

YUHAO KANG

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EDUCATION

University of Wisconsin-Madison, United States

◊ Ph.D in Geography (GIScience)

May 2023

- Dissertation: Understanding Human Perception of Place with Geospatial Data Science
- Committee: Prof. Song Gao (Chair), Prof. Qunying Huang, Prof. Paula Niedenthal, Prof. Fábio Duarte

University of Wisconsin-Madison, United States

◊ M.S in Computer Science

◊ M.S in Cartography and Geographic Information Science (GIS)

- Thesis: Integrating AI in Cartography: Using Deep Learning for Map Style Transfer and Map Generalization
- Committee: Prof. Song Gao (Chair), Prof. Robert Roth, Prof. Qunying Huang

Wuhan University, China

◊ B.S in Geographic Information Science (GIS)

GPA: 3.8/4.0 National Fellowships

- Thesis: Spatio-temporal Analysis of Human Emotion based on Image Data
- Advisor: Prof. Teng Fei

EMPLOYMENT EXPERIENCE

GISense Lab, University of South Carolina, United States

◊ Assistant Professor

August 2023 -

Senseable City Lab, MIT, United States

◊ Postdoctoral Researcher & Lead of the Urban Visual AI group

Summer 2023

◊ Research Assistant

June 2021 - May 2023

◊ Visiting Student

Summer 2019

- Conducted research for urban visual intelligence and real estate using urban big data and machine learning
- Collaborated with KTH to analyze associations between crime and urban safety perceptions with GeoAI
- Supervisors: Prof. Carlo Ratti, Prof. Fábio Duarte, Prof. Fan Zhang, Prof. Vania Ceccato (KTH)

Google [X], Mountain View, CA, United States

◊ Research Associate (Full-time)

November 2020 - June 2021

- Worked on an early-stage confidential project related to real estate data, causal discovery and deep learning
- Supervisors: Dr. Hongxu Ma, Charlotte Leroy

Mobike (now Meituan-Dianping), Beijing, China

◊ Machine Learning Engineer Intern

Summer 2018

- Worked on large-scale prediction of dockless sharing bike demand and national biking index computation
- Supervisor: Xian'en Li

Institute of RS & GIS, Peking University, Beijing, China

◊ Visiting Student

Summer 2017

- Conducted research in place-based GIS using urban big data and machine learning
- Supervisor: Prof. Yu Liu

RESEARCH INTERESTS

GIScience, Geographic Data Science, GeoAI, Social Sensing, Cartography

PUBLICATIONS

* I am the corresponding author, i.e., the principle investigator (PI) of the project

