# Yian Yin


CONTACT INFORMATION

**Northwestern University**
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EDUCATION

**Northwestern University**, Evanston, IL, USA
- **Ph.D.**, Industrial Engineering and Management Sciences — Expected 2022
  McCormick School of Engineering and Applied Sciences
  **Committee**: Noshir Contractor[chair], Dashun Wang[co-chair], Jorge Nocedal
- **M.Sc.**, Industrial Engineering and Management Sciences — Dec 2017

**Peking University**, Beijing, China
- **B.Sc.**, Statistics — Jun 2016
  School of Mathematical Sciences
- **B.Ec.**, Economics — Jun 2016
  National School of Development

**Summer Institute in Computational Social Science**, Chicago, IL, USA — Jun 2018

ACADEMIC POSITIONS

**Northwestern University**, Evanston, IL, USA
- Graduate Research Assistant, — Sep 2016 to Present
  Kellogg Center for Science of Science and Innovation

**Microsoft Research**, Redmond, WA, USA
- Visiting Researcher, — Oct 2018 to Nov 2018
  Microsoft Academic Graph Analytics

**Pennsylvania State University**, University Park, PA, USA
- Summer Visiting Student, — Jul 2015 to Oct 2015
  College of Information Sciences and Technology

**Peking University**, Beijing, China
- Undergraduate Research Assistant, — May 2014 to Jun 2016
  Center for Information Sciences

AWARDS

- *Best Reviewer*, ICWSM: International AAAI Conference on Web and Social Media — 2021
- *Rising Star in Data Science* (*Spotlight*), University of Chicago — 2021
- *Conference Scholarship*, Network Science Society Conference — 2020
- *Distinguished Reviewer*, Europhysics Letters — 2019
- *Outstanding Reviewer*, Journal of Informetrics — 2018
- *Young Network Scientist Award*, Society of Young Network Scientists — 2017
- *Graduate Fellowship*, Northwestern University — 2016
- *1st Prize*, China Mathematical Olympiad — 2012

RESEARCH INTEREST

**Computational Social Science**, **Science of Science**, **Learning Curves**, **Complex Systems**

My research takes a multidisciplinary approach by integrating theoretical insights from *sociology and economics of innovation*, analytical tools from *data and network science*, and modeling techniques from *complex systems* to understand how novel ideas are discovered and leveraged by individuals and organizations. My current work examines various fundamental elements in innovation lifecycles, from dynamics of innovation failures to emergence of breakthrough technology, from global research funding landscape to public uses of science in policy, media, and marketplace applications.

## PUBLICATIONS

- SSRN top 10 download lists: **[1]**, **[2]** and **[8]**
- #1 paper on arXiv today: **[4]** (physics and society)
- Highlighted on journal homepage (hero proportion): **[1]** and **[2]**
- Altmetric top 100 annual list: **[2]** (#27 out of 3.4M publications in 2020)

¶ denotes equal contributions. Boldface denotes **representative works**.

## PEER-REVIEWED

[1] **Yian Yin**¶, Jian Gao¶, Benjamin F. Jones & Dashun Wang (2021)
**Coevolution of policy and science during the pandemic**
***Science***, **371**, 6525: 128–130. 10.1126/science.abe3084

[2] 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 (2020)
**Unequal effects of the COVID-19 pandemic on scientists**
***Nature Human Behaviour***, **4**, 9: 880–883. 10.1038/s41562-020-0921-y

[3] Jichao Li, **Yian Yin**, Santo Fortunato & Dashun Wang (2020)
Scientific elite revisited: Patterns of productivity, collaboration, authorship and impact
*Journal of the Royal Society Interface*, **17**, 165: 20200135. 10.1098/rsif.2020.0135

[4] **Yian Yin**, Yang Wang, James A. Evans & Dashun Wang (2019)
**Quantifying the dynamics of failure across science, startups and security**
***Nature***, **575**, 7781: 190–194. 10.1038/s41586-019-1725-y

[5] Jichao Li, **Yian Yin**, Santo Fortunato & Dashun Wang (2019)
**Nobel laureates are almost the same as us**
***Nature Reviews Physics***, **1**, 5: 301–303. 10.1038/s42254-019-0057-z

