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研究经历

南京大学  
前沿科学学院 (空间地球科学研究院)

助理教授 (特聘研究员)  
2025.12 –

北京大学  
遥感所  
合作导师: 李培军

博雅博士后  
2023.12 – 2025.11

教育经历

北京大学  
地图学与地理信息系统  
导师: 黄舟

博士  
2018.09 – 2023.07

中国地质大学 (武汉)  
信息工程

学士  
2014.09 – 2018.07

荣誉与奖励

2024 年博士后创新人才支持计划 (博新计划)

2024

北京大学优秀博士论文

2023

北京大学优秀毕业生

2023

北京大学优秀科研奖

2020, 2022

北京大学遥感所优秀学术论文奖

2020, 2022

北京大学廖凯原奖学金

2020

中国地质大学 (武汉) 优秀毕业生

2018

国家奖学金

2015, 2016

中国地质大学 (武汉) 第九届李四光计划

2015

科研项目

博士后创新人才支持计划

2024.06 – 2025.11

基于深度学习的高分辨率建成环境物质存量时空演化及人-地关系动态模拟

主持

国家自然科学基金青年项目

2025.01 – 2027.12

顾及大范围与高分辨率的全国城市建成环境物质存量估算方法及应用

主持

国家重点研发计划 重点项目安全综合遥感监测关键技术及应用示范	2023.12 – 2025.11 子课题负责人
武汉大学测绘遥感信息工程国家重点实验室开放基金 面向灾害监测预警的多模态知识图谱构建与协同分析	2025.01 – 2026.12 主持
中国博士后科学基金第 77 批面上资助 MaaS 融合多源地理大数据的长时序城市物质存量精细化估算与格局演变研究	2023.12 – 2025.11 主持
重点研发计划国际合作项目 MaaS 移动即服务：智慧公共交通的关键技术与应用示范	2019.08 – 2021.07 主要参与人
国家自然科学基金面上项目 面向交通基础设施优化的多源轨迹大数据计算方法与应用	2022.01 – 2025.12 主要参与人

## 论文发表

已发表论文 28 篇，第一/通讯作者 13 篇

[1]. **Quantifying the impact of building material stock and green infrastructure on urban heat island intensity**

Yi Bao, Zhou Huang, Ganmin Yin, Shuliang Ren, Xiaoqin Yan, Junnan Qi  
*Building and Environment* IF=7.6

[2]. **Dynamic graph attention network for local leisure event recommendation in event-based social networks**

Xia Peng, Yazhao Wu, Zhiming Gui, Yitian Liu, Zhou Huang, Yi Bao\*  
*International Journal of Digital Earth* IF=4.9

[3]. **Big geodata revealed spatial patterns of built environment stocks across and within cities in China**

Zhou Huang#, Yi Bao#, Ruichang Mao#, Han Wang, Ganmin Yin, Lin Wan, Houji Qi, Qiaoxuan Li, Hongzhao Tang, Qiance Liu, Linna Li, Bailang Yu, Qinghua Guo, Yu Liu, Huadong Guo\*, Gang Liu\*  
*Engineering* IF=12.8  
[10.1016/j.eng.2023.05.015](https://doi.org/10.1016/j.eng.2023.05.015)

[4]. **Assessing and Mitigating the Carbon Emissions from Illegal Urban Buildings: A Spatial Lifecycle Analysis**

Yi Bao, Haode Du, Zhou Huang\*, Shuliang Ren, Ganmin Yin, and Ruichang Mao  
*Resources, Conservation and Recycling* IF=11.4  
[10.1016/j.resconrec.2024.108097](https://doi.org/10.1016/j.resconrec.2024.108097)

**[5]. Quantifying the Impact of Building Material Stock and Green Infrastructure on Urban Heat Island Intensity**

Yi Bao, Zhou Huang, Ganmin Yin, Shuliang Ren, Xiaoqin Yan, Junnan Qi  
*Building and Environment* IF=7.1  
[10.1016/j.buildenv.2025.113068](https://doi.org/10.1016/j.buildenv.2025.113068)

