Curriculum Vitae

Chenchen Zhang

Ph.D. Candidate (Ready to graduate by December 2025 or earlier)
University of Oklahoma
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Education

8/2021 - Present	Ph.D. in Ecology and Evolutionary Biology; Remote Sensing and Ecology **University of Oklahoma**, Norman, OK, USA Dissertation: Multi-source Remote Sensing of Water-related Land Cover Dynamics Expected graduation: December 2025 or earlier
8/2017 - 7/2020	M.Sc. in Geography; Cartography and Geographic Information System **Institute of Geographic Sciences and Natural Resource Research, Chinese Academy of Sciences**, Beijing, China Thesis: Spatial Distribution and Change Detection of Rubber Plantation in Northeast Thailand Using Time Series Remote Sensing Images
9/2013 – 6/2017	B. Sc. in Agriculture; Soil and Water Conservation and Combating Desertification **Beijing Forestry University**, Beijing, China Thesis: Spatial Variability and Distribution Characteristics of Soil Organic Matter in the Yellow River Delta

Professional Experience

7/2020 – 7/2021	Institute of Geographic Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences Research Assistant

Research Interests

- Remote sensing, Geographical Information Systems (GIS)
- Data science, Machine learning/deep learning
- Land use and land cover change, driving factors, and impacts
- Climate change and impacts
- Terrestrial carbon and water cycles
- Agriculture, forestry, and soils

Honors, Awards, and Fellowships

2024	Best Student Poster Presentation, International Association for Landscape Ecology–North America (IALE-NA) annual meeting 2024
2024	Cindy and Jizhong Zhou Graduate Student and Postdoctoral Award in Environmental Science and Technology
2024	Dodge Family College of Arts and Sciences (DFCAS) Student Travel Grant, OU
2024, 2023	Robberson Conference Presentation and Creative Exhibition Travel Grant, OU
2024	Graduate Student Senate (GSS) Conference Grant, OU

2024, 2023, 2022	Kenneth & Joye Harwell Endowed Scholarship, OU
2020	Outstanding Master Graduate Award, IGSNRR, Chinese Academy of Sciences
2017	Outstanding Undergraduate Thesis Award, Beijing Forestry University

Peer-Reviewed Journal Articles ([1]Equal contribution, *Corresponding) (Google Scholar, citations = 310, h-index = 10, i10-index = 10)

First Author and Corresponding Author (a total of 12 papers)

[12] **Zhang, C.**, Xiao, X., et al. Climate-induced losses of surface water and total water storage in Northeast Asia. ***(Communications Earth & Environment, in Revision)***

[11] **Zhang, C.**, Xiao, X., et al. Challenges and benefits of habitat changes for migratory birds in the East Asian-Australasian Flyway (***in Prep.***)

[10] **Zhang, C.**, Xiao, X., et al. Integration of knowledge-based and deep learning algorithms for mapping water-related land cover in Northeast Asia. (***in Prep***.)

[9] **Zhang, C.**, Xiao, X., et al. Mapping paddy rice in Northeast China with a knowledge-based algorithm and time series optical, microwave, and thermal imagery. *Frontiers of Earth Sciences (**in Press**)*

[8] Wang, S., Huang, C., Huang, L., Xu, X., Shi, H., Gu, Q., … & **Zhang, C*.** Monitoring paddy rice cultivation adjustments in Northeast China through time series remote sensing and deep learning. ***(International Journal of Applied Earth Observation and Geoinformation, in Review)***

[7] **Zhang, C.**, Xiao, X., et al. (2024). Mapping wetlands in Northeast China by using knowledge-based algorithms and microwave (PALSAR-2, Sentinel-1), optical (Sentinel-2, Landsat), and thermal (MODIS) images. *Journal of Environmental Management*, *349*, 119618. https://doi.org/10.1016/j.jenvman.2023.119618

[6] **Zhang, C.**, Xiao, X., et al. (2023). Mapping Eucalyptus plantation in Guangxi, China by using knowledge-based algorithms and PALSAR-2, Sentinel-2, and Landsat images in 2020. *International Journal of Applied Earth Observation and Geoinformation*, *120*, 103348. https://doi.org/10.1016/j.jag.2023.103348

