

# Mingzheng Yang

Ph.D. student  
Department of Geography  
College of Arts & Science  
Texas A&M University

205B Computing Service Annex  
3147 TAMU, College Station, TX 77843

Contact: ymz2020@tamu.edu

GEAR LAB: <https://www.geoealab.com/>

Personal Website: <https://ymz20203.wixsite.com/personal-website>

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## RESEARCH INTERESTS

- Geographic Information Science (GIScience)
- Geospatial Big Data and Microdata
- Alpine Climate Change
- Disaster Resilience, Vulnerability, and Risk
- Circadian Rhythms and Sleep Disorders

## TEACHING INTERESTS

- GIS and RS
- Geospatial Data Science
- Human-Environmental Modeling & Simulation
- Geodatabase
- Data Analysis and Visualization

## EDUCATION

2021-pres. **Ph.D.**, Geography, Texas A&M University, College Station, Texas, USA

Advisor: Prof. Lei Zou

Dissertation: Deciphering the Social-Environmental Effects on Circadian Rhythm Disorders through Spatial Data Science

2015-2018 **M.S.**, Landscape Ecology, Peking University, Beijing, China

Advisor: Prof. Zehao Shen, and Prof. Hui Zeng

Thesis: Fire severity and post-fire vegetation recovery in the Central Yunnan Plateau: multi-scale pattern and determinants

2011-2015 **B.E.**, Geography, Wuhan University, Wuhan, China

## APPOINTMENTS

2024.8-12 Teaching Assistant, Department of Geography, Texas A&M University

2021-pres. Research Assistant, Department of Geography, Texas A&M University

2020-2021 Research Assistant, Landscape Ecology, Peking University, Beijing, China

2018-2019 Real Estate Investor, China Overseas Land & Investment Limited, Nanjing, China

2016-2018 Research Assistant, Landscape Ecology, Peking University, Beijing, China

2015-2016 Research Assistant, Urban Design and Planning, Peking University Graduate School, Shenzhen, China

## **PROJECTS**

- 2024-pres. Research Assistant, TAMU with Google Scientific Research Projects Program, “Evolution of Insufficient Sleep with Environmental Determinants in the United States.” PI: Lei Zou, Department of Geography and Biology, Texas A&M University. Co-PI: Hongxu MA, AI Research Engineer, Google DeepMind.
- 2023-pres. Research Assistant, TAMU-TiCER Pilot Projects Program, “Geospatial modeling of climate change effects on localized environmental health resilience in southeast Texas communities.” PI: Lei Zou, Department of Geography and Biology, Texas A&M University.
- 2022-pres. Research Assistant, Texas A&M University’s Program of Seed Funds, “Circadian rhythm disorders during the COVID-19 pandemic using geospatial big data”, PI: Lei Zou, Department of Geography and Biology, Texas A&M University.
- 2021-2022 Research Assistant, Digital Twin, “Spatial–temporal land loss modeling and simulation in a vulnerable coast: A case study in coastal Louisiana”, PI: Xinyue Ye, Department of Geography, Texas A&M University.
- 2015-2018 Research Assistant, the Project of National Natural Science Foundation of China, “The spatiotemporal pattern, causes, and response to climate change of alpine treeline in the Three Parallel Rivers area of Yunnan”, PI: Zehao Shen, Department of Ecology, Peking University

