# 付小康

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 GitHub **250** ⭐　　G Google Scholar **1020** citations

## 研究兴趣

我的研究致力于通过创新技术和跨学科合作, 推动可持续发展. 我的研究兴趣包括地理信息科学 (GIS), 地理空间人工智能 (GeoAI), 环境管理, 灾害响应, 公共卫生, 城市计算, 社会行为分析, 以及开发可再现和可扩展的计算工具.

## 教育经历

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|---|---|
| 2015-2020 | 博士, 制图学与地理信息工程, 武汉大学 |
| 2013-2015 | 硕士, 测绘工程, 武汉大学 |
| 2009-2013 | 学士, 测绘工程, 内蒙古科技大学 |

## 工作经历

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|---|---|
| 2023-现在 | 博士后, 地理分析中心, 哈佛大学, (合作导师: S. V. Subramanian 博士) |
| 2021-2023 | 访问研究员, 地理分析中心, 哈佛大学, (合作导师: S. V. Subramanian 博士) |
| 2020-2023 | 博士后, 测绘遥感信息工程国家重点实验室, 武汉大学, (合作导师: 龚健雅博士) |

## 发表记录

G Google Scholar

† → Equal contribution

### 筛选论文

S1.　**Fu, Xiaokang**, Liu, L., Li, M., Huang, X. & Chen, B. Y. Calibration of 2SFCA and i2SFCA: A Case Study in Shenzhen, China Based on Online Physician Appointment Data. *Transactions in GIS* 29, e70061. ISSN: 1467-9671 (2025).

S2.　**Fu, Xiaokang**, Lingbo, L., Guan, W., Kalra, Y., Bao, S., Kötter, T. & Sturm, K. Advancing replicable and reproducible giscience: An approach with KNIME. *Cartography and Geographic Information Science*. https://doi.org/10.1080/15230406.2024.2446556 (2024).
　　　**– Highlight Research Cited in Harvard Newsletter, 2025)**.

S3.　**Fu, Xiaokang**, Kakkar, D., Chen, J., Moynihan, K. M., Hegland, T. A. & Blossom, J. a Comparative Study of Methods for Drive Time Estimation on Geospatial Big Data: a Case Study in USA. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 48. https://par.nsf.gov/biblio/10492127 (2023).

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*Expected.

S4. Zhang[†], M., Wang[†], S., Hu[†], T., **Fu**[†]**, Xiaokang**, Wang, X., Hu, Y., Halloran, B., Li, Z., Cui, Y., Liu, H., Liu, Z. & Bao, S. Human mobility and COVID-19 transmission: a systematic review and future directions. en. *Annals of GIS* 28, 501–514. ISSN: 1947-5683, 1947-5691. https://www.tandfonline.com/doi/full/10.1080/19475683.2022.2041725 (Oct. 2022).
  – **Best Paper Award (Annals of GIS, 2023)**.

S5. **Fu, Xiaokang**, Wang, Y., Li, M., Dou, M., Qiao, M. & Hu, K. Community evolutional network for situation awareness using social media. *IEEE Access* 8. Publisher: IEEE, 39225–39240 (2020).

S6. Yandong, W., **Fu, Xiaokang** & Li, M. A new social media topic mining method based on co-word network. *Geomatics and Information Science of Wuhan University* 43, 2287–2294. http://ch.whu.edu.cn/en/article/doi/10.13203/j.whugis20180225 (2018).

S7. Wang, Y.-d., **Fu, Xiaokang**, Jiang, W., Wang, T., Tsou, M.-H. & Ye, X.-y. Inferring urban air quality based on social media. *Computers, Environment and Urban Systems* 66. Publisher: Elsevier, 110–116 (2017).

## 其他论文

J1. Hu, T., Huang, X., Li, Y. & **Fu, Xiaokang**. Harnessing the Power of Multi-Source Media Platforms for Public Perception Analysis: Insights from the Ohio Train Derailment. en. *Big Data and Cognitive Computing* 9, 88. ISSN: 2504-2289 (2025).

J2. Vitagliano, J. A., Kavanaugh, J. R., Gorges, B., **Fu, Xiaokang**, Todd, K., Milliren, C. E., Raffoul, A. & Austin, S. B. The STRIPED Dietary Supplement Label Explorer: A Tool to Identify Supplements Sold with Weight-Loss, Muscle-Building, and Cleanse/Detox Claims. English. *The Journal of Nutrition* 0. https://pubmed.ncbi.nlm.nih.gov/39954739 (2025).

