CHENYU FANG

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EDUCATION & WORKING EXPERIENCE

Ph.D., Big Geospatial Data Management, **Technical University of Munich** *06/2021 – 06/2024(Expected)*

Visiting Scholar, Lab of Interdisciplinary Spatial Analysis**, Cambridge University** *05/2023 – 12/2024*

Data Analyst, **China Academic Urban Planning and Design** *07/2018 – 01/2021*

M.S., Physical Geography, **Peking University, China** *09/2015 – 06/2018*

B.A., Geomatics (Remote Sensing), **Wuhan University** *09/2011 – 06/2015*

RESEARCH INTERESTS

Computational Science, GeoAI, Urban Informatics, Complex Network, LLM, Social Sensing

PUBLICATIONS

Peer-reviewed Papers

1. Liu, Z., **Fang, C.**, Li, H., Wu, J., Zhou, L., & Werner, M. (2023)**.** Efficiency and equality of the multimodal travel between public transit and bike-sharing accounting for multiscale. ***Sustainable Cities and Society*****,** 105096. https://doi.org/10.1016/j.scs.2023.105096
2. Gao, F., Du, Z. *, **Fang, C.**, Zhou, L. Werner, M. (2023). A spatial-temporal cognitive framework for individual route choice in outdoor evacuation scenario. ***ISPRS International Journal of Geo-Information***,11,605. https://doi.org/10.3390/ijgi11120605
3. Zhou, L., de Vries, W. T., Panman, A., Gao, F., & **Fang, C**. (2023). Evaluating Collective Action for Effective Land Policy Reform in Developing Country Contexts: The Construction and Validation of Dimensions and Indicators. ***Land***, 12(7), 1401. https://doi.org/10.3390/land12071401
4. Zhang, W., **Fang, C**., Zhou, L., & Zhu, J. (2020). Measuring megaregional structure in the Pearl River Delta by mobile phone signaling data: A complex network approach. ***Cities*****,** 104, 102809**.** https://doi.org/10.1016/j.cities.2020.102809
5. Zhou, L., Zhang, W.*, **Fang, C.**, Sun, H., & Lin, J. (2020). Actors and network in the marketization of rural collectively-owned commercial construction land (RCOCCL) in China: A pilot case of Langfa, Beijing. **Land Use Policy**, 99, 104990. https://doi.org/10.1016/j.landusepol.2020.104990
6. **Fang, C.**, & Zhao, S*. (2018). A comparative study of spatiotemporal patterns of urban expansion in six major cities of the Yangtze River Delta from 1980 to 2015. ***Ecosystem health and sustainability*****,** 4(4), 95-114**.**

https://doi.org/10.1080/20964129.2018.1469960

Papers (to be) Submitted

7. **Fang, C.**, Gu., X., Zhou, L., Liu, X., Werner, M. Exploratory Analysis of Overlapping Communities and Its Impact Factors for Megaregion Cities in South China with Geospatial Big Data. (**Under Second-Round Review**: Computers, Environment, Urban and System)
8. Zhang, W., Geng, Y., Zhou, L., **Fang, C.*** Associations between online and offline shopping and travel behaviors before and after the outbreak of COVID-19. (**Under Second-Round Review**: *Transportation Research Part A*)
9. Zhang, Li., Y., Zhou, L., **Fang, C.*** Quasi-experimental analysis of COVID-19 impacts on older adults' travel behavior: Implications for age-friendly neighborhood planning. (**Under Second-Round Review**: *Journal of Planning Education and Research*)
10. Zhou, L., de Vries, W. T., Gao, F., & **Fang, C**.* *The Role of Voluntary Collective Action in China's Rural Land Development,* (Under second-round review, ***Habitat International***)
11. **Fang, C.***, Zhou, L., Liu, S., Chen., R., Liu, X., Werner, M. HDCBC: A Robust Clustering Algorithm for data with Noise, Heterogeneous Densities, and Weak Connectivity (**Under Review:** *International Journal of Geographical Information Science)*
12. Feng, Y., **Fang, C.**, Jia, X., Song, P., Zhou, L., Xu, X., Wang, K., He, R., Guo, N., Tian, G., Ge, S.* Valuing the carbon neutrality potential of the city itself: a study of greenspace at a city-block-scale in Xi'an, China. (**Under Review:** *Environmental Research)*
13. Zhu, H., Zhang, W.*, Huang, N., Li, B., Niu, L., Fan, Z., **Fang C.**, Liu, X. PlanGPT: Enhancing Urban Planning with Tailored Language Model and Efficient Retrieval. (Submitted to Knowledge Discovery and Data Mining (KDD Conference 2024), https://arxiv.org/abs/2402.19273.)
14. **Fang, C.***, Chen., R., Zhou, L., Liu, X., Werner, M. Comparing Variant Megaregional Complex Networks in the China Great Bay Area- A Multi-Scale Analysis Based on Mobile Phone Signaling Data. (**Rejected and Resubmit**: *Cities*)
15. **Fang, C.***, Zhou, L., Liu, X., Werner, M. Data-Driven Cities: A Combination of Clustering and Feature Engineering on Top of OpenStreetMap point data. (**Revised:** Plan to submit to *International Journal of Geographical Information Science*)
16. **Fang, C.**, Liu, S., Zhou, L.*, Silva, E. Measuring Accessibility and Equity of Residents' Park Green Space under Residential Space Differentiation, (**Under writing**, Landscape and Urban Planning)
17. **Fang, C.***, Liu, S., Zhou, L., Liu, X., Werner, M. Harmonizing Space and Attributes: A New Algorithm for Data Clustering. (**Under writing:** Plan to submit to *International Journal of Geographical Information Science*)

