BOYA XU

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EDUCATION

Ph.D in Marketing, Duke University, 2023 (expected)

M.A. Economics, Duke University, 2018

B.S. in Mathematics and Statistics, Zhejiang University, China, 2016

RESEARCH INTERESTS

Substantive: Digital Economy, Media Consumption, Recommender System, Information Disclosure
Methodological: Casual Inference, Quasi-experiments, Machine Learning, Applied Econometrics

RESEARCH

Online Content Recommendations, *Ongoing Project*
"An Analysis of Upstream and Downstream Interaction, From a View of Principal-Agent Relationship", *Duke Journal of Economics*, Vol. XXIX.

SELECTED COURSEWORK

Economics
Microeconomics (Huseyin Yildirim)
Advanced Microeconomics (Charles Maxwell Becker)
Game Theory (Attila Ambrus)
Econometrics I (Federico Bugni), II (Matthew A Masten, Jia Li)
Dynamic Discrete Choice Model (Peter Arcidiacono)
Causal Inference (Arnaud Maurel)
Dynamic Programming and Numerical Computation (Daniel Yi. Xu)
Partial Identification (Adam M Rosen, Allan Collard-Wexler)
Empirical Industrial Organization II (Jonathan Williams, UNC)

Statistics and Computer Science
Linear Models (Merlise A. Clyde)
Statistical Computation (Cliburn Chan)
Machine Learning (Cynthia Rudin)
Missing Data Methods (Jerome P Reiter)
Tensor Methods (Peter D Hoff)
Artificial Intelligence (Audit, Ron Parr)
Computer Vision (Audit, Carlo Tomasi)

Marketing
Quantitative Proseminar (Wilfred Amaldoss)
Comsumer Behavior Proseminar (Jim Bettman)

INTEREST IN AI ECONOMICS

I am interested in several facets of AI economics, particularly in inequality due to algorithm biases. This interest stems from my current research on recommender systems for online content (e.g. articles, videos, music), which requires algorithms to dig user tastes and recommend items with highest expected feedbacks (e.g. click-through-rates, ratings, time-spent, etc) in general. Not only online content, but also e-markets of general goods (e.g. Amazon) share the same logic of developing recommender systems. In this context, the chance an item is exposed to users is largely determined by recommender systems, in addition to users' proactive search. Moreover, this exposure chance of an item directly affects user feedback (e.g. choice, evaluations), which is subsequently used for future recommendations. This feedback loop may result in recommendation biases, and how the loop introduces biases depends on the algorithm design. However, item success (e.g. sales, popularity, etc) is vulnerable to recommendation biases. Specifically speaking, items face traffic inequality due to recommender systems, and platforms (e.g. Amazon) decide traffic allocations via algorithm design to optimize their own objectives. If items are specified as products, vendors, and content providers on a digital platform, one may wonder about how the inequality of traffic allocations affects the success, survival, and lifecycle of an item. Furthermore, research on recommendation inequality is important to inform policy-making regulations and to improve the welfare of small marketers.