

# Yifan Qian

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## Short Bio

I am currently a Research Assistant Professor at the Center for Science of Science and Innovation (CSSI), Kellogg School of Management at Northwestern University, United States. My research is broadly concerned with the science of science and combines theories and methods from network science, machine learning, data science, and sociology. My work aims to measure and predict innovations in research institutions with large-scale data sets on scientific funding, publications, and their broad impacts on various facets of human society.

## Research Interests

Science of Science, Innovation, Network Science, Computational Social Science, Machine Learning

## Academic Positions

- Northwestern University** Evanston, IL, US  
*Research Assistant Professor, Kellogg School of Management*  
Nov. 2023 - Present  
Mentors: Prof. Dashun Wang & Prof. Benjamin F. Jones
- Northwestern University** Evanston, IL, US  
*Postdoc, Kellogg School of Management*  
Nov. 2021 - Oct. 2023  
Mentors: Prof. Dashun Wang & Prof. Benjamin F. Jones
- Imperial College London** London, UK  
*Visiting scholar, Department of Mathematics*  
Sep. 2017 - Aug. 2021  
Mentors: Prof. Mauricio Barahona & Dr. Paul Expert

## Education

- Queen Mary University of London (QMUL)** London, UK  
*PhD in Business and Management*  
Sep. 2017 - Nov. 2021  
Supervisors: Prof. Pietro Panzarasa & Prof. Mauricio Barahona  
Thesis title: Network science, Big data analytics, and Deep learning: An Interdisciplinary Approach to the Study of Citation, Social and Collaboration Networks  
Thesis examiners: Prof. Renaud Lambiotte & Dr. Guven Demirel
- Beihang University** Beijing, China  
*MSc. in Computer Science*  
Sep. 2014 - Mar. 2017  
Supervisor: Prof. Wenge Rong
- École Centrale de Nantes** Nantes, France  
*MSc. in Engineering*  
Sep. 2013 - Aug. 2015

## Journal Publications

1. Yifang Wang, **Yifan Qian**, Xiaoyu Qi, Nan Cao, and Dashun Wang. InnovationInsights: A Visual Analytics Approach for Understanding the Dual Frontiers between Science and Technology. *IEEE Transactions on Visualization and Computer Graphics* (2023).10.1109/TVCG.2023.3327387
2. **Yifan Qian**, Paul Expert, Pietro Panzarasa, and Mauricio Barahona. Geometric Graphs from Data to Aid Classification Tasks with Graph Convolutional Networks. *Patterns* 2, no. 4 (2021): 100237. 10.1016/j.patter.2021.100237
3. **Yifan Qian**, Paul Expert, Tom Rieu, Pietro Panzarasa, and Mauricio Barahona. Quantifying the Alignment of Graph and Features in Deep Learning. *IEEE Transactions on Neural Networks and Learning Systems* 33, no. 4 (2021): 1663-1672. 10.1109/TNNLS.2020.3043196
4. **Yifan Qian**, Wenge Rong Nan Jiang, Jie Tang, and Zhang Xiong. Citation Regression Analysis of Computer Science Publications in Different Ranking Categories and Subfields. *Scientometrics* 110, no. 3 (2017): 1351-1374. 10.1007/s11192-016-2235-4

## Selected Working Papers

1. Untapped potential and gender gap in US faculty patenting. With Jian Gao, Binglu Wang, Zihang Lin, Benjamin F. Jones, Dashun Wang. (2024) Covered by *Nature*.
2. Research topic diversity and convergence among US research universities. With Jian Gao, Yian Yin, Benjamin F. Jones, Peter Schiffer, Dashun Wang. (2024)
3. Funding the Frontier: Visualizing the Broad Impact of Science and Science Funding. With Yifang Wang, Xiaoyu Qi, Yian Yin, Benjamin F. Jones, Nan Cao, Dashun Wang. (2024)
4. Tenure and Research Trajectories: Evidence from 362 U.S. Academic Institutions. With Giorgio Tripodi, Xiang Zheng, Dakota Murray, Chaoqun Ni, Benjamin F. Jones, Dashun Wang. (2024)

## Patents

1. Dashun Wang, Benjamin F. Jones, **Yifan Qian**. Systems and Methods to Identify Commercialization and Partnership Potential for Research Institutions. WO2024097988A1, WIPO (PCT). (2024)

