



AI for Market and Policy Design: Integrating Data, Algorithms, and Economic Modeling



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Abstract

Today's markets have become increasingly algorithmic, with participants using algorithms to interact with each other at an unprecedented complexity, speed, and scale. Prominent examples include dynamic pricing, recommender systems, advertising technology, and high-frequency trading. These algorithmic behaviors pose challenges in designing market-based systems that can align individual behavior with broader, system-wide objectives.

This talk will highlight our work that tackles these challenges using tools from AI, towards a vision of constructing efficient and healthy market-based, multi-agent systems. I will describe how we combine machine learning with economic modeling to understand strategic behaviors observed in real-world markets, analyze incentives behind such behaviors under game-theoretic considerations, and reason about how behavior will change in the face of new designs. I will discuss two settings: (1) understanding and deterring manipulation by algorithmic traders in financial markets, and (2) informing regulatory interventions that can incentivize platforms such as Uber Eats to promote efficiency, merchant diversity, and resilience.

I will conclude by discussing future directions in using AI for the modeling and design of multi-agent systems, including model calibration, interpretability, scalability, and behavioral vs. rational assumptions.

Biography

Xintong Wang is starting as an Assistant Professor in the Department of Computer Science at Rutgers University in January 2024. Before joining Rutgers, she was a Postdoctoral Fellow at Harvard University, School of Engineering and Applied Sciences. Xintong received her Ph.D. in Computer Science from the University of Michigan in 2021 and her B.S. with honors from Washington University in St. Louis in 2015. Along the way, she gained industry experience at Microsoft Research and J.P. Morgan AI Research. She was selected as a Rising Star in EECS by UIUC in 2019 and a Rising Star in Data Science by the University of Chicago in 2022.