ZIWEI CONG

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(Upated June 9, 2021)

EDUCATION

Hong Kong University of Science and Technology, Hong Kong
Ph.D. Candidate, Quantitative Marketing — June 2022 (Expected)
M.Phil., Quantitative Marketing — June 2018

Renmin University of China, Beijing, China
M.Phil., Economics — June 2016
Exchange at the EDHEC Business School, Nice, France — Fall 2014
B.Sc., Economics — June 2013

RESEARCH INTERESTS

Substantive: Creator Economy, User Generated Content, Social Media, Digital Platforms, Pricing, Recommendation Systems, Livestreaming Markets

Methodological: Causal Inference and Machine Learning, Quasi-Experimental Methods, Natural/Field Experiment, Explainable Graph Neural Network

DISSERTATION

Title: Two Essays on Monetizing User Generated Content: Design and Incentive

Essay I: "Understanding Users' Content Contribution Behavior When Content Can Be Priced"

Essay II: "The Role of "Live" in Livestreaming Market: Evidence using Generalized Orthogonal Random Forest"

Status: Proposal selected as a finalist of 2021 American Statistical Association Section on Statistics in Marketing Best Doctoral Dissertation Proposal Competition; Dissertation defense scheduled in Spring 2022

WORKING PAPERS (* INDICATES EQUAL AUTHORSHIP)

Cong, Ziwei, Jia Liu and Puneet Manchanda, "The Role of "Live" in Livestreaming Market: Evidence using Generalized Orthogonal Random Forest." **(Job Market Paper)**

Liu, Jia* and Ziwei Cong*, "The Daily Me versus The Daily Others: Can Social Recommender Systems Diversify User Interests?" Invited for Revision at *Journal of Marketing Research* [Paper]

Cong, Ziwei, Ying Zhao and Zilei Zhang, "Understanding Users' Content Contribution Behavior When Content Can Be Priced." Preparing for submission to *Marketing Science*

WORK IN PROGRESS

Cong, Ziwei and Jia Liu, "How Can Recommendation Algorithm Influence What Content User Contribute? Evidence from a Quasi-Experiment." Model estimation in progress

"Understanding User Purchase of Paid Online Content using Free Content Consumption and Social Network" with Jia Liu and Yue Wang. Model development in progress

HONORS AND AWARDS

Fellow, Marketing Science Doctoral Consortium, 2021	June 2021
Finalist, 2021 Best Doctoral Dissertation Proposal Competition, the American Statistical Association Section on Statistics in Marketing	January 2021
Dean's PhD Fellowship for Research Excellence 2020-21, HKUST	October 2020
UGC Research Travel Award, HKUST	2019, 2021
Postgraduate Studentship, HKUST	2016-2021
National Scholarship, Ministry of Education, China	2013-2015
Outstanding Graduates, Beijing Municipal Commission of Education, China	2013
Best Undergraduate Thesis Award, Renmin University of China	2013
Honor of Excellent Student, Renmin University of China	2010-2012

INVITED TALKS

"Monetizing User Generated Content: Design and Incentive" (Dissertation)

Joint Statistics Meetings, Online — August 2021 (Scheduled)

CONFERENCE PRESENTATION (* PRESENTED BY A CO-AUTHOR)

"The Role of "Live" in Livestreaming Markets: Evidence using Generalized Orthogonal Random Forest"

ISMS Marketing Science Conference, University of Rochester	June 2021
ISMS Doctoral Consortium*, Yale School of Management	June 2021
Conference on AI/ML, NYU, Temple & CMU University	December 2020
ISMS Marketing Science Conference, Duke University	June 2020
Journal of Marketing Research Development Workshop	April 2019

"The Daily Me versus The Daily Others: Can Social Recommender Systems Diversify User Interests?"

