVID-19 pandemic have more optimistic forecasts about their future research, 2021
48. Woo Seong Jo, Lu Liu, and **Dashun Wang**[‡], See further upon the giants: Quantifying intellectual lineage in science, 2021
49. Nima Dehmamy, Woo Seong Jo, Lu Liu, **Dashun Wang**[‡], Knowledge Distillation and Paper Production Using Artificial Intelligence, 2021
50. Zhongyang He, Zhen Lei, Yang Wang, and **Dashun Wang**[‡], Diamond in the rough: Quantifying failed innovation endeavors. 2021 (Pending NIH approval for submission)
51. **Dashun Wang**, The Science of Career: When Do You Do Your Best Work. *Scientific American*, 2019. (With the editor. Accepted by the editorial board).
52. Yang Wang, Travis Hoppe, B. Ian Hutchins, George M. Santangelo, James Evans and **Dashun Wang**[‡], Funding decision and scientific progress: Unintended consequences and latent opportunities, 2021 (Pending NIH approval for submission)

OPINION PIECES
(OP-ED, BYLINE,
OR COMMENTARY)

53. *Scientific American*, If you want creativity, keep the team small. February 20, 2020. (with Jeanne Brett)
54. *Fast Company*, The Tipping Point Between Success and Failure. January 16, 2020. (with James Evans)
55. *Fast Company*, The long-term benefits of losing. 2019. November 11, 2019.
56. *Harvard Business Review*, When Losing Out on a Big Opportunity Helps Your Career. October 1st, 2019. (with Ben Jones)

57. *Harvard Business Review*, How New Versions of Products Spread Differently Than Entirely New Products. July 17, 2019.
58. *Harvard Business Review*, When Small Teams Are Better Than Big Ones. February 21, 2019. (with James Evans)
59. *Nature*, Science looks worse because it's getting better. 2019.
60. *Harvard Business Review*, Career Hot Streaks Can Happen at Any Age. October 5, 2018.
61. Pierre Azoulay, Joshua Graff-Zivin, Brian Uzzi, **Dashun Wang**, Heidi Williams, James A Evans, Ginger Zhe Jin, Susan Feng Lu, Benjamin F Jones, Katy Borner, Karim R Lakhani, Kevin J Boudreau, Eva C Guinan, Toward a more scientific science. *Science*, 2018. (Cover Article)
62. *The Wall Street Journal*, The Science Behind Career Hot Streaks. August 10, 2018.
63. *Forbes*, We're Learning To Predict Who Will Have The Greatest Career Impact. December 8, 2016.
64. Albert-László Barabási, Chaoming Song, and **Dashun Wang**, Handful of papers dominates citation. *Nature*, 491.7422 (2012): 40-40.

PATENTS

65. Nima Dehmamy, Woo Seong Jo, Lu Liu, **Dashun Wang**, Knowledge Distillation and Paper Production Using Artificial Intelligence, Provisional Invention Disclosure filed. 2020
66. James Evans, **Dashun Wang**, Yang Wang, Yian Yin. *System and Method to Predict Success Based on Analysis of Failure*. S/N 62/909,317, 2019.
67. Jagmohan, Ashish, Nan Shao, Anshul Sheopuri, Lav R. Varshney, and **Dashun Wang**. *System and Method for Contextual Recipe Recommendation*. U.S. Patent 20,160,140,444, issued May 19, 2016.
68. **Dashun Wang**, Fei Wang, and Ting Wang. *Quantifying and Predicting Herding Effects in Collective Rating Systems*. U.S. Patent 20,160,063,380, issued March 3, 2016.
69. Pinel, Florian, Krishna C. Ratakonda, Lav R. Varshney, and **Dashun Wang**. *Group generation using sets of metrics and predicted success values*. U.S. Patent Application 14/612,698, filed February 3, 2015.

PRESENTATIONS

Note:

Reduced travel in 2018 and 2019 due to family reasons. The following list does not include declined invitations or cancelled seminars due to COVID-10.

