Yin Liu

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EDUCATION

University of Illinois Urbana-Champaign — Urbana, IL
Ph.D. Geography and Geographic Information Science — May 2026 (Expected)
Advisor: Dr. Chunyuan Diao
GPA: 3.94/4.00

University of Michigan — Ann Arbor, MI
M.S. Environment and Sustainability & Data Science (Dual Degree) — May 2021
Advisor: Dr. Meha Jain
GPA: 4.00/4.00

China University of Geosciences — Wuhan, China
B.E. Remote Sensing Science and Technology — July 2019
GPA: 3.53/4.00

JOURNAL PUBLICATIONS

- **Liu, Y.**, Diao, C., Mei, W., Zhang, C. (2024). CropSight: towards a large-scale operational framework for object-based crop type ground truth retrieval using street view and PlanetScope satellite imagery. *ISPRS Journal of Photogrammetry and Remote Sensing*, 216, 66-89. (IF=10.6)
- **Liu, Y.**, Diao, C., Yang, Z. (2023). CropSow: An integrative remotely sensed crop modeling framework for field-level crop planting date estimation. *ISPRS Journal of Photogrammetry and Remote Sensing*, 202, 334-355. (IF=10.6)
- **Liu, Y.**, Rao, P., Zhou, W., Srivastava, A.K., Poonia, S., Singh, B., Van Berkel, D., Jain, M. (2022). Using Sentinel-1, Sentinel-2, and Planet satellite data to map field-level tillage practices in smallholder systems. *PLOS ONE*, 17(11): e0277425. (IF=2.9)

CONFERENCE PUBLICATIONS

- **Liu, Y.**, Li, L., Chen, Q., Shu, M., Zhang, Z., Liu, X. (2017). Building Damage Assessment of Compact Polarimetric Sar Using Statistical Model Texture Parameter. In: *2017 SAR in Big Data Era: Models, Methods and Applications (BIGSARDATA)* (pp. 1-4): IEEE.

WORKING PAPERS (* denotes equal contribution)

- **Liu, Y.**, Diao, C., Yang, Z, Mei, W., Guo, T. (In Preparation). A novel harvest phenology index (HPI) for corn and soybean harvesting date mapping using Landsat and Sentinel-2 imagery on Google Earth Engine.
- Zhou, Z.*, **Liu, Y.***, Diao, C. (In Preparation). CropSight-US: an object-based crop type ground truth dataset using street view and Sentinel-2 satellite imagery across the Contiguous United States.
- Guo, T., Diao, C., Yang, Z, **Liu, Y.**, Zhang, C. (In Preparation). Towards Scalable Field-level Crop Yield Estimation through Integration of Crop Model and Deep Learning.
- Yang, Z.*, **Liu, Y.***, Diao, C. (In Preparation). Towards large-scale remote sensing of crop phenology: a comprehensive evaluation of methods, features, and uncertainty.
- Yang, Z., Diao, C., Zhao, Y. **Liu, Y.** (In Preparation). A novel deep learning framework for within-season field-level crop phenology characterization.
- Chen, J., **Liu, Y.**, Diao, C., Yang, Z., Zhou, Z. (In Preparation). CropSync: towards a large-scale operational framework for within-season crop type mapping using Google Street View and Harmonized Landsat and Sentinel-2 imagery.

WORKING BOOK CHAPTERS

- Yang, Z.*, Diao, C, **Liu, Y.** (In Preparation). Estimating crop phenology with remote sensing. Satellites for Field Crops: Advancing Agriculture through Earth Observation.

PRESENTATIONS

- **Liu, Y.**, Diao, C., Yang, Z, Mei, W., Guo, T. A novel Harvest Phenology Index (HPI) for corn and soybean harvesting date mapping using Landsat and Sentinel-2 imagery on Google Earth Engine. Annual Meeting of the Association of American Geographers, Detroit, MI, March 24 - March 28, 2025.
- **Liu, Y.**, Diao, C., Yang, Z, Mei, W., Guo, T. A novel Harvest Phenology Index (HPI) for corn and soybean harvesting date mapping using Landsat and Sentinel-2 imagery on Google Earth Engine. Annual Meeting of the American Geophysical Union, Washington, D.C. December 9 - December 13, 2024.
- **Liu, Y.**, Diao, C., Mei, W., Zhang, C. CropSight: an operational framework for object-based crop type information retrieval using street view and PlanetScope satellite images. Annual Meeting of the American Geophysical Union, San Francisco, CA. December 11 - December 15, 2023.
- **Liu, Y.**, Diao, C., Yang, Z. CropSow: an integrative remotely sensed crop modeling framework for field-level crop planting date estimation. 2023 School of Earth, Society, and Environment (SESE) Research Review, Urbana, IL, Feb. 24, 2023
- **Liu, Y.**, Diao, C., Yang, Z. CropSow: an integrative remotely sensed crop modeling framework for field-level crop planting date estimation. Annual Meeting of the American Geophysical Union, Chicago, IL. December 12 - December 16, 2022.
- **Liu, Y.**, Diao, C., Yang, Z. CropSow: an integrative remotely sensed crop modeling framework for field-level crop planting date estimation. Annual Meeting of the Association of American Geographers, New York City, NY. February 25 - March 1, 2022.

