

# Junjun Yin, Ph.D

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## Contact Information

*Assistant Professor*  
Department of Data Science  
Columbian College of Arts & Sciences  
George Washington University

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## Previous Positions

*Assistant Research Professor*  
Social Science Research Institute  
The Pennsylvania State University

*ICDS Associate*  
Institute for Computational and  
Data Sciences (ICDS)

*Postdoctoral Research Fellow*  
CyberGIS Center for Advanced Digital and Spatial Studies  
Department of Geography and Geographic Information Science  
National Center for Supercomputing Applications (NCSA)  
University of Illinois at Urbana-Champaign, IL, USA

## Research Interests

GIScience; Geospatial Data Science; Geographic Big Data; Human-Urban Interactions; Human Mobility; Urban Informatics; (Geo)Visual-Analytics; Spatial Data Mining and Deep Learning (GeoAI); Spatial/Graph Neural Networks; High-performance (cyberGIS), Web, and Mobile GIS

## Education

- 2009 - 2013 *Ph.D* in Spatial Information Science, Dublin Institute of Technology, Ireland  
Science Foundation Ireland Scholarship  
*Advisors: Dr. James D. Carswell (Dublin Institute of Technology), Dr. Michela Bertolotto (University College Dublin)*
- 2006 - 2009 *MSc* in Geoinformatics, University of Gävle, Sweden  
*Advisor: Dr. Bin Jiang (University of Gävle)*
- 2002 - 2006 *BSc* in Electronics Engineering, University of Electronic Science and Technology of China

## Academic Experience

2017-	Social Science Big Data Research Scientist, Pennsylvania State University, USA
2016	Lecturer, Department of Geography and Geographic Information Science; University of Illinois at Urbana-Champaign, USA
2014-2016	Postdoctoral Research Associate, CyberGIS Center for Advanced Digital and Spatial Studies; National Center for Supercomputing Applications; University of Illinois at Urbana-Champaign, USA
2013-2014	Assistant Lecturer, Dublin Institute of Technology, Ireland
2007-2008	Research Assistant, Hong Kong Polytechnic University, Hong Kong SAR, China

## Research Grants and Projects

**PI.** “Deep learning for Fine-grained Population Estimation in the Arctic Region”. Nvidia Academic Hardware Grant Program. Project dates: 06/01/2023–05/30-2024

**Co-PI.** “RAPID: Using Mobile Phone Data to Understand the Impacts of the COVID-19 Pandemic on Food Assistance Use in Alaska”. NSF (National Science Foundation) SOC grant, \$200,000. Project dates: 02/01/2022–01/31-2025

**PI.** “A Deep Learning-enabled Dasymetric Mapping Approach for Fine-Scale Population Estimation in Alaska”. ICDS computational and Data Sciences seed grant award, \$35,000 Project dates: 05/01/2020–03/30-2022

**PI.** “Mobility Patterns and Their Influence on Food Security in Alaskan Communities: Using Digital Trace Data for Social and Behavioral Research during the COVID-19 Pandemic”. SSRI COVID-19 Pandemic Emergency Research Funding, \$30,000 Project dates: 04/01/2020–03/30-2022

**PI.** “Identifying Discrimination During COVID-19 Pandemic on Twitter”, ICDS (Institute for Computational and Data Sciences) COVID-19 explore grant, \$5,840. Project dates: 07/01/2020–06/30-2022

**Co-PI.** “Are we more willing to speak up through mobile phones? A comparison of desktop vs. mobile political sharing on Facebook”. SSRC (Social Science Research Council) grant, \$49,017. Project dates: 02/01/2020–01/31-2021

**Senior Personnel.** “Pursuing Opportunities for Long-term Arctic Resilience for Infrastructure and Society”. NSF (National Science Foundation) NNA grant, \$3,000,000. Project dates: 01/01/2020–12/31-2022