Students conducting research under my supervision

+ I am the co-first author **Peer-reviewed Journal Articles**

- J1. **Yuhao Kang**, Jonatan Abraham, Vania Ceccato, Fábio Duarte, Song Gao, Lukas Ljungqvist, Fan Zhang, Per Näsman, and Carlo Ratti. Assessing differences in safety perceptions using GeoAI and survey across neighbourhoods in Stockholm, Sweden. *Landscape and Urban Planning*, 236:104768, 2023
 - ◇ **Best paper** in the AAG EPGB (Environmental Perception and Behavioral Geography) student paper competition
- J2. Yikang Wang⁺, **Yuhao Kang**⁺, Haokun Liu, Ce Hou, Bing Zhou, Shan Ye, Yuyan Liu, Jimmeng Rao, Zhenghao Pei, Xiang Ye, et al. Choosing GIS graduate programs from afar: Chinese students' perspectives. *Transactions in GIS*, 27(2):450–475, 2023
- J3. **Yuhao Kang**, Kunlin Wu, Song Gao, Ignavier Ng, Jimmeng Rao, Shan Ye, Fan Zhang, and Teng Fei. STICC: a multivariate spatial clustering method for repeated geographic pattern discovery with consideration of spatial contiguity. *International Journal of Geographical Information Science*, 36(8):1518–1549, 2022
- J4. **Yuhao Kang**, Fan Zhang, Song Gao, Wenzhe Peng, and Carlo Ratti. Human settlement value assessment from a place perspective: Considering human dynamics and perceptions in house price modeling. *Cities*, 118:103333, 2021
 - ◇ **Best paper** in the AAG GISS (Geographic Information Science and Systems) student paper competition
- J5. **Yuhao Kang**, Peng Wenzhe, Fan Zhang, Song Gao, Jimmeng Rao, Fabio Duarte, and Carlo Ratti. Understanding house price appreciation using multi-source big geo-data and machine learning. *Land Use Policy*, page 104919, 2021
 - ◇ **ESI highly cited paper**
- J6. **Yuhao Kang**, Song Gao, Yunlei Liang, Mingxiao Li, Jimmeng Rao, and Jake Kruse. Multiscale dynamic human mobility flow dataset in the US during the COVID-19 epidemic. *Scientific Data*, 7(1):390, 2020
 - ◇ **ESI highly cited paper**
- J7. **Yuhao Kang**, Fan Zhang, Song Gao, Hui Lin, and Yu Liu. A review of urban physical environment sensing using street view imagery in public health studies. *Annals of GIS*, 26(3):261–275, 2020
 - ◇ **Best paper** of *Annals of GIS* 2020
 - ◇ **Top 1 most cited paper** of the journal within the first 3 years of its publication
- J8. **Yuhao Kang**, Song Gao, and Robert Roth. Transferring multiscale map styles using generative adversarial networks. *International Journal of Cartography*, 5(2-3):115–141, 2019
 - ◇ **Top 4 most cited paper** of the journal within the first 3 years of its publication
 - ◇ Press: ArcGIS Developers
- J9. **Yuhao Kang**, Qingyuan Jia, Song Gao, Xiaohuan Zeng, Yueyao Wang, Stephan Angsuesser, Yu Liu, Xinyue Ye, and Teng Fei. Extracting human emotions at different places based on facial expressions and spatial clustering analysis. *Transactions in GIS*, 23(3):450–480, 2019
 - ◇ **Best paper** in the AAG CyberGIS student paper competition
 - ◇ Press: Geography Realm

- J10. Jiaqi Ding, Chao Yang, Yueyao Wang, Pengfei Li, Fulin Wang, **Yuhao Kang**, Haoyang Wang, Ze Liang, Jiawei Zhang, Peien Han, et al. Influential factors of intercity patient mobility and its network structure in China. *Cities*, 132:103975, 2023
- J11. Xiao Li, Huan Ning, Xiao Huang, Bahar Dadashova, **Yuhao Kang**, and Andong Ma. Urban infrastructure audit: an effective protocol to digitize signalized intersections by mining street view images. *Cartography and Geographic Information Science*, 49(1):32–49, 2022
- J12. Xiao Huang, Yang Xu, Rui Liu, Siqin Wang, Sicheng Wang, Mengxi Zhang, **Yuhao Kang**, Zhe Zhang, Song Gao, Bo Zhao, et al. Exploring the spatial disparity of home-dwelling time patterns in the USA during the COVID-19 pandemic via Bayesian inference. *Transactions in GIS*, 26(4):1939–1961, 2022
- J13. Jacob Kruse, **Yuhao Kang**, Yu-Ning Liu, Fan Zhang, and Song Gao. Places for play: Understanding human perception of playability in cities using street view images and deep learning. *Computers, Environment and Urban Systems*, 90:101693, 2021
- J14. Xueying Wu, Yi Lu, Yongxi Gong, **Yuhao Kang**, Linchuan Yang, and Zhonghua Gou. The impacts of the built environment on bicycle-metro transfer trips: A new method to delineate metro catchment area based on people’s actual cycling space. *Journal of transport geography*, 97:103215, 2021
- J15. Xiao Li, Haowen Xu, Xiao Huang, Chenxiao Guo, **Yuhao Kang**, and Xinyue Ye. Emerging geo-data sources to reveal human mobility dynamics during COVID-19 pandemic: Opportunities and challenges. *Computational Urban Science*, 1:1–9, 2021
- J16. Xiao Hou, Song Gao, Qin Li, **Yuhao Kang**, Nan Chen, Kaiping Chen, Jimmeng Rao, Jordan S Ellenberg, and Jonathan A Patz. Intracounty modeling of COVID-19 infection with human mobility: Assessing spatial heterogeneity with business traffic, age, and race. *Proceedings of the National Academy of Sciences*, 118(24):e2020524118, 2021
- J17. Juncheng Yang, Helena Rong, **Yuhao Kang**, Fan Zhang, and Andrea Chegut. The financial impact of street-level greenery on New York commercial real estate. *Landscape and Urban Planning*, 214:104162, 2021
◊ Press: [Propmodo](#)
- J18. Yuanhong Ma, Guangtian Zou, Jung-hye Shin, **Yuhao Kang**, Song Gao, Kin Wai Michael Siu, and Suxin Zhang. Locating community-based comprehensive service facilities for older adults using the GIS-NEMA method in Harbin, China. *Journal of Urban Planning and Development*, 147(2):05021010, 2021
- J19. Fan Zhang, Zhuangyuan Fan, **Yuhao Kang**, Yujie Hu, and Carlo Ratti. “Perception bias”: Deciphering a mismatch between urban crime and perception of safety. *Landscape and Urban Planning*, 207:104003, 2021
- J20. Yizhuo Li, Teng Fei, Yingjing Huang, Jun Li, Xiang Li, Fan Zhang, **Yuhao Kang**, and Guofeng Wu. Emotional habitat: mapping the global geographic distribution of human emotion with physical environmental factors using a species distribution model. *International Journal of Geographical Information Science*, 35(2):227–249, 2021
- J21. Yingjing Huang, Teng Fei, Mei-Po Kwan, **Yuhao Kang**, Jun Li, Yizhuo Li, Xiang Li, and Meng Bian. Gis-based emotional computing: A review of quantitative approaches to measure the emotion layer of human–environment relationships. *ISPRS International Journal of Geo-Information*, 9(9):551, 2020
- J22. Song Gao, Jimmeng Rao, **Yuhao Kang**, Yunlei Liang, Jake Kruse, Dorte Dopfer, Ajay K Sethi, Juan Francisco Mandujano Reyes, Brian S Yandell, and Jonathan A Patz. Association of mobile phone location data indications of travel and stay-at-home mandates with COVID-19 infection rates in the us. *JAMA Network Open*, 3(9):e2020485–e2020485, 2020
◊ Press: [CNN Health](#)