[5] Huang, C.[1], **Zhang, C.[1]** (2023). Time-series remote sensing of rice paddy expansion in the Yellow River Delta: Towards sustainable ecological conservation in the context of water scarcity. *Remote Sensing in Ecology and Conservation*, *9*(4), 454-468. https://doi.org/10.1002/rse2.320

[4] Huang, C.[1], **Zhang, C.[1]** (2022). Characterizing urban growth in Vientiane from 2000 to 2019 using time-series optical and SAR-based estimates of urban land. *International Journal of Applied Earth Observation and Geoinformation*, *109*, 102798. https://doi.org/10.1016/j.jag.2022.102798

[3] Huang, C.[1], **Zhang, C.[1]**, et al. (2022). Assessment of the impact of rubber plantation expansion on regional carbon storage based on time series remote sensing and the invest model. *Remote Sensing*, *14*(24), 6234. https://doi.org/10.3390/rs14246234

[2] **Zhang, C.**, Huang, C., et al. (2020). Effect of textural features in remote sensed data on rubber plantation extraction at different levels of spatial resolution. *Forests*, *11*(4), 399. https://doi.org/10.3390/f11040399

[1] **Zhang, C.**, Huang, C., et al. (2020). An analysis of the space-time patterns of precipitation-shallow groundwater depth interactions in the Yellow River Delta. *Hydrogeology & Engineering Geology*, 47(5), 21-30. DOI: 10.16030/j.cnki.issn.1000-3665.202002033

Co-author (a total of 18 papers)

[18] Yin, S., **Zhang, C.**, et al. Landscape changes drive highly pathogenic avian influenza emergence at wild bird-poultry interface in East Asian-Australasian Flyway. (***PNAS, in Revision***)

[17] Pan, L., Xiao, X., Qin, Y., Canadell, J., Huete, A. R., Ciais, P., Yin, S., **Zhang, C.**, et al. Strong and rapid post-fire recovery of vegetation productivity in Australia. (***Global Change Biology, in Review***)

[16] Ma, R., Shi, W., Wang, M., Chen, X., **Zhang, C.**, et al. Dual-Branch Networks for Enhanced Classification of Subtropical Rice. ***(IEEE Transactions on Geoscience and Remote Sensing, in Review)***

[15] Meng, C., Xiao, X., Pan, L., Pan, B., Scott, R.L., Wagle, P., **Zhang, C.**, et al. (2025). Interannual variability and trends of gross primary production and transpiration in savannas and grasslands from 2000 to 2021. *Frontiers of Earth Science*, 1-15. https://doi.org/10.1007/s11707-024-1136-8

[14] Pan, L., Xiao, X., Pan, B., Meng, C., Doughty, R., Qin, Y., **Zhang, C.**, et al. (2024). VPM v3. 0 model: improved estimates of terrestrial gross primary production from individual eddy flux tower sites to the globe. *Journal of Remote Sensing*, 5: 0471. https://doi.org/10.34133/remotesensing.0471

[13] Meng, C., Xiao, X., Wagle, P., **Zhang, C**., et al. (2024). Exponential or Unimodal Relationships Between Nighttime Ecosystem Respiration and Temperature at the Eddy Covariance Flux Tower Sites. *Ecology Letters*, 27(10), e14532. https://doi.org/10.1111/ele.14532

[12] Pan, L., Xiao, X., Pan, B., Meng, C., Staebler, R. M., **Zhang, C.**, et al. (2024). Interannual variations and trends of gross primary production and transpiration of four mature deciduous broadleaf forest sites during 2000–2020. *Remote Sensing of Environment*, *304*, 114042. https://doi.org/10.1016/j.rse.2024.114042

[11] Yang, X., Xiao, X., **Zhang, C.**, et al. (2024). Changes in Water and Carbon Fluxes in the USA Southern Great Plains Grassland Due to Evergreen Forest Encroachment. *Canadian Journal of Remote Sensing*, *50*(1), 2333976. https://doi.org/10.1080/07038992.2024.2333976

[10] Pan, L., Xiao, X., Yao, Y., Pan, B., Yin, C., Meng, C., ... & **Zhang, C**. (2024). Site-specific apparent optimum air temperature for vegetation photosynthesis across the globe. *Scientific Data*, *11*(1), 758. https://doi.org/10.1038/s41597-024-03603-7

[9] Wang, X., Xiao, X., **Zhang, C.**, et al. (2023). Effects of the 2022 extreme droughts on avian influenza transmission risk in Poyang Lake. *The Innovation Life*, *1*(3), 100044. https://doi.org/10.59717/j.xinn-life.2023.100044