**Co-PI.** “RR: The Generalizability and Replicability of Twitter Data for Population Research”. NSF (National Science Foundation) SOC grant, \$500,000. Project dates: 07/15/2018–06/30-2021

**Co-PI.** “Understanding National Park Visitors’ Spatial Behavior with Twitter Data”. Penn State Seed Grant (SSRI, ICS, and IST), \$20,000. Project dates: 03/01/2019–02/28-2021

**PI.** “Data Science: Mining sequential mobility patterns from semantic Twitter user trajectories”. Microsoft Azure Data Science Research Award, \$10,000. Project dates: 05/01/2018–04/30/2019

**Co-PI.** “An Innovative Approach to Tackle the Opioid Epidemic: Utilizing Twitter Data and Integrating Big Data Analytics and Spatial and Social Network Analyses”. Social Science Research Institute Level 2 Research Award, \$20,000. Project dates: 09/01/2018–08/30-

2020

**Co-I.** “Cognitive Changes Associated with Hormonal Treatment for Breast Cancer”. Health & Environment initiative seed grant award, \$49,972. Project dates: 07/01/2017–06/30-2019

**Co-PI.** “The Generalizability and Replicability of Twitter Data for Population Research”. ICS seed grant award, \$35,000. Project dates: 07/01/2018–06/30-2019

**Co-PI.** “Ecological Migration in a Large-Scale Quasi-Experiment Design in China: Implications of Climate Change, Landscape Structure, Ecosystem Services and Government Intervention”. IEEE seed grant award, \$25,000. Project dates: 04/15/2017–06/30-2018

**PI.** “Mining Twitter User Demographics as a First-Step in Big Data for Population Research”. XSEDE (Extreme Science and Engineering Discovery Environment) Startup computational resource allocation award, 50,000 SUs & 40 TB storage (estimated \$2,794.78). Project dates: 03/27/2017–03/26-2019

**PI.** “A cloud computing enabled GIS platform for the integration and synthesis of multi-layer geospatial data sources in urban studies: Understanding urban dynamics from geospatial Big Data”. Microsoft Azure Data Science Research Award, \$20,000. Project dates: 12/04/2016–12/03/2017

**SP/Research Scientist.** “Activity space contexts and measuring environmental exposure in behavioral research”. R21 NCI grant (ASCMEE Study).

## Publications

ONLINE: [Google Scholar](#)

### SUBMITTED AND IN PREPARATION

- 2024 **Yin, J.** Unlocking the Secrets of Scenic Beauty: An artificial intelligence approach to understanding public perceptions of environmental aesthetics. (*submitted to Journal of the Royal Society Interface, in revision*)
- 2024 **Yin, J.**, Brooks, M., Wang, D. and Chi, G., Characterizing Climate-Change Sentiment in Alaska with Twitter Data. (*submitted to Digital Geography and Society, in revision*)
- 2024 Chi, G., **Yin, J.**, Van Hook, J., Plutzer, E. and Xu, H., The Mis-representativeness of Twitter Data. (*submitted to Demography, in review*)
- 2024 Chi, G., Morris, L., **Yin, J.** and Sundar, S.S., County Partisanship Affects Engagement with X (Twitter) Over the Course of a Global Pandemic. (*submitted to Journal of Health Politics, Policy and Law, in review*)

### PEER REVIEWED JOURNALS

- 2024 Sundar, S.S., Snyder, E., Liao, M., **Yin, J.**, Wang, J., and Chi, G., Sharing without clicking: The concerning phenomenon of mindless news forwarding on social media. *Nature Human Behaviour*. (DOI:10.1038/s41562-024-02067-4)
- 2024 Chi, G., Zhou, S., Mucioki, M., Miller, J., Korkut, E., Howe, L., **Yin, J.** et al. “Climate impacts on migration in the Arctic North America: existing evidence and research recommendations.” *Regional Environmental Change*, 24(2): 47