- J23. Song Gao, Jimmeng Rao, **Yuhao Kang**, Yunlei Liang, and Jake Kruse. Mapping county-level mobility pattern changes in the United States in response to COVID-19. *SIGSPATIAL Special*, 12(1):16–26, 2020
 ◇ Press: [Fox 47](#); [Channel 3000](#); [NBC15](#); [Wisconsin Examiner](#); [WISN](#); [WKOW](#); [Wisconsin Public Radio](#)
- J24. Shi Chen, Qin Li, Song Gao, **Yuhao Kang**, and Xun Shi. State-specific projection of COVID-19 infection in the United States and evaluation of three major control measures. *Scientific Reports*, 10(1):22429, 2020
- J25. Bozhi Wang, Teng Fei, **Yuhao Kang**, Meng Li, Qingyun Du, Meng Han, and Ning Dong. Understanding the spatial dimension of natural language by measuring the spatial semantic similarity of words through a scalable geospatial context window. *PloS One*, 15(7):e0236347, 2020
- J26. Bin Li, Song Gao, Yunlei Liang, **Yuhao Kang**, Timothy Prestby, Yuqi Gao, and Runmou Xiao. Estimation of regional economic development indicator from transportation network analytics. *Scientific Reports*, 10(1):2647, 2020
- J27. Fan Zhang, Mingyuan Hu, Zu Jinyan, Di Zhu, **Yuhao Kang**, Song Gao, Yi Zhang, and Zhou Huang. Uncovering inconspicuous places using mobile phone check-ins and street view images. *Computers, Environment and Urban Systems*, 81:101478, 2020
- J28. Timothy Prestby, Joseph App, **Yuhao Kang**, and Song Gao. Understanding neighborhood isolation through spatial interaction network analysis using location big data. *Environment and Planning A: Economy and Space*, 52(6):1027–1031, 2020 (Featured Graphic)
- J29. Song Gao, Jimmeng Rao, Xinyi Liu, **Yuhao Kang**, Qunying Huang, and Joe App. Exploring the effectiveness of geomasking techniques for protecting the geoprivacy of Twitter users. *Journal of Spatial Information Science*, 2019(19):105–129, 2019
- J30. Song Gao, Mingxiao Li, Yunlei Liang, Joseph Marks, **Yuhao Kang**, and Moying Li. Predicting the spatiotemporal legality of on-street parking using open data and machine learning. *Annals of GIS*, 25(4):299–312, 2019
- J31. Ziyu Liu, Anqi Yang, Mengyao Gao, Hong Jiang, **Yuhao Kang**, Fan Zhang, and Teng Fei. Towards feasibility of photovoltaic road for urban traffic-solar energy estimation using street view image. *Journal of Cleaner Production*, 228:303–318, 2019 ◇ **Best poster** in CUPUM 2019
- J32. Hui Peng, Yunyan Du, Zhang Liu, Jiawei Yi, **Yuhao Kang**, and Teng Fei. Uncovering patterns of ties among regions within metropolitan areas using data from mobile phones and online mass media. *GeoJournal*, 84(5):685–701, 2019
- J33. **Yuhao Kang**, Yueyao Wang, Mengze Gao, Jian Peng, Jing Zhang, and Teng Fei. Design of electronic map system based on virtual reality technology. *Journal of Geomatics*, 43(6):16–18, 2018 (In Chinese)
- J34. **Yuhao Kang**, Yueyao Wang, Zhujun Xia, Jiao Chi, Limin Jiao, and Zhiwei Wei. Identification and classification of Wuhan urban districts based on POI. *Journal of Geomatics*, 43(1):81–85, 2018 (In Chinese)
- J35. Ying Zhuang, Lina Huang, Hengjie Zheng, Tongshuo Liu, and **Yuhao Kang**. Design and implementation of indoor navigation application system based on QR code: Take Wuhan University library as an example. *Bulletin of Surveying and Mapping*, (5):125–128, 2017 (In Chinese)