- | | |
|---|---------|
| 1. Invited talk, Science of science summer school | 2021/08 |
| 2. Invited talk, U.S. Department of Energy | 2021/07 |

3. Plenary lecture, Networks 2021	2021/07
4. Invited talk, Malone Family Foundation Scholars	2021/06
5. Invited talk, Summer Institute in Computational Social Science	2021/06
6. Seminar, Thinkers50	2021/05
7. Keynote, International Conference on Computational Social Science	2021/04
8. Seminar, Xi'an Jiaotong University	2021/04
9. Seminar, University of Luxembourg	2021/03
10. Seminar, Nicolaus Copernicus University (Poland)	2021/03
11. Seminar, University of Michigan (Information Science)	2021/03
12. Seminar, Yale Computational Sociology	2021/03
13. Seminar, Beijing Academy of Artificial Intelligence	2021/01
14. Seminar, Sloan Foundation	2020/11
15. Seminar, Kellogg Alumni Club	2020/10
16. Invited talk, Northwestern University Board of Trustees meeting	2020/09
17. Invited talk, AFOSR Trust & Influence	2020/08
18. Invited talk, Stanford Conference on Computational sociology	2020/08
19. Invited talk, Academy of Management PDW	2020/08
20. Seminar, Air Force agency wide seminar	2020/08
21. Tutorial, Science of Science, Joint Conference on Digital Libraries (JCDL)	2020/08
22. Seminar, The Office of Naval Research leadership debrief	2020/07
23. Webinar, Kellogg Alumni Club	2020/07
24. Tutorial, Computational Social Science of Science, International Conference on Computational Social Science (IC ² S ²)	2020/07
25. Seminar, MIT Sloan School of Management (TIES)	2020/03
26. Seminar, MIT Sloan School of Management (IDE)	2020/03
27. Seminar, MIT Media lab	2020/03
28. Seminar, OSU (Econ department, Applied micro)	2020/03
29. Seminar, Georgia State University (Business School)	2020/02
30. Seminar, Northwestern (Kellogg)	2020/02
31. Seminar, UChicago (Computational social science)	2020/01

32. Webinar, Kellogg Leadership Circle	2020/01
33. Seminar, Berkeley Haas (MORS)	2019/11
34. Speaker, Kellogg Global Advisor Board	2019/10
35. Invited speaker, Big Data workshop Strategic Management Society Annual conference	2019/10
36. Keynote, Department of Defense, Arlington, VA	2019/09
37. Seminar, Cornell University (Johnson Graduate School of Management)	2019/09
38. Invited participant, Meta-Science conference, Stanford University	2019/09
39. Tutorial, Computational Social Science of Science, International Conference on Computational Social Science (IC ² S ²) Amsterdam, Netherlands	2019/07
40. Seminar, Kellogg School of Management, Northwestern University	2019/06
41. Panel Chair, Kellogg China Insider Forum,	2019/05
42. Keynote, Portfolio Analysis Symposium, National Institutes of Health	2019/04
43. Seminar, USC Information Sciences Institute, CA	2019/03
44. Seminar, IIT Mathematics Department, Chicago, IL	2019/02
45. Invited Speaker, Social Science Foo Camp, Facebook, Menlo Park, CA	2019/02
46. Seminar, Facebook Core Data Science, Menlo Park, CA	2019/02
47. Seminar, Stanford Graduate School of Business	2019/01
48. Seminar, Chan-Zuckerberg Initiative	2019/01
49. Seminar, Ross School of Business, University of Michigan	2018/10
50. Seminar, Haas School of Business, UC Berkeley	2018/10
51. Keynote, London speaker series, Nature	2018/08
52. Keynote, Big Scholarly Data, ACM SIGKDD Conference On Knowledge Discovery And Data Mining (KDD 2018), London.	2018/08
53. Science Foo Camp (SciFoo), Google X, Mountain View, CA,	2018/06
54. Computational Social Science Seminar, Northwestern University,	2018/05
55. Panel Chair, Kellogg China Insider Forum,	2018/05
56. Seminar, AFOSR, Arlington, VA,	2018/04
57. Seminar, Kellogg School of Management, Northwestern University	2018/04
58. Seminar, Booth School of Business, The University of Chicago	2018/02