[6] Jichao Li, **Yian Yin**, Santo Fortunato & Dashun Wang (2019)
A dataset of publication records for Nobel laureates
*Scientific Data*, **6**, 1: 33. 10.1038/s41597-019-0033-6

[7] **Yian Yin** & Dashun Wang (2017)
The time dimension of science: Connecting the past to the future
*Journal of Informetrics*, **11**, 2: 608–621. 10.1016/j.joi.2017.04.002

## WORKING PAPERS

[8] **Yian Yin**, Yuxiao Dong, Kuansan Wang, Dashun Wang & Benjamin F. Jones
**Science as a public good: Public use and funding of science**
[Under revision] Current version: *NBER* Working Paper w28748

[9] Ryan R. Hill¶, **Yian Yin**¶, Carolyn Stein¶, Dashun Wang & Benjamin F. Jones
Adaptability and the pivot penalty in science

[10] Jian Gao, **Yian Yin**, Kyle R. Myers, Karim R. Lakhani & Dashun Wang
Potentially long-lasting effects of the pandemic on scientists

## SELECTED WORK IN PROGRESS

[11] **Yian Yin** & Dashun Wang
Universal limits of learning

[12] **Yian Yin** & Dashun Wang
Quantifying record-breaking dynamics in science and technology

[13] Suman K. Maity, **Yian Yin**, Zishan Gu & Dashun Wang
Grants and research outputs

[14] Alexander C. Furnas, Jian Gao, **Yian Yin** & Dashun Wang
The political mobilization of scientists in the United States

PATENTS

[15] Dashun Wang, **Yian Yin**, Yang Wang & James A. Evans (2021, published)
System and method to predict success based on analysis of failure
US Patent Application 17/061,112

GRANTS

[1] SICSS Seed Research Grant, **$2,000** — Principal Investigator
Structures and dynamics of package ecosystems — 2018/08

[2] Minerva Research Initiative, **$309,562** — Key Personnel
Quantifying the effects of COVID-19 pandemic on scientific workforce — 2020/05

[3] Social Science Research Council, **$8,200** — Organizer
4th Summer Institute in Computational Social Science Chicago — 2021/02

[4] Peter G. Peterson Foundation, **$150,000** — Key Personnel
Developing a quantitative framework to track and assess state-level policy responses to the COVID-19 pandemic — 2021/04

TALKS

1. International Conference on Computational Social Science ($IC^2S^2$)
Zürich, Switzerland (online) — 2021/07
2. Networks 2021: A Joint Sunbelt and NetSci Conference
Washington, DC (online) — 2021/07
3. Seminar, Stanford METRICS International Forum
Meta-research Innovation Center, Standford University (online) — 2021/04
4. **Invited speaker**, Webinar, Saving Curies Series — 2021/03
5. **Invited speaker**, Webinar, Swarma Club — 2021/01
6. **Spotlight speaker**, Rising Stars in Data Science Workshop
Center for Data and Computing, University of Chicago (online) — 2021/01
7. The 7th Satellite on Quantifying Success, NetSci 2020 — 2020/09
8. **Invited speaker**, Webinar ML Collective — 2020/09
9. International Conference on Computational Social Science ($IC^2S^2$)
Boston, MA (online) — 2020/07
10. Seminar, Northwestern Institute on Complex Systems — 2020/06
11. **Invited speaker**, Webinar, Aggregate Intellect (ai.science) — 2020/02
12. **Invited speaker**, Northwestern Data Science Night — 2020/02
13. **Invited speaker**, Michigan Institute for Data Science Symposium
University of Michigan, Ann Arbor, MI — 2019/11
14. Seminar, Northwestern Institute on Complex Systems — 2019/10
15. **Invited speaker**, Institute for Research on Innovation & Science Summit
University of Michigan, Ann Arbor, MI — 2019/09
16. **Invited speaker**, Great Lakes Data Science Workshop
University of Notre Dame, Notre Dame, IN — 2019/09
17. International Conference on Computational Social Science ($IC^2S^2$)
Amsterdam, Netherlands — 2019/07

18. NetSci 2019: International Workshop and Conference on Network Science
Burlington, VT 2019/05

19. **Invited speaker**, Seminar, Center for Neuroscience, Zhejiang University
Hangzhou, Zhejiang, China 2018/12