SELECTED AWARDS AND HONORS

Awards and Scholarships

1. **Chinese Government Award for Outstanding Self-Financed Students Abroad**, Ministry of Education of the People’s Republic of China 2023
2. **CPGIS Education Excellence Award**, Chinese Professional in Geographic Information System 2023

3. **Young Researcher Award**, the Commission for GIScience of the Austrian Academy of Science
2023
4. **CaGIS Rising Award**, Cartography and Geographic Information Society (CaGIS) *2023*
5. **First Place**, 2023 AAG EPBG Saarinen Student Paper Competition *2023*
6. **CaGIS Scholarship**, Cartography and Geographic Information Society (CaGIS) *2023*
7. **ICA Scholarship**, International Cartographic Association *2022*
8. **Whitbeck Fellowship**, University of Wisconsin-Madison *2022*
9. **Most Cited Paper Award**, Annals of GIS 2021 *2022*
10. **Best Paper Award**, Annals of GIS 2020 *2021*
11. **First Place**, 2020 AAG GISS Student Honors Paper Competition *2020*
12. **First Place**, 2020 AAG Health and Medical Geography Data Visualization Contest *2020*
13. **Best Short Paper Award**, ACM SIGSPATIAL LocalRec 2019 *2019*
14. **Best Poster Award**, ACM SIGSPATIAL RAAS 2019 *2019*
15. **Best Poster Award**, 2019 CUPUM Conference *2019*
16. **First Place**, AAG CyberGIS Robert Raskin Student Paper Competition *2019*
17. **Finalist**, “Top 10 LuoJia Fengyun Student” of Wuhan University (0.1%) *2018*
18. **National Fellowships**, Ministry of Education of the People’s Republic of China *2017*
19. **Finalist**, “Furong Student” Research and Innovation, Wuhan University *2017*
20. **Special Award**, Huace Cup Geodesy and GIS Innovation Contest *2017*
21. **Second-class Fellowships**, Outstanding Undergraduates *2016*
22. **Best Design of Web Services**, 3rd Cultural Innovation Contest, Hubei Province *2016*
23. **First Prize**, Group of Web and Mobile Development, 14th SuperMap GIS Contest *2016*
24. **Second Prize & Third Prize**, Navinfo Mapping Contest *2016*
25. **Annual Hottest Application**, Esri Chinese GIS Contest *2016*