**[6]. Evaluating the human use efficiency of urban built environment and their coordinated development in a spatially refined manner**

Yi Bao, Zhou Huang, Linna Li, Han Wang, Jiayuan Lin, Gang Liu  
*Resources, Conservation and Recycling* IF=13.7  
[10.1016/j.resconrec.2022.106723](https://doi.org/10.1016/j.resconrec.2022.106723)

**[7]. High-resolution mapping of material stocks in the built environment across 50 Chinese cities**

Yi Bao, Zhou Huang\*, Ruichang Mao, Gang Liu, Han Wang, Ganmin Yin  
*Resources, Conservation and Recycling* IF=13.7  
[10.1016/j.resconrec.2023.107232](https://doi.org/10.1016/j.resconrec.2023.107232)

**[8]. A BiLSTM-CNN model for predicting users' next locations based on geotagged social media**

Yi Bao, Zhou Huang\*, Linna Li, Yaoli Wang, Yu Liu  
*International Journal of Geographical Information Science* IF=5.2  
[10.1080/13658816.2020.1808896](https://doi.org/10.1080/13658816.2020.1808896)

**[9]. High resolution quantification of building stock using multi source remote sensing imagery and deep learning**

Yi Bao, Zhou Huang\*, Han Wang, Ganmin Yin, Xiao Zhou, Yong Gao  
*Journal of Industrial Ecology* IF=7.2  
[10.1111/jiec.13356](https://doi.org/10.1111/jiec.13356)

**[10]. Optimizing Segmented Trajectory Data Storage with HBase for Improved spatio-temporal Query Efficiency**

Yi Bao, Zhou Huang\*, Xuri Gong, Yuyang Zhang, Ganmin Yin, Han Wang  
*International Journal of Digital Earth* IF=4.6  
[10.1080/17538947.2023.2192979](https://doi.org/10.1080/17538947.2023.2192979)

**[11]. Spatial Blockchain: Enhancing Spatial Queries and Applications through Integrating Blockchain and Spatial Database Technologies**

Yi Bao, Zhiming Gui, Zhongxiang Sun, Zhengyang An, Zhou Huang  
*Electronics* IF=2.9  
[10.3390/electronics12204287](https://doi.org/10.3390/electronics12204287)

[12]. **A Scene–Object–Economy Framework for Identifying and Validating Urban–Rural Fringe Using Multisource Geospatial Big Data**

Ganmin Yin, Ying Feng, Yanxiao Jiang, **Yi Bao**\*

*Applied Sciences*

IF=2.5

[10.3390/app142210191](https://doi.org/10.3390/app142210191)

[13]. **城市建成环境存量的空间计算：进展及展望**

鲍毅, 黄舟\*, 郭庆华, 刘瑜

*遥感学报*

IF=2.3

[10.11834/jrs.20222083](https://doi.org/10.11834/jrs.20222083)

[14]. **High-Resolution Mapping of the Urban Built Environment Stocks in Beijing**

Ruichang Mao, **Yi Bao**, Zhou Huang\*, Qiance Liu, Gang Liu\*

*Environmental science & technology*

IF=11.4

[10.1021/acs.est.9b07229](https://doi.org/10.1021/acs.est.9b07229)

[15]. **Perceiving Beijing’ s “city image” across different groups based on geotagged social media data**

Xia Peng, **Yi Bao**, Zhou Huang\*

*IEEE Access*

IF=3.5

[10.1109/ACCESS.2020.2995066](https://doi.org/10.1109/ACCESS.2020.2995066)

[16]. **Global urban subway development, construction material stocks, and embodied carbon emissions**

Ruichang Mao, **Yi Bao**, Huabo Duan, Gang Liu

*10.1057/s41599-021-00757-2*

IF=2.7

[Humanities and Social Sciences Communications](https://doi.org/10.1057/s41599-021-00757-2)