## **PUBLICATIONS**

- In Review **Yang, M.**, Hongxu, M., Zou, L., Heng, C., Zongrong, L., Abedin, J., and Hao, T. The Geographical Boundary of Insufficient Sleep: from Southwest to Northeast in the United States and Its Environmental Determinants. *Cartography and Geographic Information Science*
- In Review **Yang, M.**, Esther, D., Zou, L., Li, W., Heng, C., Hao, T., and Abedin, J. Human Circadian Rhythms and Their Associations with Social-Environmental Factors through GIScience: A Systematic Review. *Reviews on Environmental Health*.
- In Review **Yang, M.**, Zou, L., Young, M.W., Li, W., Heng, C., Lin, B., Zhou, B., and Abedin, J. Sleepless Cities under Social Isolation: Geographically and Temporally Revealing Daily Rhythm Alterations through Social Media. *Proceedings of the National Academy of Sciences*
15. Lin, B., Zou, L., **Yang, M.**, Zhou, B., Mandal, D., Abedin, J., Cai, H. and Ning, N., 2024. Progress in understanding human-COVID-19 dynamics using geospatial big data: a systematic review. *Annals of GIS*, 30(4), pp.513-533.
14. Xie, Y., Shen, Z., Wang, T., Malanson, G.P., Peñuelas, J., Wang, X., Chen, X., Liang, E., Liu, H., **Yang, M.** and Ying, L., 2024. Uppermost global tree elevations are primarily limited by low temperature or insufficient moisture. *Global Change Biology*, 30(4), p.e17260.
13. Abedin, J., Zou, L., **Yang, M.**, Rohli, R., Mandal, D., Qiang, Y., Akter, H., Zhou, B., Lin, B. and Cai, H., 2024. Deciphering spatial-temporal dynamics of flood exposure in the United States. *Sustainable Cities and Society*, 108, p.105444.

12. Tian, H., Cai, H., Hu, L., Qiang, Y., Zhou, B., **Yang, M.** and Lin, B., 2024. Unveiling community adaptations to extreme heat events using mobile phone location data. *Journal of Environmental Management*, 366, p.121665.
11. Lin, B., Zou, L., Zhao, B., Huang, X., Cai, H., **Yang, M.** and Zhou, B., 2024. Sensing the pulse of the pandemic: unveiling the geographical and demographic disparities of public sentiment toward COVID-19 through social media. *Cartography and Geographic Information Science*, 51(3), pp.366-384.
10. Zhou, B., Zou, L., **Yang, M.**, Lin, B., Mandal, D. and Abedin, J., 2024. Overlooked voices under strict lockdown: mapping humanitarian needs in 2022 Shanghai COVID-19 outbreak. *Cartography and Geographic Information Science*, 51(3), pp.347-365.
9. Lin, B., Zou, L., Duffield, N., Mostafavi, A., Cai, H., Zhou, B., Tao, J., **Yang, M.**, Mandal, D. and Abedin, J., 2022. Revealing the linguistic and geographical disparities of public awareness to Covid-19 outbreak through social media. *International Journal of Digital Earth*, 15(1), pp.868-889.
8. **Yang, M.**, Zou, L., Cai, H., Qiang, Y., Lin, B., Zhou, B., Abedin, J. and Mandal, D., 2022. Spatial-temporal land loss modeling and simulation in a vulnerable coast: A case study in coastal Louisiana. *Remote Sensing*, 14(4), p.896.
7. **Yang, M.**, Zou, L., Cai, H., Abedin, J. and Mandal, D., 2022, December. Simulating Coastal Land Losses and Gains by Integrating Neighborhood Effects and Deep Learning with Cellular Automata. In *AGU Fall Meeting Abstracts (Vol. 2022, pp. NH15C-0326)*.
6. Ying, L., Shen, Z., **Yang, M.** and Piao, S., 2019. Wildfire detection probability of MODIS fire products under the constraint of environmental factors: A study based on confirmed ground wildfire records. *Remote Sensing*, 11(24), p.3031.
5. Zhou, B., Zou, L., Mostafavi, A., Lin, B., **Yang, M.**, Gharaibeh, N., Cai, H., Abedin, J. and Mandal, D., 2022. VictimFinder: Harvesting rescue requests in disaster response from social media with BERT. *Computers, Environment and Urban Systems*, 95, p.101824.
4. Zhao, Y.B., Wu, G.Z., Gong, Y.X., **Yang, M.** and Ni, H.G., 2019. Environmental benefits of electronic commerce over the conventional retail trade? A case study in Shenzhen, China. *Science of the Total Environment*, 679, pp.378-386.
3. Zhao, Y.B., **Yang, M.**, and Ni, H.G., 2018. An emergy-GIS method of selecting areas for sponge-like urban reconstruction. *Journal of Hydrology*, 564, pp.640-650.
2. Shen, Z., **Yang, M.**, Feng, J., Li, X., Peng, P. and Zheng, Z., 2017. Geographic patterns of alpine flora in China in relation to environmental and spatial factors. *Biodiversity Science*, 25(2), p.182.
1. Shen, R., Li, J., **Yang, M.**, Zeng, M. and Zhou, M., 2015. Spatial distribution of heavy metals in roadside soils based on voronoi diagram: A case study of Wuhan city. In *Geo-Informatics in Resource Management and Sustainable Ecosystem: Second International Conference, GRMSE 2014, Ypsilanti, MI, USA, October 3-5, 2014. Proceedings 2 (pp. 732-739)*. Springer Berlin Heidelberg.
- Book Zou, L., Mostafavi, A., Zhou, B., Lin, B., **Yang, M.**, Abedin, J., Mandal, D., Cai, H. *GeoAI for Disaster Response. Handbook of GeoAI (Editors: Song Gao, Yingjie Hu, and Wenwen Li)*