J3. Liu, L., **Fu, Xiaokang**, Kötter, T., Sturm, K., Haubold, C., Guan, W. W., Bao, S. & Wang, F. Geospatial Analytics Extension for KNIME. *SoftwareX* 25. Publisher: Elsevier, 101627. https://www.sciencedirect.com/science/article/pii/S2352711023003230 (2024).

J4. Liu, L., Wang, F., **Fu, Xiaokang**, Kötter, T., Sturm, K., Guan, W. W. & Bao, S. Elevating the RRE Framework for Geospatial Analysis with Visual Programming Platforms: An Exploration with Geospatial Analytics Extension for KNIME. *International Journal of Applied Earth Observation and Geoinformation* 130. Publisher: Elsevier, 103948. https://www.sciencedirect.com/science/article/pii/S1569843224003029 (2024).

J5. Wang, S., Huang, X., Liu, P., Zhang, M., Biljecki, F., Hu, T., **Fu, Xiaokang**, Liu, L., Liu, X. & Wang, R. Mapping the landscape and roadmap of geospatial artificial intelligence (GeoAI) in quantitative human geography: An extensive systematic review. *International Journal of Applied Earth Observation and Geoinformation* 128. Publisher: Elsevier, 103734. https://www.sciencedirect.com/science/article/pii/S1569843224000888 (2024).

J6. Wang, D., Wang, Y., **Fu, Xiaokang**, Dou, M., Dong, S. & Zhang, D. Revealing the spatial co-occurrence patterns of multi-emotions from social media data. *Telematics and Informatics* 84. Publisher: Elsevier, 102025. https://www.sciencedirect.com/science/article/pii/S0736585323000898 (2023).

J7. Wang, S., Ning, H., Huang, X., Xiao, Y., Zhang, M., Yang, E. F., Sadahiro, Y., Liu, Y., Li, Z., Hu, T., **Fu, Xiaokang**, Li, Z. & Zeng, Y. Public Surveillance of Social Media for Suicide Using Advanced Deep Learning Models in Japan: Time Series Study From 2012 to 2022. *J Med Internet Res* 25, e47225. ISSN: 1438-8871. https://www.jmir.org/2023/1/e47225 (June 2023).

J8. Liu, L., Wang, R., Guan, W. W., Bao, S., Yu, H., **Fu, Xiaokang** & Liu, H. Assessing reliability of Chinese geotagged social media data for spatiotemporal representation of human mobility. *ISPRS International Journal of Geo-Information* 11. Publisher: MDPI, 145. https://www.mdpi.com/2220-9964/11/2/145 (2022).

J9. Hu, T., Wang, S., She, B., Zhang, M., Huang, X., Cui, Y., Khuri, J., Hu, Y., **Fu, Xiaokang**, Wang, X., Wang, P., Zhu, X., Bao, S., Guan, W. & Li, Z. Human mobility data in the COVID-19 pandemic: characteristics, applications, and challenges. en. *International Journal of Digital Earth* 14, 1126–1147. ISSN: 1753-8947, 1753-8955. https://www.tandfonline.com/doi/full/10.1080/17538947.2021.1952324 (Sept. 2021).

J10. Qiao, M., Wang, Y., Wu, S., **Fu, Xiaokang**, Gu, Y. & Dou, M. A realistic and multilevel measurement of citywide spatial patterns of economic segregation based on human activities. *Cities* 110. Publisher: Elsevier, 103067. https://www.sciencedirect.com/science/article/pii/S0264275120314153 (2021).

J11. Wang, P., Ren, H., Zhu, X., **Fu, Xiaokang**, Liu, H. & Hu, T. Spatiotemporal characteristics and factor analysis of SARS-CoV-2 infections among healthcare workers in Wuhan, China. *Journal of Hospital Infection* 110. Publisher: Elsevier, 172–177. https://www.sciencedirect.com/science/article/pii/S0195670121000463 (2021).

J12. Wang, S., Zhang, M., Hu, T., **Fu, Xiaokang**, Gao, Z., Halloran, B. & Liu, Y. A bibliometric analysis and network visualisation of human mobility studies from 1990 to 2020: Emerging trends and future research directions. *Sustainability* 13. Publisher: MDPI, 5372. https://www.mdpi.com/2071-1050/13/10/5372 (2021).

J13. Wang, Y., Li, M., **Fu, Xiaokang**, Shao, S. & Liu, H. A New Method to Detect the Development Situation of Disasters Based on Social Media Co-word Network. *Geomatics and Information Science of Wuhan University* 45, 691–698. http://ch.whu.edu.cn/en/article/doi/10.13203/j.whugis20190054 (2020).

