

# Mengqiao Liu

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## EDUCATION

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**Texas A&M University**, College Station, TX 2016–2024

Ph.D. in Agricultural Economics

**Texas A&M University**, College Station, TX 2015–2016

Master of Science in Economics

**Southwestern University of Finance and Economics**, Chengdu, China 2011–2015

Bachelor of Finance

## CURRENT EMPLOYMENT

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**Assistant Research Scientist** 2024–present

Department of Agricultural Economics, Texas A&M University

Supervised by: Chengcheng J. Fei, Xingguo Wang, Bruce A. McCarl

## RESEARCH INTERESTS

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Agricultural Economics; Sustainability Economics; Labor Economics; Industrial Organization

## HONORS AND AWARDS

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NSF CURB ERC Trainee Grant Award (Co-Lead), \$10,000 2026

## PUBLICATIONS

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1. **Liu, M.**, R. Jia, and Y. Y. Zhang. (2025). “Curbing brain drain: Incentive programs and economic fundamentals in shaping college students’ job location decisions.” *Economic Analysis and Policy*.
2. Long, B., Q. Li, C. Hu, Y. Chen, Y. Zeng, W. Li, S. Pearson, **M. Liu**, C. Fei, J. S. Yuan, and S. Y. Dai. (2025). “Remediation and upcycling of microplastics by algae with wastewater nutrient removal and bioproduction potential.” *Nature Communications*.

## CONFERENCE PRESENTATIONS

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1. “Innovative 2-D Chebyshev modeling of temperature–humidity effects on livestock productivity,” *Agricultural & Applied Economics Association (AAEA) Annual Meeting*, 2026. (Forthcoming.)

2. “Effect of Climate Change and R&D on Crop Yield Growth,” *Agricultural & Applied Economics Association (AAEA) Annual Meeting*, 2024. (Presented by co-author.)
3. “Is the Chinese gold product a hedge or safe haven for Chinese overseas investors?” *Agricultural & Applied Economics Association (AAEA) Annual Meeting*, 2024.
4. “The impact of natural disasters on price discrimination of Californian breweries,” *AAEA Annual Meeting*, 2024. (Presented by co-author.)
5. “College graduates’ job location choices under talent policies: Evidence from Shandong, China,” *AAEA Annual Meeting*, 2023.
6. “High-skilled labor migration: College graduates’ job location choices in China,” poster, *AAEA Annual Meeting*, 2022.

## WORKING PAPERS

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1. Chen, Y., L. C. Zhao, C. Fei, B. McCarl, X. Wang, **M. Liu**, D. D. Breshears, X. Feng, E. Baldwin, H. Cheng, J. J. Derbridge, J. D. Golding, A. M. Lien, L. López-Hoffman, D. M. McLaughlin, A. L. S. Swann, and J. R. Soto. “Agricultural Economic Responses to Forest-Loss-Induced Ecoclimate Teleconnections.” *Nature Communications*, under review (revise and resubmit).
2. **Liu, M.**, X. Wang, and C. Fei. “Nonlinear Climate Stress and Yield Growth: Long-Run Evidence for U.S. Crops.”
3. **Liu, M.**, and Y. Y. Zhang. “Is Gold a Safe Haven or a Hedge for Investors?”
4. **Liu, M.**, and Y. Y. Zhang. “Posted-Price Sales versus Auctions on eBay: A Study of Buyer and Seller Behavior with Outside Options.”
5. Li, W., C. Hu, T. Zhu, R. Zhang, J. Li, S. Xiang, Y. Chen, **M. Liu**, C. Fei, S. Y. Dai, and J. Yuan. “Single-Walled Carbon Nanotube-Induced Oriented Crystallization for High-Performance Carbon Fibers.” *Matter*, under review (revise and resubmit).
6. Wei, W., Q. Hu, Y. Chen, Y. Kwon, S. Xi, **M. Liu**, K. Chen, W. Li, C. Fei, S. Y. Dai, Q. Chang, and J. S. Yuan. “Sustainable and Efficient Protein Production by Electro-Biomanufacturing Enabled by Co-Design of Catalysts and Bioprocesses.” *One Earth*, under review.
7. Hu, Q., W. Wei, H. Lan, Y. Chen, S. Xiang, **M. Liu**, C. Fei, S. Y. Dai, and J. Yuan. “Direct Air to Proteins Synthesis for Sustainable Nitrogen and Carbon Cycling.” *Nature Sustainability*, under review.
8. Dhatt, P. S., W. Li, Y. Chen, X. Meng, **M. Liu**, C. Fei, A. Ragauskas, S. Dai, and J. Yuan. “Bioinspired and Biodegradable Fluorine-Free Superhydrophobic Coatings.” *Matter*, under review.

9. Liu, J., C. Fei, M. Palma, B. McCarl, and **M. Liu**. “Movements in Crop and Grassland Incidence in the U.S. and Canada: What Have We Seen and What May Be Driving the Movement.”
10. **Liu, M.**, J. Liu, C. Fei, M. Palma, and B. McCarl. “Shifting Patterns of U.S. Food Availability: Consumption, Production Geography, and Trade.”
11. Bandimekala, Y., X. Wang, **M. Liu**, C. Fei, and B. McCarl. “The Impacts of Climate Change on Field Crops in India: A District-Level Panel Data Analysis.”