- 2023 **Yin, J.** and Chi, G. (2023), A Tale of Three Cities: Uncovering human-urban interactions with geographic-context aware social media data. *Urban Informatics*, 1(1), 20 (DOI:10.1007/s44212-022-00020-2)
- 2023 Yu, M., Zhang, S., Zhang, K., **Yin, J.**, Varela, M. and Miao, J. (2023), Developing high-resolution PM2.5 exposure models by integrating low-cost sensors, automated machine learning, and big human mobility data. *Frontiers in Environmental Science* (DOI:10.3389/fenvs.2023.1223160)
- 2023 Liang, Y., **Yin, J.**, Park, S., Pan, B., Chi, G., and Miller, Z. (2023), Using social media user profiles to identify visitor demographics and origins in Yellowstone national park. *Journal of Outdoor Recreation and Tourism* (DOI:10.1016/j.jort.2023.100620)
- 2022 **Yin, J.**, Gao, Y. and Chi, G. (2022), An evaluation of geo-located Twitter data for measuring human migration. *International Journal of Geographical Information Science*, 36(9), pp. 1830-1852, DOI: 10.1080/13658816.2022.2075878
- 2022 Li, C., Zhao, J., **Yin, J.** and Chi, G. (2022), Park access affects physical activity: new evidence from geolocated Twitter data analysis. *Journal of Urban Design* (DOI: 10.1080/13574809.2022.2118698)
- 2022 Alba, C., Pan, B., **Yin, J.**, Rice, W., Lin, M., Liang, Y. and Mitra, P. (2022), COVID-19's impact on visitation behavior to US national parks from communities of color - evidence from mobile phone data. *Scientific reports*, 12:13398, DOI: 10.1038/s41598-022-16330-z
- 2022 Liang, Y., **Yin, J.**, Pan, B., Lin, M., Millerm, L., Taff, D., Chi, G. (2022), Assessing the Validity of Mobile Device Data for Estimating Visitor Demographics and Visitation Patterns in Yellowstone National Park. *Journal of Environmental Management*, 317(115410), DOI:10.1016/j.jenvman.2022.115410
- 2022 Chi, G., **Yin, J.**, Morris, L., and Bodovski, Y., Global Tweet Mentions of COVID-19 (2022). *Health Data Science*
- 2021 **Yin, J.** and Chi, G., Characterizing People's Daily Activity Patterns in the Urban Environment: A mobility network approach with geographic context-aware Twitter data. *Annals of the Association of American Geographers*, 111(7), pp.1967-1987
- 2020 Abdar, M., Basiri, M.E., **Yin, J.**, Asadi, S. and Chi, G. (2020), Energy Choices in Alaska: Mining People's Perception and Attitudes from Geotagged Tweets. *Renewable & Sustainable Energy Reviews*, 124, p.109781
- 2019 Pu, Y., Zhao, X., Chi, G., Zhao, S., Wang, J., Jin, Z. and **Yin, J.** (2019). Design and implementation of a parallel geographically weighted k-nearest neighbor classifier. *Computers & Geosciences*, 127, pp. 111-122
- 2018 Gao, Y., Wang, S. Padmanabhan, A., **Yin, J.** and Cao, G. (2018). Mapping Spatiotemporal Patterns of Events Using Social Media: A Case Study of Influenza Trends. *International Journal of Geographical Information Science*, 32(3), pp. 425-449
- 2017 **Yin, J.**, Soliman, A., Yin, D. and Wang, S. (2017). Delineate Urban Boundaries in Great Britain from the Network of Large Scale Twitter User Spatial Interactions. *International Journal of Geographical Information Science*, 31(7), pp. 1293-1313
- 2017 Soliman, A., Soltani, Q., **Yin, J.**, Padmanabhan, A., and Wang, S (2017). Social sensing of urban land use based on analysis of Twitter users' mobility patterns. *PLoS ONE*, 12(7): e0181657. DOI:10.1371/journal.pone.0181657
- 2017 Zheng, K., Kwan, M.P., Fang, L., **Yin, J.**, Gu, D. and Fu, Y. (2017). A Topology-concerned Spatial Vector Data Model for Column-oriented Databases. *International Journal of Database*

