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

[23] 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.

[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

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, Journal of Geophysical Research: Biogeosciences, 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

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.

Professional: Remote pilot Certificate; C++, Matlab**,** Python, IDL, and Google Earth Engine.

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