## **WORK IN PROGRESS**

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1. “Innovative 2-D Chebyshev Modeling of Temperature–Humidity Effects on Livestock Productivity,” with Y. Chen, C. Fei, X. Wang, and B. A. McCarl.
2. “Climate Constraints in Downstream Agriculture Supply Chains: Capacity, Labor, and System Throughput,” with Y. Chen, C. Fei, X. Wang, and B. A. McCarl.
3. “Effect of Climate Change and Research on Crop Yield Growth,” with C. Fei, X. Wang, L. Zhao, B. A. McCarl, and K. Fuglie.
4. “From Kinetics to Economics: A Generalizable Framework for Linking Strain Performance, Stability, and Techno-Economic Targets,” with Y. Chen, V. Xu, G. Zhou, Y. Tang, J. Yuan, C. Fei, and F. Zhang.
5. “Model-Based Optimization of Continuous Fermentation Performance and Cost through Kinetic–TEA Integration,” with V. Xu, Y. Chen, C. Fei, G. Zhou, Y. Tang, J. Yuan, and F. Zhang.
6. “Climate Change and Global Rice Productivity: Patterns, Sensitivities, and Future Risks,” with E. Shia, Y. Chen, C. Fei, and X. Wang.
7. “Self-Limiting Mechanochemical Upcycling of Real-World Polyolefins into Convergent Oxygenated Oligomer States,” with Y. Wen, Y. Chen, C. Fei, and J. Yuan.

## **REPORTS AND TECHNICAL CONTRIBUTIONS**

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1. “Techno-economic evaluation of dynamic selection systems for continuous fermentation (DahP switch).” Final technical report for Defense Advanced Research Projects Agency (DARPA), 2025. Contributed to process modeling and economic assessment of continuous fermentation performance.
2. “Techno-economic and life cycle assessment of electro-bioproduct systems.” Technical reports for NSF Engineering Research Center (CURB), 2024–present. Contributed to TEA/LCA modeling and market analysis.

3. “Techno-economic and supply chain analysis of variability reduction in bioconversion systems.” Technical reports for U.S. Department of Energy (DOE), Bioenergy Technologies Office (BETO), 2024–present. Developed integrated TEA and LCA linking variability reduction to productivity.

## **RESEARCH EXPERIENCE**

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### **Assistant Research Scientist, 2024–Present**

Involved in externally funded research projects as Senior Personnel:

1. “Dynamic and Adjustable High Production (DahP) Switch for Long-Term Stability in Continuous Fermentation” (DoD Defense Advanced Research Projects Agency (DARPA), 2024–2027).
2. “Climate Change and Global Agriculture” (USDA Foreign Agricultural Service (FAS), 2024–2025).
3. “NSF Engineering Research Center (ERC): Carbon Utilization Redesign through Bio-manufacturing Empowered Decarbonization (CURB)” (National Science Foundation (NSF), 2024–2029). Trainee Grant Award recipient and Co-Lead on modeling components.
4. “Vulnerability to Drought and Wildfire and Risk Aversion Impacts on Decisions” (U.S. Geological Survey (USGS), 2025–2027).
5. “The Impact of Climate Change, Carbon Markets, and Climate-Smart Agriculture and Forestry Practices on the U.S. Agricultural Sector and Market” (USDA National Institute of Food and Agriculture (NIFA), 2023–2026).
6. “Developing Energy-Efficient and Atmospheric-Pressure Lignocellulosic Biomass Fractionation Platforms that Stabilize and Functionalize Carbohydrates and Lignin” (USDA National Institute of Food and Agriculture (NIFA), 2024–2026).
7. “Understanding and Controlling Cell-to-Cell Variability for Robust Bioconversion” (U.S. Department of Energy (DOE), Bioenergy Technologies Office (BETO), 2022–present).

### **Graduate Research Assistant, 2022–2023**

Worked on USDA–Borlaug Institute funded projects; responsible for data extraction and risk-of-bias assessment for systematic reviews.

### **Graduate Research Assistant, 2017**

Collected data and implemented GAMS models to analyze international dairy product trade.

## **TEACHING EXPERIENCE**

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### **Instructor and Teaching Assistant, Texas A&M University, 2018–2019**

Led review sessions for first-year Ph.D. students.

### **Graduate Teaching Assistant, Texas A&M University, 2017–2018, 2022**

Courses:

- AGECE 317: Economic Analysis for Agribusiness Management
- AGECE 621: Econometrics for Agribusiness
- AGECE 622: Agribusiness Analysis and Forecasting
- AGECE 603: Land Economics

## PROFESSIONAL SERVICE

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Peer reviewer for:

*Climatic Change* (7 reviews)

*Applied Economic Perspectives and Policy* (1 review)

*Environmental Research: Food Systems* (2 review)

*Empirical Economics* (1 review)

## OTHER HONORS AND ACTIVITIES

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AAEA Travel Grant	2026
GSA Research Travel Grant	2024
AAEA Travel Scholarship	2022
Department Scholarship, Texas A&M University	2016, 2021
Third-tier Scholarship, Southwestern University of Finance and Economics	2013
Outstanding Team and Individual Award in University-Wide Social Investigation Activities	2013

## CERTIFICATES

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Chartered Financial Analyst (CFA) Level I, 2015.

SAS Base Programmer Certification, 2016.

## SKILLS

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**Programming:** R, Python, MATLAB, SAS

**Modeling and Analysis:** Techno-economic analysis (TEA), life cycle assessment (LCA), supply chain and market equilibrium modeling

**Methods:** Optimization modeling, simulation, econometric analysis, large-scale data processing