[8] Yang, X., Xiao, X., & **Zhang, C**. (2023). Spatiotemporal variability and key factors of evergreen forest encroachment in the southern Great Plains. *Journal of Environmental Management*, *329*, 117012. https://doi.org/10.1016/j.jenvman.2022.117012

[7] Li, H., He, Z., Huang, C., Liu, Q., Liu, G., & **Zhang, C.** (2021). Spatiotemporal evolution of rubber forests in southern Myanmar during 2000-2019. *Resources Science*, 43(12), 2403-2415. DOI: 10.18402/resci.2021.12.04

[6] Huang, C., **Zhang, C.**, et al. (2021). Multi-Feature Classification of Optical and SAR Remote Sensing Images for Typical Tropical Plantation Tree Species Classification, *Scientia Silvae Sinicae*, 57(7), 80-91. DOI:10. 11707 / j.1001-7488.20210709

[5] Huang, C., **Zhang, C.**, et al. (2020). Land cover mapping in cloud-prone tropical areas using Sentinel-2 data: Integrating spectral features with NDVI temporal dynamics. *Remote Sensing*, *12*(7), 1163. https://doi.org/10.3390/rs12071163

[4] Huang, C., **Zhang, C.**, et al. (2020). Land reclamation and risk assessment in the coastal zone of China from 2000 to 2010. *Regional Studies in Marine Science*, *39*, 101422. https://doi.org/10.1016/j.rsma.2020.101422

[3] Huang, C., Xu, Z., **Zhang, C.**, et al. (2020). Extraction of rice planting structure in tropical region based on Sentinel-1 temporal features integration. *Transactions of the Chinese Society of Agricultural Engineering*, *36*(9), 177-184. DOI: 10.11975/j.issn.1002-6819.2020.09.020

[2] Li, H., Huang, C., **Zhang, C.**, et al. (2020). Coastal Erosion and Sediment Dynamics of the Yellow River Delta and its Response to the Runoff-sediment Flux Since 1976. *Resources Science*, 42(3), 486-493. DOI: 10.18402/resci.2020.03.07

[1] He, Y., Huang, C., Li, H., Liu, Q., Liu, G., Zhou, Z., & **Zhang, C.** (2019). Land-cover Classification of Random Forest Based on Sentinel- 2A Image Feature Optimization. *Resources Science*, 41(5), 992-1001. DOI: 10.18402/resci.2019.05.15

Book Chapters

Book chapters in Huang, C., et al. (2023). *Time-series Earth Observation Big Data - Land Cover Mapping* (Chinese version), China Science Publishing & Media Ltd.:

Chapter 7: He, Y., **Zhang, C.**, Huang, C. Land cover classification based on time-series statistical features.

Chapter 8: Xu, Z., **Zhang, C.**, Huang, C. Paddy rice extraction based on Sentinel-1 temporal similarity and statistical features.

Chapter 9: **Zhang, C.**, Huang, C., Li, H. Urban impervious surface extraction by integrating Sentinel-1/2 time-series features.

Chapter 10: **Zhang, C.**, Huang, C., Su. F. Rubber plantation information extraction by fusing Sentinel-1 temporal statistical features with Sentinel-2 spectral features.

Chapter 12: **Zhang, C.**, Huang, C., Li, H. Rubber plantation change detection based on time-series Landsat imagery.

Conference Presentations

[10] **Zhang, C.**, Xiao, X., et al. (2024, December). Water-related Land Cover Mapping through Multi-Source Remote Sensing and Deep Learning. *AGU Fall Meeting* (H53N-1297). Washington, D.C., USA (Poster)

[9] **Zhang, C.** (2024, November). Mapping paddy rice with a knowledge-based algorithm and multi-source satellites. *Ecomunch Seminar.* Norman, OK, USA (Oral presentation)

[8] **Zhang, C.** (2024, October). Widespread decline in surface and terrestrial water resources in Northeast Asia. *Microbiology and Plant Biology Seminar.* Norman, OK, USA (Oral presentation)

[7] **Zhang, C.**, Xiao, X., et al. (2024, August). Mapping paddy rice with a knowledge-based algorithm and time series optical, microwave, and thermal imagery, *ESA Annual Meeting* (PS 36-005). Long Beach, CA, USA (Poster)