59. Invited Speaker, Social Science Foo Camp, Facebook, Menlo Park, CA 2018/02
60. Seminar, Annenberg School, University of Pennsylvania 2018/02
61. Keynote, International School and Conference on Network Science (NetSciX 2018)
Hangzhou, China 2018/01
62. Seminar, Shanghai Jiaotong University
Shanghai, China 2018/01
63. Seminar, Sun Yat-Sen University
Guangzhou, China 2017/12
64. Invited Speaker, Workshop on Innovation, Cities, and the Future of Work,
MIT Media Lab 2017/11
65. Seminar, The University of Illinois at Chicago Business 2017/11
66. Invited Speaker, Radical Social Science & Humanities,
Amazon Headquarters, Seattle, WA, 2017/10
67. Invited Speaker, Basic Research Innovation and Collaboration Center (BRICC)
AFOSR, Ballston, VA, 2017/09
68. Seminar, Network Science Institute, Northeastern University, 2017/09
69. Keynote, AI and Public Policy, Tsinghua University
Beijing, China 2017/07
70. Keynote, International Conference on Computational Social Science (IC²S²),
Cologne, Germany 2017/07
71. Keynote, The 4th Satellite on Quantifying Success, NetSci 2017,
Indianapolis, IN 2017/06
72. Colloquium, IEMS Department, Northwestern University 2017/04
73. Colloquium, Tippie College of Business, the University of Iowa 2017/01
74. Invited Speaker, Ten-year Anniversary of Web Science 2016/11
75. Invited Speaker, AAAI Symposium, Wanshington DC 2016/11
76. Colloquium, University of Chicago, Chicago, IL 2016/09
77. Invited Attendee, Science Foo Camp, Google, Mountain View, CA 2016/07
78. Keynote, Symposium on Research Methodologies in the Big Data Era
SRMBD 2016 2016/05
79. Invited Panelist, NIH Grand Challenges Workshop, NIH 2016/03
80. Colloquium, University of Notre Dame, South Bend, IN 2016/03
81. Colloquium, Northwestern University (Kellogg), Evanston, IL 2016/02
82. Colloquium, Indiana University, Bloomington, IN 2016/02

83. Colloquium, Northwestern University (NICO), Evanston, IL 2016/02
84. Invited speaker, Satellite at Conference on Complex Systems, Tempe, AZ, 2015/10
85. Invited speaker, Big data social science seminar, Penn State University 2015/10
86. Keynote, AFOSR and BRICC, Arlington, VA 2015/07
87. International Conference on Computational Social Science, Finland 2015/06
88. Colloquium, University of Vermont, Burlington, VT 2015/04
89. Invited, Metaknowledge Spring workshop, University of Chicago 2015/03
90. Invited Speaker, The 10th Chinese Conference on Complex Networks.
(Changsha, China) 2014/10
91. Invited Speaker, The First Alibaba Forum on Complexity.
(Alibaba, Hangzhou, China) 2014/10
92. Invited Speaker, AFOSR, Arlington, VA 2014/08
93. Invited, Metaknowledge Summer meeting, Pacific Grove, CA 2014/08
94. Colloquium, University of Chicago, Chicago, IL 2014/04
95. Invited Speaker, IBM T.J. Watson Research Center, Yorktown Heights, NY 2014/04
96. Colloquium, Pennsylvania State University, University Park, PA 2014/02
97. Colloquium, University of Texas at Austin, Austin, TX 2014/02
98. Colloquium, Rutgers University, NJ 2014/01
99. Invited speaker, IBM T.J. Watson Research Center, Yorktown Heights, NY 2013/11
100. NYU Stern, Workshop on Information in Networks (WIN2013). 2013/10
101. NetSci13: International Workshop and Conference on Network Science. Denmark.
–**Young Researcher Forum** 2013/06
102. Invited Speaker, Beijing Jiaotong University, Beijing, China 2013/05
103. Invited Speaker, JointNet Seminar, Boston, MA 2013/04
104. Invited Speaker, FuturICT Workshop, MIT Media Lab. 2013/02
105. Invited Speaker, IBM T.J. Watson Research Center, Yorktown Heights, NY 2012/12
106. Invited Seminar, MIT Media Lab, Cambridge, MA 2012/11
107. Invited Speaker, IBM T.J. Watson Research Center, Yorktown Heights, NY 2012/11
108. NetSci12: International Workshop and Conference on Network Science
– **Best Student Talk** 2012/06
109. American Physical Society March Meeting 2012. 2012/02

