JUNXIONG ZHOU

Remote Sensing / Agricultural engineering

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EDUCATION

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

[24] Yang, Q., **Zhou, J.**, Zhao, L., & Jin, Z.* (2025). NeRF-LAI: A hybrid method combining neural radiance field and gap-fraction theory for deriving effective leaf area index of corn and soybean using multi-angle UAV images. Remote Sensing of Environment, 328, 114844.

[23] Liu, W., **Zhou, J.***, Luo, Y., Chen, S., & Ma, Y. (2025). Reduced crop yield stability is more likely to be associated with heat than with moisture extremes in the US Midwest. *Earth's Future*, *13*(9), e2024EF005172.

[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 mul-

tiple 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

Graduate Researcher, University of Minnesota Twin Cities Sep. 2021 – Present

- Develop a 4D crop growth model for maize
- Collected drone imagery and leaf area index field measurements during the summer in 2023
- Explored the role of crop rotation under climate warming
- 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

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. 2018 – 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 American Association of Geographers Annual Meeting in Detroit, USA Mar. 2025

Poster presenter in American Geophysical Union Fall meeting in Washington DC, USA Dec. 2024

Poster presenter in American Geophysical Union Fall meeting in San Francisco, USA Dec. 2023

Poster presenter in American Geophysical Union Fall meeting in Chicago, USA Dec. 2022

Oral presenter in IEEE International Geoscience and Remote Sensing Symposium in Yokohama, Japan Aug. 2019

ADDITIONAL EXPERINCE

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

Languages: Mandarin (native), English

Proficient in programming with C++, Matlab**,** Python, IDL, R, and Google Earth Engine; Remote Pilot Certificate

Interests: Badminton, city biking, road trip, and video games