## Grants

1. Senior Personnel. “Measuring, Understanding, Predicting, and Accelerating Technology Outcomes”, NSF TIP APTO, PI: Dashun Wang, **\$20,000,000**, (2024-2029) (Senior Personnel)
2. Key Personnel. “Breakthroughs in science: The role of funding approaches and investment balance across Stokes’ quadrants ”, Wellcome LEAP, PI: Dashun Wang, **\$360,000**, (2023-2024) (Proposal lead writer)

3. Key Personnel. “Understand early-career signals for exceptional people”, Schmidt Futures, PI: Dashun Wang, **\$350,000**, (2023-2024) (Proposal lead writer)
4. Key Personnel. “Northwestern Innovation Index – Phase II”, Future Wanxiang Foundation, PI: Dashun Wang, **\$300,000**, (2022-2023) (Proposal lead writer)
5. PI. “Scientists in computational social science: Demographics and interactions”, Summer Institutes in Computational Social Science, **\$4,000**, (2021)

### Selected Presentations

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|---|---------|
| 1. ICSSI 2024. (Talk, National Academy of Sciences, Washington DC, US)                | 2024/07 |
| 2. ICSSI 2023. (Poster, Northwestern University, US)                                  | 2023/06 |
| 3. NetSci 2022. (Talk, Shanghai, China)   | 2022/07 |
| 4. ICSSI 2022. (Poster, National Academy of Sciences, Washington DC, US)              | 2022/06 |
| 5. IC2S2 2021. (Talk, ETH Zurich, Switzerland)  | 2021/07 |
| 6. NetSci 2021. (Talk, Indiana University Network Science Institute, US)              | 2021/07 |
| 7. NetSci 2020. (Talk&Poster, Rome, Italy)  | 2020/09 |
| 8. IC2S2 2020. (Poster, MIT, US)  | 2020/07 |
| 9. SBM PhD Symposium. (Talk, QMUL, UK)  | 2019/10 |
| 10. IC2S2 2019. (Talk&Poster, University of Amsterdam, The Netherlands)               | 2019/07 |
| 11. Data Natives 2019. (Talk, City, University of London, UK)                         | 2019/03 |
| 12. 2nd UK Network Science Workshop. (Talk, University of Greenwich, UK)              | 2018/10 |
| 13. SBM PhD Symposium. (Talk, QMUL, UK)   | 2018/10 |
| 14. IC2S2 2018. (Poster, Northwestern University, US)                                 | 2018/07 |
| 15. NetSci 2018 Satellite: Machine Learning in Network Science. (Talk, Paris, France) | 2018/06 |
| 16. NetSci 2018. (Poster, Paris, France)  | 2018/06 |

NetSci: International School and Conference on Network Science.

IC2S2: International Conference on Computational Social Science.

ICSSI: International Conference on the Science of Science and Innovation.

### Selected Awards

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|--|------|
| • IEEE VIS 2023, Best Paper Honorable Mentions Award         | 2023 |
| • Beihang University Outstanding Graduate Dissertation Award | 2017 |
| • Beihang University Outstanding Graduate                    | 2017 |

- First-class Graduate Scholarship from Beihang University 2014–2015
- Scholarship from École Centrale de Nantes 2014

## Teaching

**Northwestern University**, Evanston, US *Teaching Associate*

- Winning with Networks (MORS-457-0) 2024
- Social Dynamics & Networks (MORSX-945-0) 2022

**Queen Mary University of London**, London, UK *Teaching Associate*

- Innovation and Entrepreneurship (Undergraduate, BUS300) 2021
- Quantitative Analysis for Business (Undergraduate, BUS135) 2021
- Social Network Analysis (Undergraduate, BUS346) 2019, 2020

## Academic Service

### Reviewer:

- *General Audience*: Proceedings of the National Academy of Sciences (PNAS), Scientific Reports
- *Physics and Mathematics*: Advances in Complex Systems; Applied Network Science; European Physical Journal B
- *Social Sciences*: Quarterly Journal of Economics

### Membership:

- The International Society for Computational Social Science
- Society of Young Network Scientists
- The Network Science Society

## Computer Skills

- Python, Matlab, R, Latex, Bash/shell scripting, HTML, SQL.
- *Operating systems*: MacOS, Linux, Windows.

## Languages

English (Proficient), French (Professional), Chinese (Native)