110. NYU Stern, Workshop on Information in Networks (WIN2011). 2011/10
111. Seminar speaker, IBM T.J. Watson Research Center, Hawthorne, NY 2011/09
112. Department Seminar, IBM T.J. Watson Research Center, Hawthorne, NY 2011/09
113. Invited Speaker, CAIDA, UCSD, San Diego, CA 2011/08
114. Proc. 17th Intl. Conf. on Knowledge Discovery and Data Mining (KDD2011).
(Poster, San Diego, CA) 2011/08
115. NetSci11: International Workshop and Conference on Network Science.
Conference presentation (Budapest, Hungary) 2011/06
116. NetSci11: International Workshop and Conference on Network Science.
Workshop presentation (Budapest, Hungary) 2011/06
117. Interdisciplinary Workshop on Information and Decision in Social Networks (WIDS).
MIT LIDS 2011/03
118. Seminar, Department of Physics, Northeastern University, Boston, MA 2011/04
119. Proc. 20th International World Wide Web Conference (WWW 2011).
(Hyderabad, India) 2011/04
120. HSCB Focus 2011: Human Social Culture Behavior Modeling Program.
(Chantilly, VA) 2011/02
121. Department Seminar, IBM T.J. Watson Research Center, Hawthorne, NY 2010/08
122. SCNARC Seminar, IBM T.J. Watson Research Center, Hawthorne, NY 2010/05
123. NetSci10: International Workshop and Conference on Network Science.
(Boston, MA) 2010/05
124. Northeastern University, Research & Scholarship EXPO.
(Poster, Boston, MA) 2010/05
125. Seminar, Department of Physics, Northeastern University, Boston, MA
– **Best Speaker Prize** 2010/04
126. American Physical Society March Meeting 2010 2010/03
127. NetSci09: International Workshop and Conference on Network Science.
(Venice, Italy) 2009/07
128. Seminar, Kennedy School of Government, Harvard University 2009/06
129. Seminar, Department of Physics, Northeastern University, Boston, MA 2009/04

Conference/Workshop Co-Chair/Organizer

1. Science of Science and Networks,
(Networks'21 satellite) USA. June 2021.
2. International Symposium on Science of Science,
Library of Congress, Washington DC, USA. March 2016.
3. Quantifying Science,
(CCS'15 satellite) Tempe, AZ, USA. October 2015.
4. DyNo 2015: 1st International Workshop on Dynamics in Networks,
ASONAM, Paris, France. August 2015.
5. The 6th Workshop on Complex Networks (CompleNet),
New York, NY. March 2015.
6. ImBig: CIKM 2014 Workshop on Interactive Mining for Big Data,
Shanghai, China. November 2014.
7. Quantifying Success,
(ECCS'13 satellite) Barcelona, Spain. September 2013.
8. Science of Success Symposium,
Harvard University, Cambridge, MA. June 2013.
9. SocialD - A Conversation on Social Dynamics,
(NetSci2013), Copenhagen, Denmark. June 2013.
10. Third Conference on the Analysis of Mobile Phone Datasets and Networks,
(NetMob 2013) MIT Media Lab, Cambridge, MA. May 2013.
11. Second Conference on the Analysis of Mobile Phone Datasets and Networks,
(NetMob 2011) MIT Media Lab, Cambridge, MA. October 2011.
12. International Workshop on Finding Patterns of Human Behavior in NETWORK and
MOBILITY Data,
(NEMO, ECML/PKDD 2011). Athens, Greece. September 2011.

Reviewer

- *General Audience*: Nature, Science, Proceedings of the National Academy of Sciences (PNAS), Nature Communications, Science Advances, Journal of The Royal Society Interface, Scientific Reports, PLoS ONE
- *Management and Social Science*: Management Science, Nature Human Behaviour, New Media & Society, American Sociological Review
- *Physics & Mathematics*: Nature Physics, Physical Review Letters (PRL), Europhysics Letters (EPL), EPJ Data Science, European Physical Journal B (EPJB), Journal of Statistical Mechanics: Theory and Experiment (JSTAT), Chaos, Journal of Statistical Physics, Physica A, Frontiers of Physics, Chaos, Physics Today,

