Stanford

Yuchi Ma

Social Science Research Scholar

Center on Food Security and Environment at FSI

Curriculum Vitae available Online

Bio

BIO

As a postdoctoral scholar in Earth System Science at Stanford University with a Ph.D. in Agricultural Engineering and a minor in Machine Learning from the University of Wisconsin-Madison (UW-Madison), my research is dedicated to developing and applying precision sensing technologies and Geospatial AI to advance scalable Earth observation, environmental monitoring, and data-driven decision support. My research program develops sensing-to-decision frameworks that connect the physical and computational dimensions of the Earth system. I contribute across three tightly linked areas: (1) remote sensing strategies for fine-scale environmental and agroecosystem observation; (2) GeoAI methods that improve model generalization across space, sensors, and time; and (3) science applications that translate these methods into actionable insights on land management, climate resilience, and sustainability.

My research has resulted in 8 first-authored and 17 co-authored publications in leading journals, including Nature Sustainability and Remote Sensing of Environment. The impact of my work is reflected in 2 first-authored papers recognized as Web of Science Highly Cited Papers (Top 1%) and 1 first-authored paper designated as a Top Cited Paper in Remote Sensing of Environment (2025). Beyond academia, the real-world impact of my research is evident: my models have been adopted by USDA and Google X, demonstrating their practical value to both government and industry.

Besides, I have taught 3 courses, including one semester as the Lecturer of Record in Geography at UW-Madison. For service, I have served as reviewers for over 30 journals and convened agroecosystem- and AI-related sessions at the AGU and AAG meetings. In addition, I have actively secured internal and external funding, serving as PI or Co-PI on multiple awarded projects. These leadership and collaborative roles have allowed me to build enduring connections with top researchers from academic institutions and private sectors, extending my professional network beyond Stanford. More details are listed in my CV.

ACADEMIC APPOINTMENTS

- Social Science Research Scholar, Center on Food Security and Environment at FSI

HONORS AND AWARDS

- Early Career Scholars Award in Remote Sensing, American Association of Geographers (2026)
- Remote Sensing of Environment Top Cited Article, Elsevier (2025)
- Top Reviewer Award, ISPRS Journal of Photogrammetry and Remote Sensing (Elsevier) (2024&2025)
- Biological Systems Engineering Graduate Student of the Year, American Society of Agricultural and Biological Engineers (2023)
- Woods Postdoctoral Fellows, Stanford University (2023)

- Thomsen Wisconsin Distinguished Graduate Fellowship, UW-Madison (2022)
- Lecturer Fellowship, UW-Madison (2021)

Publications

PUBLICATIONS

- **Harvesting AlphaEarth: Benchmarking the geospatial foundation model for agricultural downstream tasks** *INTERNATIONAL JOURNAL OF APPLIED EARTH OBSERVATION AND GEOINFORMATION*
  Ma, Y., Shen, Y., Swatantran, A., Lobell, D. B.
  2026; 149
- **Reduced Crop Yield Stability Is More Likely to Be Associated With Heat Than With Moisture Extremes in the US Midwest** *EARTHS FUTURE*
  Liu, W., Zhou, J., Luo, Y., Chen, S., Ma, Y.
  2025; 13 (9)
- **The mixed effects of recent cover crop adoption on US cropland productivity** *NATURE SUSTAINABILITY*
  Lobell, D. B., Di Tommaso, S., Zhou, Q., Ma, Y., Specht, J., Guan, K.
  2025
- **Advancing Corn Yield Mapping in Kenya Through Transfer Learning** *REMOTE SENSING*
  Bohra, A., Nottmeyer, S., Ren, C., Chen, S., Ma, Y.
  2025; 17 (10)
- **Learning county from pixels: corn yield prediction with attention-weighted multiple instance learning** *INTERNATIONAL JOURNAL OF REMOTE SENSING*
  Wang, X., Ma, Y., Xu, Y., Huang, Q., Yang, Z., Zhang, Z.
  2025
- **Subfield-level crop yield mapping without ground truth data: A scale transfer framework** *REMOTE SENSING OF ENVIRONMENT*
  Ma, Y., Liang, S., Myers, D., Swatantran, A., Lobell, D. B.
  2024; 315
- **Quantifying Global Wetland Methane Emissions With In Situ Methane Flux Data and Machine Learning Approaches.** *Earth's future*
  Chen, S., Liu, L., Ma, Y., Zhuang, Q., Shurpali, N. J.
  2024; 12 (11): e2023EF004330
- **Unequal impact of climate warming on meat yields of global cattle farming** *COMMUNICATIONS EARTH & ENVIRONMENT*
  Liu, W., Zhou, J., Ma, Y., Chen, S., Luo, Y.
  2024; 5 (1)
- **Self-supervised pre-training for large-scale crop mapping using Sentinel-2 time series** *ISPRS JOURNAL OF PHOTOGRAMMETRY AND REMOTE SENSING*
  Xu, Y., Ma, Y., Zhang, Z.
  2024; 207: 312-325
- **Transfer learning in environmental remote sensing** *REMOTE SENSING OF ENVIRONMENT*
  Ma, Y., Chen, S., Ermon, S., Lobell, D. B.
  2024; 301