[6] **Zhang, C.**, Xiao, X., et al. (2024, April). Mapping paddy rice with an enhanced knowledge-based algorithm and time series optical (Sentinel-2 and Landsat), microwave (Sentinel-1), and thermal (MODIS) imagery. *IALE-North America Annual Meeting* (P-46). Oklahoma City, OK, USA (Poster) (***Best Student Poster***)

[5] **Zhang, C.**, Xiao, X., et al. (2023, December). Surface Water Body Dynamics in Northeast Asia During 2015-2022 Using Time Series Landsat and Sentinel-2 Images. AGU Fall Meeting (GC31J-1163). San Francisco, CA, USA (Poster)

[4] **Zhang, C.**, Xiao, X., et al. (2022, December). Annual Maps of Surface Water Body, Paddy Rice, and Wetlands in Northeast China Using PALSAR, Sentinel-1, Sentinel-2, Landsat, and MODIS Imagery in 2020. *AGU Fall Meeting* (B42J-1749). Chicago, IL, USA (Poster)

[3] **Zhang, C.**, Xiao, X., et al. (2022, December). Mapping Eucalyptus Plantation in Guangxi, China Using PALSAR-2, Sentinel-2, and Landsat Images in 2020. *AGU Fall Meeting* (C32F-0678). Chicago, IL, USA (Poster)

[2] **Zhang, C**. (2022, September). Annual maps of surface water, paddy rice, and wetlands in Northeast China using multiple remote sensing data in 2020. *Microbiology and Plant Biology Seminar.* Norman, OK, USA (Oral presentation)

[1] **Zhang, C**. (2018, July). Groundwater Variation Characteristics and Influencing Factors in the Yellow River Delta. *19th Cross-strait Symposium on Environment, Resources and Ecological Conservation.* Guizhou, China (Oral presentation)

Teaching

Spring 2025	GIS/PBIO 4733/5733 Environmental Remote Sensing, I co-instructed two modules (*Hyperspectral and Multispectral Remote Sensing* and *Land Cover Classification*), including in-class lectures and field measurement of Spectroradiometer PSR 3500+, FieldSpec®3 ASD, and LAI-2200c, data processing and land cover classification on Google Earth Engine (GEE). I was also responsible for grading weekly textbook or article reading reports (15 weeks), grading student project reports, and designing and grading exams.
Spring 2024	GIS/PBIO 4733/5733 Environmental Remote Sensing, 15 weeks.
Spring 2023	GIS/PBIO 4733/5733 Environmental Remote Sensing, 15 weeks.

Services and Outreach

Workshops

2022-2024	I serve as the contact person and moderator for the International Forum on Ecology and Evolution of Avian Influenza (IFEEAI) and have held 71 webinars by Mar. 2025 (https://www.ceom.ou.edu/outreach/workshops/content/10).
2023	I participated in the GIS Day at the Oklahoma State Capitol and taught people from the public and private sectors how to use the free tools on the CEOM website to explore land cover change, land surface temperature changes, and field photos from around the world.
2022	I attended the GIS Day at the University of Oklahoma and presented the recent progress from the CEOM in land cover/land use mapping and GPP modeling. I also showed the use of instruments to faculty and students from different majors, including LAI-2200c, ASD, PSR+, and UAV.

Conferences

2024	I served as a Student/Early Career Convener and Outstanding Student Presentation Awards (OSPA) Liaison for the American Geophysical Union (AGU) 2024 Fall Meeting session "Forest cover dynamics, drivers, and impacts under diverse human activities and climate change".
2023	I served as a Student/Early Career Convener and OSPA Liaison for the AGU 2023 Fall Meeting session "Advances in land cover and land use changes: data products, driving factors, and impacts".

Journal referee

ISPRS Journal of Photogrammetry and Remote Sensing; IEEE Transactions on Geoscience and Remote Sensing; Journal of Environmental Management; Scientific Data; Science of Remote Sensing; Remote Sensing; Journal of Plant Ecology; Ecosystem Health and Sustainability; Journal of Environmental Engineering and Landscape Management; Environmental Research Communications; Atmosphere; Land; All Earth; Fire; Drones

Professional Affiliations

2024-present	Ecological Society of America (ESA)
2024-present	International Association for Landscape Ecology–North America (IALE-NA)
2022-present	American Geophysical Union (AGU)