European Quant Marketing Seminar*, European Marketing Academy	April 2021
HKUST Marketing Brown Bag Seminar, HKUST	March 2021
Conference on AI/ML*, NYU, Temple & CMU University	December 2020

"How Can Recommendation Algorithm Influence What Content User Contribute? Evidence from a Quasi-Experiment"

ISMS Marketing Science Conference, University of Roma Tre	June 2019
China Marketing International Conference	July 2019

TEACHING EXPERIENCE

Teaching Interests

Marketing Management, Marketing Strategy, Marketing Research, Marketing Analytics, Database Marketing, Digital Marketing, Platform Strategy for Business, Data Analysis

Teaching Assistant, HKUST

Marketing Strategy and Policy (Undergraduate), Joseph SALVACRUZ	2021
Marketing Research (Undergraduate), Jia Liu	2020
Consumer Behavior (Undergraduate), Rongrong Zhou	2020
Marketing Research (Undergraduate), Song Lin	2019

Teaching Assistant, Renmin University of China

The Economics of One Belt and One Road (Undergraduate Seminar)	Spring 2016
Business Negotiation (Undergraduate)	Fall 2015

PROFESSIONAL EXPERIENCE

Zhihu, Beijing, China — June-August 2017
Research Intern

PROGRAMMING

Python, Stata, R, SQL, PyTorch, Tensorflow, Skorch, Spark

GRADUATE COURSEWORK

Marketing and Business

Quantitative Modeling	Ying Zhao
Experimental Design and Analysis	A V Muthukrishnan
Behavioral Decision Theory	A V Muthukrishnan
Consumer Research Seminar	Ralf Van Der Lans et al.
Analytic Models Useful in MKTG	Robert Zeithammer
Advanced MIS Research Seminar	Xiaoquan(Michael) Zhang
Consumer Behavior Seminar	En-Chung Chang
Corporate Finance	Peter MacKay

Economics

Microeconomics Theory I	Yuk-fai Fong
Microeconomics Theory II	Xiaojian Zhao
Econometrics	Jin Seo Cho
Demand Analysis	Xiaohua Yu

Empirical Industrial Organization	Lihong Yang
Current Topics in Industrial Organization	Lihong Yang
Economics of Regulation and Antitrust	Yongjun Chen
International Economics	Wentan Wang
Economic Change in Rural China	James Kung

Statistics and Computer Science

Introduction to Probability	Lancelot JAMES
Math for Bus & Econ	Zhou Lingzhi
Big Data Analytics	Rong Zheng
Applied Statistics in Economics and Business	Wuwu Qing
Programming with R (audit)	Yangguang Huang
Introduction to Social Computing (audit)	James Kwok
Deep Learning (audit)	Qifeng Chen

REFERENCES

Ying Zhao (Co-advisor)
Associate Profession of Marketing
HKUST Business School
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Jia Liu (Co-advisor)
Assistant Profession of Marketing
HKUST Business School
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RESEARCH ABSTRACTS

Cong, Ziwei, Jia Liu, and Puneet Manchanda. **"The Role of "Live" in Livestreaming Market: Evidence using Generalized Orthogonal Random Forest." (Job Market Paper)**

Abstract: Livestreaming services encompass a wide variety of topics, from professional sports to video games to online education. The COVID-19 pandemic has further energized the already vigorous growth of the livestreaming economy (133% from 2016 to 2021). A major challenge for livestreamers to set prices for their events, especially when the event recording is also available in non-live settings. The challenge for pricing mainly lies in demand estimation. First, randomized experiments might be infeasible in such contexts due to the non-standardized and non-replicable nature of live event, and therefore observational data become the primary source for demand estimation. Second and closely related, price made by creators in real-world settings might be confounded by many factors in complex and (partially) unknown ways. This can easily lead to "high-dimensional data" problem. Third, price elasticity might vary across many dimensions, such as the time distance to the live session and seller and Live characteristics. To address these challenges, we generalize Orthogonal Random Forest (ORF) by enabling semiparametric Deep Neural Networks for estimating the functions of all confounding variables. Our proposed approach delivers nonparametric estimation of heterogeneous treatment effects (e.g., price elasticity of demand) in the presence of high-dimensional confounders whose relationships with the treatment policy (e.g., price) are complex but partially known. Our empirical application uses rich data from Zhihu, the largest knowledge-sharing platform in China, which started out as an online Q&A community (similar to Quora) and later allowed users to host paid livestreaming talks (i.e., Zhihu Live). During a Live event, the creator can give a real-time talk on certain topics (e.g., history, business, etc.) and interact with customers via written, voice, or picture messages in a virtual chat room. After the Live concludes, its recorded version is available for purchase on Zhihu at the same price. Our main result shows significant temporal dynamics in price responsiveness to demand of paid Live event relative to the day of Live. Specially, demand gradually becomes less price sensitive as approaching the Live day, is inelastic on the Live day, and immediately becomes price sensitive throughout the post-period but much less sensitive than pre-live period. By further exploring the variations in price elasticity between pre- and post-live periods along many other dimensions, we provide possible mechanisms for our main result. We find that users do value the opportunity to interact with content creator in real time, but at the same time users care about the quality of a Live event and hence are less price sensitive during the post-period when uncertainty about Live event is smaller. Our findings are likely to be valuable to both creators and platforms in the sense that they encourage them to provide both live and recorded content to enhance revenue and provide value to viewers. In addition, marketing efforts to reduce uncertainty about upcoming events could also be beneficial for all parties (creators, platform, viewers).