J14. Hu, K., Luo, Q., Qi, K., Yang, S., Mao, J., **Fu, Xiaokang**, Zheng, J., Wu, H., Guo, Y. & Zhu, Q. Understanding the topic evolution of scientific literatures like an evolving city: Using Google Word2Vec model and spatial autocorrelation analysis. *Information Processing & Management* 56. Publisher: Elsevier, 1185–1203. https://www.sciencedirect.com/science/article/pii/S0306457318304199 (2019).

J15. Zhang, L., Chen, X., Lu, J., **Fu, Xiaokang**, Zhang, Y., Liang, D. & Xu, Q. Precipitation projections using a spatiotemporally distributed method: a case study in the Poyang Lake watershed based on the MRI-CGCM3. *Hydrology and Earth System Sciences* 23. Publisher: Copernicus Publications Göttingen, Germany, 1649–1666. https://hess.copernicus.org/articles/23/1649/2019/ (2019).

J16. Wang, T., Wang, Y., Zhao, X. & **Fu, Xiaokang**. Spatial distribution pattern of the customer count and satisfaction of commercial facilities based on social network review data in Beijing, China. *Computers, Environment and Urban Systems* 71. Publisher: Elsevier, 88–97. https://www.sciencedirect.com/science/article/pii/S0198971517302843 (2018).

J17. Wang, T., Wang, Y., Zhao, X., **Fu, Xiaokang** & Jiang, B. Network-Constrained Spatial Point Pattern Analysis for Commercial Facilities. *Geomatics and Information Science of Wuhan University* 43, 1746–1752. http://ch.whu.edu.cn/en/article/doi/10.13203/j.whugis20160558 (2018).

J18. Wang, Y., Jing, T., Jiang, W., Wang, T. & **Fu, Xiaokang**. Modeling urban air quality trend surface using social media data. *Geomatics and Information Science of Wuhan University* 42, 14–20. `http://ch.whu.edu.cn/en/article/doi/10.13203/j.whugis20150401` (2017).

J19. Zhang, L., Lu, J., Chen, X., Liang, D., **Fu, Xiaokang**, Sauvage, S. & Sanchez Perez, J.-M. Stream flow simulation and verification in ungauged zones by coupling hydrological and hydrodynamic models: a case study of the Poyang Lake ungauged zone. *Hydrology and Earth System Sciences* 21. Publisher: Copernicus GmbH, 5847–5861. `https://hess.copernicus.org/articles/21/5847/2017/` (2017).

J20. Jiang, W., Wang, Y., Tsou, M. H. & **Fu, Xiaokang**. Using geo-targeted social media data to detect outdoor air pollution. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 41. Publisher: Copernicus GmbH, 553–554. `https://isprs-archives.copernicus.org/articles/XLI-B2/553/2016/isprs-archives-XLI-B2-553-2016.html` (2016).

J21. Jiang, W., Wang, Y., Tsou, M.-H. & **Fu, Xiaokang**. Using social media to detect outdoor air pollution and monitor air quality index (AQI): a geo-targeted spatiotemporal analysis framework with Sina Weibo (Chinese Twitter). *PloS one* 10. Publisher: Public Library of Science San Francisco, CA USA, e0141185. `https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0141185` (2015).

## 待发表论文

W1. Chen, K., Ju, B., **Fu, Xiaokang** & Kirkwood, N. *Multi-Scenario Relocation Suitability with Land Use and Zoning Comparisons: Long-Term Community Development in Maui After the 2023 Wildfire.* prepring drafts. 2025.

W2. Chen, Y., Atari, M., Slingerland, E., Hong, Z., **Fu, Xiaokang**, Wang, H., Schulz, J., Bol, P. & Henrich, J. *Psychological Change and Kinship Intensity in China over Two Millennia* en-us. Under review @ Science. June 2025. (2025).

W3. **Fu, Xiaokang**, Kakkar, D. & Jack. *US census level sentiment dataset from tweets.* prepring drafts. 2025.

W4. **Fu, Xiaokang** & Lin, S. *Reproducible GIS Infrastructure for Digital humanities Based on Open-source Executable Workflows.* Revision @ Annals of GIS. 2025.

W5. **Fu, Xiaokang**, Liu, Y., Kakkar, D. & Liu, L. *Global Human Mobility Flow Data Extracted From Social Media.* preparing draft. 2025.

W6. Lin Zhang[†], **Fu, Xiaokang**[†] & Huang, X. *Unequal Access to China's Arts and Crafts Markets: Spatial Disparities Between Retired and Non-Retired Groups.* Submit @ JAG. 2025.