*Theory and Application*, 10(5), pp. 33-46

- 2016 **Yin, J.**, Gao, Y., Du, Z. and Wang, S. (2016). Exploring Multi-Scale Spatiotemporal Twitter User Mobility Patterns with a Visual-Analytics Approach. *ISPRS International Journal of Geo-Information*, 5(10):187.
- 2016 Jiang, B., Ma, D., **Yin, J.** and Sandberg, M. (2016). Spatial Distribution of Tweet Numbers and Densities in Cities. *Geographical Analysis*, 48(3), pp. 337-351
- 2015 Jiang, B., **Yin, J.** and Liu, Q. (2015). Zipf's Law for All the Natural Cities around the World. *International Journal of Geographical Information Science*, 29(3), pp. 498-522
- 2014 Jiang, B. and **Yin, J.** (2014). Ht-Index to Quantify the Fractal or Scaling Structure of Geographic Features. *Annals of the Association of American Geographers*, 104(3), pp. 530-540
- 2013 **Yin, J.** and Carswell, J.D. (2013). Spatial Search Techniques for Mobile 3D Queries in Sensor Web Environments. *ISPRS International Journal of Geo-Information*, 2(1): pp.135-154
- 2010 Carswell, J. D., **Yin, J.** and Gardiner, K. (2010). 3DQ: Threat Dome Visibility Querying on Mobile Devices *GIM International*, 24(8)
- 2010 Carswell, J.D., Gardiner, K. and **Yin, J.** (2010). Mobile Visibility Querying for LBS. *Transactions in GIS*, 14(6): pp. 791-809, Wiley online library
- 2009 Jiang, B., **Yin, J.** and Zhao, S. (2009). Characterizing the human mobility pattern in a large street network. *Physical Review E*, 80(2), 021136
- 2008 Jiang, B., Zhao, S. and **Yin, J.** (2008). Self-organized natural roads for predicting traffic flow: a sensitivity study. *Journal of statistical mechanics: Theory and experiment*, P07008, IOP Publishing

#### PEER REVIEWED CONFERENCES AND LECTURE NOTES

- 2023 **Yin, J.** and Chi, G. (2023). Fine-grained Population Estimates: Infusing Deep Learning into Dasymetric Mapping of Buildings. *2023 North American Meetings of the Regional Science Association International*, San Diego, CA, November 15 -18, 2023
- 2022 Miller, J., **Yin, J.** and Chi, G. (2022). Does Environmental Perception Matter? Using Twitter Data to Explore the Mediating Effects of Environmental Risk Perception on Out-Migration From Coastal Alaska. *Population Association of America (PAA) Annual Meeting*, April 6-9, 2022 (full paper, oral presentation)
- 2022 Pan, B., Savanapelli, V., Shukla, A., **Yin, J.\*** (2022). Monitoring Human-Wildlife Interactions in National Parks with Crowdsourced Data and Deep Learning. *Proceedings of the ENTER 2022 eTourism Conference*, January 11-14, 2022 (\*corresponding author, \*Best paper award)
- 2021 Liang, Y., **Yin, J.**, Lin, M., Pan, B., Chi, G. (2021). Assessing the validity of SafeGraph data for visitor monitoring in Yellowstone National Park. *Travel and Tourism Research Association: Advancing Tourism Research Globally*, June 14-16, 2021, Fort Worth, Texas, USA
- 2021 **Yin, J.**, Brooks, M., Wang, D. and Chi, G. (2021). Characterizing Climate-Change Sentiment in Alaska with Twitter Data. *Population Association of America (PAA) Annual Meeting*, May 5-8, 2021 (full paper, oral presentation)
- 2021 **Yin, J.**, Gao, Y., Chi, G. and Van Hook, J. (2021). An Evaluation of Geo-located Twitter Data for Measuring Human Migration. *Population Association of America (PAA) Annual Meeting*, May 5-8, 2021 (full paper, oral presentation)
- 2020 Liang, Y., **Yin, J.**, Pan, B., Chi, G., Andris, C., Miller, Z., Jorgenson, J. and Nickerson, N.