Travel Awards

1. AAG EPBG Student Travel Awards *2023*
2. AutoCarto Student Assistantship, Cartography and Geographic Information Science *2022*
3. Student Research Grants Competition (SRGC) Research Travel Award, UW-Madison *2021*
4. Trewartha Conference Travel Awards, Department of Geography, UW-Madison *2021*
5. Trewartha Conference Travel Awards, Department of Geography, UW-Madison *2019*
6. Student Research Grants Competition (SRGC) Research Travel Award, UW-Madison *2019*
7. Student Travel Award for ICC 2019 Conference *2019*
8. NSF Student Travel Award for ACM SIGSPATIAL Conference *2019*
9. NSF Student Travel Award for ACM SIGSPATIAL Conference *2018*

SERVICE AND LEADERSHIP

Leadership

Student Director	AAG GISS Specialty Group	2022-2023
Student Director	AAG CyberGIS Specialty Group	2022-2023
Student Director	AAG Cartography Specialty Group	2021-2022
Board of Directors (BOD)	Chinese Professional in Geographic Information Systems (CPGIS)	2021-2023
Graduate Committee	Department of Geography, UW-Madison	2019-2021
Curriculum Committee	Department of Geography, UW-Madison	2018-2019
Founder	GISphere Project	2019-
Founder	MicroDeepMind Company	2017-2019
Co-founder	Urban Playground Lab, Wuhan University	2017-2018
Vice-President	Wuhan University Soccer Association	2016-2017

Academic Journal Services

Associate Editor of <i>Computational Urban Science</i>	2023-
Peer Reviewer of <i>Accident Analysis and Prevention</i>	2023-
Peer Reviewer of <i>Information Processing and Management</i>	2023-
Peer Reviewer of <i>Journal of Spatial Information Science</i>	2023-
Peer Reviewer of <i>Computers & Geosciences</i>	2022-
Peer Reviewer of <i>Journal of Transport Geography</i>	2022-
Peer Reviewer of <i>Annals of the American Association of Geographers</i>	2021-
Peer Reviewer of <i>International Journal of Geographical Information Science</i>	2021-
Peer Reviewer of <i>Journal of Spatial Science</i>	2021-
Peer Reviewer of <i>Geo-spatial Information Science</i>	2021-
Peer Reviewer of <i>Health and Place</i>	2021-
Peer Reviewer of <i>ISPRS Journal of Photogrammetry and Remote Sensing</i>	2021-
Peer Reviewer of <i>International Journal of Digital Earth</i>	2021-
Peer Reviewer of <i>Frontiers in Environmental Science</i>	2021-
Peer Reviewer of <i>International Journal of Geo-Information</i>	2021-
Peer Reviewer of <i>Applied Sciences</i>	2021-
Peer Reviewer of <i>Plos One</i>	2021-
Peer Reviewer of <i>Scientific Reports</i>	2021-
Peer Reviewer of <i>Transactions in GIS</i>	2021-
Peer Reviewer of <i>Urban Forestry & Urban Greening</i>	2020-
Peer Reviewer of <i>Computational Urban Science</i>	2020-
Peer Reviewer of <i>Computers, Environment, and Urban Systems</i>	2020-
Peer Reviewer of <i>Environment and Planning B: Urban Analytics and City Science</i>	2020-
Peer Reviewer of <i>ACM SIGSPATIAL</i>	2019-
Peer Reviewer of <i>Annals of GIS</i>	2019-

LEADERSHIP EXPERIENCE**GISphere***September 2019 - Present*

Founder

- A non-profit project that is devoted to bridging the information gap for geography-related students
- Helped students interested in professional development and graduate programs to access the most up-to-date global information on M.S./Ph.D. opportunities, funding availabilities, webinars, and competitions through project website, online forum, and blogs
- Led the project with more than 70 core team members and 300 volunteers globally
- Summarized over 400 GIS-related programs in 70 countries with 1500 professors' research interests
- Published more than 150 blogs about GIS-related program applications with more than 300,000 reads
- More than 10,000 students followed our community

MicroDeepMind Company*September 2017 - December 2019*

Founder

- Developed two mobile applications using virtual reality (VR) and augmented reality (AR) to provide navigation map and location-based social community services
- Three patents were successfully applied for