SELECTED SERVICE AND PROJECT EXPERIENCE

Peer Review Services

1. Peer Reviewer of ***Scientific Reports*** *04.2024-*

2. Peer Reviewer of ***The Singapore Economic Review*** *12.2023-*

3. Peer Reviewer of ***Scientific Reports*** *12.2023-*

4. Peer Reviewer of ***IDAACS*** *07.2023-*

Project Experience

- **PlanGPT** (Co-Founder) *07/2023 – Present*

  a professional large language model(LLM) custom-built for urban planning (https://arxiv.org/abs/2402.19273), aiming to:

  - **Specialize in Urban Planning Tasks**: Tailored for generating planning texts, information retrieval, and document evaluation specific to city planning.
  - **Boost Efficiency for Planners**: Designed to enhance the work efficiency of urban planning professionals by addressing their unique challenges.
  - **Leverage Industry Collaboration**: Developed in partnership with the China Urban Planning & Design, our co-planner project integrates industry-specific insights and technologies, culminating in a successful venture securing 600,000 RMB in funding.

- **Digital Bay Area Platform Construction** (Participant) *09/2018-09/2020*

  Digital Bay Area Platform for the China Academy of Urban Planning and Design, focusing on the digital planning and visualization of the Greater Bay Area. This platform offers real-time, dynamic planning support to urban planners:

  - **Comprehensive Integration:** The digital Bay Area we constructed includes vital aspects such as population, business, culture, and economy, offering a holistic view of the area's dynamics.
  - **Dynamic Planning Support:** work for more than 400 planners; more than 30 commercial projects.
  - **Report by several major news:** NetEase, Souhu, Zhihu, Planning Cloud and so on.

- **Guangdong Province's Inaugural Territorial Space Planning** (Participant) *01/2019-10/2020*

  A professional language model custom-built for urban planning, aiming to:

  - **Analyzing Human Behaviors:** Utilized mobile phone signaling data to study the spatial behavior of the urban population, their commuting patterns, and connections within the city.
  - **Boost Efficiency for Planners**: Designed to enhance the work efficiency of urban planning professionals by addressing their unique challenges.
  - **Leverage Industry Collaboration**: Developed in collaboration with leading institutions like the Chinese Urban Planning Research Institute, integrating industry-specific insights and technologies.

SELECTED AWARDS AND HONORS

National Encouragement Scholarship (2%)

Postgraduate Scholarship of Peking University

First Class Scholarship for Merit Student

PROFESSIONAL SKILLS

Programming Language

Python: Advanced proficiency in data analysis, data mining and machine learning. Experienced in using libraries such as Pandas, scikit-learn, PyTorch.

R: Skilled in statistical analysis and data visualization.

MATLAB: Experienced in numerical computing, simulations, and algorithm development for engineering and spatial data analysis.

Data Science and Machine Leaning

TensorFlow & PyTorch: Proficient in building and training deep learning models for Image recognition, Natural language processing, and Graph Neural Network.

Apache Spark: Skilled in handling big data processing and analysis.

Remote Sensing and Geospatial Analysis

ArcGIS & QGIS: Expert in geographic information systems (GIS) for spatial analysis, data management and ArcGIS re-development.

Google Earth Engine: Experienced in leveraging cloud-based platform for large-scale environmental data analysis and visualization.