## **HONORS AND AWARDS**

2024	John Odland SAM Student Paper Competition the 2nd Award, 2024 AAG
2024	Student Paper Competition Winner Certificate from ICA, CaGIS+UCGIS 2024
2021	Student Travel Fund for attending 2021 Annual Meeting of the AAG, 2021 AAG
2018	Merit Student Worker, Peking University, Beijing, China
2017	Student Scholarship Award, Peking University, Beijing, China
2016	Student Scholarship Award, Peking University, Beijing, China
2015	Merit Student, Wuhan University, Beijing, China
2012-2015	Excellent Student Scholarship Award, Wuhan University, China

## **Presentations**

10. **Yang, M.**, Zou, L., Abedin, J., Lin, B., Zhou, B. Sleepless Cities under Social Isolation: Geographically and Temporally Revealing Circadian Rhythm Disorders through Social Media. CaGIS+UCGIS Symposium 2024.
9. **Yang, M.**, Zou, L., Abedin, J., Lin, B., Zhou, B. Sleepless Cities under Social Isolation: Geographically and Temporally Revealing Circadian Rhythm Disorders through Social Media. AAG 2024 Annual Meeting, Hawaii.
8. **Yang, M.**, Zou, L., Abedin, J., Lin, B., Zhou, B. Simulating coastal land losses and gains using neighborhood effect optimized convolutional neural networks (NeoCNN) and cellular automata. AAG 2023 Annual Meeting, Denver, CO.
7. Abedin, J., **Yang, M. (Presenter)**, Zou, L., Cai, H., Akter, H., Mandal, D., Lin, B., Zhou, B. Spatial-Temporal Changes of Flood Exposure in the United States. AGU Fall Meeting 2022, Chicago, IL.
6. **Yang, M.**, Zou, L., Li, W., Cai, H., Lin, B., Abedin, J., Mandal, D. The impact of social isolation on sleep disturbances – evidence from geospatial big data during COVID-19. LIFE ON A DYNAMIC PLANET SYMPOSIUM & POSTER SESSION 2023, Texas A&M University.
5. **Yang, M.**, Zou, L., Lin, B., Zhou, B., Abedin, J., Mandal, D. Simulating coastal land losses and gains using neighborhood effect optimized convolutional neural networks (NeoCNN) and cellular automata. AGU Fall Meeting 2022, Chicago, IL. (Poster)
4. **Yang, M.**, Zou, L., Lin, B., Zhou, B., Abedin, J., Mandal, D. Simulating land loss and land gain by integrating neighborhood effect and deep learning with cellular automata. AAG 2022 Annual Meeting, Virtual.
3. **Yang, M.**, Zou, L., Lin, B., Zhou, B. Modeling the spatial dynamics of land loss in the Louisiana Coastal Zone. AAG 2021 Annual Meeting, Virtual.
2. **Yang, M.**, Shen, Z., Chen, L., Han, J., Luo, C., Ying, L. The summer precipitation limits treeline elevation in northwest Yunnan, China. AAG 2017, Boston, MA. (Poster)
1. **Yang, M.** Li, J. Academic Symposium on Environmental Science and Technology in Wuhan Universities, 2014.