Zijun Yang

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EDUCATION

University of Illinois at Urbana-Champaign School of Earth, Society, and Environment (Urbana, IL)

- **Ph.D. student**, Geography and GIScience, expected 2024
- GPA: 3.98/4.0
- Coursework: Stat Learning in Data Science, Deep Learning, Applied Parallel Programming, Spatial Statistics, Crop Growth and Management, Aerial Photo Analysis
- Research interests: time series remote sensing, spatiotemporal image fusion, machine learning/deep learning, agricultural remote sensing, and crop dynamics modeling

University of Michigan School for Environment and Sustainability (Ann Arbor, MI)

- **Master of Science**, Natural Resources and Environment (Environmental Informatics), April 2018
- Thesis: *Using Spatial Entropy of Urban Vegetation to Measure Neighborhood Stability in Shrinking Cities*
- GPA: 4.0/4.0
- Environmental Informatics Track Leader, SEAS, 2017
- Coursework: Remote Sensing of Environment, Applied Statistics I, Analysis and Modeling of Ecological Data, Environmental Spatial Data Analysis

Sun Yat-Sen University School of Geography and Planning (Guangzhou, China)

- **Bachelor of Science**, Geographic Information System, June 2012
- GPA: 90.4/100
- SYSU Scholarship for Outstanding Student
- Coursework: Quantitative Remote Sensing, GIS Software Engineering, Object Oriented Programming, Remote Sensing Imagery Processing, Digital Survey and Mapping

HONORS AND AWARDS

- **Planet Fellowship ($10,000)**, Taylor Geospatial Institute, 2023
- **Schlesinger Travel Grant ($750)**, School of Earth, Society, and Environment, University of Illinois at Urbana-Champaign, 2022
- **Best Geography and GIS Poster (Third Place)**, 2021 SESE Research Review, University of Illinois at Urbana-Champaign, 2021
- **Supplementary Summer Block Grant**, Graduate College, University of Illinois at Urbana-Champaign, 2020
- **Student Honors Paper Competition Award (First Place)**, Remote Sensing Specialty Group, Annual Meeting of the Association of American Geographers, 2020
- **Teacher Ranked as Excellent**, Center for Teaching Excellence, University of Illinois at Urbana-Champaign, 2019
- **SYSU Scholarship for Outstanding Students**, Sun Yat-Sen University, 2014-2016
- **SYSU Outstanding Student League Member**, Sun Yat-Sen University, 2014

JOURNAL PUBLICATIONS

- **Yang, Z.**, Diao, C., & Gao, F. (2023). Towards Scalable Within-Season Crop Mapping with Phenology Normalization and Deep Learning. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.
- **Yang, Z.**, Diao, C., & Li, B. (2021). A Robust Hybrid Deep Learning Model for Spatiotemporal Image Fusion. Remote Sensing, 13(24), 5005.
- Diao, C., **Yang, Z.**, Gao, F., Zhang, X., & Yang, Z. (2021). Hybrid phenology matching model for robust crop phenological retrieval. ISPRS Journal of Photogrammetry and Remote Sensing, 181, 308-326.

CONFERENCE PUBLICATIONS

- Lyu, F., **Yang, Z.**, Xiao, Z., Diao, C., Park, J., & Wang, S. (2022). CyberGIS for Scalable Remote Sensing Data Fusion. In Practice and Experience in Advanced Research Computing (pp. 1-4).

PRESENTATIONS

- **Yang, Z.,** Diao. C. and Gao, F. Within-season crop mapping at the field level using a phenology-guided deep learning model. *Association of American Geographers (AAG)*, Denver, CO. Mar. 22-Mar. 27, 2023.
- **Yang, Z.,** Diao. C. and Gao, F. A Novel Phenology Guided Deep Learning Model for Within-Season Field-Level Crop Mapping. *2023 SESE Research Review*, Urbana, IL, Feb. 24, 2023.
- **Yang, Z.,** Diao. C. and Gao, F. A Novel Phenology Guided Deep Learning Model for Within-Season Field-Level Crop Mapping. *American Geophysical Union (AGU) Fall Meeting*, Chicago, IL. Dec. 12-16, 2022.
- **Yang, Z.** and Diao. C. A phenolgy-guided deep learning model for in-season crop mapping at the field level. *Annual Meeting of the Association of American Geographers (AAG)*, Virtual Meeting, Feb. 25-Mar. 1, 2022.
- Diao, C. and **Yang. Z.** Towards remote sensing modeling framework for crop phenological characterization. *Annual Meeting of the Association of American Geographers (AAG)*, Virtual Meeting, Feb. 25-Mar. 1, 2022.
- **Yang, Z.** and Diao, C. A deep learning-based model for characterizing crop phenological stages with fused imagery. *2021 SESE Research Review*, Urbana, IL, Apr. 23, 2021.
- **Yang, Z.** and Diao. C. A deep learning-based phenology matching model for characterizing crop phenological stages with fused high spatio-temporal resolution imagery. *Annual Meeting of the Association of American Geographers (AAG)*, Virtual Meeting, Apr. 7-11, 2021.
- Diao, C. and **Yang. Z.** Retrieval of crop growing progress with remote sensing and phenology-matching models. *Annual Meeting of the Association of American Geographers (AAG)*, Virtual Meeting, Apr. 7-11, 2021.

