



**Yuanzhe Liu**

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## EDUCATION

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• **University of California, Santa Barbara**

2019-2025 (*Expected*)

*Economics, Ph.D.*

Advisor: Prof. Peter Rupert

• **University of Wisconsin-Madison**

2017-2019

*Econometrics and Quantitative Economics, Master*

• **Rochester Institute of Technology**

2014-2017

*Computational Mathematics and Economics, BS*

## RESEARCH INTEREST AND SKILLS

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**Research Interest:** Macroeconomics, Bayesian statistics, Deep Reinforcement Learning

**Programming Language and Software:** Python, R, C++, SQL, Matlab, PyTorch

**Other:** CFA Level 1

## SELECTED WORKS

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**Solve and Estimate Heterogenous Agent Model Using Reinforcement Learning and Machine Learning**

(In progress, draft available upon request)

In this paper, I introduce an innovative approach leveraging deep learning techniques to solve and estimate heterogeneous models. Compare with conventional solution methods, the deep learning approach offers a global solution while retaining the entirety of nonlinearities. Moreover, it exhibits remarkable scalability, making it suitable for handling models with hundreds or even thousands of state variables. I also explore the integration of this novel solution method with amortized likelihood-free Bayesian inference, opening up new possibilities for advanced probabilistic modeling and estimation.

**Working from Home, Household Production, and Durable Good Consumption Dynamics**

(Draft available on my [website](#))

*presented at SEA 2023, EGSC at WUSTL, AEA 2024 poster*

I decompose the durable good consumption increase during 2020-2021 using a household production model with working-from-home. Durable good consumption is susceptible to business cycles; in past recessions, durable good consumption either decreased or slowed down. However, durable goods consumption was very robust during and after the COVID-19 pandemic. I build a household production model with working from home and estimate the model using a Bayesian approach. Using Kalman smoother, we can then decompose the increase in durable good consumption into different channels. Working from home can account for up to one-third of the durable good consumption increase, and substitution between nondurable and durable can account for another one-third of the increase.

**The Effect of Trucking Industry Deregulation on Truck Drivers' Wage** ( Best second year paper)

(Draft available on my [website](#))

We assess the impact of intrastate trucking industry deregulation on the for-hire sector market. In the 1980s, several states removed regulation on intrastate truck transportation, which intensified competition, and had a tremendous impact on the market structure of the trucking industry and the labor market of truck drivers. We use the difference in difference specification to identify the effect of deregulation of intrastate trucking industry on the trucking market and for-hire sector drivers wages.

## CONFERENCE AND SEMINAR PRESENTATIONS (INCLUDING SCHEDULED)

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2024: American Economic Association Annual Meeting (Poster)

2023: Southern Economic Association 93<sup>rd</sup>, Economics Graduate Student Conference at Washington University in St. Louis

## HONORS, SCHOLARSHIPS

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2023-2024 Research quarter fellowship, Travel Grant

2017-2019 Best Second year paper UW-Madison

2014-2017 Dean's List, Cum Laude, International Student Scholarship