- (2020). Understanding Demographics and Experience of Tourists in Yellowstone National Park through Social Media. *Travel and Tourism Research Association: Advancing Tourism Research Globally*. 54
- 2019 **Yin, J.**, and Chi, G. (2019). Understanding Spatiotemporal Urban Activity Patterns with Geo-located Twitter Data: A GIS-based Synthesis Approach. *66th Annual North American Meetings of the Regional Science Association International (NARSC)*, November 13-16, 2019, Pittsburg, Pennsylvania
- 2019 **Yin, J.**, and Chi, G. (2019). An Evaluation of Geo-located Twitter Data as Indicators for Human Migration. *IUSSP Research Workshop on Digital Demography in the Era of Big Data*, June 6-7, 2019, Seville, Spain
- 2019 Chi, G., **Yin, J.**, Van Hook, J., Plutzer, E. and Heng, X. (2019). The Generalizability of Twitter Data for Population Research. *Population Association of America (PAA) Annual Meeting*, April 22-25, Washington, DC, USA
- 2018 **Yin, J.**, Chi, G. and Van Hook, J. (2018). Evaluating the Representativeness in the Geographic Distribution of Twitter User Population. *The 12th Workshop on Geographic Information Retrieval in ACM SIGSPATIAL 2018*, November 6-9, 2018, Seattle, Washington, USA
- 2018 Jeong, M., **Yin, J.**, and Wang, S. (2018). Outliers Detection and Comparison of Origin-Destination Flows with Data Depth. *The 10th International Conference on Geographic Information Science (GIScience 2018)*, August 28-31, 2018, Melbourne, Australia
- 2017 **Yin, J.** (2017). Mining sequential mobility pattern from semantics enriched Twitter user trajectories. *NSF Mobility Workshop on Analyzing Movement and Mobility within Geographic Context*, May 11-12, 2017, The Ohio State University, Columbus, Ohio
- 2017 Chi, G., **Yin, J.** and Hook, J.V. (2017). Predicting Twitter User Demographics as a First Step in Big Data for Population Research. *The 28th International Population Conference of the International Union for the Scientific Study of Population*, October 29-November 4, 2017, Cape Town, South Africa
- 2016 **Yin, J.**, Lu, B., Yin, D. and Wang, S. (2016). A scalable visual-analytics approach for studying mobility networks: Revealing hierarchical structures in taxi mobility flows of New York, *The Third International Conference on CyberGIS and Geospatial Data Science*, July 26-28, 2016, Urbana, Illinois
- 2016 **Yin, J.**, Gao, Y. and Wang, S. (2016). Urban Sensing from Volunteered Citizen Participation using Mobile Devices. In *Seeing Cities through Big Data: Research, Methods and Applications in Urban Informatics*, Springer
- 2015 Soliman, A., **Yin, J.**, Soltani, K., Padmanabhan, A., and Wang, S. (2015). Where Chicagoans tweet the most: Semantic analysis of preferential return locations of Twitter users, *1st International Workshop on Smart Cities and Urban Analytics 2015, 23rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*
- 2014 **Yin, J.** and Wang, S. (2014). Understanding the Evolvments of Natural Cities from Night-time Light Images: A CyberGIS-Enhanced Approach to Large Scale Geospatial Data Analysis, *The Second International Conference on CyberGIS and Geodesign*, August 19-21, 2014, Redlands, California
- 2014 **Yin, J.**, Gao, Y. and Wang, S. (2014). CyberGIS Enabled Urban Sensing from Volunteered Citizen Participation using Mobile Devices. *NSF Workshop on Big Data and Urban Informatics 2014*
- 2013 Truong-Hong, L., Thi, T.T.P, **Yin, J.** and Carswell, J.D. (2013). Detailed 3D building models

for Google Earth integration. In *Proceedings of the 13th International Conference on Computational Science and Its Applications (ICCSA 2013)*, Ho Chi Minh City, Vietnam: Springer (\***Best paper award**)