20. International Conference on Computational Social Science ($IC^2S^2$)
Evanston, IL 2018/07

21. Summer Institute in Computational Social Science (SICSS)
Chicago, IL 2018/06

22. Seminar, Northwestern IEMS-OM Collaborative Workshop 2018/04

23. Speaker, Northwestern Computational Research Day 2018/04

24. Seminar, Northwestern SIAM Bridging the Gap 2017/11

25. **Invited speaker**, AI & Public Policy Symposium
Tsinghua University, Beijing, China 2017/07

26. Speaker, Northwestern Current Research & Future Careers Symposium
**Highest scored contribution** 2017/08

27. **Invited participant**, Kaifeng Institute on Geometry and Statistical Learning
Swarma Club, Beijing, China 2017/07

28. Symposium for the Society of Young Network Scientists, NetSci 2017
Indianapolis, IN 2017/06

29. NetSci 2017: International Workshop and Conference on Network Science
Indianapolis, IN 2017/06

30. Seminar, Northwestern Institute on Complex Systems 2017/05

31. Lightning talk, Kellogg MORS Macro Brown Bag 2017/05

32. Speaker, Kellogg-Booth Student Symposium, Chicago, IL 2017/04

33. Speaker, Chicago Area SIAM Student Conference, Chicago, IL 2017/04

## TEACHING

**Summer Institute in Computational Social Science (SICSS)**, Chicago, IL *Instructor*

Lectures in Computational Social Science

- SICSS-Chicago 2021, 30 students from social and computational science.
- Tutorials in API data collection, web scraping and mass collaborations.
- Led group exercise sessions for hands-on programming practice.
- Held office hours to provide specific supervision on group projects.

**Northwestern University**, Evanston, IL *Teaching Assistant*

MBA course: Social Dynamics and Network Analytics (MORS 457)

- 5 quarters (2017-2020), MBA course at Kellogg School of Management.
- Developed tutorial sessions and assignments for network analysis with Gephi.
- Organized Genius Bar to help students with idea pitch and data collection.
- Held office hours to provide specific supervision on final projects.

EMBA core course: Statistical Decision Analysis (MECNX 434)

- Winter 2018, EMBA core course at Kellogg School of Management.
- Graded individual and group assignments.

Data Science and Programming Workshops
- Summer 2018, serial workshop by Northwestern Research Computing.
- In-class instructions with Python and Jupyter Notebooks.

## MENTORING

**Predoctoral fellow (undergraduate)**
- Zishan Gu (Software engineering, Sun Yat-sen University) 2020
- Zihang Lin (Computer science honor class, Fudan University) 2021-2022
- Zifeng Liu (Physics honors program, Xi'an Jiaotong University) 2021-2022

## ACADEMIC SERVICE

**Organizer**
- Summer Institute in Computational Social Science Chicago (SICSS) 2021

**Volunteer**
- International Conference on Computational Social Science ($IC^2S^2$) 2018

**Program Committee**
- International World Wide Web Conference (TheWebConf) 2021
- International AAAI Conference on Web and Social Media (ICWSM) 2021

**Referee**
- Scientific Reports 2017
- PLOS One [3 reviews] 2017-2021
- Europhysics Letters [2 reviews] 2018
- Physica A: Statistical Mechanics and its Applications [2 reviews] 2018
- Scientometrics 2021
- Journal of Informetrics [3 reviews] 2017-2019
- Journal of the Association for Information Science and Technology 2021
- IEEE Transactions on Network Science and Engineering 2018
- IEEE Transactions on Big Data 2020
- PeerJ Computer Science [2 reviews] 2019-2020
- Social Network Analysis and Mining [2 reviews] 2019-2020
- AI & Society: Knowledge, Culture and Communication 2020
- ACM Web Science Conference [2 reviews] 2020
- International Conference on Computational Social Science [3 reviews] 2020
- Annual Meeting of the Academy of Management [10 reviews] 2020-2021

## IN THE PRESS

**List of selected media coverage**

**[1] Coevolution of policy and science during the pandemic**
- *The Scientist*: WHO leads in using solid science to draft COVID-19 policy
- *EurekAlert*: Policymakers draw heavily from highly cited COVID-19 science
- *Kellogg Insight*: How well does COVID public policy align with science?
- *The Tyee*: Policymakers use new and highly-cited science
- *FROMTBOT:* Are our COVID-19 policies grounded in quality science?
- Other coverages include Science Policy News, ScienMag, Lab Manager.