- *Computer Science & Information Science*: Nature Machine Intelligence, ACM Computing Surveys, Data Mining and Knowledge Discovery Journal (DAMI), Transactions on Knowledge Discovery from Data (TKDD), Transactions on Intelligent Systems and Technology (ACM TIST), Transactions on Knowledge and Data Engineering (TKDE), Transactions on Sensor Networks (TOSN), Journal of Informetrics, IEEE Transactions on Big Data, Digital Signal Processing, IBM Journal of Research and Development, Complex Adaptive Systems Modeling, Journal of the Association for Information Science and Technology (JASIST), Journal of Informetrics, Scientometrics.
- *Book*: MIT Press

Editorial Board

- Journal of the Association for Information Science and Technology (JASIST)

External Committee

- *National Academy of Sciences*, Committee on the Assessment of the SBIR and STTR Programs at NIH, 2020-2021

Program Committee Member

- KDD 2017
- WWW 2015, 2017, 2018
- NetSci 2015, 2017
- NetSciX 2018
- CompleNet 2016, 2017
- SocInfo 2016
- IC2S2 2014, 2015, 2016, 2018, 2019
- IEEE SCC 2014
- ASONAM 2014
- BigDataScience 2014

Grant Reviewer

- National Science Foundation (NSF)
- John Templeton Foundation
- Leverhulme Trust
- Irish Research Council

ADVISING & MENTORING

PhD Students

Binglu Wang (Management and Organizations, Northwestern University)
 Yian Yin (Industrial Engineering & Management Sciences, Northwestern University)
 Lu Liu (College of IST, Penn State University)
 Qing Jin (Physics, Northeastern University)
 Zhongyang He (Economics, Penn State University)
 Pierre Deville (Applied Math, Universite catholique de Louvain, Belgium)

Postdoc or Research Assistant Professor

Nima Dehmamy (Northwestern University)
 Jian Gao (Northwestern University)

Suman Kalyan Maity (Northwestern University)
 Alexander Furnas (Northwestern University)
 Kariyushi Rao (Northwestern University)
 Diego Gómez-Zar4 (Northwestern University)
 Minsu Park (Northwestern University)
 - First appointment: Assistant professor, NYU
 Woo Seong Jo (Northwestern University)
 - First appointment: Samsung Economic Research Institute
 Yang Wang (Northwestern University)
 - First appointment: Full professor, Xi'an Jiaotong University (China)
 Lingfei Wu (Joint with James Evans University of Chicago)
 - First appointment: Assistant professor, iSchool, University of Pittsburgh

Visiting scholar

Jichao Li, Liqiang Huang, Zhiqiang Cai, Meijun Liu

PhD Committee

Yi Bu. Committee: Ying Ding (Chair), Yong-Yeol Ahn, Johan Bollen, Stasa Milojevic, Cassidy R. Sugimoto, Ludo Waltman, Dashun Wang.
 Yukun Chen. Committee: James Wang (Chair), Jia Li, Dashun Wang, Xinyu Xing.
 Ngot Bui. Committee: Vasant Honavar (Chair), Lee Giles, Ping Li, John Yen.

TEACHING

MBA Teaching

Social Dynamics and Network Analytics. Kellogg School of Management, Northwestern University.

Highest rating: 5.8 out of 6.

(Spring 2017, Summer 2017, Winter 2018, Spring 2019, Fall 2019, Fall 2020)

Other

IST402: Network Science. Penn State University. (Spring 2016)

IST210: Organization of Data. Penn State University. (Spring 2015 & Fall 2015)

IN THE PRESS

List of selected media coverages

- “Quantifying the dynamics of failure across science, startups and security” (*Nature*, 2019) was covered in some newspapers, magazines, and blogs.
 - *Inc.*: 5 Ways to Avoid Startup Failure by Increasing Your Team’s Learning Speed
 - *MIT Technology Review*: How the data mining of failure could teach us the secrets of success
 - *Fast Company*: Why failing fast is critical if you want to eventually win
 - *Lab Manager*: Failure Prognosis: Data Science Predicts Which Failures Will Ultimately Succeed
 - *China.org*: Data science predicts which failure will ultimately succeed: study
 - *Scientific American*: Failure Found to Be an “Essential Prerequisite” for Success
 - *Science Daily*: Failure prognosis: Data science predicts which failures will ultimately succeed
 - *Phys.org*: Failure prognosis: Data science predicts which failures will ultimately succeed
 - *Global Advisors*: Why failing fast is critical if you want to eventually win
 - Other coverages include News Ghana, ZAP, Sohu News