HORNORS AND AWARDS

- **Schlesinger Travel Grant**, School of Earth, Society, and Environment, University of Illinois at Urbana-Champaign, 2024.
- **Schlesinger Travel Grant**, School of Earth, Society, and Environment, University of Illinois at Urbana-Champaign, 2023.
- **Best Geography and GIS Poster (Second Place)**, 2023 SESE research Review, University of Illinois at Urbana-Champaign, 2023.
- **Teacher Ranked as Excellent**, Center for Teaching Excellence, University of Illinois at Urbana-Champaign, 2022.
- **Student Illustrated Paper Competition Award (First Place)**, Remote Sensing Specialty Group, Annual Meeting of the Association of American Geographers, 2022.
- **Scholarship for CUG Talents**, China University of Geosciences (Wuhan), 2018.

RESEARCH EXPERIENCE

University of Illinois Urbana-Champaign, Graduate Research Assistant, Aug. 2021-present

Phenology Characterization

- Devised an integrative framework for planting date estimation using physical-based crop model and multi-source remote sensing.
- Developed a vegetation index for harvesting date estimation using multi-source remote sensing.

- Achieved accurate early harvesting date mapping in U.S. using the devised vegetation index through Google Earth Engine.
- Estimated crop phenological transition dates using phenophase extraction and phenology matching algorithms implemented in R.

Crop Type Mapping

- Developed a deep learning-based framework (CropSight) to obtain crop type ground truth using Google Street View (GSV) and PlanetScope satellite imagery.
- Deployed CropSight to gather millions object-based crop type data across the U.S.

University of Michigan, Ann Arbor, Master's Thesis Research, Aug. 2019-June 2021

Tillage Practices Identification

- Acquired and processed multi-sensor satellite images using Google Earth Engine and Planet-API.
- Built up the model to classify smallholder tillage practices using multi-sensor satellite imagery.

China University of Geosciences, Wuhan, Undergraduate Research Assistant, Sept. 2017-June 2018

Post-earthquake Building Damage Assessment

- Assessed building damage following the YuShu earthquake using statistical models based on texture parameters from compact polarimetric synthetic aperture radar (SAR) data.
- Processed and analyzed SAR images utilizing ArcGIS, MATLAB, and IDL.

TEACHING EXPERIENCE

University of Illinois Urbana-Champaign

GGIS 489 – Programming for GIS, Instructor, Spring 2024

- Designed and delivered lectures introducing basic programming concepts for GIS.
- Instructed students to use R programming language for fundamental spatial analysis.

GGIS 379 – Introduction to GIS Systems, Graduate Teaching Assistant, Fall 2022

- Led weekly lab sessions on geospatial analysis using ArcMap and ArcGIS Online.
- Updated course materials and prepared new slides according to the software updates.

PROFESSIONAL ACTIVITIES AND SERVICE

Journal Reviewer, 2023-present

- Papers in applied geography
- Computational Urban Science

Conference Session

- Session Organizer and Chair, Advancing agricultural monitoring through remote sensing (with Zijun Yang, Chishan Zhang, and Chunyuan Diao), Annual Meeting of the American Association of Geographers (AAG), Washington, D.C, Mar. 24-28, 2025

PROFESSIONAL MEMBERSHIP

- American Geophysical Union (AGU), 2022-present
- American Association of Geographers (AAG), 2022, 2024

TECHNICAL SKILLS

- Programming Languages: Python, R, C++, JavaScript, SQL, HTML
- Tools: Linux, Docker, SLURM, MPI, Google Earth Engine, ArcGIS, ENVI, MongoDB, MySQL
- Machine Learning Tools: PyTorch, NumPy, Scikit-Learn, Pandas, TensorFlow