[17]. **A novel carbon cycle turbulence index identifies environmental and ecological perturbations**

Ziheng Li, Zhen Guo, Zhongqiang Chen\*, S.W. Poulton, **Yi Bao**, Laishi Zhao, Feifei Zhang

*Geochemical Perspectives Letters*

IF=5.0

[10.7185/geochemlet.2137](https://doi.org/10.7185/geochemlet.2137)

[18]. **DouFu: A Double Fusion Joint Learning Method for Driving Trajectory Representation**

Han Wang, Zhou Huang\*, Xiao Zhou, Ganmin Yin, **Yi Bao**

*Knowledge-Based Systems*

IF=8.14

[10.1016/j.knosys.2022.110035](https://doi.org/10.1016/j.knosys.2022.110035)

[19]. **Identifying spatiotemporal characteristics and driving factors for road traffic CO2 emissions**

Xiao Zhou, Han Wang, Zhou Huang\*, **Yi Bao**, Guoqing Zhou, Yu Liu  
*Science of The Total Environment* **IF=10.75**  
[10.1016/j.scitotenv.2022.155270](https://doi.org/10.1016/j.scitotenv.2022.155270)

**[20]. Site selection for hybrid offshore wind and wave power plants using a four-stage framework: A case study in Hainan, China**  
Xiao Zhou, Zhou Huang\*, Han Wang, Ganmin Yin, **Yi Bao**, Quanhua Dong, Yu Liu  
*Ocean & Coastal Management* **IF=4.30**  
[10.1016/j.ocecoaman.2022.106035](https://doi.org/10.1016/j.ocecoaman.2022.106035)

**[21]. ConvGCN-RF: A hybrid learning model for commuting flow prediction considering geographical semantics and neighborhood effects**  
Ganmin Yin, Zhou Huang\*, **Yi Bao**, Han Wang, Linna Li, Xiaolei Ma, Yi Zhang  
*GeoInformatica* **IF=2.77**  
[10.1007/s10707-022-00467-0](https://doi.org/10.1007/s10707-022-00467-0)

**[22]. Examining active travel behavior through explainable machine learning: Insights from Beijing, China**  
Ganmin Yin, Zhou Huang, Chen Fu, Shuliang Ren, **Yi Bao**, Xiaolei Ma  
*Transportation Research Part D: Transport and Environment* **IF=7.6**  
[10.1016/j.trd.2023.104038](https://doi.org/10.1016/j.trd.2023.104038)

**[23]. Matching end-of-life household vehicle generation and recycling capacity in Chinese cities: A spatio-temporal analysis for 2022–2050**  
Shuliang Ren, Zhou Huang, **Yi Bao**, Ganmin Yin, Jingfan Yang, Xv Shan  
*Science of The Total Environment* **IF=9.8**  
[10.1016/j.scitotenv.2023.165498](https://doi.org/10.1016/j.scitotenv.2023.165498)

**[24]. Spatially-optimized greenspace for more effective urban heat mitigation: Insights from regional cooling heterogeneity via explainable machine learning**  
Shuliang Ren, Zhou Huang\*, Ganmin Yin, Xiaoqin Yan, Quanhua Dong, Junnan Qi, Jiangpeng Zheng, **Yi Bao**, Shiyi Zhang  
*Landscape and Urban Planning* **IF=7.9**  
[10.1016/j.landurbplan.2025.105296](https://doi.org/10.1016/j.landurbplan.2025.105296)

**[25]. Traffic prediction and road space optimization for the integration of dockless bike-sharing and subway**  
Ganmin Yin, Chen Fu, Shuliang Ren, Xiaoqin Yan, Junnan Qi, **Yi Bao**, Zhou Huang\*  
*Sustainable Cities and Society* **IF=10.5**