- “Early career setbacks and future career impact” (*Nature Communications*, 2019) was covered in some newspapers, magazines, and blogs.
 - *The New York Times*: How early-career setbacks can set you up for success
 - *Forbes*: Why failure leads to career success
 - *The Economist*: In science, grit counts as well as talent
 - *Financial Times*: The obstacles that speed and slow our path
 - *Bloomberg*: Career setbacks can help your performance but hurt your pay
 - *BBC News*: Why suffering setbacks could make you more successful
 - *Harvard Business Review*: Research: When Losing Out on a Big Opportunity Helps Your Career
 - *Kellogg Insight*: Early Career Failures Can Make You Stronger in the Long Run
 - *CNBC*: Failing early in your career can make you more successful in the future
 - *INC.*: When You Fail, It’s Important That You Do This One Thing, According to Science
 - *Science Daily*: Science demonstrates that what doesn’t kill you makes you stronger
 - *UPI.com*: For scientists, failure can pay dividends down the road
 - *New York Post*: Failure early in your career might actually be the best thing for you
 - Other coverages include Scitech Daily, Pressfrom, Breitbart News Network, Long Room, Interesting Engineering, PsychCentral, Lab Manager, Popmech, Psych Central, Space Daily, Futura-Sciences, Phys.org, Physicsworld, Medium US, Pourquoi Docteur, Superinteressante, Ladders
- “Emergence of Scaling in Complex Substitutive Systems” (*Nature Human Behaviour*, 2019) was covered in *The Wall Street Journal* and *Harvard Business Review*.
- “The evolution of citation graphs in artificial intelligence research” (*Nature Machine Intelligence*, 2019) was covered in *The Wall Street Journal* and *Kellogg Insights*.
- Our ongoing projects on failures have been covered in *Inc.*, and *MIT Technology Review*.
- “Large teams develop and small teams disrupt science and technology.” (*Nature*, 2019) was covered in some newspapers, magazines, and blogs.
 - *The New York Times*: Can Big Science Be Too Big?
 - *Harvard Business Review*: Research: When Small Teams Are Better Than Big Ones
 - *The Atlantic*: Small Teams of Scientists Have Fresher Ideas
 - *The Conversation*: Want disruptive research? Go small instead of big
 - *Bloomberg*: Where Do Disruptive Ideas Happen? Not on a Big Team
 - *Inverse*: Innovation and Disruption Get Less Likely With a Bigger Team, Study Finds
 - *Entrepreneur*: Why Size Matters For a Working Team
 - *Forbes*: It Takes More Than Members To Make A Team
 - Other coverages include Yahoo News, The Japan Times, Money Science, Nature, Futurity, Valor Economico, Le Monde, La Vanguardia, FiveThirtyEight, Times Higher Education, ORF.at, Physics World, ERR.ee, The Scientist Magazine, MSN, Phys.org.

- “Hot Streaks in Artistic, Cultural, and Scientific Careers.” (*Nature*, 2018) was covered in some newspapers, magazines, and blogs.
 - *The New York Times*: Feel Like You Haven’t Hit Your Peak Yet? It’s Never Too Late
 - *The Wall Street Journal*: The Science Behind Career Hot Streaks
 - *Bloomberg*: The ‘Hot Streak’ Is Real, But It’s Not About Luck
 - *Havard Business Review*: When to Stick with Something—and When to Quit
 - *World Economic Forum*: There is such a thing as a career hot streak - and it can happen any time
 - *Business Insider*: The science behind career ‘hot streaks’
 - *Wired*: Science is trying to understand the secrets of creative hot streaks
 - *Today Show*: Worried you’ve missed out on a ‘hot streak’ in life? It may be just around the corner
 - *CNBC*: Researchers looked at career ‘hot streaks’ of 30,000 successful people—here’s what they found
 - *Quartz*: There is such a thing as a career hot streak—and it can happen at anytime
 - *Daily Mail*: Winning streaks ARE real! Scientists discover we really do have random periods of repeated success throughout our working lives
 - *The Times*: Your purple patch of creativity can come at any time, researchers say
 - *Nature*: From artists to scientists, anyone can have a successful streak at any time
 - *Kellogg Insights*: When You’re Hot, You’re Hot: Career Successes Come in Clusters
 - *Inverse*: Creative ‘Hot Streaks’ Are No Coincidence, But They Come With Caveats
 - *EL PAIS*: Las rachas de ?xito no dependen de aumentar el esfuerzo, sino que llegan por azar
 - Other coverages include Discover Magazine, Nature Asia, Stuff.co.nz, Arkansas Online, the Money Science, The Japan Times, Pharmazeutische Zeitung, Herald Sun, Spiegel Online, My San Antonio, Madrid, Phys.org, Arstechnica, APA.
- Visualization based on our paper in *Science* wins Gold Prize at the 2017 Kantar Information Is Beautiful Awards.
- [KelloggInsight Postcast](#) featuring me and Duncan Watts: Why Ideas Go Viral
- Kellogg Alumni magazine featured our mobile phone work in *PNAS*.
- How Innovators Choose Their Next Career Move? [KelloggInsight](#) features our paper published in *Nature Human Behaviour*.
- “Quantifying the evolution of individual scientific impact.” (*Science*, 2016) was covered in some newspapers, magazines, and blogs.
 - *New York Times*: When It Comes to Success, Age Really Is Just a Number
 - *Forbes*: We’re Learning To Predict Who Will Have The Greatest Career Impact
 - *Forbes*: Study Shows Youth Isn’t The Key To Making A Mark
 - *Washington Post*: Don’t give up: Older people can have creative breakthroughs
 - *The guardian*: Are you too old to find success?
 - *Science*: Hey scientists, how much of your publication success is due to dumb luck?