- 2013 Thi, T.T.P., Truong-Hong, L., **Yin, J.** and Carswell, J.D. (2013). Exploring Spatial Business Data: A ROA-based eCampus application. In *Proceedings of the 11th International Conference on Web and Wireless Geographical Information Systems*, Banff, AB: Springer Berlin Heidelberg, pp. 164-179
- 2012 **Yin, J.** and Carswell, J.D. (2012). Effects of Variations in 3D Spatial Search Techniques on Mobile Query Speed vs Accuracy. *Web and Wireless Geographical Information Systems*, Naples, Italy. (\***Best paper award**)
- 2012 Carswell, J.D. and **Yin, J.** (2012). Mobile Spatial Interaction in the Future Internet of Things. In *Proceedings of the 20th International Conference on Geoinformatics (GEOINFORMATICS)*, 2012, pp. 1-6
- 2012 **Yin, J.** and Carswell, J.D. (2012). MobiSpatial: Open-source for Mobile Spatial Interaction. *Proceedings of the 27th Annual ACM Symposium on Applied Computing*, pp. 572-573
- 2012 **Yin, J.** and Carswell, J.D. (2011). Touch2Query enabled mobile devices: A case study using OpenStreetMap and iPhone. *Web and Wireless Geographical Information Systems*, pp. 203-218, Springer
- 2009 Gardiner, K., **Yin, J.** and Carswell, J.D. (2009). EgoViz: A mobile-based spatial interaction system. *Web and Wireless Geographical Information Systems*, pp. 135-152, Springer

#### BOOKS

- 2009 **Yin, J.** (2009), *The Topological Patterns of Urban Street Networks: Exploring the topological patterns of urban street networks from analytical and visual perspectives*, VDM: Germany, ISBN: 3639161734

#### DATA

- 2020 **Yin, J.**. Estimation of Twitter user demographics in the USA, 2014. *Harvard Dataverse*, doi:10.7910/DVN/PKKAPK

#### INVITED TALKS

- 2024 Yin, J. (2024). Modeling Geo-Complexity in Human-Urban Interactions: Computational Geography meets Geographic Big Data. June 2024, Department of Geography, the University of Manchester, United Kingdom
- 2024 Yin, J. (2024). A New Era of Urban Informatics: Multi-Layered Data Synthesis Approaches and Frameworks. June 2024, Department of Geography and Environmental Science, the University of Southampton, United Kingdom
- 2023 Yin, J. (2023). Geographic Data Science: Spatial Data mining and machine learning with mobility Big Data. April, 2023, Department of Geography, the University of Liverpool, United Kingdom
- 2022 Yin, J. (2022). A computational geography approach to understanding human-urban environment interactions. July 2022, Department of Land Surveying and Geo-Informatics

