

# JUNXIONG ZHOU

Remote Sensing / Agricultural engineering

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## EDUCATION

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**University of Minnesota Twin Cities, Department of Bioproducts and Biosystems Engineering** Saint Paul, USA  
*PhD* student, Agriculture engineering Sep 2021 – Present

**Beijing Normal University, Faculty of Geographical Science** Beijing, China  
*Msc*, Cartography and Geography Information System Sep 2018 – Jun 2021

**China University of Geosciences, Faculty of Information Engineering** Wuhan, China  
*BEng*, Remote Sensing Science and Technology Sep 2014 – Jun 2018

## PUBLICATIONS

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- [22] **Zhou, J.**, Zhu, P., Kluger, D.M., Lobell, D.B., & Jin, Z. (2024). Changes in the Yield Effect of the Preceding Crop in the US Corn Belt Under a Warming Climate. *Global Change Biology*, 30(11), e17556.
- [21] Hu, Y., Deng, J., Li, D., Lu, X., **Zhou, J.**, Wang, C., & Li, Y. (2024). Shifted flood and ecology regimes due to channel bar greening and increased flow resistance in a large dammed river. *Geophysical Research Letters*, 51(20), e2024GL110890.
- [20] Lin, C., **Zhou, J.**, Yin, L., Bouabid, R., Mulla, D., Benami, E., & Jin, Z. (2024). Sub-national scale mapping of individual olive trees integrating Earth observation and deep learning. *ISPRS Journal of Photogrammetry and Remote Sensing*, 217, 18-31.
- [19] Bai, Y., Liu, M., **Zhou, J.**, Guo, Q., Wu, G., & Li, S. (2024). Diverse responses of surface biogeophysical parameters to accelerated development and senescence of vegetation on the Mongolian Plateau. *Science of The Total Environment*, 173727.
- [18] Hu, Y., Li, D., Deng, J., Yue, Y., **Zhou, J.**, Yang, C., Zheng, N., Li, Y. (2024). Dune Development Dominates Flow Resistance Increase in a Large Dammed River. *Water Resources Research*, 60(4), e2023WR036660.
- [17] Yang, Q., Liu, L., **Zhou, J.**, Rogers, M., & Jin, Z. (2024). Predicting the growth trajectory and yield of greenhouse strawberries based on knowledge-guided computer vision. *Computers and Electronics in Agriculture*, 220, 108911.
- [16] Liu, W., **Zhou, J.**, Ma, Y., Chen, S., & Luo, Y. (2024). Unequal impact of climate warming on meat yields of global cattle farming. *Communications Earth & Environment*, 5(1), 65.
- [15] Zhou, Z., Zhang, C., Zou, X., Zhang, X., Zuo, X., Zhang, Z., **Zhou, J.**, & Cao, Z. (2024). Estimating lateral cover of vegetation and gravel using NDVI and albedo. *CATENA*, 239, 107899.
- [14] Zhou, Z., Zhang, C., Chappell, A., Zou, X., Zhang, Z., Zuo, X., **Zhou, J.**, & Cao, Z. (2024). Using field measurements across land cover types to evaluate albedo-based wind friction velocity and estimate sediment transport. *Journal of Geophysical Research: Atmospheres*, 129(4), e2023JD040313.
- [13] **Zhou, J.**, Yang, Q., Liu, L., Kang, Y., Jia, X., Chen, M., ... & Jin, Z. (2023). A deep transfer learning framework for mapping high spatiotemporal resolution LAI. *ISPRS Journal of Photogrammetry and Remote Sensing*, 206, 30-48.
- [12] Yang, Q., Liu, L., **Zhou, J.**, Ghosh, R., Peng, B., Guan, K., ... & Jin, Z. (2023). A flexible and efficient knowledge-guided machine learning data assimilation (KGML-DA) framework for agroecosystem prediction in the US Midwest. *Remote Sensing of Environment*, 299, 113880.
- [11] Yin, L., Ghosh, R., Lin, C., Hale, D., Weigl, C., Obarowski, J., **Zhou, J.**, ... & Jin, Z. (2023). Mapping smallholder cashew plantations to inform sustainable tree crop expansion in Benin. *Remote Sensing of Environment*, 295, 113695.
- [10] Bai, Y., Li, S., **Zhou, J.**, Liu, M., & Guo, Q. (2023). Revisiting vegetation activity of Mongolian Plateau using multiple remote sensing datasets. *Agricultural and Forest Meteorology*, 341, 109649.
- [9] Hu, Y., **Zhou, J.**, Deng, J., Li, Y., Yang, C., & Li, D. (2023). River Bars and Vegetation Dynamics in Response to Upstream Damming: A Case Study of the Middle Yangtze River. *Remote Sensing*, 15(9), 2324.
- [8] Hu, Y., Li, D., Deng, J., Yue, Y., **Zhou, J.**, Chai, Y., & Li, Y. (2022). Mechanisms Controlling Water-Level Variations in the Middle Yangtze River Following the Operation of the Three Gorges Dam. *Water Resources Research*, 58(10), e2022WR032338.

