Application for NBER Tutorial: Machine Learning and AI Methods in Applied Microeconomics

Contact Information

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Program Enrollment

Hi! I am a first-year Ph.D. student in Agricultural, Environmental, and Development Economics at The Ohio State University. Prior to joining OSU, I completed an M.S. in Economics at the University of Wisconsin–Madison, where I undertook doctoral-level training in econometrics, industrial organization, and applied microeconomics. This graduate preparation, together with my extensive research assistant experience, has provided me with the foundation typically expected of more advanced Ph.D. students.

Research Interests and Projects

My research interests span agricultural and resource economics, industrial organization, and the digital economy, with a particular emphasis on how machine learning and computational methods can advance applied microeconomic research.

1. Water Rights Trading and Industrial Development

This working paper develops a framework to evaluate the socioeconomic impacts of China's inter- and intra-regional water rights trading. Building on enterprise-level full-sample data

and transaction records, I apply clustering and causal inference methods (DID, synthetic control) to identify high-efficiency trading groups. Furthermore, I construct reinforcement learning models within a Markov decision process to simulate optimal allocation strategies, enabling predictions of employment and welfare outcomes under alternative market rules. This project demonstrates my ability to integrate causal identification with machine learning and policy simulation.

2. Food Services Recovery and Consumption Dynamics During COVID-19

In this working paper, I employ machine learning tools to forecast post-pandemic recovery paths in the U.S. food service sector. Using county-level panel data (2013–2024), I construct predictive models that incorporate business closure milestones and reopening policies to estimate recovery trajectories in employment, supply chains, and resource utilization. The focus of this research is methodological: building recovery equations through supervised learning, while benchmarking against econometric event-study models. This illustrates my skill in combining predictive AI methods with structural economic insights.

3. Research Assistant Experience in Data and AI Tools

My RA work has consistently emphasized the use of AI and computational tools for building economic databases and enabling causal inference. For example, I designed bilingual fuzzy-matching pipelines linking Chinese pharmaceutical firms with international sponsors using Python string similarity, Jaccard filtering, and semantic disambiguation. I also constructed multi-source agricultural and industrial datasets, integrating scraping, cleaning, and large-scale matching for econometric analysis. These experiences show my capability in transforming raw, complex data into structured resources that support advanced empirical strategies.

Together, these three projects highlight complementary facets of my training: causal identification, predictive modeling, and computational data construction.

Closing Statement

Although I am an early-stage Ph.D. student, my prior doctoral-level coursework during my M.S. at UW–Madison and extensive RA experience have equipped me with rigorous preparation for advanced research. My agenda is to bridge applied economics with digital economy and AI methods—particularly in resource markets, platform dynamics, and agricultural innovation.

Participating in this NBER tutorial would provide me with essential technical guidance to pursue this vision. I am eager to learn from leading scholars, exchange ideas with peers, and contribute my perspective as someone striving to connect agricultural and resource economics with the frontier of the digital economy.

Thank you very much for your consideration! If granted this opportunity, it would greatly advance my ability to carry out future research.