- *Nature*: Is a scientific career predictable?
 - *Wired*: See How the Most Influential Science Comes in Waves
 - *The Huffington Post*: Are You A Late Bloomer? The Careers Of Eminent Scientists Offer Hope
 - *Scientific America*: The Science of Success in Science.
 - Other coverages include the Scientist, Kellogg Insight, Big Think, Inside Higher Ed, Flowing Data, The Australian, NY magazine, PhysOrg, ACS, Chemistry World, Northeastern News, CEU News, FastCoDesign, University World News, Yahoo News, Herald Tribune, University Herald, ORF Science, Spiegel Online, Il Corriere della Sera, Il Fatto Quotidiano, Internazionale, Panorama, Adnkronos, Padova News, Interesting Engineering, La Vanguardia, ABC.es, Semana, Scienza.nl, El Digital de Asturias, AgenciaSinc, Improbable, 3 Quarks Daily, Librarius, Museum.
- “Quantifying Long-term Scientific Impact” (*Science* **342**, 6154, 2013) was covered in some newspapers, magazines, and blogs.
 - Formula predicts research papers’ future citations. *Nature News* (October 3rd, 2013).
 - Future Science - Can predicting an article’s success change science? *Science* (October 4th, 2013).
 - Which of these breakthroughs will still matter in 20 years? *The Boston Globe* (October 7th, 2013), *Boston.com* (October 4th, 2013).
 - Hot Stuff. *Nature Physics*.
 - Diagnose: Evaluitis. *ORF.at* (October 28th, 2013).
 - Researchers use science to predict success. *Northeastern News* (October 4th, 2013).
 - Measuring Academic Impact. *CEU News*.
 - Una ecuaci?n predice el impacto futuro de los art?culos cient?ficos. *SINC* (October 3rd, 2013).
 - Model predicts future citation rate for recently published journal articles. *Physics Today* (October 4th, 2013).
 - Paper ‘fitness’ predicts future citation rate *Physics World* (November, 2013).
 - “Career on the Move: Geography, Stratification, and Scientific Impact” (*Scientific Reports*, 4: 4770 (2014)) was featured on *The Economist* and *NEU iNSolution*.
 - “Quantifying Information Flow During Emergencies” (*Scientific Reports*, 4: 3997 (2014)) was featured on *MIT Technology Review* and *edu.cn*.
 - “Collective Response of Human Populations to Large-scale Emergencies” (*PLoS ONE* 6(3): e17680, 2011) was featured on *Northeastern News*.

COMPUTER SKILLS

Python, MATLAB, Mathematica, R, C/C++, L^AT_EX, BASH/shell scripting, ActionScript 3.0, HTML, PHP, SQL, Adobe Creative Suite 5.
Mac OS X, Linux, and Windows Operating Systems.

OUTSIDE ACTIVITIES

N/A

REFERENCES

Available upon request