(LSGI), the Hong Kong Polytechnic University, Hong Kong SAR, China

- 2021 Yin, J. (2021). Human-Urban Interactions: A computational geography approach. October 2021, Department of Geography, Pennsylvania State University, University Park, PA, USA
- 2020 Yin, J. (2020). Uncovering universal human activity patterns with geospatial big data: complexity, unity, and regularity. March 2020, Auburn University, Auburn, AL, USA
- 2020 Yin, J. (2020). Computational Social Sciences: spatial interactions and geo-complexity. February 2020, University of Arkansas, Fayetteville, AR, USA
- 2019 Yin, J. (2019). Spatial Networks: A computational geography approach to new insights into spatial interactions and geo-complexity. January 2019, University of Florida, Gainesville, FL, USA
- 2018 Yin, J. (2018). Computational Geography for Capturing Geo-Complexity in Urban Studies. June 2018, Newcastle University, Newcastle upon Tyne, UK
- 2018 Yin, J. (2018). Advanced Methods and Techniques for Big GeoData. June, 2018, ITC, University of Twente, Enschede, the Netherlands
- 2018 Yin, J. (2018). Geo-Complexity and Human mobility: Through the lens of spatial Big Data to understand urban dynamics. February, 2018, University of Denver, Denver, USA
- 2018 Yin, J. (2018). High-performance Computing with Hadoop. Software in the Humanities and Social Sciences Workshop. February, 2018, Penn State, University Park, USA

#### PRESENTATIONS

- 2018 Yin, J. (2018). Spatial Interaction Patterns of Preferential Return Behaviors in People's Daily Life. The Association of American Geographers Annual Meeting, April 10-14, 2018, New Orleans, Louisiana, USA
- 2017 Yin, J. (2017). A mobility network approach to modeling urban spatial interactions: Insights from the movement Big Data in New York City. The Association of American Geographers Annual Meeting, April 5-9, 2016, Boston, Massachusetts, USA
- 2016 Yin, J. and Wang, S. (2016). Mining Mobility Patterns From Semantic Twitter User Trajectories. The Association of American Geographers Annual Meeting, March 29-April 2, 2016, San Francisco, California, USA
- 2015 Yin, J. and Wang, S. (2015). Finding community structures of UK cities based on large-scale Twitter user mobility patterns, *Association of American Geographers Annual Meeting, Chicago, 2015*, April 21-25, 2015, Chicago, Illinois, USA
- 2011 Yin, J. (2011). Web-service based Mobile Geospatial Application Development using Python, *PyCon 2011*, Dublin, Oct 8-9

#### Teaching/Instructing

- 2024 Stochastic Modeling and Computation (SMAC series): Geographic Data Science, *Guest lecturer*, Penn State
- 2023 SoDA501 : Social Data Analytics, Spring, *Guest lecturer*, Penn State
- 2022 Quantitative Developmental Systems Methodology (QuantDev Series): Machine learning/Deep learning for text analysis in social science applications, *Guest lecturer*, Penn State
- 2021- Spatial Networks, *lecturer*, Penn State
- 2017- Computational Social Sciences: data, methods, and applications, *lecturer*, Penn State



2016	GEOG 479: Advanced Topics in GIS – CyberGIS, Spring, 2016, <i>Lecturer</i> , Department of Geography and Geographic Information Science, UIUC
2015	Parallel Databases, <i>workshop/short course series</i> , CyberGIS Center, UIUC
2015	Interactive Visualization of Large-scale Movement Data using Apache Spark, <i>Summer school series</i> , CyberGIS Center, UIUC
2015	Introducing the CyberGIS Toolkit in high performance computing environment, <i>workshop/short course series</i> , CyberGIS Center, UIUC
2015	Taming with geospatial Big Data with Hadoop, <i>workshop/short course series</i> , CyberGIS Center, UIUC
2014	Getting to know CyberGIS, <i>workshop/short course series</i> , CyberGIS Center, UIUC
2014 - 2016	Education and outreach at the CyberGIS Commons, <i>Lead</i> , University of Illinois at Urbana-Champaign, 2014 - 2016
2013	Programming in C, <i>assistant lecturer</i> , Dublin Institute of Technology, 2013 - 2014
2013	Object oriented programming for game development, <i>senior demonstrator/assistant lecturer</i> , Dublin Institute of Technology, 2013 - 2014
2013	User interface design and GUI programming with Java, <i>senior demonstrator/assistant lecturer</i> , Dublin Institute of Technology, 2013 - 2014