**[2] Unequal effects of the COVID-19 pandemic on scientists**
- *Forbes*: COVID's surprising toll on careers of women scientists
- *Forbes*: COVID-19's effects on women in science intensify disparities
- *The Atlantic*: How science beat the virus
- *Times Higher Ed*: Pandemic lockdown holding back female academics, data show
- *Times Higher Ed*: Childcare the key limit on scientists' pandemic working hours
- *Inside Higher Ed*: University research: a time of disparate change

- *Inside Higher Ed*: Keeping COVID-19 from sidelining equity
- *Scientific American*: Women in science may suffer lasting career damage from COVID-19
- *Scientific American*: COVID has laid bare the inequities that face mothers in STEM
- *Science*: Pandemic hits scientist parents hard
- *AAAS*: Institutions must support minority researchers impacted by COVID-19
- *Wire*: COVID-19 changed scientists' research methods, will this change science itself?
- *Oxford Student*: Women are still disadvantaged in STEM and the pandemic is only making it worse
- *EurekAlert*: Pandemic disproportionately affects scientists with young children
- *Phys.org*: Pandemic disproportionately affects scientists with young children
- *Psychology Today*: The myth of COVID-19 as the "great equalizer"
- *ASBMB Today*: Early-career scientists need pandemic relief funds
- *Marketplace*: Moms are reducing work hours 4-5 times more than dads during pandemic
- *Kellogg Insight*: The pandemic has slashed scientists' productivity
- *Chemistry Views*: The pandemic does not affect all researchers equally
- *Chemistry World*: Underrepresented scientists hardest hit by pandemic
- Other coverages include Science Policy News, ThePaper.cn, Deccan Herald, Lab Manager, ScienMag.

**[3] Scientific elite revisited: Patterns of productivity, collaboration, authorship and impact**

- *Daily Mail*: The Nobel curse is REAL
- *The Times*: Scientists fall foul of Nobel curse
- *Phys.org*: Nobel prizewinners have different career patterns than peers
- *Chemistry World*: Nobel laureates see a dip in the influence of their work after winning prize

**[4] Quantifying the dynamics of failure across science, startups and security**

- *Inc.*: 5 ways to avoid startup failure by increasing your team's learning speed
- *Fast Company*: Science reveals the tipping point between success and failure
- *Global Advisors*: Why failing fast is critical if you want to eventually win
- *Washington Post*: The lasting lesson of this Super Bowl: failure is necessary
- *Forbes*: Don't fail fast – fail smart
- *MIT Technology Review*: How the data mining of failure could teach us the secrets of success
- *Harvard Business Review*: The tipping point between failure and success
- *Scientific American*: Failure found to be an "essential prerequisite" for success?
- *Medium*: Ignite success sooner: 2 ways to fail better
- *Science Daily*: Failure prognosis: Data science predicts which failures will ultimately succeed
- *Business Insider*: Researchers found a key reason certain people succeed while others fall behind, and it starts with learning from past mistakes
- *Communications of the ACM*: How the data mining of failure could teach us the secrets of success
- *Lancet*: Offline: It's time to prepare your anti-CV
- *Phys.org*: Failure prognosis: Data science predicts which failures will ultimately succeed
- *Kellogg Insight*: Why do some people succeed after failing while others continue to flounder?
- *News Adobe*: Researchers find diverging paths between failure and success after first setback
- *HostingTech VN*: Is it possible to use analytical data to fail and succeed?
- Other coverages include Science Policy News, Lab Manager, YCombinator Hacker News, China.org, Xinhua, News Ghana, Slate France, internetactu, ZAP, Sohu News.

**[5] Nobel laureates are almost the same as us**

- *Physics Today*: The Nobel Prize in physics: The papers
- *Kellogg Insight*: Nobel Prize winners – They're just like us!
- *Inside Science*: Getting ready for the 2019 Nobel Prizes