- [7] Zhu, X., Zhan, W., **Zhou, J.**, Chen, X., Liang, Z., Xu, S., & Chen, J. (2022). A novel framework to assess all-round performances of spatiotemporal fusion models. *Remote Sensing of Environment*, 274, 113002.
- [6] Liu, S., **Zhou, J.**, Qiu, Y., Chen, J., Zhu, X., & Chen, H. (2022). The FIRST model: Spatiotemporal fusion incorporating spectral information autocorrelation. *Remote sensing of Environment*, 279, 113111.
- [5] Zhou, X., **Zhou, J.**, Xie, Q., Zhang, Z., Chen, Q., & Liu, X. (2022). Detection of Soil Freeze/Thaw States at a High Spatial Resolution in Qinghai-Tibet Engineering Corridor. *IEEE Geoscience and Remote Sensing Letters*, 19, 1-5.
- [4] **Zhou, J.**, Chen, J., Chen, X., Zhu, X., Qiu, Y., Song, H., ... & Cui, X. (2021). Sensitivity of six typical spatiotemporal fusion methods to different influential factors: a comparative study for a normalized difference vegetation index time series reconstruction. *Remote Sensing of Environment*, 252, 112130.
- [3] **Zhou, J.**, Qiu, Y., Chen, J., Chen, X. (2021). A geometric misregistration resistant data fusion approach for adding red-edge (RE) and short-wave infrared (SWIR) bands to high spatial resolution imagery. *Science of Remote Sensing*, 4, 100033.
- [2] Qiu, Y., **Zhou, J.**, Chen, J., & Chen, X. (2021). Spatiotemporal fusion method to simultaneously generate full-length normalized difference vegetation index time series (SSFIT). *International Journal of Applied Earth Observation and Geoinformation*, 100, 102333.
- [1] Cui, X., Quan, Z., Chen, X., Zhang, Z., **Zhou, J.**, Liu, X., ... & Guo, L. (2021). GPR-based automatic identification of root zones of influence using HDBSCAN. *Remote Sensing*, 13(6), 1227.

## RESEARCH EXPERIENCE

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### Graduate Researcher, University of Minnesota Twin Cities

Sep 2021 – Present

- Developed a 4D crop growth model for maize
- Collected drone imagery and leaf area index field measurements during the summer in 2023
- Developed a model for mapping high spatiotemporal satellite leaf area index products
- Explored interactions between rotation effects and climates in the US Midwest
- Processed satellite data for olives mapping in Morocco

### Poster presenter in American Geophysical Union Fall meeting in San Francisco, USA

Dec 2023

- Made a poster presentation on the research of “A digital twin of agriculture: modeling 3D maize structures at a landscape scale”.

### Poster presenter in American Geophysical Union Fall meeting in Chicago, USA

Dec 2022

- Made a poster presentation on the research of “An Interpretative Representation Learning Framework for Generating High Spatiotemporal Resolution Leaf Area Index of Croplands”.

### Journal Reviewer

Sep 2022 - Present

- Reviewed research papers for several academic journals: *International Journal of Applied Earth Observation and Geoinformation*, *International Journal of Digital Earth*, *Agronomy Journal*, and *Scientific Reports*.

### Graduate Researcher, Beijing Normal University

Sep 2017 – Jun 2021

- Developed several algorithms for producing high spatiotemporal satellite images
- Proposed a framework for assessing spatiotemporal fusion methods
- Evaluated the sensitivity of current spatiotemporal fusion methods to different error sources
- Developed a spatial-spectral fusion algorithm
- Analyzed the impacts of topography on satellite-based vegetation index products

### Oral presenter in IEEE International Geoscience and Remote Sensing Symposium in Yokohama, Japan

Aug 2019

- Made an oral presentation on the research of “Analysis of topographic effects on vegetation indices”.

## **ADDITIONAL EXPERINCE**

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### **Teaching Assistant, Beijing Normal University**

2020

- Worked as teaching assistant for two graduate courses
- Advised 20 students on course material, and field experiment
- Assisted faculty with administrative tasks and curriculum development

## **SKILLS & INTERESTS**

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Languages: Mandarin (native), English

Computer: Proficient in programming with C++, Matlab, Python, IDL, C++, and Javascript (Google Earth Engine); ENVI, ArcGIS, Microsoft office

Interests: Certified computer and software technology engineer; badminton, city biking, and video games