## Mentorship

2023	Project: Mobility Big Data for studying return migrations amid natural disasters and environmental change. Ph.D student: Yining Feng
2023	Drawdown (Climate Change) Scholar mentor. Project: Geospatial Analysis of Socioeconomic Factors Impacting Electric Vehicle Charging Station Accessibility. Student: Fazil Farhan Iqbal
2022	Project: Exploring national park visitor dynamics with Location Based Social Media and Mobile Location Data. Ph.D student: Yun Liang (Currently Teaching Assistant Professor at Kansas State University)
2021	Capstone program mentor. Project: Assessing the impact of the COVID-19 pandemic on national park visitor patterns with model-driven approaches and mobility Big Data. Undergraduate student: Charles Alba (Currently Ph.D student at the Washington University in St Louis)

## Skills

**Programming languages:** Python, R, Java, Objective-C, Matlab, JavaScript, NoSQL

**Neural nets:** ResNet, U-net, Convolutional Neural Networks, Graph Neural Networks

**High performance computing (HPC):** Hadoop, Spark, MongoDB

**Mobile and web geo-visualization:** iOS and Android, Cesium 3D Globe, D3.js

**Spatial databases:** PostGIS, Oracle Spatial, SpatiaLite, ArcGIS

## Honors and Awards

2013	<i>Fiosraigh Head of School Research Award</i> : for excellence in research, Dublin Institute of Technology
2013	<i>EU Future Internet Award</i> : for excellence in Future Internet research
2009	<i>PhD scholarship from Science Foundation Ireland (SFI)</i> : StratAG PhD scholarship
2006	<i>Outstanding Graduate Student Award</i> : University of Electronic Science and Technology of China
2006	<i>Best Undergraduate Dissertation Award</i> : Department of Electronic Engineering, University of Electronic Science and Technology of China
2005	<i>National Undergraduate Electronic Design Contest: Second prize</i> : Embedded system for Multi-channel and frequency wave generating, (Team: Junjun Yin, Yu Chen, and Xia Yu)

## Service to the Profession

### EDITORIAL BOARD

- **Editorial board member** Journal of Geography and Cartography
- **Topic editor** Geosciences
- **Guest editor** Special Issue of “Spatial Demography”: Big Spatial Data in Demography (2023)
- **Guest editor** Special Issue of “Chinese Sociological Dialogue”: Spatiotemporal Big Data and Sustainable Social Development (2017)

### PROGRAM COMMITTEES AND ORGANIZERS

- **PC** member for W2GIS 2020: 18th International Symposium on Web and Wireless Geographical Information Systems, Wuhan, China, May 14-15, 2020
- **Chair** for Innovations in Spatial Data Analysis and Modeling, 66th Annual North American Meetings of the Regional Science Association International (NARSC), Pittsburgh, Pennsylvania, November 13-16, 2019
- **PC** member for W2GIS 2019: 17th International Symposium on Web and Wireless Geographical Information Systems, Kyoto, Japan, May 16-17, 2019
- **PC** member for International Conference on Location-based Social Media Data, March 5-7, 2015, Athens, Georgia, USA
- **Co-chair** for Advances in Spatial Interaction Models and Methods in the Big Data Era I, Spatiotemporal Symposium, 2018 AAG Annual Meeting, New Orleans, April 10 – April 14, 2018
- **Chair** for Big Movement Data for Geospatial Analytics on Urban Interactions, Symposium on Human Dynamics in Smart and Connected Communities, 2017 AAG Annual Meeting, Boston, Massachusetts, April 5 - April 9, 2017

- **Chair** for Understanding Urban Dynamics Based on Movement Big Data, 2016 AAG Annual Meeting, San Francisco, California, March 29 - April 2, 2016

#### REVIEWER FOR PROPOSALS

- ***Methodology, Measurement, and Statistics Program***, National Science Foundation (2019)

#### REVIEWER FOR JOURNALS

Reviewed articles from over **50** journals, including Annals of the American Association of Geographers, International Journal of Geographical Information Science, and Applied Geography, etc.