**[26]. Multi-level Priors-Guided Diffusion-based Remote Sensing Image Super-Resolution**

Lijing Lu, Zhou Huang, **Yi Bao**, Lin Wan, Zhihang Li

*ISPRS Journal of Photogrammetry and Remote Sensing* **IF=12.2**

**[27]. Background environment mitigate heat islands from inadequate urban green coverage while amplifying socioeconomic thermal inequities**

Shuliang Ren, Xiaoqin Yan, Ganmin Yin, Jiangpeng Zheng, Junnan Qi, Hanyu Zhang, Xiaowei Li, **Yi Bao**

*Sustainable Cities and Society* **IF=12**

**[28]. Assessing carbon sink potentials in the built environment: A study of 40 Chinese cities using a bottom-up high-resolution approach**

Xiao Zhou, Ting Wang, Xinmin Zhang, **Yi Bao**, Jie Wu, Xinzhou Chen, Yanling Lu, Guoqing Zhou

*Journal of Cleaner Production* **IF=10**

**[29]. Cropland Mitigates the Inequality in Urban Greenspace Exposure in China**

Junnan Qi , Zhou Huang\*, Ganmin Yin, Fei Suo, Shuliang Ren,Xiaoqin Yan, **Yi Bao**, Yi Yin, Bin Chen, Zhifang Wang, Kongjian Yu, Yu Liu

*Nature Cities (Under Review)* **IF=**

**[30]. Evaluating the efficiency-emission impacts of travel mode shift on sustainable transportation: A multi-objective optimization**

Ganmin Yin, Zhou Huang\*, Shuliang Ren, Mengfan Tang, Xiaoqin Yan, Jiangpeng Zheng, Junnan Qi, **Yi Bao**

*Sustainable Cities and Society (Under Review)* **IF=11.7**

**研究方向**

**城市时空大数据挖掘与可持续发展：**通过挖掘城市时空大数据，揭示城市发展的规律和趋势，为城市规划和决策提供科学依据。基于数据分析结果，制定合理的土地利用规划、交通规划和公共设施布局，实现城市的可持续发展和智能化建设。

**高分辨率城市建成环境研究：**通过结合机器学习与地理大数据计算高分辨率城市建成环境(建筑物、基础设施等)物质存量，分布模式，评估城市矿产潜力，城市演化方向以及城市可持续发展模式。

建成环境与人类活动、社会经济属性的相互影响机制探索：通过分析建成环境与人类活动、社会经济属性的关联，探究城市建成环境对于人类活动和社会经济的影响及其相互作用机制，提升资源使用效率为城市可持续发展提供科学依据。

## 科研荣誉

第一作者论文“A BiLSTM-CNN model for predicting users’ next locations based on geotagged social media”入选 International Journal of Geographical Information Science 近 3 年论文引用Top20。

第一作者论文“High-resolution quantification of building stock using multi-source remote sensing imagery and deep learning”入选 Journal of Industrial Ecology 的 Editor’s Pick 亮点论文。

第一作者论文“Big geodata revealed spatial patterns of built environment stocks across and within cities in China”发表在中国工程院院刊《Engineering》，被新华社以“中国主要城市建成环境物质存量的空间格局与演进模式研究成果发布”为题报道，认为“该研究成果将为全球可持续城市发展提供重要参考，并有助于实现 SDG11.3”文章获得了广泛关注，全网阅读量超过 115 万。

## 审稿经历

- Humanities & Social Sciences Communications
- Resources, Conservation and Recycling
- Transportation
- Cities
- Journal of Big Data
- Journal of Selected Topics in Applied Earth Observations and Remote Sensing
- Journal of Industrial Ecology
- Geo-spatial Information Science
- IEEE Access
- International Journal of Applied Earth Observation and Geoinformation
- Transactions on Geoscience and Remote Sensing
- Urban Informatics
- Sustainable Cities and Society
- Landscape and Urban Planning
- Applied Geography
- Earth’s Future
- Journal of Asian Architecture and Building Engineering