- Diao, C. and **Yang. Z.** An innovative phenology-matching model to estimate crop growing stages. *American Geophysical Union (AGU) Fall Meeting*, San Francisco, CA. Dec. 7-11, 2020
- **Yang, Z.** and Diao. C. A robust hybrid deep learning modeling framework for spatiotemporal image fusion. *Annual Meeting of the Association of American Geographers (AAG)*, Denver, CO. Apr. 6-10, 2020. (Student Honors Paper Competition Award).
- **Yang, Z.** and Diao, C. Satellite Data Deluge: An Innovative Deep Learning Model for Fusing Multi-Scale Spatio-Temporal Satellite Imagery. *2019 SESE Research Review*, Urbana, IL. Feb. 15, 2019
- **Yang, Z.** Using Spatial Entropy of Urban Vegetation to Measure Neighborhood Stability in Shrinking Cities. *2018 SEAS Capstone Conference*, Ann Arbor, MI. Apr. 12-13, 2018

RESEARCH EXPERIENCE

University of Illinois at Urbana-Champaign, Research Assistant (Urbana, IL) May 2019-present

- Worked in NSF funded project: *Real-time Computational Modeling of Crop Phenological Progress towards Scalable Satellite Precision Farming*
- Worked in USDA funded project: *Scalable Real-time Satellite-based Crop Yield Forecasting Framework via Deep Learning*
- Developed a phenology-guided deep learning model for fine-scale early crop mapping
- Estimated crop phenological transition dates using phenophase extraction and phenology matching algorithms implemented in R
- Developed hybrid CNN-LSTM deep learning satellite image fusion model to blend MODIS and Landsat imagery

Environmental Spatial Analysis Lab, University of Michigan, Graduate Research Student (Ann Arbor, MI) Apr. 2017-Apr. 2018

- Measured urban landscape change patterns with spatial metrics under the supervision of Prof. Dan Brown
- Investigated and modeled the relation between urban shrinkage and various landscape and socio-economic variables using R and MATLAB

Sun Yat-Sen University, Research Assistant (Guangzhou, China) Sept. 2014-May 2016

- Modified an algorithm on spectral unmixing of multispectral images using ArcGIS, MATLAB and IDL

South China Sea Institute of Oceanology, Chinese Academy of Science, Research Assistant (Guangzhou, China) Apr. 2015-June 2015

- Programmed in C++ to assimilate data of temperature, water velocity and salinity

TEACHING EXPERIENCE

GEOG 379 – Intro to GIS Systems, Teaching Assistant (UIUC) Spring 2019
GEOG 105 – Digital Earth, Teaching Assistant (UIUC) Fall 2018
EAS 541 – Remote Sensing of Environment, Graduate Student Instructor (UMich) Spring 2018

PROFESSIONAL ACTIVITIES AND SERVICE

- **Student Co-Director**, Remote Sensing Specialty Group, Association of American Geographers (AAG). 2023-2025.
- **Session Organizer and Chair,** Advances in Agricultural Remote Sensing and Artificial Intelligence (with Chunyuan Diao), *Annual Meeting of the Association of American Geographers (AAG)*, Denver, CO. Mar. 22-Mar. 27, 2023.
- **Session Organizer and Chair,** Advances in Agricultural Remote Sensing and Artificial Intelligence (with Chunyuan Diao), *Annual Meeting of the Association of American Geographers (AAG)*, Virtual Meeting, Feb. 25-Mar. 1, 2022.
- **Session Organizer and Chair,** Time Series Remote Sensing in Characterizing Land Surface Dynamics (with Chunyuan Diao), *Annual Meeting of the Association of American Geographers (AAG)*, Virtual Meeting, Apr. 7-11, 2021.

PROFESSIONAL MEMBERSHIP

Association of American Geographers (AAG), American Geophysical Union (AGU)

COMPUTER SKILLS

ArcGIS, ENVI, Google Earth Engine, MATLAB/R/Python/SQL/C, CUDA, Spark, Hadoop, Keras, PyTorch