# 主持的项目

1. 2024. Host: Developing Workbenches for Spatial Data Science.The I/UCRC for Spatiotemporal Thinking, Computing and Applications (NSF USA).

2. 2021. Host: Regional Health Index Calculation Model Based on Multi-Source Big Data. State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing.

## 开发的软件和工具

### 开源可再现与可复制的地理信息科学

**Geospatial Analytics Extension for KNIME**: 用于可再现与可复制地理信息科学的可视化编程工具, 包括地理空间数据的读取, 写入, 处理, 分析, 建模和可视化.（GitHub | 2024 时空数据科学研讨会报告）

**Dataverse Extension for KNIME**: 与 Dataverse 平台交互的可视化编程工具, 包括上传至 Dataverse, 从 Dataverse 下载, 搜索和读取数据.（GitHub | 2022 Dataverse 社区会议报告和2023 哈佛研讨会）

**Google Earth Engine Extension for KNIME**: 与 Google Earth Engine 交互的可视化编程工具.（GitHub | 2024 ABCD-GIS/地理学系列讲座报告）

### 开源地理空间数据科学

**Georouting**: 为 Python 用户提供的路径计算工具, 支持 OSRM, 谷歌地图, 必应地图等多种路径规划工具, 并提供统一的 API 接口.（PyPi | GitHub | 2023 年美国地理学年会提及）

**Geopandas**: 面向地理数据处理的 Python 工具.（贡献 1 个PR | GitHub）

### 地理空间大数据

**RapidRoute**: 开源的旅行时间估算系统.

**Billion Object Platform**: 实时处理数十亿条记录的地理空间分析平台.（2024 IQSS 新闻通讯报道）

## 学术交流和会议

† → Equal contribution

### 口头报告

T1. **Fu, Xiaokang**. *Digital humanities infrastructure based on open-source executable workflows—A case study of spatial mobility of premodern Chinese literati.* 2024 AAG Annual Meeting (Honolulu, HI, USA). Link. Apr. 2024.

T2. **Fu, Xiaokang**. *Replicable Spatial Data Analysis with Geospatial Analytics for KNIME.* 2024 The Symposium on Spatiotemporal Data Science (Arlington, VA, USA). Link. July 2024.

T3. **Fu, Xiaokang** & Kakkar, D. *A comparative study of methods for drive time estimation on geospatial big data: A case study in USA* 2023 Free and Open Source Software for Geospatial Conference (Prizren, Kosovo). Link. June 2023.

T4. **Fu, Xiaokang**, L. L. & Li, M. *Validation, calibration, and estimation of 2SFCA and i2SFCA. A case study from Shenzhen, China based on online appointment data.* 2023 AAG Annual Meeting (Denver, CO, USA). Link. Mar. 2023.

T5. **Fu, Xiaokang**. *Inferring urban air quality based on social media* 2017 CPGIS Annual Conference (Buffalo, NY, USA). Aug. 2017.

海报

P1. Jia, N., Zhang, Z., Liu, J., Viña, A., Lan, X., Wang, R., Cai, Z., Li, Y., **Fu, Xiaokang**, Hu, Q., Wu, W. & Song, Q. *AcmNet: A Dual-Branch Attention-Based Deep Learning Framework for Improving Large-Scale Crop Mapping Using Sparse Seasonal Satellite Imagery.* 2024 American Geophysical Union Conference (AGU24) (Washington, D.C, USA). Link. Dec. 2024.

P2. Zhou, Y. Z. J. W. M. J. H. & **Fu, Xiaokang**. *Flood Extraction Using Spaceborne Ka-Band SAR Images.* 2024 American Geophysical Union Conference (AGU24) (Washington, D.C, USA). Link. Dec. 2024.

## 教学

哈佛大学

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|---|---|
| 2024 | 讲师及组织者, 研讨会: 面向时空数据科学的 KNIME Business Hub.（Link） |
| 2023 | 讲师, 哈佛大学时空数据科学暑期工作坊.（Link） |
| 2023 | 报告人, 研讨会: 无代码可视化编程的时空数据分析.（Link） |

## 学术服务

委员和会员

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|---|---|
| 2023-至今 | 地理信息科学大学联盟（UCGIS）传播委员会委员 |
| 2023-至今 | 美国地理学家协会（AAG）会员 |
| 2024 | 电气与电子工程师协会（IEEE）会员 |

**Journal Reviewer**

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|---|---|
| 2025 | International Journal of Applied Earth Observation and Geoinformation, Ecological Indicators |
| 2024 | Land, Sustainability, International Journal of Applied Earth Observation and Geoinformation |

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最近更新：December 14, 2025