Liu, Jia, and Ziwei Cong. **"The Daily Me versus the Daily Others: Can Social Recommender Systems Diversify User Interests?"** Invited for Revision at *Journal of Marketing Research*

Abstract: Recommender systems have been blamed for polarizing user attention and consumption. This paper examines this phenomenon, by leveraging a field intervention on the largest online Q&A community in China. This platform had been relying on content-based recommender system that recommends content based on user subscribed topics since its launch in 2011. In August 2012, without any public notifications to its users, the platform changed its

recommender system to social filtering, which recommends content engaged by a user's online social connections (i.e., followees). We investigate the impact of social filtering in relative to content-based filtering by comparing user activities before and after the intervention. We find that the social filtering system could be a double-edged sword. On the downside, we document that social filtering intensifies popularity of already-popular users, leading to a rich-get-richer effect in the online community. On the brightside, we show that social filtering helps users explore niche and hardcore content they would not discover on their own, by exposing users to content that "filtered" by their followees who tend to have higher domain expertise and clearer lines of interests. Importantly, this finding suggests that the impacts of social filtering might depend on characteristics of users and their online social network. More broadly, this research contributes to the debate centered around "filter bubble" and provides managerial implications for platforms' curation algorithm design.

Cong, Ziwei, Ying Zhao, and Zilei Zhang. **"Understanding Users' Content Contribution Behavior When Content Can Be Priced."** Preparing for submission to *Marketing Science*

Abstract: With the rise of creator economy, many content platforms have been exploring ways for creators to monetize content. A recent and increasingly popular approach adopted by many platforms is to provide creators with freedom to launch paid content directly to viewers. For example, in August 2021, Facebook launched a new feature that allows users to host paid online event (e.g., online classes or tutorials) to generate revenue. This paper evaluates the implications (externalities) of monetizing content on platform's "ecosystem." Specifically, We seek to understand whether and how giving creators the option to provide paid content influences creators' incentive in providing free content. Our empirical study is based on dataset from Zhihu, the largest knowledge-sharing platform in China. Zhihu started out as an online Q&A community that is based on users' voluntary contribution. It later introduced the Zhihu Live program that allows participants to deliver exclusive talks to paid customers. Using the difference-in-differences approach, we find that the content providers holding priced talks tend to contribute more free content on the main Q&A platform than those using the free Q&A platform only. We explore the robustness of this result against potential selection bias with four alternative approaches: propensity-score matching, Causal Forest (Athey et al., 2019), Rosenbaum bounds, and an approach developed by Altonji et al. (2002, 2005) that accesses the degree of omitted variables bias. We further show that the effect is more pronounced with the starting time of Live talks approaching and is larger for participants who have less-established reputation or face more intense competition. These findings suggest that participants strategically leverage free content to boost reputation and attract "eyeballs" for paid content. This research shed lights to the overall impact of content monetization on the entire platform "ecosystem," where free and paid content are interconnected parts and might have spillover effects to each other.