Zhiyu Zeng

CONTACT INFORMATION

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RESEARCH INTERESTS

Causal Inference, Field Experiment, Structural Estimation, Machine Learning, Online Platform

EMPLOYMENT

Olin Business School, Washington University in St. Louis

- Post Doctoral Research Associate in Marketing 2023–Present

EDUCATION

Business School, Imperial College London

- Visiting student in Analytics, Marketing and Operations 2022-2023
- Host: Prof. Jiankun Sun

Tsinghua University

- Ph.D. in Management Science and Engineering 2018–2023
- Advisor: Prof. Zuo-Jun Max Shen

Tsinghua University

- B.S. in Industrial Engineering 2014–2018
- A double-degree in Business Administration

PUBLICATIONS AND PAPERS UNDER REVISION

1. **Zhiyu Zeng,** Hengchen Dai, Dennis Zhang, Heng Zhang, Renyu Zhang, Zhiwei Xu, Zuo-Jun Max Shen. The Impact of Social Nudges on User-Generated Content for Social Network Platforms. **Management Science** [Link].
2. **Zhiyu Zeng,** Nicholas Clyde, Hengchen Dai, Dennis Zhang, Zhiwei Xu, Zuo-Jun Max Shen. The Value of Customer-Related Information on Service Platforms: Evidence from a Large Field Experiment. Major reviewed (the 3rd round) at **Manufacturing & Service Operations Management** [Link].

WORKING PAPERS

1. **Zhiyu Zeng,** Zhiqi Zhang, Dennis Zhang, Tat Chan. **The Impact of Recommender Systems on Content Consumption and Production: Evidence from Field Experiments and Structural Modeling** (*The Job Market Paper*).
2. Zhiqi Zhang, **Zhiyu Zeng,** Ruohan Zhan, Dennis Zhang. Deep Learning for Policy Targeting with Coninous Treatment.

WORK IN PROGRESS

1. Investigating the Long-Term Treatment Effect: Evidence From Field Experiment Termination and Resumption, with Zhiqi Zhang, Ruohan Zhan, and Dennis Zhang.
2. Estimating with Reinforcement Learning: Advancing the Repeated Search Model, with Shuo Zhang, Xueming Luo, Dennis Zhang, and Tat Chan.
3. Evaluating Gender Bias: Price Dynamics of Male and Female Depictions in Non-fungible token Markets, with Zhiqi Zhang and Dennis Zhang.

TEACHING EXPERIENCE

Instructor

- Online Master (Professionals) Core: Text Mining — Summer 2024
  Teaching Evaluation: Ongoing
- Master Core: Text Mining — Spring 2024
  Teaching Evaluation: 9.67/10 (School Norm: 8.93/10)
- Master Core: Prescriptive Analytics — Fall 2023
  Teaching Evaluation: 9.33/10 (School Norm: 9.10/10)

Teaching Assistant

- Ph.D. Core: AI & Machine Learning for Business Applications — Fall 2023

HONORS AND AWARDS

- Honorable Mention and Finalist, MSOM Student Paper Competition — 2023
- First-Class Excellence Scholarship, Tsinghua University — 2022

PROFESSIONAL SERVICES

- Session Chair for 2024 INFORMS Annual Meeting — 2023
- Reviewer for Manufacturing & Service Operations Management — 2024
- Judge for INFORMS BOM Best Working Paper Competition — 2023
- Session Chair for 2023 China India Insights Conference — 2023

CONFERENCE PRESENTATIONS

"The Impact of Social Nudges on User-Generated Content for Social Network Platforms"

- INFORMS Annual Meeting, Phoenix, US — 2023
- China India Insights Conference, Stanford — 2023
- INFORMS Annual Meeting, Virtual Conference — 2021

"The Value of Customer-Related Information on Service Platforms: Evidence from a Large Field Experiment"

- Seminar Talk at Imperial College Business School, London, UK — 2022
- MSOM Conference, Virtual Conference — 2021

"The Impacts of Recommendations on Consumption and Creation on Online Content-Sharing Platforms"

- 34th Annual POMS Conference, Minneapolis, US — 2024
- CSAMSE Conference, Shenzhen, China — 2023

INDUSTRY EXPERIENCE

- **Data Analyst Intern**, Kwai — 2018–2023
- **Data Analyst Intern**, DiDi Chuxing — 2017–2018
- **Business Analyst Intern**, Amazon — 2017

SKILLS

Programming Languages: Python, R, SQL, C/C++, HTML, LaTeX

REFERENCES

Prof. Tat Y. Chan
Marketing
Olin Business School
Washington University in St. Louis
St. Louis, MO, USA
E-mail: chan@wustl.edu

Prof. Dennis J. Zhang
Operations Management, Marketing
Olin Business School
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St. Louis, MO, USA
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Prof. Zuo-Jun (Max) Shen
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University of California, Berkeley
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ABSTRACT OF THE JOB MARKET PAPER

The Impact of Recommender Systems on Content Consumption and Production: Evidence from Field Experiments and Structural Modeling

Online content-sharing platforms such as TikTok and Facebook have become integral to daily life, leveraging complex algorithms to recommend user-generated content (UGC) to other users. While prior research and industry efforts have primarily focused on designing recommender systems to enhance users' content consumption, the impact of recommender systems on content production remains understudied. To address this gap, we conducted a randomized field experiment on one of the world's largest video-sharing platforms. We manipulated the algorithm's recommendation of creators based on their popularity, excluding a subset of highly popular creators' content from being recommended to the treatment group. Our experimental results indicate that recommending content from less popular creators led to a significant 1.34% decrease in video-watching time but a significant 2.71% increase in the number of videos uploaded by treated users. This highlights a critical trade-off in designing recommender systems: popular creator recommendations boost consumption but reduce production. To optimize recommendations, we developed a structural model wherein users' choices between content consumption and production are inversely affected by recommended creators' popularity. Counterfactual analyses based on our structural estimation reveal that the optimal strategy often involves recommending less popular content to enhance production, challenging current industry practices. Thus, a balanced approach in designing recommender systems is essential to simultaneously foster content consumption and production.

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